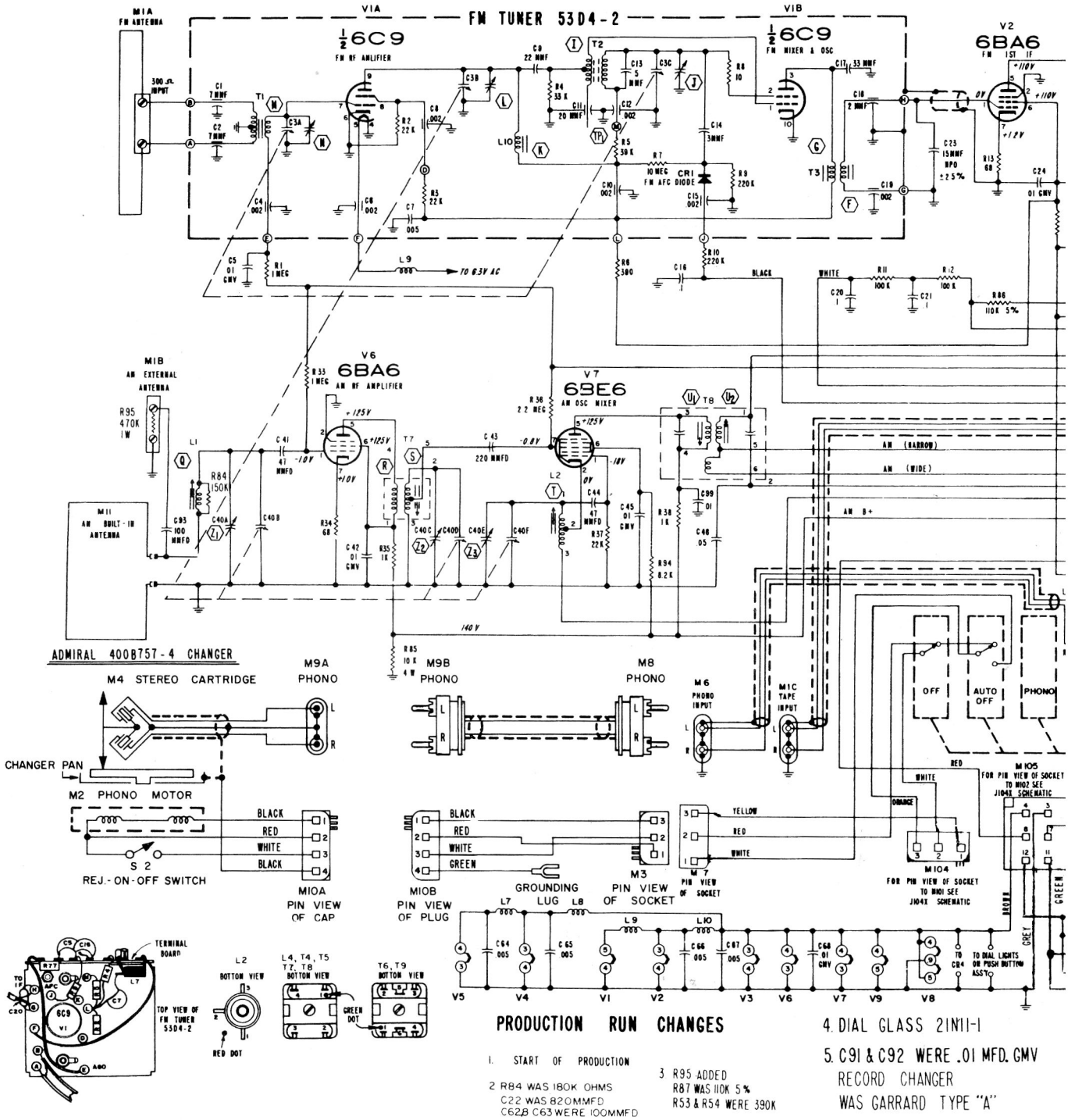
ADMIRAL
J103X



PRODUCTION RUN CHANGES

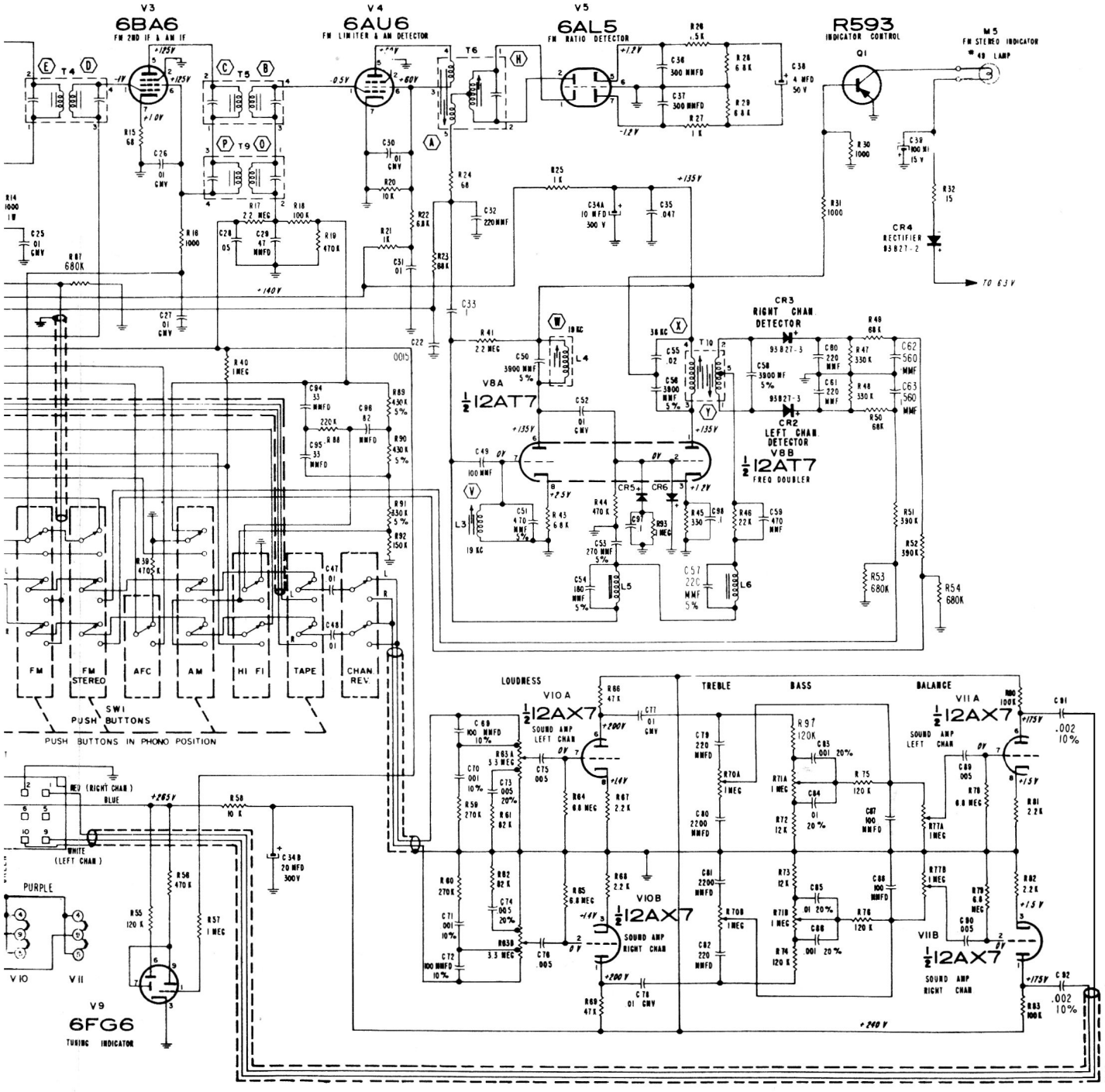
1. START OF PRODUCTION

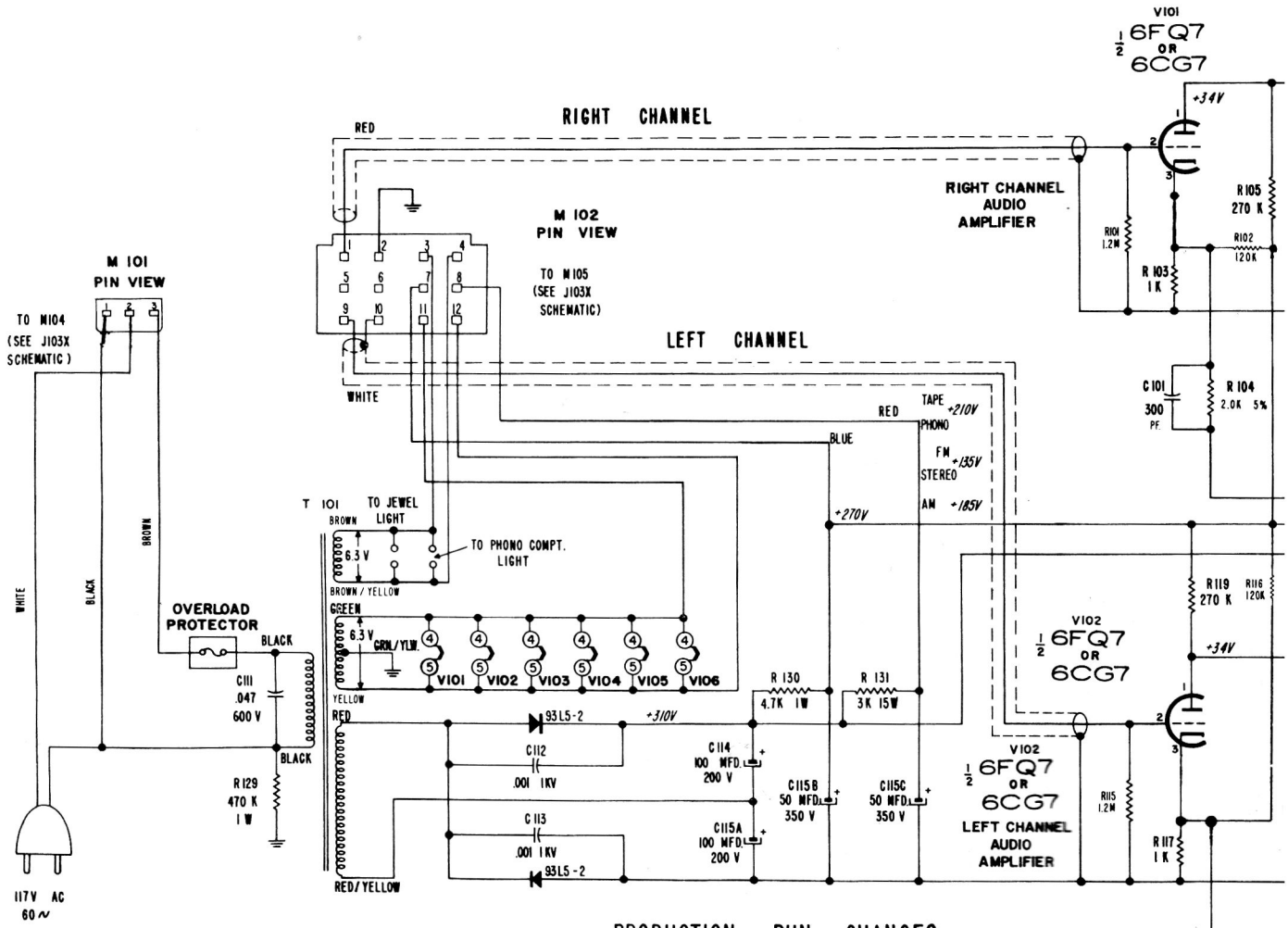
2 R84 WAS 180K OHMS
C22 WAS 820MMFD
C62,8 C63 WERE 100MMFD

3 R95 ADDED
R87 WAS 110K 5%
R53 & R54 WERE 390K

4. DIAL GLASS 21N11-1

5. C91 & C92 WERE .01 MFD. GMV
RECORD CHANGER
WAS GARRARD TYPE "A"


V3
6BA6
FM 2ND IF & AM IF
V4
6AU6
FM LIMITER & AM DETECTOR
V5
6AL5
FM RATIO DETECTOR
R593
INDICATOR CONTROL
Q1
M5
FM STEREO INDICATOR
CR4
RECTIFIER
CR3
RIGHT CHAN. DETECTOR
CR2
LEFT CHAN. DETECTOR
V8A
½12AT7
V8B
½12AT7
FREQ DOUBLER
SW1
PUSH BUTTONS
PUSH BUTTONS IN PHONO POSITION
FM
FM STEREO
AFC
AM
HI FI
TAPE
CHAN. REV.
LOUDNESS
V10A
½12AX7
SOUND AMP LEFT CHAN
V10B
½12AX7
SOUND AMP RIGHT CHAN
TREBLE
BASS
BALANCE
V11A
½12AX7
V11B
½12AX7
V9
6FG6
TUNING INDICATOR
V10
V11
TO 6.3 V
+240 V



PRODUCTION RUN CHANGES

1. START OF PRODUCTION
2. NO CHANGE
3. C102 & C106 25 MFD 3V DELETED
   R104 & R118 WERE 5.6K
   R102 & R116 WERE 1.8K
   R111 & R125 WERE 170 OHMS 3W

4. NO CHANGE
5. R101 & R115 WERE 6.8 MEG

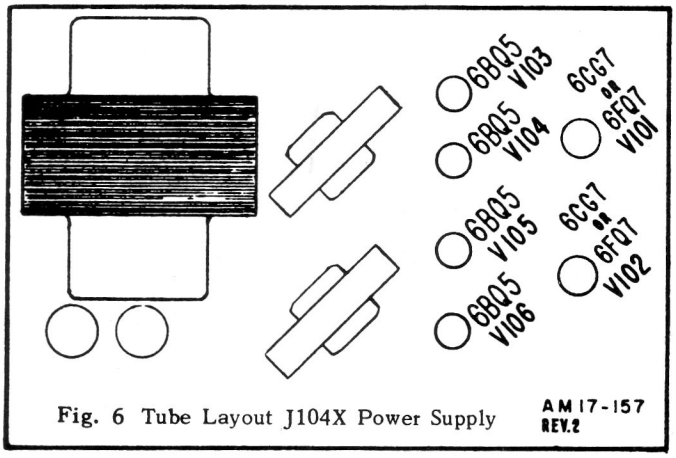
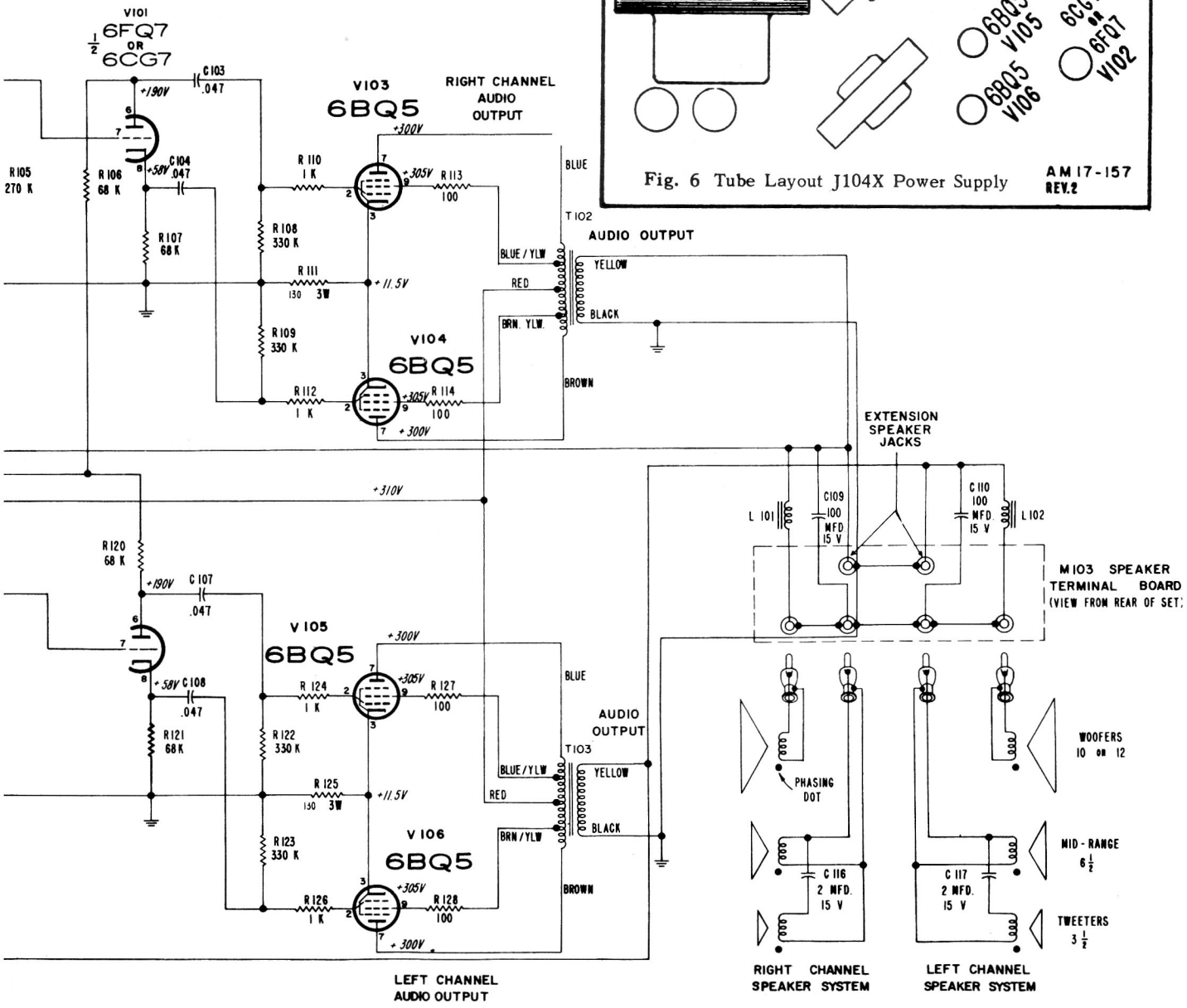


Fig. 6 Tube Layout J104X Power Supply AM 17-157 REV. 2

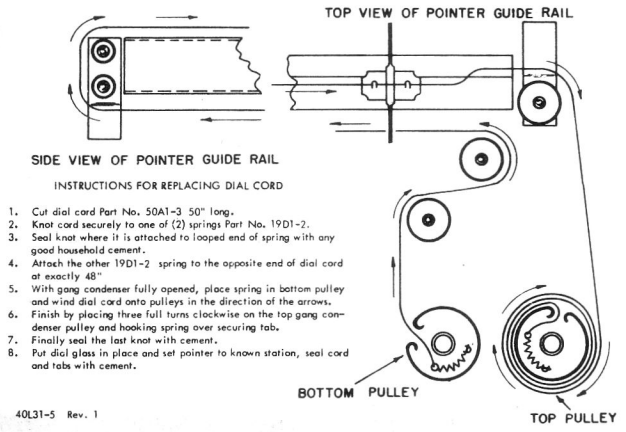


A.M. I.F. OSCILLATOR AND R.F. ALIGNMENT

- Turn receiver on by pressing AM pushbutton and allow 10 minutes warm up.
- Set Loudness, Bass, Treble and Balance Controls at mid-rotation.
- Set AM Hi-Fi button at upper position (J103X).
- Connect VTVM to AGC (TP3 junction of R91 and R92).
- Use lowest setting of Signal Generator output that produces adequate indication on lowest scale of VTVM.
- Use a non-metallic alignment tool for IF Oscillator RF and antenna transformer adjustments.
- Repeat all adjustments to insure best results.

STEP	GENERATOR CONNECTION	GENERATOR SETTING	RECEIVER GANG SETTING	ADJUSTMENT
1	Through a .01 mfd to TP2 Grid of Mixer Tube V7	455 KC	Fully open	O, P, U2, U1 for maximum
2	To External Antenna Terminal	535 KC	Fully closed	T for maximum
3	To External Antenna Terminal	1620 KC	Fully open	Z3 for maximum
4	Repeat Steps 2 and 3 until no interaction is noticed.			
*5	To External Antenna Terminal	600 KC	Tune for Gen. Tone	S for maximum. Use peak closest chassis pan.
*6	To External Antenna Terminal	1400 KC	Tune for Gen. Tone	Z2 for maximum
	Perform Steps 7 & 8 after set is installed in cabinet and loop connected.			
7	Tune in station at approximately	600 KC	and adjust	Q for maximum.
8	Tune in station at approximately	1400 KC	and adjust	Z1 for maximum.

* Steps 5 & 6 apply to J103X Chassis with AM-RF Stage.



Dial Cord Stringing

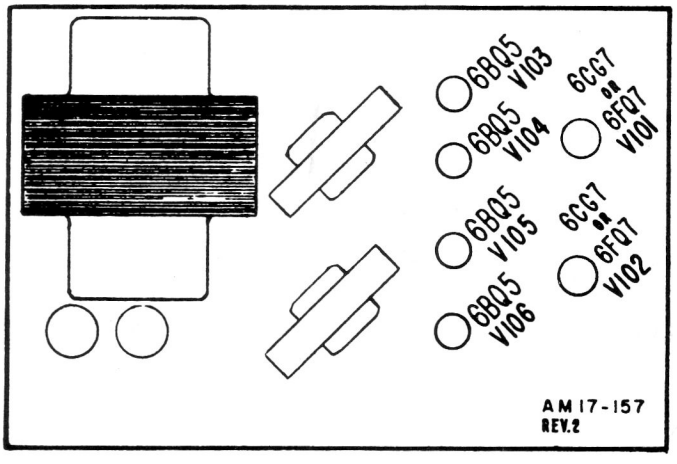


Fig. 6 Tube Layout J104X Power Supply

F.M. I.F. R.F. AND OSCILLATOR ALIGNMENT PROCEDURE
USING A.M. SIGNAL GENERATOR AND VTVM

(a) Turn set on by depressing FM pushbutton AFC button released.

(b) Allow receiver to warm up for 10 minutes.

(c) Set Loudness, Bass, Treble and Balance Controls at mid-rotation.

(d) For I.F. Alignment inject a 10.7 MC unmodulated signal by means of an ungrounded tube shield atop the RF tube V1 (6C9).

(e) For Oscillator alignment inject signal into antenna terminals with a 150 ohm resistor in series with each lead.

(f) Use the lowest signal input possible to provide a usable reading on the low scale of VTVM except in Step 2. In Step 2 use maximum signal and the zero centre scale.

(g) Use a non-metallic alignment tool for all coil and transformer adjustments.

STEP	SIGNAL GENERATOR	SIGNAL GENERATOR FREQ.	RECEIVER DIAL SETTING	VTVM	ADJUST	REMARKS
1	To ungrounded tube shield test point	10.7 MC Unmod.	High End (AM Gang fully open)	High side to TP4 Jct. of R17, C28 Low side to Gnd.	A,B,C,D,E, F.G, for maximum	
2	Same as Step 1	10.7 MC Unmod.	Same as Step 1	High side to TP5 Jct. of R23, C22 Low side to Gnd.	H for zero	Use centre scale on VTVM increase signal input to max.
	Make the following adjustments if Osc. Calibration is not proper.					
3	Antenna terminals through resistors described in paragraph (e) above.	108.5 MC Unmod.	Same as Step 1	High side to TP4 Jct. of R17, C28 Low side to Gnd.	J for maximum	Repeat both coil and trimmer adjustment until correct range 87.5-108.5 MC is established
4	Same as Step 3	87.5 MC Unmod.	Low End (AM Gang fully closed)	Same as Step 1 and 3	I for maximum	
	If set has low sensitivity proceed with the following RF adjustments.					
5	Same as Step 3	108.5 MC Unmod.	Same as Step 1	Same as Step 1	L,N, for max.	
6	Same as Step 3	90 MC Unmod.	90 MC	Same as Step 1	K,M for max.	Rock Gen. Freq. slightly when making adjustment K.
7	Repeat Steps 3 and 4.					

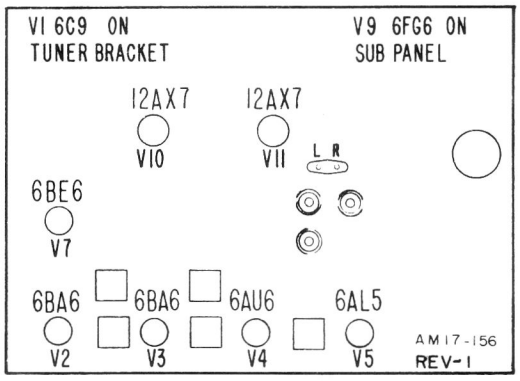


Fig. 7 Tube Layout J101X

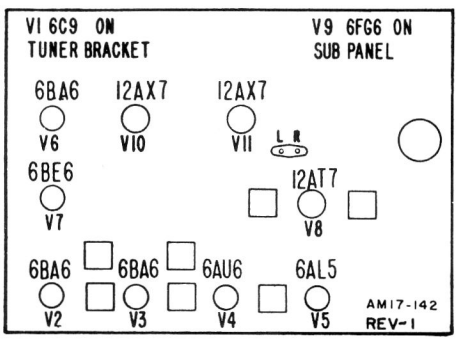


Fig. 8 Tube Layout J103X Tuner and Amplifier Chassis

F.M. MULTIPLEX ALIGNMENT PROCEDURE USING TRANSMITTED STEREO PROGRAM AS SIGNAL SOURCE AND VTVM OR OSCILLOSCOPE AS INDICATION.

J103X-J105X

(a) Turn set on by depressing FM Stereo Button.

(b) Allow receiver to warm up for 10 minutes.

(c) Tune in a local FM station known to be broadcasting in Stereo.

(d) Depress AFC Button.

(e) Make sure Channel Reverse Button is up.

(f) All adjustment directions are assuming alignment is made from top of chassis.

(g) Use non-metallic alignment tool for all coil and transformer adjustments.

(h) Step 6 to be made while the FM station is broadcasting on either left or right channel only.

(j) Decouple scope or VTVM with 23-33 mmf. condenser.

STEP	VTVM SETTING	VTVM CONNECTION OR OSCILLOSCOPE	ADJUST	REMARKS
1	AC 0-50 Volts	High Side through decoupling Condenser to TP6 (Pin 1 of 12AT7).	"V" for maximum	See Note 1 below
2		or Pin 3 of T10	"W" for maximum	See Note 2 below
3		Low Side to Chassis	"Y" clockwise to end of travel	See Note 3 below
4			"X" for maximum	See Note 2 below
5	DC, 0-10 Volts Range	High side to Junction of L6, C57, R46, C59	"Y" for maximum	Reading on VTVM approximately 2 to 4 volts.
6	Wait for period when Stereo transmission is on one channel only. If a left channel transmission-rotate Balance Control fully to right channel (max. clockwise) and adjust core of 19 KC Grid Coil (V) for minimum output from right channel speaker. (Usually ½ turn counterclockwise from previously tuned position). Stereo indicator light must stay on. If a right channel transmission only, then turn Balance Control to left channel (maximum counterclockwise) and make adjustment.			

Note 1. Adjustment "V" in Step 1 is for first maximum peak (counterclockwise) from bottom of coil form.

Note 2. Adjustments "W" and "X" in Steps 2 and 4 are for first maximum peak (clockwise) from top of can.

Note 3. Adjustment "Y" in Step 3 is to eliminate the influence of that slug while adjusting "X" in Step 4.

ALTERNATE MULTIPLEX ALIGNMENT METHOD FOR STEPS FROM 1 UP TO & INCLUDING 5.

If Multiplex Alignment is necessary and no VTVM or Oscilloscope is available, the preceeding method may be used using the Stereo Indicator Light as a visual indication in place of VTVM or Oscilloscope. Maximum and minimum indications will be the same.

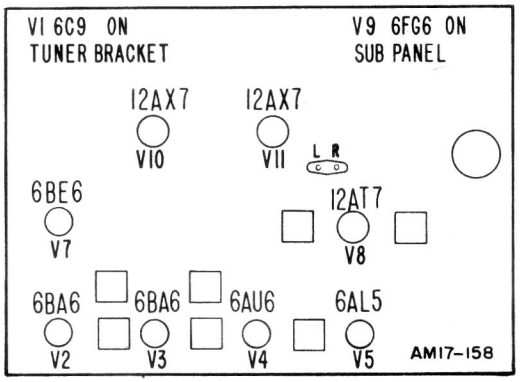


Fig. 9 Tube Layout J105X Tuner and Amplifier Chassis