

marantz

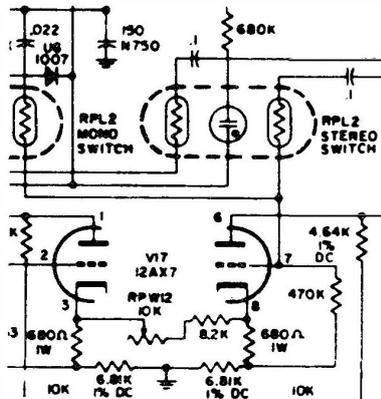
SERVICE BULLETIN

SS-MAR0234

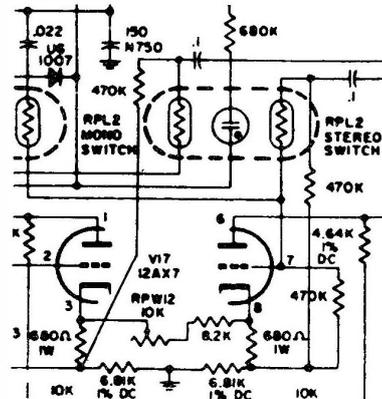
model number 10B	bulletin number M-10B-2
for serial numbers ALL	
subject WARM UP TRANSIENTS	
engineering approval <i>[Signature]</i>	date 6/17/76

If you receive customer complaints regarding strong pop transients from the Marantz Model 10B during warm-up, the following modification is recommended.

At Stereo Switch RPL2, install two 470K ohm 1/4 W resistors (part number 434-6472) as shown below:

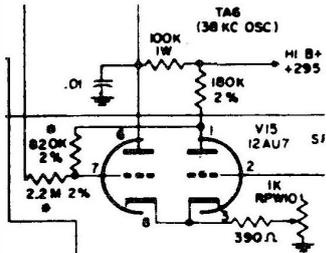


ORIGINAL

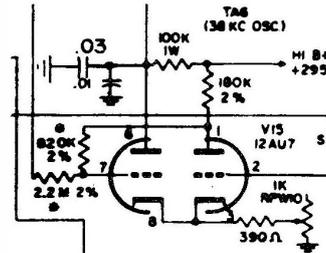


MODIFIED

If a click noise occurs when the stereo indicator lamp is activated, it is recommended a .03 uF 450 V capacitor be installed at V15 as shown below:



ORIGINAL



MODIFIED

[Signature]

Albert Almeida, Manager
Technical Services

SERVICE BULLETIN

for serial numbers	to
subject	
SERVICE ASSISTANCE ON MODEL 10B	

To assist you with service problems on the Model 10B, we are enclosing the following. Please make use of these recommendations in servicing this unit.

Should undue difficulties be encountered ^{WHERE} with you are unable to repair for any reason, it is suggested that the unit be returned to the factory service facility:

8460 San Fernando Road
Sun Valley, California 91352

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SERVICE BULLETIN

model number	10B	bulletin number	69-11/10B-1	date	9-19-69
for serial numbers		to			
subject	SERVICE ASSISTANCE ON MODEL 10B				

MARANTZ MODEL 10B CHECK-OUT

I. To Check STEREO PHOTOSWITCH:

1. Turn the unit ON, tune in a strong stereo station.
2. Set the display switch to OUTPUT, set mode switch to NORMAL.
3. Apply forced hot air that is approximately 170° or lower (from heat gun, etc.) to the stereo photoswitch.
4. If, under these conditions, still tuned to a stereo station, the oscilloscope indicates a change to "mono" while the stereo indicator light remains lit, the switch is defective!
5. Turn the mode switch to MONO position.
6. Apply heat to mono photoswitch and observe oscilloscope display. A loss of one or both channels indicates a defective photoswitch.

II. Check all TUBES in the IF strip and limiter for possible "GAS" conditions (V4 thru V12):

1. Disconnect the antenna to permit tuning a "dead" spot. Turn the unit ON and select a no-signal place on the band.
2. Using a VTVM on the lowest DC scale, measure the voltage from PIN 1 (grid) to GROUND on all IF tubes and limiter (V4 thru V12). Any voltage reading under such no-signal conditions indicates a defective tube!

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SERVICE BULLETIN

model number 10B	bulletin number 69-11/10B-1	date
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subject		

III. To check STEREO SWITCHING TUBE:

1. Tune in a strong stereo station. Slowly rotate the stereo threshold pot COUNTER-CLOCKWISE.
2. If the stereo indicator light goes OUT before the pot is rotated through about 80% of its counter-clockwise direction, V14 is defective! NOTE: In some cases the light may not go out at all. This is acceptable. Once out, CLOCKWISE rotation beyond the point of light-dimming may be necessary to restore the light. This is also normal.
3. After this test, return the pot to 95% of its CLOCKWISE rotation.

IV. To check condition of local OSCILLATOR TUBE:

1. Turn unit ON and tune to a strong station in the upper frequencies of the bandwidth. (Above 104 MHZ).
2. Using a Variac, reduce the input voltage to 95 VAC.
3. If the station "drops out" then the local oscillator tube V3 is defective.

V. To test for FRONT END SENSITIVITY: (IHFM)

1. With unit ON and tuned to a "dead spot", connect an FM generator to the antenna. (Be certain that the antenna input impedance is correctly matched). Turn the tuner muting switch OFF.
2. Match the generator frequency to that of the "dead spot" you have selected. Adjust modulation to 100% or 75 KHZ deviation. The output should then be adjusted to the minimum, typically 2 to 3 uv.

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SERVICE BULLETIN

model number 10B for serial numbers	bulletin number 69-11/10B-1 to	date
subject		

3. Connect a Harmonic Distortion Analyzer to the output of the tuner. Adjust the generator output and receiver tuner until you read 3% distortion on the distortion analyzer.
4. A sensitivity reading of 2 to 3 microvolts or less at 3% distortion is acceptable.

NOTE: Retouch front end calibration if necessary in order to obtain the best sensitivity possible.

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	for serial numbers		to
	subject		

OSCILLOSCOPE ADJUSTMENT

NOTE: In making all adjustments, be certain that the external centering controls are properly set.

I. INTENSITY:

1. Adjust the external horizontal and vertical controls normally.
2. Turn the display switch to EXTERNAL position and dim the panel switch.
3. Adjust the INTENSITY pot on the chassis to make the trace barely perceptible.

II. VERTICAL

1. Tune the unit to the strongest station available.
2. Adjust the vertical pot on the main chassis until the trace appears approximately 1-1/2 bars from the top line.
3. When turning the internal vertical pot, always re-align the external controls to maintain the original centering.

- #### III,
1. Tune across the dial and adjust the horizontal pot on the main chassis until there is adequate horizontal displacement of the trace.
 2. As in the vertical adjustments, always re-align the external centering controls to maintain the original position.

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10B ALIGNMENT INFORMATION

CONNECTIONS

Connect audio oscillator to modulation input on FM 210 generator and to horizontal input on oscilloscope. Output jack of distortion analyzer to vertical input of oscilloscope and to Ballentine ACVTVM. Connect outputs to corresponding inputs on distortion analyzer. FM 210 generator leads to antenna input on tuner. (300 μ V?)

SETTINGS

Audio oscillator on 400 cycles. Deviation meter of audio oscillator set to 50 micro amperes (50 micro amperes is calibrated to 5 volts when output is connected to modulation input of FM 210 generator). Tuner and FM 210 generator set to 106 Megacycles. Generator set on EXT. input. Deviation 75KC. Output attenuation 3K micro volts. Distortion analyzer input switch to DET.

RCA voltohmmst set to center zero on 5 volts scale. Plus D. C. connect ground leads to chassis. Put 22 meg isolation resistor (jig) in series with probe and connect to junction of R-201 and C-201.

DISTORTION

With distortion analyzer switches in proper position, set level for full scale deflection on 0-3 volt scale of Ballentine meter. Read distortion. Realign capacitor across primary of detector for minimum distortion. Recheck detector null. Lower input to 10 micro volts and increase deviation until the ends of the trace on the tuner oscilloscope start to turn down. Re tune generator until the tuner scope trace is symmetrical. Realign capacitor across detector secondary for zero RCA VTVM. Repeat primary and secondary alignment until minimum distortion is reduced with the secondary exactly on zero. Maximum distortion: 0.2%

Set audio oscillator to 15KC and FM 210 generator to 100K micro volts. Read 1% distortion or less. Set FM 210 generator to 300 micro volts. Read 2.5% distortion or less.

AUDIO OUTPUT

Set audio oscillator back to 400 cycles. Set FM 210 generator to 300 micro volts. Set distortion analyzer to direct. Set input selector to 3. Turn tuner level control up and down to check for proper operation. In maximum position read audio output of 0.9 volts to 1.2 volts. Set distortion analyzer input selector to A. Repeat level control check and audio output reading.

SENSITIVITY

FM 210 generator set to 106 MC modulation 400 cycles, EXT input. Deviation 75KC. Lower input voltage to near 2 micro volts. Distortion analyzer: set level for full scale on 0.3 volt scale on Ballentine meter, read distortion (30 db down). Peak antenna, RF and mixer trimmers for best signal to noise ratio.

Set FM 210 generator and tuner to 90MC. Peak slugs for best signal to noise ratio. Repeat 106MC and 90MC until no more improvement can be made. Read sensitivity at 90MC, 98MC, and 106MC. Observe calibration marks on generator RF meter. Decrease input until distortion (noise) readings are just over 30db below signal. Input should be 2 micro volts or under. Lock nuts on antenna, FR and mixer slugs.

VOLUME SENSITIVITY

FM 210 generator and tuner at 106MC deviation 75KC. Distortion analyzer to calibrate position. Increase input signal to beyond full limiting of tuner output. Set level reference. Decrease input signal until audio goes down 10db. Read micro volts on input attenuator volume as volume sensitivity spec. 0.6 to 0.8 micro volts.

MUTING

Tuner and FM 210 generator to 106MC, deviation 75KC. Tuner muting switch to 'on' position. Turn muting threshold control maximum clockwise. Decrease input signal until muting indicator light comes on. Slowly increase signal until light just goes out. Read 1.5 to 3.5 micro volts on attenuator. Turn muting threshold control maximum counter-clockwise. Decrease input signal until muting indicator light comes on. Slowly increase signal until light just goes out. Read 25 to 300 micro volts on attenuation. (Set to 6 uv).

SELECTIVITY

Tuner and FM 210 generator set to 106MC. Input signal to 10 micro volts. Set deviation to 200KC. Observe oval on tuner scope. Slowly increase input signal until the bottom of the oval just opens. (Readjust tuning, if necessary, to make pattern open in center of bottom). Input signal must be at least 100 micro volts. Set deviation to 300KC. Increase signal to 100K micro volts. Bottom of oval should not open.

SPURIOUS

Tuner and FM 210 generator to 106MC. Deviation 75KC. Input 100K micro volts; observing tuner scope, turn tuner dial toward high end of band. A series of ovals will appear on tuner scope. Tune to the largest oval and lower input signal until the oval just disappears into the noise spot on the scope. Input signal must be 30K micro volts or more.

HALF I. F.

Tuner and FM 210 generator to 106MC, 75KC deviation. Input signal 100K micro volts. Dial tuner toward lower end of band and find the I. F. signal (near 101.5MC) on tuner scope. Lower input signal until the signal on tuner scope just disappears into the noise spot. Read input on db scale of input attenuator. The difference between these two readings should be at least 95db.

QUIETING

Tuner and FM 210 generator to 106MC, deviation 75KC. Input signal 0.10 micro volts. Set reference with set level on distortion analyzer. Switch modulation switch of FM 210 generator to off position. Output must be at least 60db down. These readings are taken at left and right outputs.

HUM AND NOISE

Tuner and FM 210 generator to 106MC, deviation 75KC. Input signal 100K micro volts. Set reference with set level on distortion analyzer. Switch modulation switch on FM 210 generator to off position. Output must be at least 75db down. Force tuner into stereo mode by shorting pin #7 of V-15 to chassis. Output must be at least 75db down. These readings are taken at left and right outputs.

jrb

MODEL 10B CHECK OUT PROCEDURE

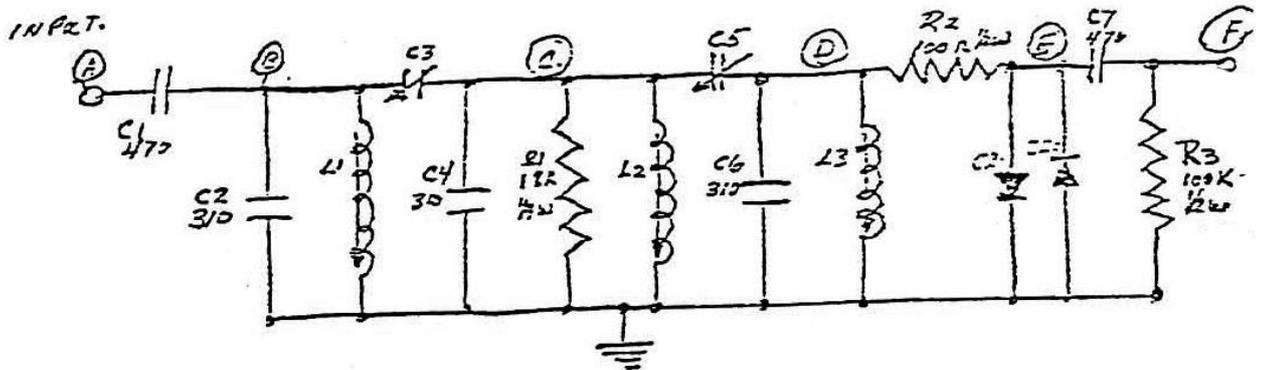
- 1) Check stereo and mono photo switches using heat gun.
- 2) Check pin 1 of all IF tubes (V4-V12) for a zero voltage indication. A grid voltage indicates a gassy tube. (REF. 19)
- 3) Make certain that output level pots are adjusted to maximum.
- 4) Rotate stereo threshold pot counterclockwise and check stereo indicator light. If light goes out than replace V13. OR V14
- 5) Leave stereo threshold pot 95% full on.
- 6) Adjust oscilloscope trace as follows:
VERTICAL- Locate strongest station and adjust vertical pot so that trace will be $1\frac{1}{2}$ bars from the top of graticle.
HORIZONTAL- adjust horizontal pot for adequate displacement of trace when tuning.
INTENSITY- Dim panel and put display switch on external position. Adjust intensity pot so that trace is barely perceptible.
NOTE: All scope adjustments are made with external vert. and horiz. controls adjusted properly.
- 7) Test for front end sensitivity using FM generator and distortion analyzer. Sensitivity should be 4uv or less at 3% distortion.
- 8) Make channel separation test with FM generator set at 100MHZ. Separation should be approximately ~~50db~~ ^{35db} at 1KHZ.

Lower input voltage to 95 VAC and make certain stereo light stays on. if FM DROPS OUT REPLACE LOCAL OSC.

10-B DISTORTION .6 to .7 % OK.

FILE COPY

MODEL 10B - BUTTERWORTH FILTERS



JUMP FILTER EXTERNALLY WITH CLIP LEADS -
 INJECT RF FROM SWEEP GEN IN FIRST STAGE OF
 I.F. IN THE UNIT (MODEL 10B). f ADJUST
 ATTENUATION TO GIVE 8cm ON SCOPE AT TEST POINT (A)
 THE FOLLOWING READINGS SHOULD BE SEEN ON THE
 OTHER TEST POINTS.

(A)	8cm	}	
(B)	8cm		
(C)	7.5cm	-	
(D)	4.2cm	}	
(E)	4cm		
(F)	4cm	-	

<u>COMPONENTS</u>		
COMP. #	VALUE	P/N
C1 & C7	470pF CER.	314-1
C2, C4, C6	310pF 5%N	317-1
C3 & C5	1-6pF AIR. TRIM	321-1
R1	12K 1/2W 5%	326-1
R2	100Ω 1/2W 5%	326-1
R3	100K 1/2W 5%	325-1
C1 & C2		335-1
L1, L2, L3	12P. CHL	355-1

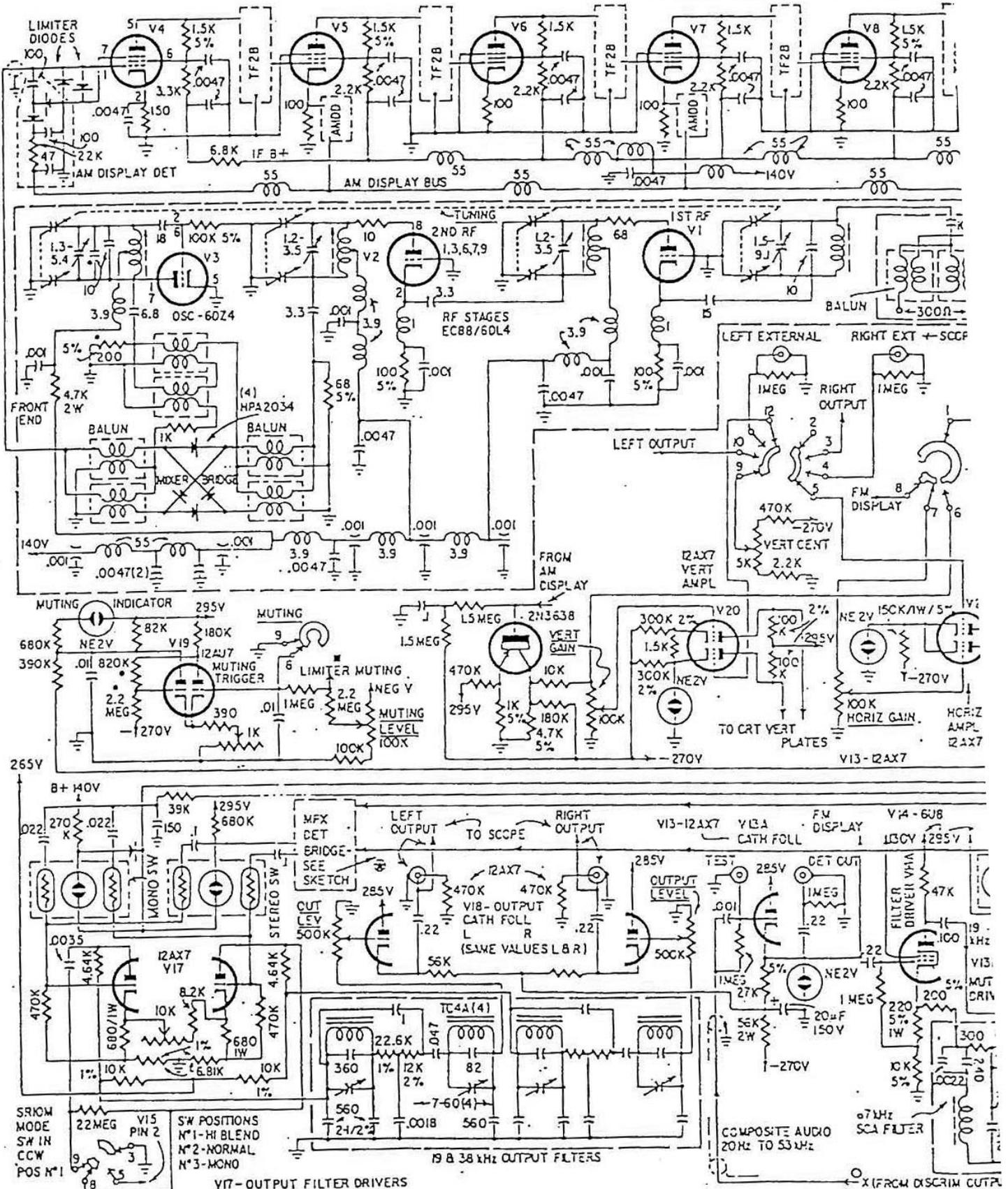
Unless otherwise specified measurements were taken with VTM and controls set as follows: DISPLAY SW. at OFF - MODE SW. at NORMAL POWER SW. at ON - MUTING SW. at OFF - TUNING at low end (max. at left) LEFT & RIGHT OUTPUT LEVELS at MAX. C.W. - STEREO THRESHOLD at MAX. C.W. - MUTING THRESHOLD at MAX. C.W. - SCORP CONTROL: SET FOR NORMAL OPERATION: NO SIGNAL AT ANT. TERMINALS - LINE VOLTAGE = 117V.

TUBE	TYPE	FUNCTION	CONDITIONS OF MEASUREMENT	PLATE		GRID		CATHODE		SCREEN		OBSERVATION
				PIN	VOLTS	PIN	VOLTS	PIN	VOLTS	PIN	VOLTS	
V1	6C8B GDL4	RF AMP		8	155	1,2, 6,7,9	0	2	1.06			
V2	6C8B GDL4	RF AMP		8	155	1,2, 6,7,9	0	2	1.06			
V3	6DZ4	LOCAL OSCILL.	SET TUNED AT LOW END	1,7	87	2,6	-4.8	5	0			
V3	6DZ4	LOCAL OSCILL.	SET TUNED AT HIGH END	1,7	73	2,6	-1.3	5	0			
V4	6JK6	IF AMP		5	60	1	0	2	1.0	6	66	
V5	6JK6	IF AMP		5	97	1	0	2	1.26	6	110	
V6	6JK6	IF AMP		5	98	1	0	2	1.1	6	111	
V7	6JK6	IF AMP		5	100	1	0	2	0.9	6	113	
V8	6JK6	IF AMP		5	93	1	0	2	1.2	6	108	
V9	6JK6	IF AMP		5	98	1	0	2	1.2	6	110	
V10	6JK6	IF AMP		5	103	1	0	2	1.2	6	124	
V11	6JK6	LIMITER		5	106	1	0	2	1.0	6	114	
V12	6JK6	LIMITER		5	124	1	0	2	1.2	6	124	
V13A	12AX7	CATHODE FOLLOWER	NO SIGNAL OR CENTER TUNING ON ANY SIGNAL	1	280	2	0	3	1.1			
V13B	12AX7	CATHODE FOLLOWER	BOTH SIDES OF CENTER TUNING	1	280	2	+2.3 -3.5	3	+5 -5			

T _{DE}	TYPE	FUNCTION	CONDITIONS OF MEASUREMENT	PLATE		GRID		CATHODE		SCREEN		Observation
				PIN	VOLTS	PIN	VOLTS	PIN	VOLTS	PIN	VOLTS	
V13B	12AX7	CATHODE FOLLOWER		6	280	7	4.6	8	4.8			
V14A	6UB	COMPOSITE SIG. AMP.		6	134	2	22 ⁽¹⁾	7	4.7 ⁽¹⁾	3	124	
V15A	6UB	38Kc AMP	NO SIGNAL	1	50	9	-0.5 ⁽²⁾	8	0.7			READINGS AT PINS (1) AND (8) DEPEND ON STEREO THRESHOLD SETTING.
V15A	6UB	38Kc AMP	C.W. SIGNAL FROM R.F. GEN. 100 μV (MONO)	1	37	9	0	8	0.72			«
V15A	6UB	38Kc AMP	SET TUNED TO A STEREO STATION (KCRN)	1	74	9	-1.6	8	0.6			«
V15A	12AU7	STEREO SWITCHING	NO SIGNAL	1	60 ⁽²⁾	2	-1.2 ⁽²⁾	3	0.84			READINGS AT PINS (1) AND (2) DEPEND ON STEREO THRESHOLD SETTING.
V15A	12AU7	STEREO SWITCHING	C.W. FROM R.F. GEN. OR MONO FROM STEREO STATION (KCRN)	1	38	2	0	3	0.92			READINGS AT PINS (1) AND (2) DEPEND ON STEREO THRESHOLD SETTING.
V15D	12AU7	STEREO SWITCHING	NO SIGNAL	6	260	7	-30 ⁽²⁾	8	0.84			READINGS AT PINS (1) AND (2) DEPEND ON STEREO THRESHOLD SETTING.
V15D	12AU7	STEREO SWITCHING	C.W. FROM R.F. GEN. OR MONO FROM STEREO STATION (KCRN)	6	260	7	-4.3	8	0.92			READINGS AT PINS (1) AND (2) DEPEND ON STEREO THRESHOLD SETTING.
V16A	12AU7	38Kc OSCILL.	NO SIGNAL	6	50	7	4	8	3.6			READINGS AT PINS (1) AND (7) DEPEND ON STEREO THRESHOLD SETTING.
V16A	12AU7	38Kc OSCILL.	C.W. FROM R.F. GEN. 100 μV	6	134	2	-3.2 ⁽²⁾	3	5.4			READINGS AT PINS (1) AND (7) DEPEND ON STEREO THRESHOLD SETTING.
V16A	12AU7	38Kc OSCILL.	SET TUNED TO A STEREO STATION (KCRN)	6	134	2	-2.5	3	5.4			READINGS AT PINS (1) AND (7) DEPEND ON STEREO THRESHOLD SETTING.
V16B	12AU7	38Kc OSCILL.	NO SIGNAL	6	68	7	-0.3 ⁽²⁾	8	5.4			READINGS AT PINS (7) VARY TOO MUCH WITH NOISE
V16B	12AU7	38Kc OSCILL.	C.W. FROM R.F. GEN. 100 μV	6	58	7	3.8	8	5.4			
V16B	12AU7	38Kc OSCILL.	SET TUNED TO A STEREO STATION (KCRN)	6	76	7	-8.0	8	5.4			

V _g	TYPE	FUNCTION	CONDITIONS MEASUREMENT	PLATE		GRID		CATHODE		SCREEN	
				PIN	VOLTS	PIN	VOLTS	PIN	VOLTS	PIN	VOLTS
V17A	12AX7	NF AMP.		1	235	2	11	3	14.7		
V17B	12AX7	NF AMP.		6	235	7	10.7	8	14.2		
V18A	12AX7	OUTPUT CATH. FOLLOW.		1	280	2	0	3	2.4		
V18B	12AX7	OUTPUT CATH. FOLLOW.		6	280	7	0	8	2.4		
V19A	12AU7	MUTING SWITCHING	NO SIGNAL MUTING OFF	1	290	2	-4.1	3	1.2		
			NO SIGNAL MUTING ON	1	4.5	2	-4.1	3	4		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING
V19B	12AU7	MUTING SWITCHING	200V. C.W. MUTING ON	1	290	2	-5.1	3	1.3		
			NO SIGNAL MUTING OFF	6	40	7	0	8	1.2		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING
V20A	12AX7	SCOPE VERT. AMP.	NO SIGNAL MUTING ON	6	120	7	-2.6	8	4		
			100V C.W. MUTING ON	6	25	7	0.95	8	1.3		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING
V20B	12AX7	SCOPE VERT. AMP.	DISPLAY SW. AT TUNING - VERT. GAIN POS. MAX. C.W.	1	205	2	-1.25	3	0.13		
			DISPLAY SW. AT OUTPUT	1	205	2	0	3	1.6		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING - AT PIN (2) ON VERT. POS.
V21A	12AX7	SCOPE HORIZ. AMP.	DISPLAY SW. AT TUNING - HORIZ. GAIN POS. MAX. C.W.	6	200	7	-1.1	8	0.5		
			DISPLAY SW. AT OUTPUT	6	200	7	0	8	1.65		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING - AT PIN (2) ON HORIZ. POS.
V21B	12AX7	SCOPE HORIZ. AMP.	DISPLAY SW. AT TUNING - HORIZ. GAIN POS. MAX. C.W.	1	210	2	1.7	3	3.3		
			DISPLAY SW. AT OUTPUT	1	208	2	0	3	1.6		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING - AT PIN (2) ON HORIZ. POS.
V22A	12AX7	SCOPE HORIZ. AMP.	DISPLAY SW. AT TUNING - HORIZ. GAIN POS. MAX. C.W.	6	205	7	1.85	8	3.3		
			DISPLAY SW. AT OUTPUT	6	208	7	0	8	1.6		READINGS AT PINS (1) AND (3) DEPEND ON MUTING TABS BEING SETTING - AT PIN (2) ON HORIZ. POS.

6 IF AMPLIFIERS USE 6XK6 IN EACH STAGE



Replacement of Dial Cord or Pointer Assembly of
Marantz Model 10-B Stereo F.M. Tuner

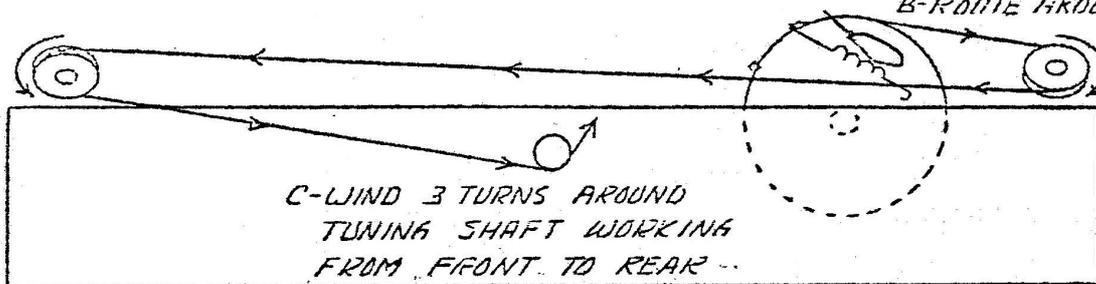
Dial Cord Replacement-----

1. Remove all knobs--note scope adjustment knobs "slip on."
2. Remove stainless steel hood on back of panel and remove two nuts holding panel in place. SAVE ALL LOCK WASHERS, SPACERS, ETC.!
3. Remove black finish dial glass assembly by removing 4 chrome-plated screws. DO NOT REMOVE BLACK SCREWS.
4. Rotate dial drum to maximum clockwise position.

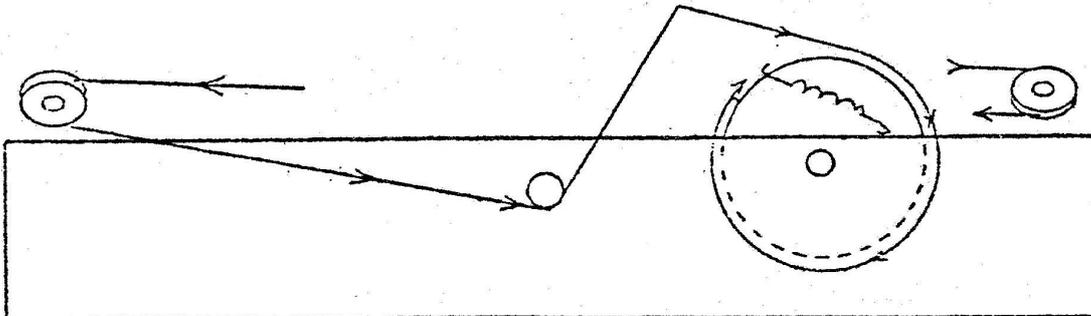
KEEP MODERATE TENSION ON
DIAL CORD AT ALL TIME

A- ATTACH CORD TO DRUM WITH SMALL
SPRING

B-ROUTE AROUND PULLEY

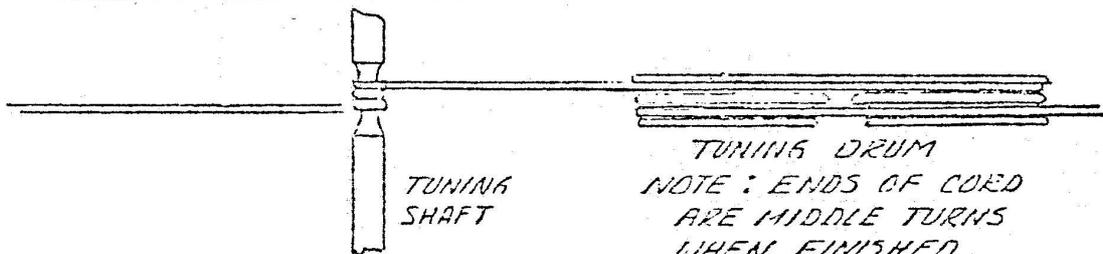


D- HOLD HERE AND WIND 1 TURN AROUND DRUM



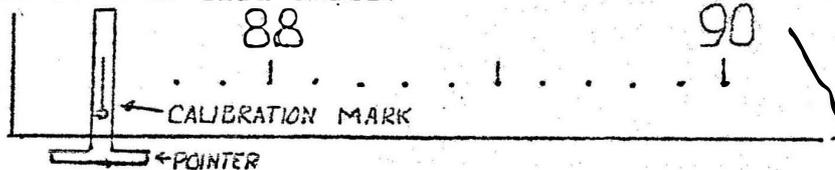
E- WIND ANOTHER FULL TURN-LOCATE IT BETWEEN
THOSE ON THE DRUM

F- ROTATE DRUM $\frac{3}{4}$ TURN TO THE LEFT AND ATTACH
CORD TO DRUM WITH LONG SPRING



Dial Pointer Replacement----

1. Proceed with steps 1, 2, and 3 of dial cord replacement.
2. Replace tuning knob and rotate counterclockwise to the limit.
3. Place pointer on cord.
4. Carefully replace dial glass assembly over pointer and temporarily install the 4 chrome-plated screws. Be certain the pointer is between the two glasses.
5. Gently lift glass assembly until pointer can move freely, then tighten 4 chrome-plated screws.
6. Check that tuning control is at counterclockwise stop; then center point over green calibration mark at left of dial scale.



7. Rotate dial from left to right and back a few times, then check pointer position against calibration mark--readjust if necessary.
8. Cement pointer in place with glyptol or equivalent adhesive.
9. Remove tuning knob and replace panel.
10. Check against known stations adjusting pointer position if necessary as outlined in "DIAL POINTER POSITIONING ADJUSTMENT" section in Owner's Manual.

This is not recommended – the lettering will drop down like autumn foliage!

MARANTZ MODEL 10B

DIAL GLASS REMOVAL AND CLEANING PROCEDURE

1. Remove tuning knob and switch knobs using a #8 Allen wrench.
2. Remove small scope centering knobs by pulling them off the shafts.
3. Remove satin chrome finished steel hood, secured to chassis with two screws, one at each side of hood.
4. Remove front panel, secured with two ½-inch hex nuts at the front and two 5/16-inch hex nuts at the top rear of the support brackets. Note, for reference during reassembly, the location of the spacer bushing and two lockwashers at each support bracket.
5. Detach the stereo indicator lamp bracket from the rear of the dial glass assembly frame by loosening one screw and sliding the lamp bracket out of the slot in the frame.
6. Prop up the front of the chassis, so that the front is raised a few inches higher than the rear.
7. Notice that there are four Phillips-head screws at each end of the dial glass assembly. Remove the top and bottom screws, only, at each end of the assembly.
8. Lift off dial glass assembly carefully to avoid damaging the red dial pointer.
9. Place the dial glass assembly face up on a flat clean surface and carefully remove the four remaining Phillips-head screws and the two clamp brackets.
10. Note, for reference during reassembly, the position of the rubber separator blocks between the two dial glasses.
11. Lift both dial glasses together and remove from the frame.
12. Carefully spread apart the two pieces of glass without tearing the black tape which holds them together at the top.
13. Clean both surfaces of each glass with a non-abrasive, non-waxy glass cleaner, such as Windex.
14. Reassemble the glasses, making sure that the rubber separator blocks are properly positioned.
15. Clean the inner surface of the black frame, then assemble the glasses to the frame, using the two clamp brackets and four screws. Tighten the four screws.

continued:

DIAL GLASS REMOVAL AND CLEANING PROCEDURE

16. Carefully place the dial glass assembly on the chassis, making certain that the red pointer is between the front and rear glasses. Install (without tightening) the 4 remaining Phillips-head screws.
17. Gently lift the dial glass assembly while turning the tuning shaft to verify that the pointer bracket (brass) does not scrape against the bottom edges of the glasses.
18. Tighten the four screws, then check that the pointer can be moved smoothly from one end of the dial to the other.
19. Slip the stereo indicator bracket onto the back of the dial glass frame and tighten the screw.
20. Reassemble the front panel to the chassis after cleaning it with a high-quality non-abrasive furniture polish.
21. Reassemble the steel hood to the chassis.
22. Install the knobs on all shafts.

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INSTALLATION PROCEDURE FOR 10B TUNER CABINET

By following the procedure outlined below, the 10B tuner can be installed without the unexpected difficulties which may otherwise be encountered.

1. Unscrew the four plastic feet from the tuner AFTER FIRST REMOVING THE BOTTOM PLATE. (Mounting nuts and washers holding the feet will otherwise fall into the wiring where they can cause damaging short circuits.)

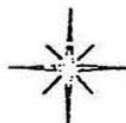
NOTE: Starting with serial No. 2001, mounting nuts will be permanently welded to the bottom plate, and feet may then be unscrewed safely without removal of the plate.

2. Replace the bottom plate, but do not tighten any screws until the hole-alignment procedure below has been followed:
 - a) With the bottom plate in position, insert the first screw loosely into the threaded standoff located in the central area of the tuner.
 - b) Insert the remaining six screws around the edge of the plate, but do not tighten.
 - c) Loosely insert four #10-32 x 7/8" bolts (supplied with cabinet) into the four threaded mounting holes located near the edges.
 - d) When all eleven screws are in place, TIGHTEN ONLY THE SEVEN 6/32 SCREWS.
 - e) Remove the four 10-32 bolts for use later.
3. Remove perforated grille from the cabinet top by sliding it toward the rear.
4. Feed the tuner AC line cord through the cabinet and out back, taking care that it passes over the rear cross-brace.
5. Taking care not to scratch the cabinet, install the tuner into the cabinet. When it has been partially inserted, shift one hand to the rear of the tuner to help guide it into place over the rear cross-brace. Raising the front of the cabinet slightly by propping it up with a book may make it easier to install.
6. When the front panel is in place, mount it with four bronze #4 wood screws (supplied).
7. Turn the whole assembly on end, panel upward and bottom facing you. Insert a #10-32 x 7/8" bolt and washer (supplied) into each of the four mounting holes in the bottom of the cabinet. Tighten firmly but without force.
8. After connecting audio cables and antenna lead-in, reinstall perforated ventilating grille in the cabinet top.

CAUTION

**THIS CABINET FOR USE WITH MODEL 10B TUNER ONLY
MODEL 10 REQUIRES MOUNTING ADAPTER KIT**

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INSTRUCTIONS FOR ASSEMBLING RACK-MOUNTING FRAME AND PANEL FOR
MODEL 10B TUNER

NOTE: Read instructions carefully before proceeding with installation.

The Front Panel on the 10B is fastened to the chassis at four points. At lower part, panel is fastened by two 1/2" nuts, one on MODE control and one on POWER switch shaft. At the top, standard panel is fastened by two threaded studs and nuts under the hood (black cover) at rear of the dial. Hood is fastened to the chassis corner brackets by two screws, one on each side left and right.

A. Dismantling Standard Front Panel

1. Remove two #6-32 screws left and right holding hood, and then remove hood by pulling it up. (Retain for re-use)
2. Two nuts at the top of corner brackets holding front panel at the top can now be reached and removed.
3. Remove two small knobs marked VERT. and HOR. simply by pulling them out (tight fit).
4. Remove five control knobs fastened with #8 set screws. Loosen set screw, one on each knobs using #8 Hex wrench and pull-out knobs.
5. Loosen and remove 1/2" nuts holding panel to the chassis, one on MODE control shaft, and one on the POWER switch shaft, thus releasing Front Panel from the chassis. Retain nuts for re-use. Remove Front Panel.

B. Assembling Rack-Mounting Panel

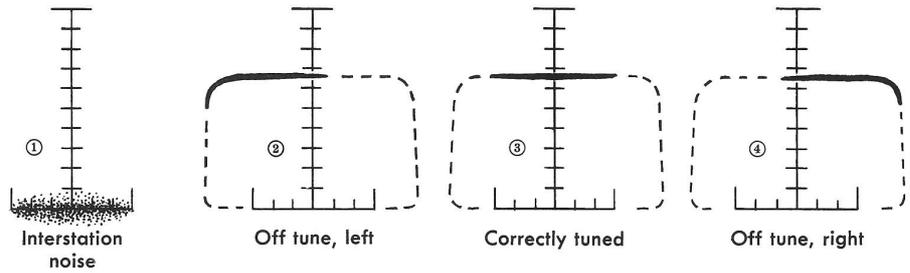
1. Place the tuner on the bench with bottom plate-up.
2. Loosen 7 screws securing bottom plate to the chassis.
3. Insert four screws #10-32 x 7/8 supplied, into mounting holes, make a few turns-in to make sure that they turn easily. Leave them in position, then tighten up all seven screws securing bottom plate.
4. Remove four screws #10-32 x 7/8.
5. Proceed with assembling rack-mounting frame consisting Left and Right bracket and two cross-bars per sketch using eight set screws #8-32 x 1/4 supplied.

NOTE: The sketch shows two mounting holes at rear off-set as on the chassis. Frame assembly holes must match those on the chassis.

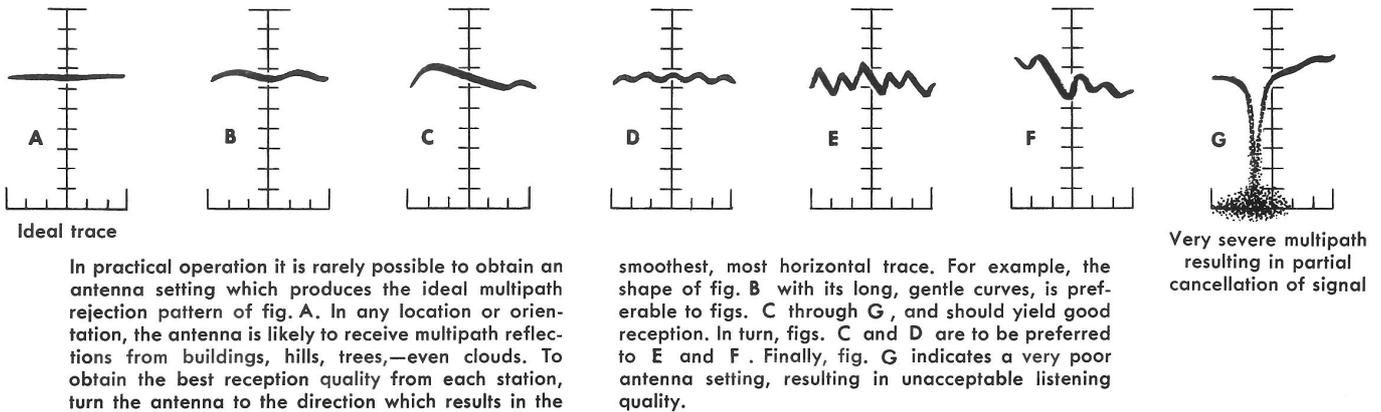
6. Mount four plastic feet to the cross bars (see sketch for location) using four screws #8-32 x 3/8 supplied.
7. Place assembled frame on the (tuner) chassis as shown on the sketch making sure frame mounting holes coincide with chassis holes. Use four #10-32 x 7/8 screws and #10 lockwashers supplied for fastening frame to the chassis.
8. Now place tuner with frame attached on the bench - front facing you, place Rack-Mounting Panel in position and fasten to the chassis with two 1/2" nuts (MODE control shaft and POWER switch shaft).
9. Using four screws #10-32 x 1/2 and #10 lockwashers, fasten handles to the Frame and the Front Panel.
10. Use clear aluminum finish knobs supplied to replace gold anodized knobs removed.
11. Fasten five control knobs with set screws using #8 Hex wrench.
12. Replace Hood and fasten with two screws #6-32.

USING THE MARANTZ MULTIPATH/TUNING INDICATOR

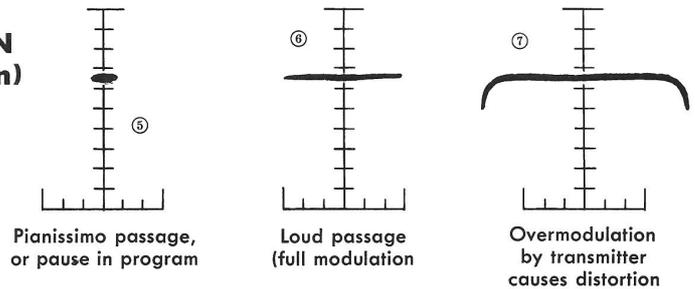
TUNING IN A STATION (with "Stereo Test" button OUT)



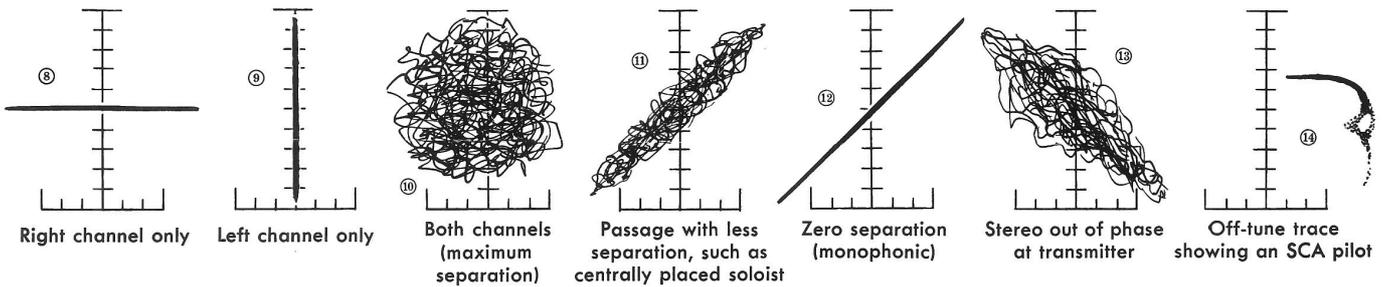
MULTIPATH PATTERNS SHOW BEST ANTENNA SETTING



MODULATION (or, Deviation)



STEREO TEST PATTERNS (with "Stereo Test" button IN)



NOTES:

For longest life of the oscilloscope tube, brightness of the trace should be kept to a minimum consistent with good visibility. If necessary to increase brightness to compensate for normal tube aging, we suggest that the adjustment be set so that the trace is quite dim when the "Power" knob is switched to "Dim" position. An "Intensity" screwdriver adjustment is provided for this purpose on top of the chassis.

The Marantz multipath/tuning indicator is a very sensitive oscilloscope test instrument. In addition to its usual operating functions, it can be used to provide indication and analysis of malfunctions in the tuner circuitry. Also, various side-effects peculiar to all FM reception, which ordinarily would not be recognized, are made plainly visible in the characteristics of the traces.