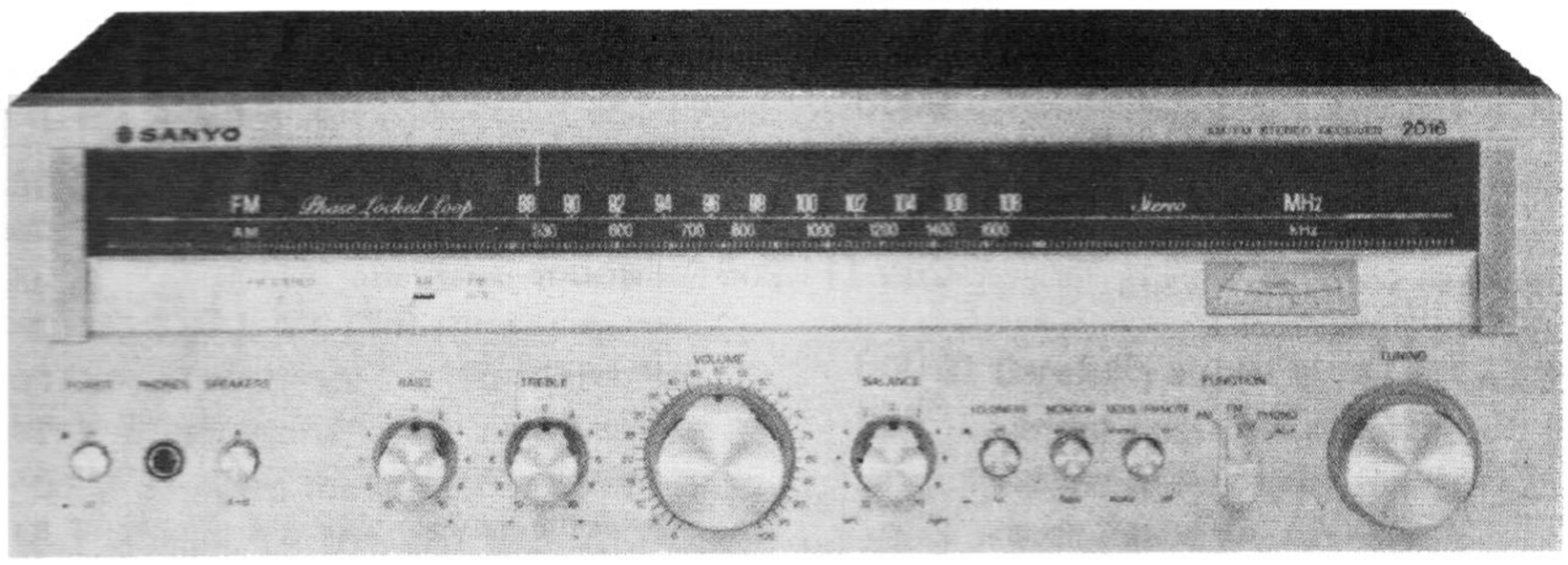
SERVICE MANUAL

SANYO

STEREO RECEIVER

2016

(EUROPE)



SPECIFICATIONS

Amplifier Section

Continuous minimum sine wave RMS power output per channel at 8 ohms from 40Hz to 20kHz with no more than 0.3% harmonic distortion.	**16 watts**
Input sensitivity for rated FTC power and impedance	
Phono	2.5mV/47k ohms
Aux	150mV/47k ohms
Tape Play	150mV/47k ohms
Output for rated FTC power	
Tape Rec	150mV
Overall frequency response	
Phono RIAA standard curve	±0.8dB
Aux 20Hz – 20kHz	±0.7dB
Tape Play 20Hz – 20kHz	±0.7dB
Tone control response	
Bass at 100Hz	±10dB
Treble at 10kHz	±10dB
Loudness control response	
Volume set –30dB at 100Hz	+8dB
Volume set –30dB at 10kHz	+3dB
Hum and noise ratio with FTC power (IHF, short-circuited, A network)	
Phono	82dB (at 10mV)
Aux	90dB
Tape Play	90dB

FM Tuner Section

Frequency range	87.5 – 108MHz
Usable sensitivity	2μV (11.2dBf) (Mono)
Signal-to-noise ratio (at 65dBf)	
at Mono	70dB
at Stereo	65dB
Harmonic distortion (at 65dBf)	
at Mono	0.3% (at 1kHz)
at Stereo	0.4% (at 1kHz)
AM suppression (30% 400Hz AM)	55dB
Spurious response at 98MHz	70dB
Alternate channel selectivity	55dB
Image rejection at 98MHz	50dB
IF rejection at 98MHz	80dB
Capture ratio	3.0dB
Stereo separation at 1kHz	40dB
Antenna input	300 ohms balanced

AM Tuner Section

Frequency range	530 – 1605kHz
Sensitivity	300μV/m
Signal-to-noise ratio	45dB
Image rejection	45dB
IF rejection	30dB
Selectivity	30dB
Antenna	Built-in ferrite bar antenna and ext, ant, terminal.

General

Power requirements	AC: 220V, 50Hz
Power consumption	120W
Dimensions	17-5/16"W x 5-7/16"H x 12-7/16"D (440 x 138 x 315mm)
Weight	Approx. 12 lbs. 2 ozs. (5.5kg)

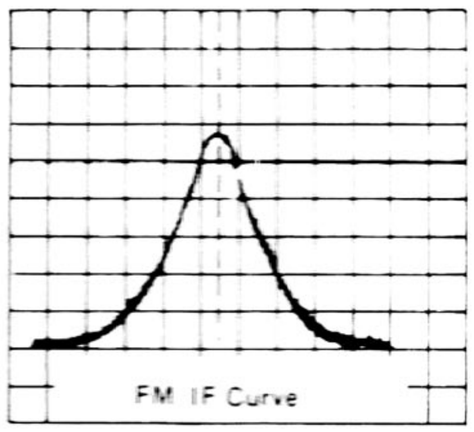
*Specifications subject to change without notice.

NOTE

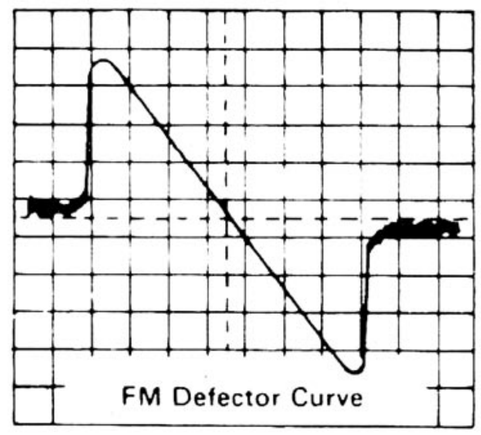
When the receiver is operating a long time maximum continuous output power with connecting of a 4 ohms speaker per channel or two 8 ohms speakers in parallel per channel, the thermal fuse in the power transformer may be blown to protect the receiver from damage.

FM IF ADJUSTMENT

1. V curve adjustment
   1) Connect TP-103 (HOT) and TP-104 (GROUND) to the output terminal of the sweep generator, and TP-202 (H) and TP-301 (G) to the input terminal.
   2) Connect a resistance load of about 50 K-ohms to the input of the sweep generator and disconnect the tuning meter leadwires from the circuit board.
   3) Cut off ceramic capacitor C214 (0.022μF) at one end.
   4) Make adjustment while keeping the output from the sweep generator at the low level (where noise appears on the waveform).
   5) While watching the sweep waveform, adjust the T201 until the sweep waveform presents the pattern as in Fig. 1.



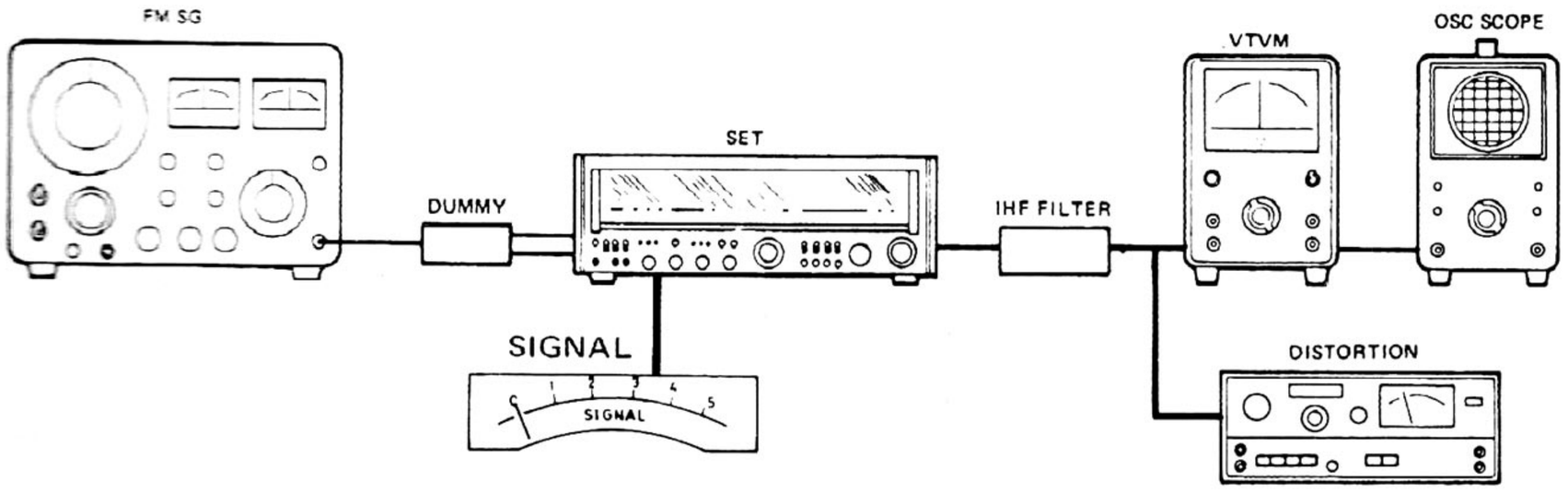
2. S curve adjustment
   1) Connect TP-103 (H) and TP-104 (E) to the output terminal of the sweep generator. Connect TP-201 (H) and TP-301 (E) to its input.
   2) Adjust the T202 until the S curve presents the patterr as in Fig. 2.



CENTER ADJUSTMENT OF SIGNAL METER

Set FM SG as follows: modulation frequency 1 KHz, frequency deviation 75 KHz DEV. (100% modulation).
Connect a 300 ohm balanced dummy to the 300 ohm terminal of the external antenna or between TP-101 (H) and TP-102 (G). Connect TP-313 (G) and TP-314 or TP-315, and or other output is REC OUT.

1) Set the tuning dial of the unit to 98 MHz (where no Broadcasting signal is coming in).
2) Carefully adjust either SG's signal frequency or the unit's tuning knob for a maximum deflection of Signal Meter. Adjust SG's signal strength to such a level as the Meter reads 3 or 4 on its scale.
3) Reduce distortion to a minimum by turning the T202.



FM TRACKING ADJUSTMENT

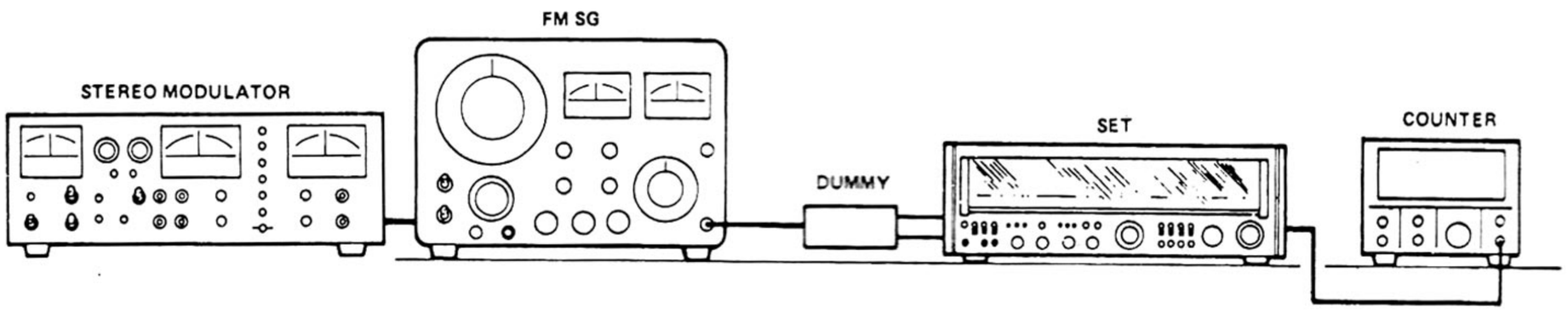
Set FM SG as follows: modulation frequency 1 KHz, frequency deviation 75 KHz DEV. (100% modulation). Connect VTVM to TP-314 or TP-315 (H) and TP-313 (G).
Flip the MODE switch of the unit to "MONO".

1) Make LOW TRACKING adjustment by means of L102. Use 90 MHz FM signal for this purpose.
2) Make HIGH TRACKING adjustment by means of CT-1 Use 106 MHz FM signal for this purpose.
3) Make complete TRACKING adjustment by repeating steps (1) and (2).
   * When properly adjusted, the distortion factor of the output from the unit is reduced to a minimum, provided that the distortion factor of the SG output is about 3%.

FM VCO ADJUSTMENT

Set the frequency of FM SG to 98 MHz (where no broadcasting signal is coming in), the muting switch of the unit to ON, the pilot signal of the stereo modulation to a modulation degree of 9% and mode switch to MONO. Connect a frequency counter to TP-303 (H) and TP-301 (G).

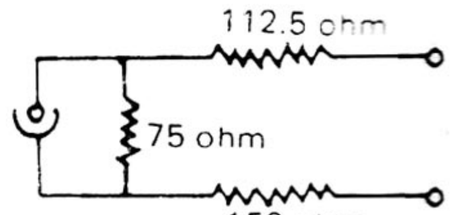
1) Increase the output level of FM SG until the stereo pilot lamp of the unit glows. Then, keep the glowing of the stereo pilot lamp for more than 10 seconds.
2) Adjust R306 (SVR) until the frequency counter reading becomes 19 KHz ± 29 Hz immediately after cutting off the SG output (viz. after the stereo pilot lamp has gone out).
   * Do not make this adjustment immediately after setting to ON the power switch of the unit.
   * For this adjustment, use a frequency counter relatively high in input impedance.



FM ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.	Connect sweep generator to FM TP-103 (H) & TP-104 (G) . . shield plate	Connect oscilloscope to test point TP-202 (H), TP-301 (G)	10.7 MHz	Near max. capacitance of tuning gang with no station signal.	T201	
2	Ratio Det.		Connect oscilloscope to test point TP-201 (H), TP-301 (G)			T202	
3	OSC.	Connect FM SG. to FM ANT. Terminals or TP-101 (H) & TP-102 (G)	Connect VTVM to TP-314 TP-315 (H) & TP-313 (G)	87.35 MHz (1 KHz 100% modulation)	Low end of dial scale	L104	Max.
4				108.4 MHz (1 KHz 100% modulation)	High end of dial scale	CT-2	
5	ANT.	Connect FM SG. to FM ANT. Terminals or TP-101 (H) & TP-102 (G)	Connect VTVM to TP-314 TP-315 (H) & TP-313 (G)	90.0 MHz (1 KHz 100% modulation)	90.0 MHz on dial scale	L102	Max.
6				106.0 MHz (1 KHz 100% modulation)	106.0 MHz on dial scale	CT-1	
7	Repeat adjustments						

PREPARE:
1. Set the dial pointer to very left line of dial scale.
2. Connect sweep generator, FM SG. VTVM and oscilloscope. FM ANT input impedance is 300 ohm.
3. Use a screwdriver with plastic grip for all adjustments.
4. Use a 300 ohm balanced dummy load.

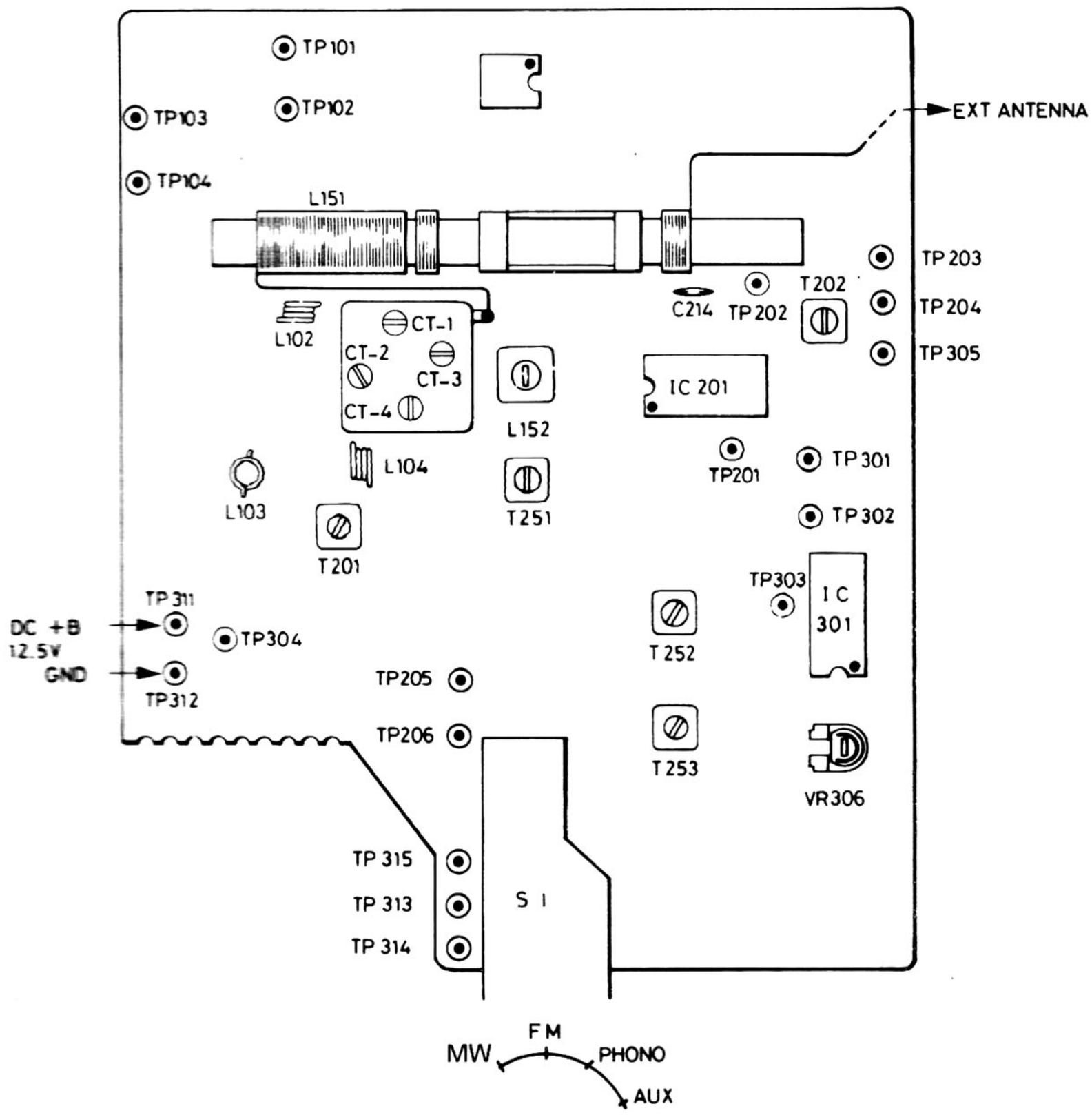


AM ALIGNMENT

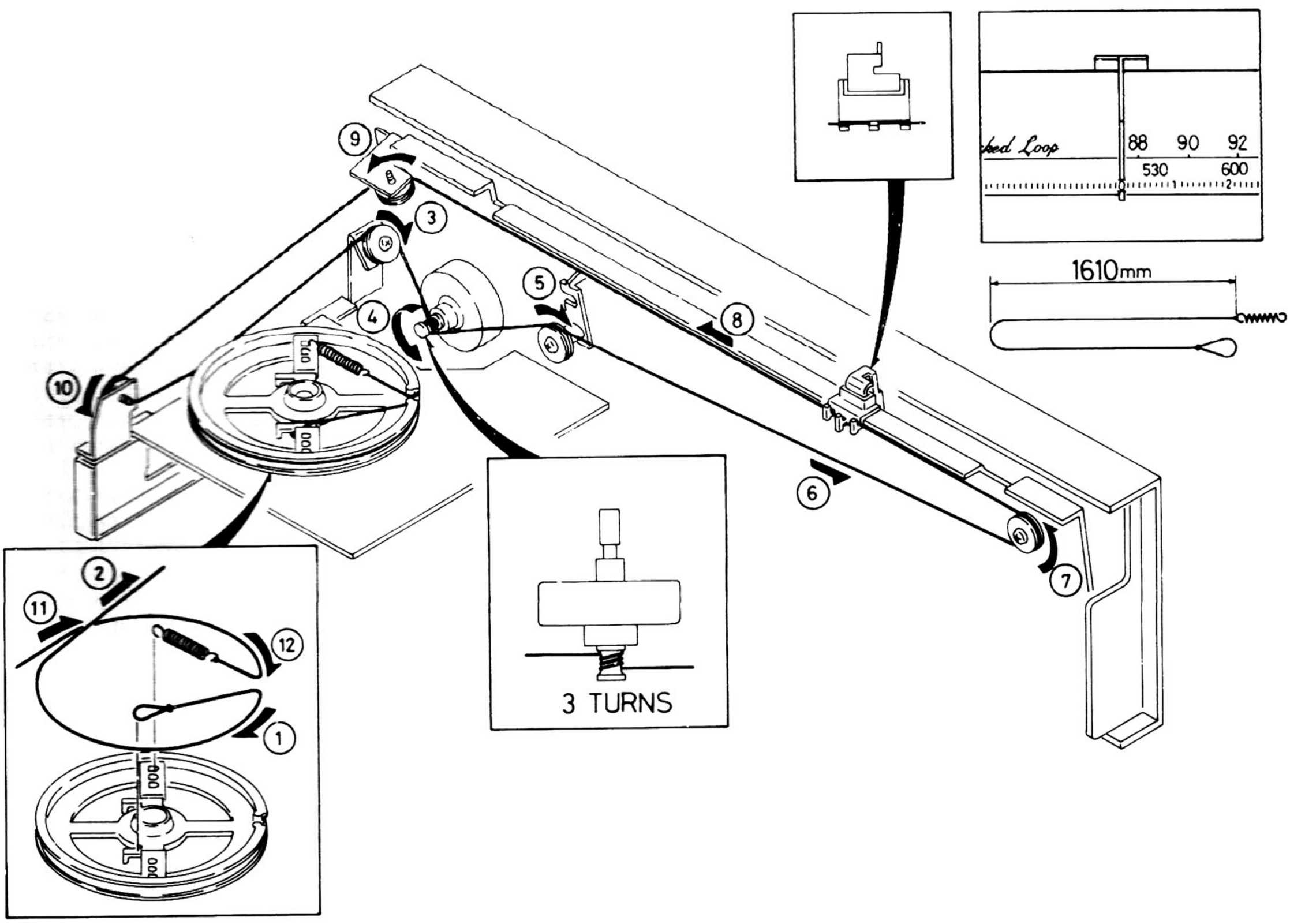
Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.T.	Connect AM SG to test loop-antenna	Connect oscilloscope to REC OUT or TP-314, TP-315 (H) TP-313 (G)	455 KHz (400 Hz 30% modulation)	Low end of dial scale. With no station signal.	T251 ~ T253	Max.
2	OSC.	Connect AM SG to test loop-antenna	Connect VTVM to REC OUT or TP-314, TP-315 (H) TP-313 (G)	510 KHz (400 Hz 30% modulation)	Low end of dial scale	L152	Max.
3				1700 KHz (400 Hz 30% modulation)	High end of dial scale	CT4	
4	ANT.	Connect AM SG to test loop-antenna	Connect VTVM to REC OUT or TP-314, TP-315 (H) TP-313 (G)	600 KHz (400 Hz 30% modulation)	600 KHz on dial scale	L151	Max.
5				1400 KHz (400 Hz 30% modulation)	1400 KHz on dial scale	CT3	
6	Repeat adjustments.						

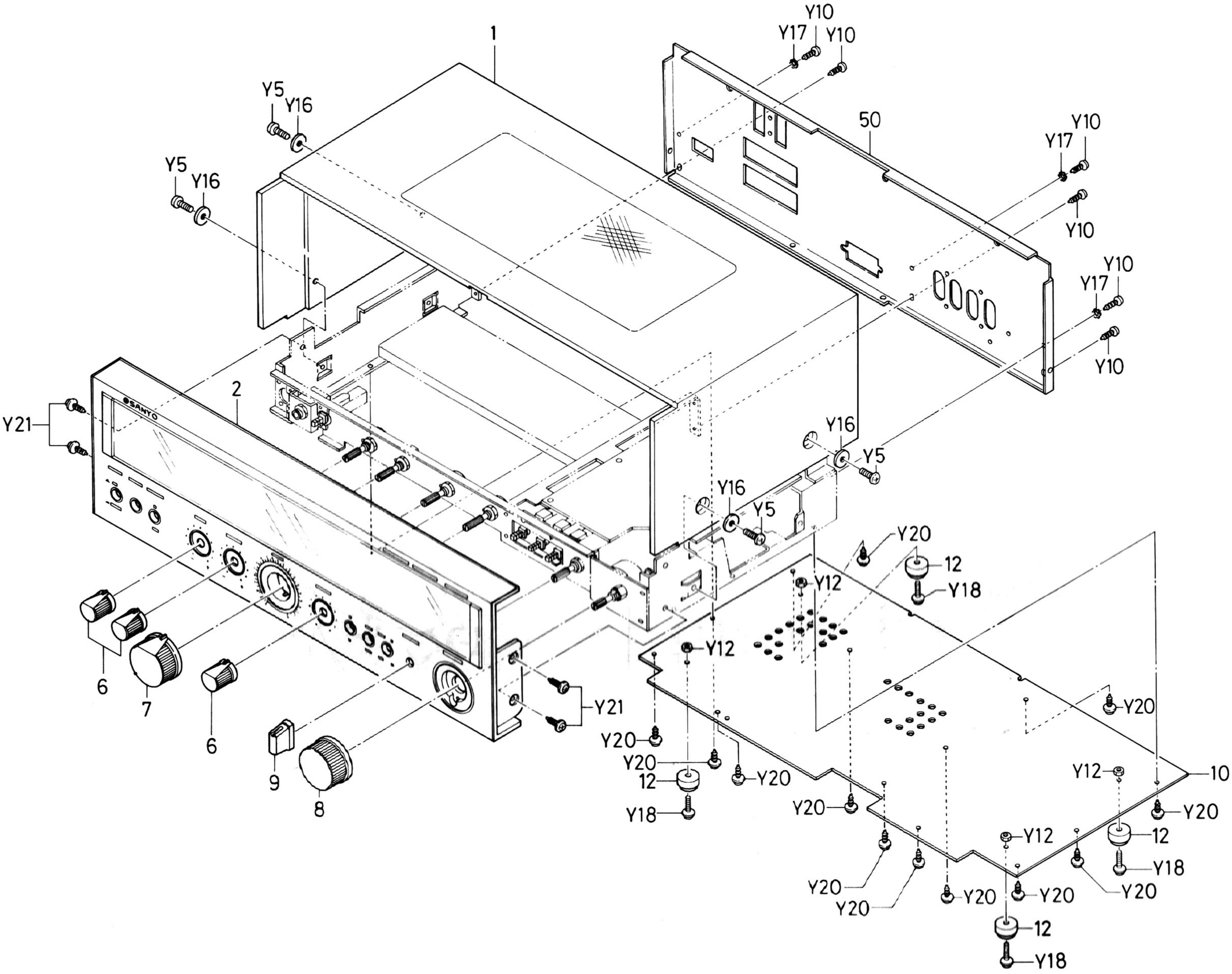
PREPARE:
1. Set the dial pointer to very left line on dial scale.
2. Use a screwdriver with plastic grip for all adjustments.
3. Selector switch to "AM".
4. Connect sweep generator, AM SG, VTVM and oscilloscope.

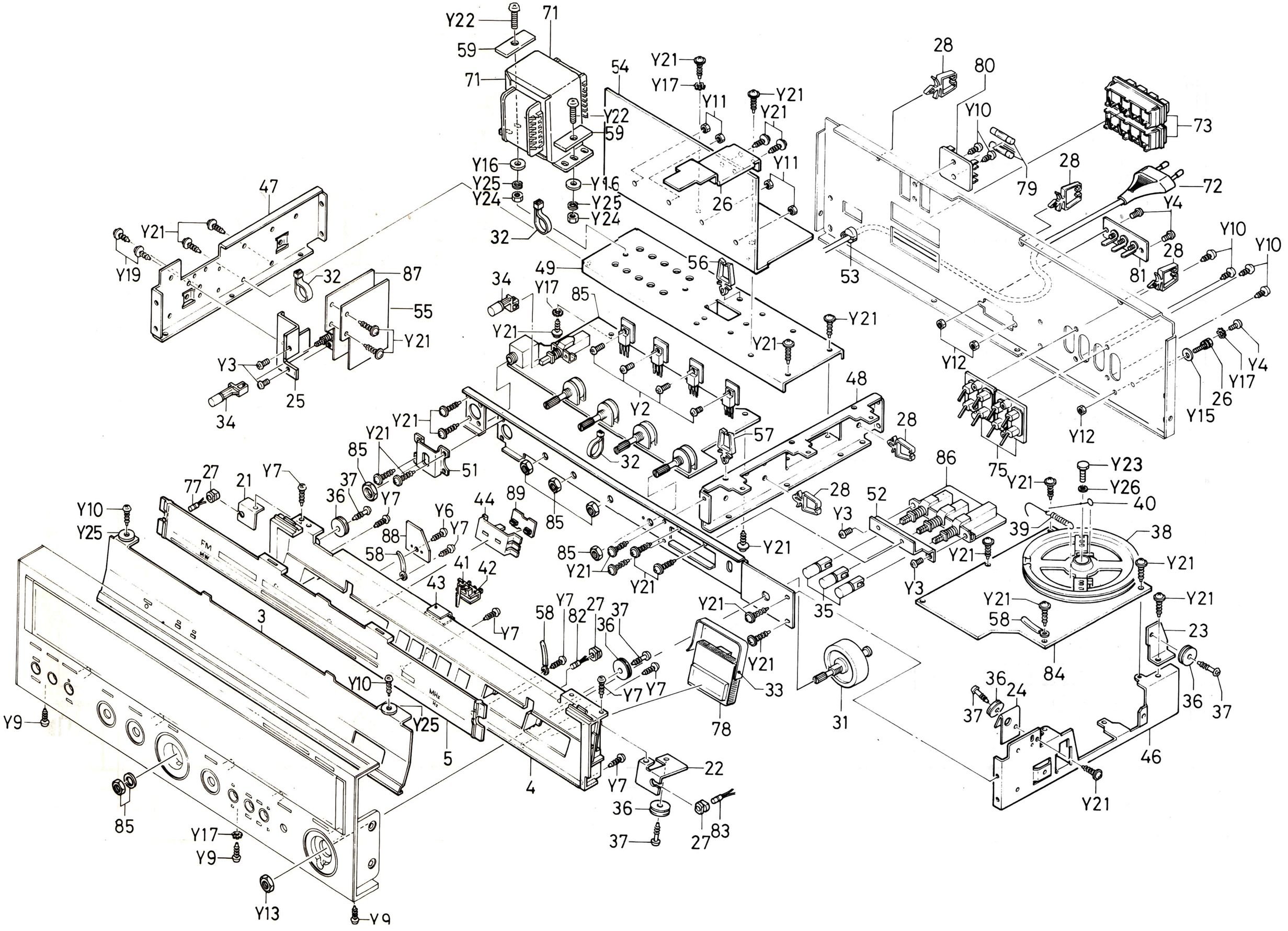
PARTS LOCATION



DIAL CORD STRINGING




1
2
50
Y10
Y17
Y5
Y16
Y21
Y12
Y18
Y20
12
10
6
7
8
9
SANYO


Y22
71
59
71
54
Y21
Y17
Y11
Y21
Y21
Y22
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Y16
Y25
Y24
Y16
Y25
Y24
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Y11
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Y10
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Y4
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81
Y10
Y10
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Y21
Y19
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87
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Y21
Y3
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Y17
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Y21
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Y2
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Y7
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Y6
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Y7
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Y3
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Y21
Y3
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Y21
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Y26
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Y21
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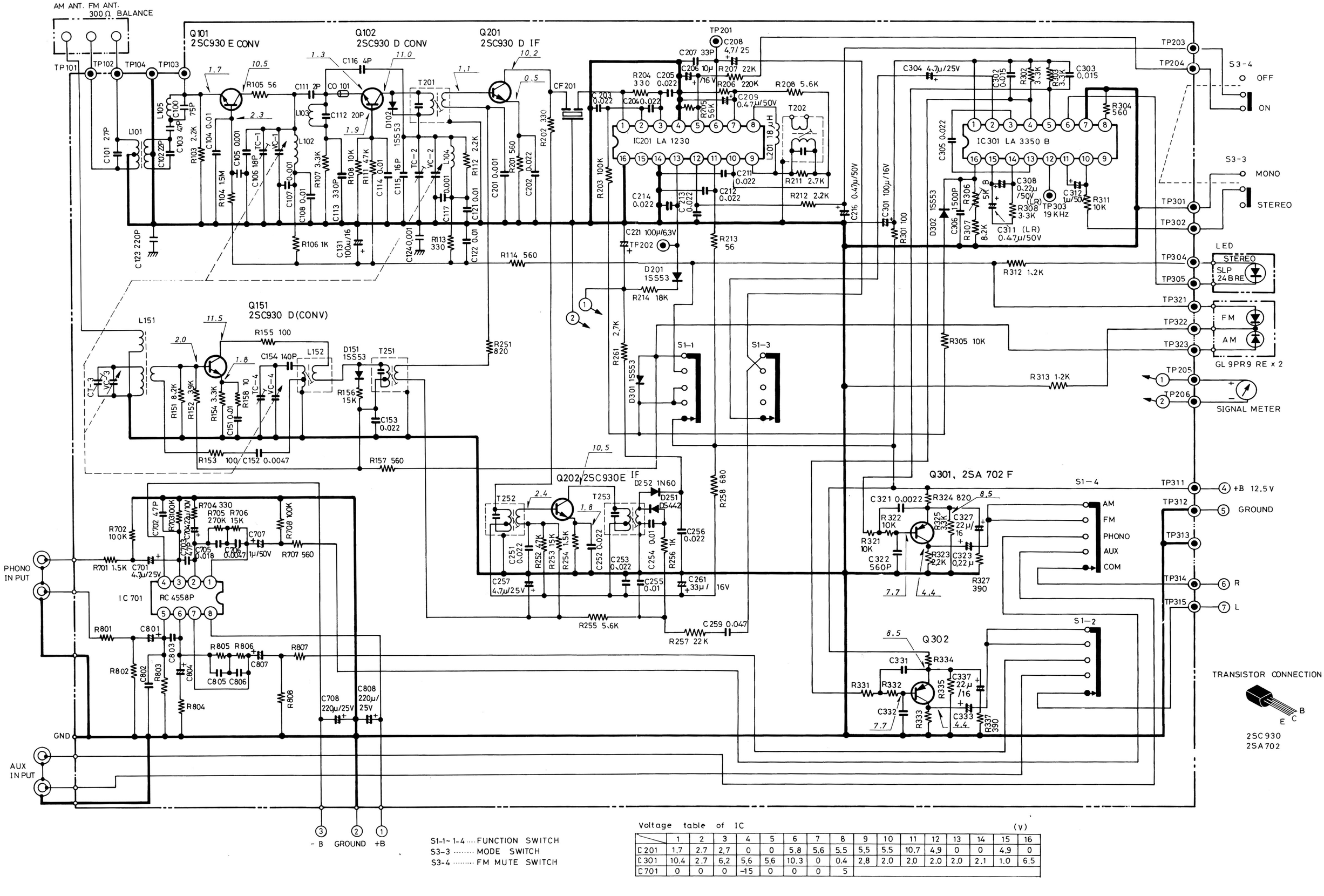
Y7
Y10
Y25
3
Y10
Y25
5
4
Y9
85
Y17
Y9
Y13
Y9
Y7
58
82
27
37
36
Y7
Y7
78
Y21
33
31
22
36
37
27
83

DIAGRAM (TUNER)



S1-1- 1-4 .... FUNCTION SWITCH
S3-3 ..... MODE SWITCH
S3-4 ..... FM MUTE SWITCH

Voltage table of IC (V)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC201	1.7	2.7	2.7	0	0	5.8	5.6	5.5	5.5	5.5	10.7	4.9	0	0	4.9	0
IC301	10.4	2.7	6.2	5.6	5.6	10.3	0	0.4	2.8	2.0	2.0	2.0	2.0	2.1	1.0	6.5
IC701	0	0	0	-15	0	0	0	5								

Q704 2SA953L Q706 2SC2002M Q708 2SD743R

Q701,702,703 2SA640E

Q705 2SC2002L

Q707 2SA953M

Q709 2SB703R

Q801,802,803

Q804

Q805

Q806

Q807

Q808

Q809

Q901 2SD 288 K

SPEAKER TERMINAL L-Ch / R-Ch

HEADPHONE

FUSE T2A

FUSE T1A

POWER SWITCH PCB.

SWITCH PCB.

TRANSISTOR CONNECTION

2SA640 2SD953 2SC2002

2SD743 2SD288

PHONO +B 15V

GROUND

-B -15V

+B 12.3V

TO(TP311)

TO(TP312) GROUND

C901~4 ····0.01/500V

D901~4=GP15D

D905 IN4002

YELLOW

WHITE

DIAL LAMP BLUE

METER LAMP

BULE

220V AC 50Hz

S2-1~2-2 ····· TAPE MONITOR SWITCH
S3-1~3-2 ····· MODE SWITCH
S4-1~4-2 ····· LOUDNESS SWITCH
S5-1~5-2 ····· SPEAKER SWITCH
S6 ····· POWER SWITCH

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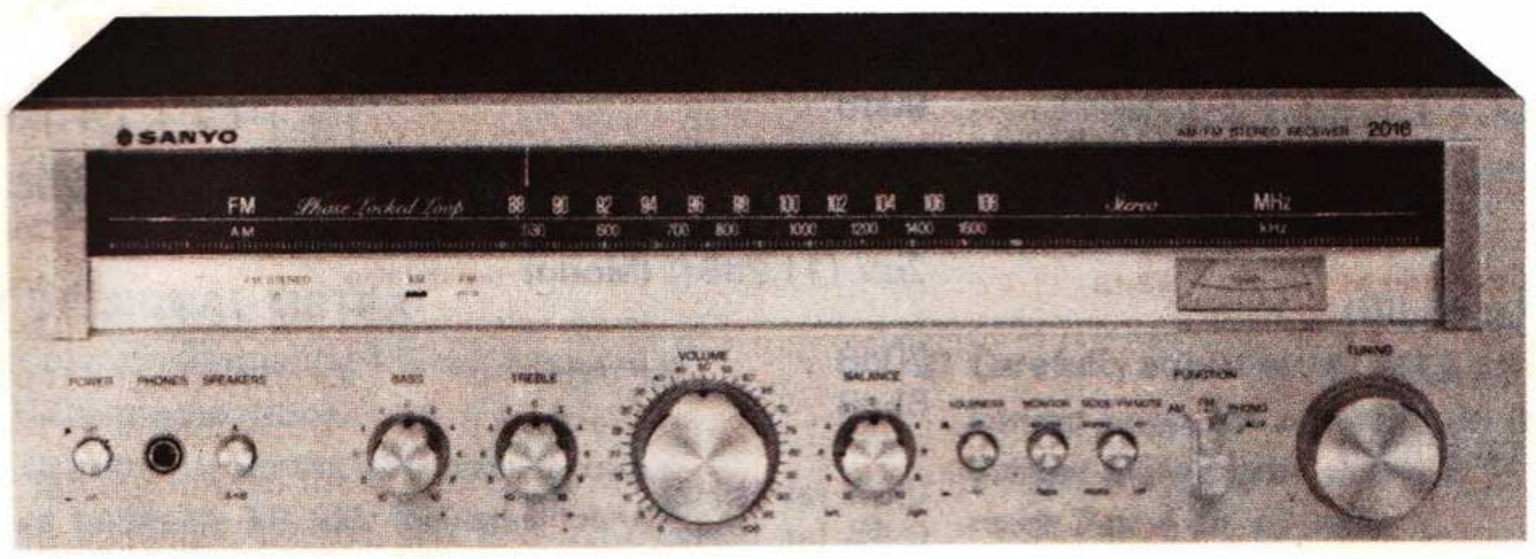
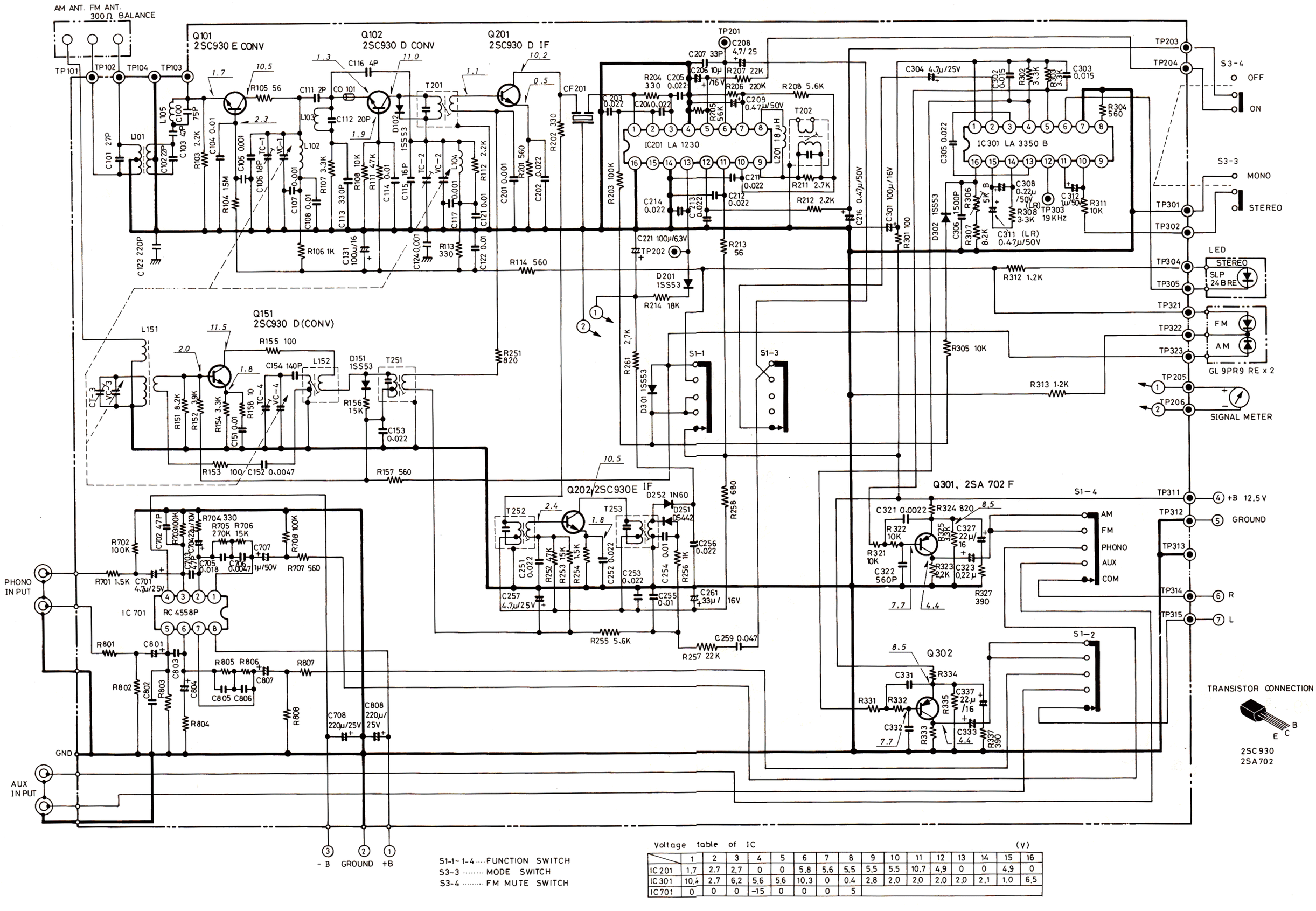


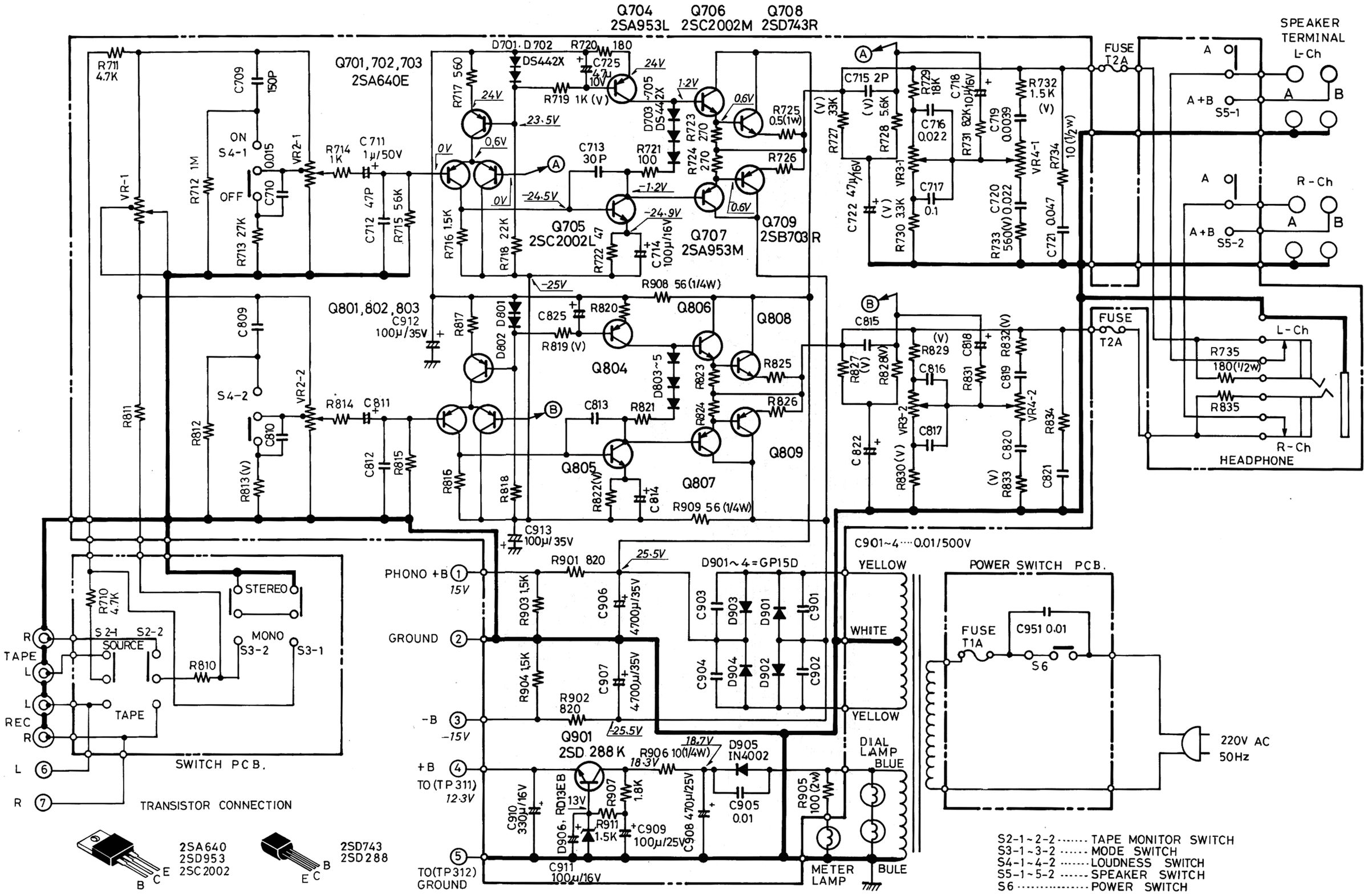
WM-5651

DIAGRAM (TUNER)



Voltage table of IC (V)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 201	1.7	2.7	2.7	0	0	5.8	5.6	5.5	5.5	5.5	10.7	4.9	0	0	4.9	0
IC 301	10.4	2.7	6.2	5.6	5.6	10.3	0	0.4	2.8	2.0	2.0	2.0	2.0	2.1	1.0	6.5
IC 701	0	0	0	-15	0	0	0	5								


Q704 2SA953L
Q706 2SC2002M
Q708 2SD743R
Q701,702,703 2SA640E
Q705 2SC2002L
Q707 2SA953M
Q709 2SB703R
Q801,802,803
Q804
Q805
Q806
Q807
Q808
Q809
Q901 2SD 288 K
SPEAKER TERMINAL L-Ch
R-Ch
HEADPHONE
FUSE T2A
FUSE T1A
STEREO
MONO
SOURCE
TAPE
SWITCH PCB.
TRANSISTOR CONNECTION
2SA640 2SD953 2SC2002
2SD743 2SD288
PHONO +B
GROUND
-B
+B
TO(TP311)
TO(TP312)
GROUND
D901~4=GP15D
C901~4····0.01/500V
POWER SWITCH PCB.
YELLOW
WHITE
YELLOW
DIAL LAMP
BLUE
METER LAMP
BULE
220V AC 50Hz
S2-1~2-2 ····· TAPE MONITOR SWITCH
S3-1~3-2 ····· MODE SWITCH
S4-1~4-2 ····· LOUDNESS SWITCH
S5-1~5-2 ····· SPEAKER SWITCH
S6 ····· POWER SWITCH