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Service Manual

Technics by Panasonic

HI-FI COMPONENTS

Technics by Panasonic

CD-4 FM/AM 4 CHANNEL/2 CHANNEL RECEIVER

MODEL SA-8100X/SA-8100XC (For Canada)

TECHNICAL SPECIFICATIONS (Specifications are subject to change without notice for further improvement.)

AMPLIFIER SECTION

Music power (IHF) :		
4 CH operation		160W (4Ω), 120W (8Ω)
2 CH Balanced Transformerless operation		170W (8Ω)
1 kHz RMS (continuous) power :		
4 CH operation		
All ch. driven		24W+24W+24W+24W (4Ω)
		20W+20W+20W+20W (8Ω)
2 CH Balanced Transformerless operation		
Both ch. driven		50W/50W (8Ω)
20 Hz~20 kHz RMS (continuous) power :		
4 CH operation		
All ch. driven		17W+17W+17W+17W (4Ω)
		16W+16W+16W+16W (8Ω)
2 CH Balanced Transformerless operation		
Both ch. driven		46W+46W (8Ω)
Total harmonic distortion :		0.5%
Intermodulation distortion (60 Hz : 7 kHz=4 : 1, SMPTE) :		0.7%
Power bandwidth (all ch. driven at 8Ω) :		5Hz~40kHz, −3dB
Frequency response :	**PHONO**	RIAA standard curve ±1dB
	AUX	7Hz~70kHz, +0dB −3dB
Residual hum & noise :		1.5mV
Input sensitivity & impedance :	**PHONO**	2mV/50kΩ
	AUX	180mV/30kΩ
	PLAYBACK	180mV/30kΩ
S/N (IHF, A) :	**PHONO**	70dB
	AUX	90dB
Tone controls :	**BASS**	50Hz, +11dB~ −11dB
	TREBLE	10kHz, +10dB~ −10dB
Loudness control (volume at −30 dB) :		50Hz, +11dB
High filter :		7kHz, −6dB/oct
REC OUT :		180mV
Damping factor :		25(8Ω)
Load impedance : MAIN or REMOTE		4~16Ω
MAIN+REMOTE (or Balanced Transformerless)		8~16Ω

FM TUNER SECTION

Frequency range :		88~108MHz
FM sensitivity (IHF) :		1.9 μV
Alternate channel selectivity :		65dB
Harmonic distortion :	**MONO**	0.3%
	STEREO	0.4%
S/N :		65dB
Frequency response :		20Hz~13kHz, ±1dB
Image rejection (at 98 MHz) :		55dB
IF rejection (at 98 MHz) :		60dB
Spurious response rejection (at 98 MHz) :		60dB
Capture ratio :		1.5dB
AM suppression :		50dB
Stereo separation (at 1 kHz) :		40dB
Leak carrier (19 kHz, 38 kHz) :		50dB

AM TUNER SECTION

Frequency range :	520~1610kHz
Sensitivity :	20 μV
Selectivity :	25dB
Image rejection (at 1000 kHz) :	40dB
IF rejection (at 1000 kHz) :	40dB

GENERAL

Power consumption :	150W
Power supply :	AC120V 60Hz
Dimensions (W x H x D) :	19-3/4" x 6-3/32" x 15-9/16"
	(502x155x395)mm
Weight :	14.8kg 32.7 lb.

Matsushita Electric Corp. of America Pan Am Bldg., 200 Park Ave., New York. N. Y. 10017
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Matsushita Electric of Canada Ltd. 40 Ronson Drive, Rexdale, Ont.

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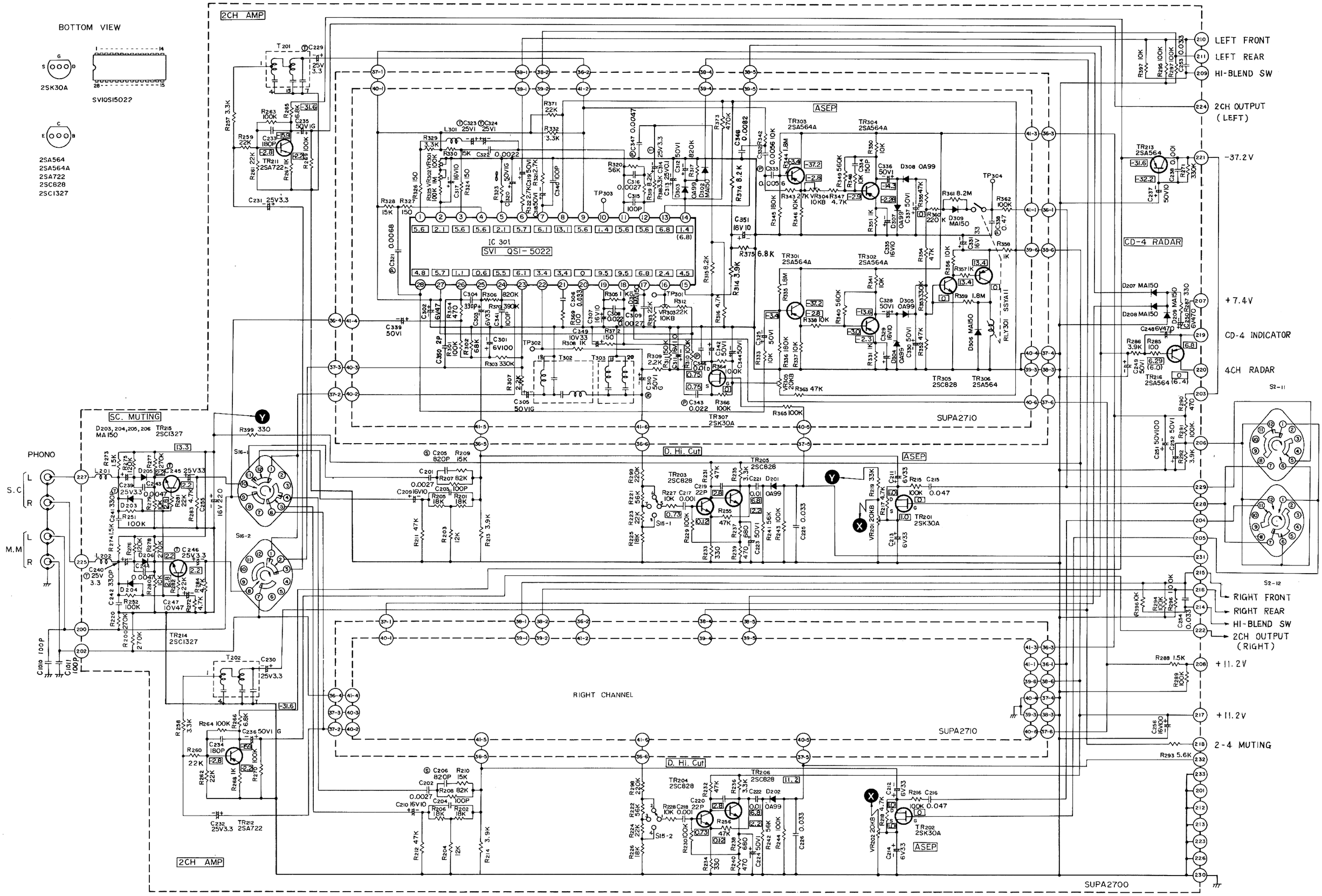
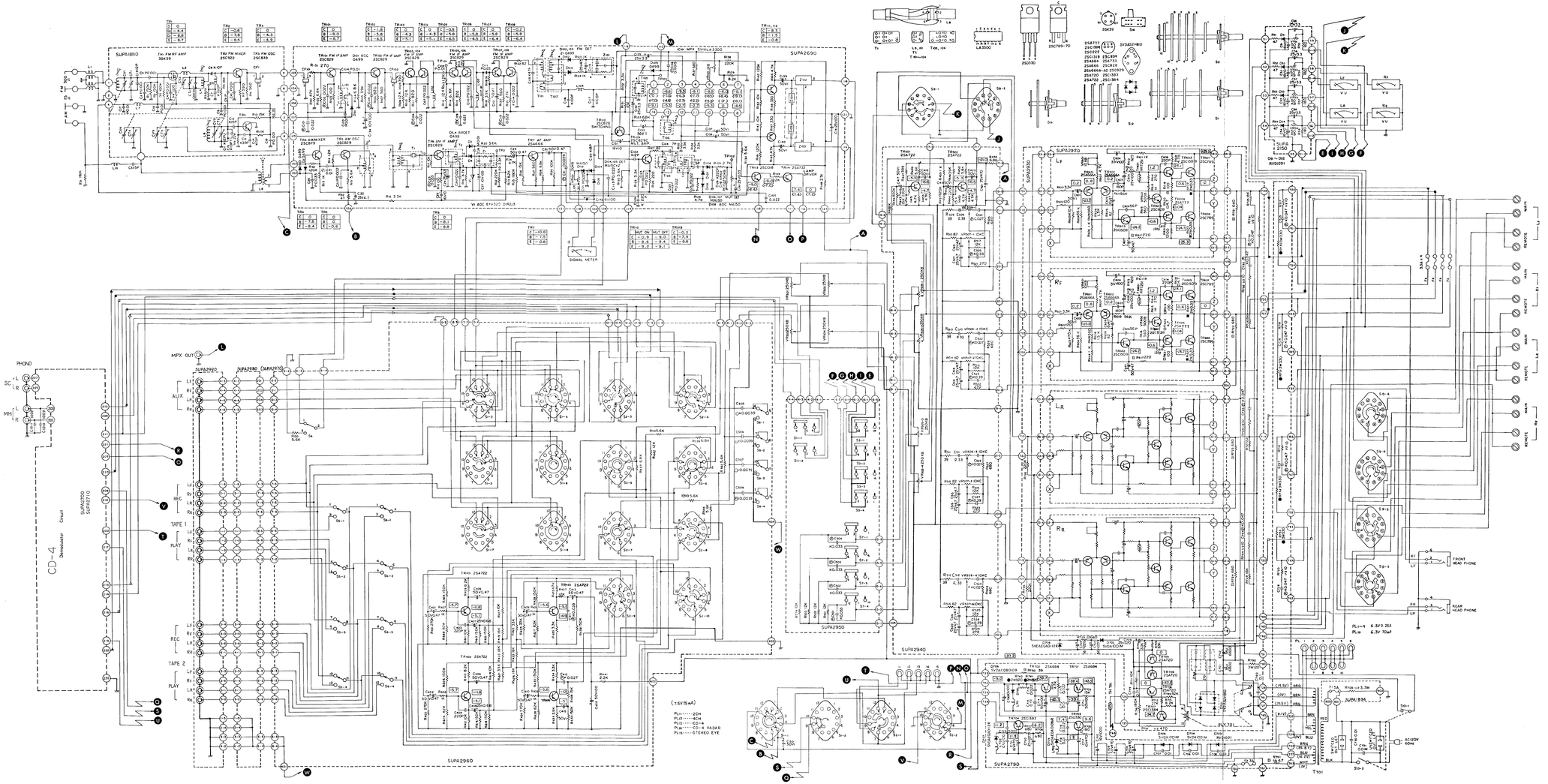
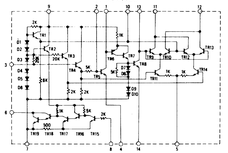
Schematic Diagram ..... Model SA-8100X/SA-8100XC CD-4 Demodulator



Schematic Diagram ..... Model SA-8100X/SA-8100XC

(This schematic diagram may be modified at any time with the development of new technology.)



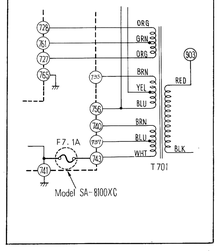


Notes :

1. **S1-1～S1-8 :** Selector switch in "**AM**" position.
   AM ↔ FM AUTO ↔ PHONO ↔ AUX
2. **S2-1～S2-10 :** Mode switch in "**MONO**" position.
   MONO ↔ STEREO ↔ CD-4 ↔ RM1 ↔ RM2
3. **S3-1～S3-4 :** VU meter range switch in "**OFF (0 dB)**" position.
   OFF ↔ –10dB
4. **S4 :** FM muting switch in "**ON**" position.
5. **S5-1～S5-4 :** Tape monitor 1 switch in "**SOURCE**" position.
6. **S6-1～S6-4 :** Tape monitor 2 switch in "**SOURCE**" position.
7. **S7-1～S7-4 :** Loudness switch in "**OFF**" position.
8. **S8-1～S8-4 :** High filter switch in "**OFF**" position.
9. **S9-1～S9-6 :** Speakers selector switch in "**OFF**" position.
   OFF ↔ MAIN ↔ REMOTE ↔ MAIN+REMOTE ↔ 2CH BTL (MAIN)
10. **S10-1, S10-2 :** Power source switch in "**OFF**" position.
11. **S11-1, S11-2 :** CD-4 high blend switch in "**OFF**" position.
12. **S15-1, S15-2 :** 30kHz compensator switch in "**DOWN**" position.
    DOWN ↔ NORMAL ↔ UP
13. **S16-1, S16-2 :** Cartridge selector switch in "**MM**" position. MM ↔ SC
14. DC voltage measurements are taken with DC VTVM from chassis ground.
    [ ] ..... FM/AM non-signal condition
    ( ) ..... FM stereo signal reception
15. Circuit of rear channel main amplifier is same as front channel circuit.

16. VR101 ..... FM Meter Adjustment
17. VR102 ..... FM Muting Level Adjustment
18. VR103 ..... Separation Adjustment
19. VR501～VR504 ..... Channel Level Control
20. VR505-1～VR505-4 ..... Volume Control
21. VR506-1～VR506-4 ..... Treble Control
22. VR507-1～VR507-4 ..... Bass Control

Power Source
Only Model SA-8100XC



CD-4 DEMODULATOR ALIGNMENT INSTRUCTIONS

Notes :

1. Volume control ..... Minimum (When separation alignment is variable)
2. Channel level control ..... Maximum
3. Selector switch ..... PHONO
4. Mode switch ..... DISCRETE (CD-4)
5. 30kHz compensator switch ..... NORMAL
6. Cartridge selector switch ..... MM
7. Other controls ..... Optional position
8. Maintain line voltage at rated voltage.
9. Adjust left channel and right channel by following adjustment method.

	AF OSCILLATOR or 4CH PLAYER CONNECTION	INPUT FREQUENCY & INPUT LEVEL	INDICATOR CONNECTION	ADJUSTMENT POINTS	REMARKS
	PLL FREE RUNNING FREQUENCY ALIGNMENT				
1			Connect frequency counter to No. **17** pin of IC301 (Refer to fig. 4)	VR303	1. **TP302** connect to chassis through lectrolytic capacitor. (Refer to fig 5) 2. Make adjustment so that the indication on frequency counter becomes 30kHz ±250Hz.
	AUTOMATIC NOISE REDUCTION SYSTEM (ANRS) ALIGNMENT				
2	Connect OSC to No. **15** pin of IC301 through electrolytic capacitor. (Refer to fig. 7)	600Hz (40mV)	Connect VTVM to REC OUT terminal. (left and right front rec. output)		1. **TP304** connect to chassis. (Refer to fig. 6) 2. Resistor connect between No. **14** pin of IC301 and +B voltage line. (Refer to fig. 7) 3. This output voltage is defined as the specified voltage. [about 100mV]
3	Connect OSC to No. **15** pin of IC301 through electrolytic capacitor. (Refer to fig. 7)	600Hz (4mV)	Connect VTVM to REC OUT terminal. (left and right front rec. output)	VR301 VR302	4. Adjust VR301 and VR302 until 1/30 (−30dB) the specified voltage level, which was measured at step 2 is reached.
	MAIN CHANNEL GAIN ALIGNMENT				
4	Connect OSC to PHONO (MM) terminal. (Left and Right)	600Hz (1.6mV)	Connect VTVM to REC OUT terminal. (Left and right front rec. output)	VR201 (Left) VR202 (Right)	1. **TP304** connect to chassis. (Refer to fig. 6) 2. Make adjustment so that the indication on VTVM becomes 100mV. (Left and Right)
	DYNAMIC HIGH CUT ALIGNMENT				
	Note : Adjust when replacing transistor TR307 (2SK30A).				
5	Connect OSC to PHONO (MM) terminal. (Left and Right)	30kHz (2.2mV)	Connect circuit tester to TR307. (between Drain and Source) Refer to fig. 8.	VR305	Make adjustment so that the indication on circuit tester becomes 5kΩ.
	SEPARATION ALIGNMENT				
	Notes : 1. Cartridge selector switch ..... Semi Conductor 2. Separation alignment record ..... SPR123 (Accessory of Model SH-400) 3. Use a 4CH player and SC 4CH. cartridge. (Cartridge No. EPC-450C-II)				
6	Connect 4CH player to PHONO (SC) terminal and play CD-4 alignment record.	Separation Alignment Band (Left Side)	VU (output level) meter of set front panel.	VR304 (Left)	Adjust for minimum left rear VU meter indication.
7		Separation Alignment Band (Right Side)	VU (output level) meter of set front panel.	VR304 (Right)	Adjust for minimum right rear VU meter indication.

Note :

If you removed the CD-4 demodulator p.c.b. assembly that are used at left channel (right channel) side, please do not install it at right channel (left channel) side. Also, if you changed the CD-4 demodulator p.c.b. assembly, it becomes necessary to make re-adjustment.

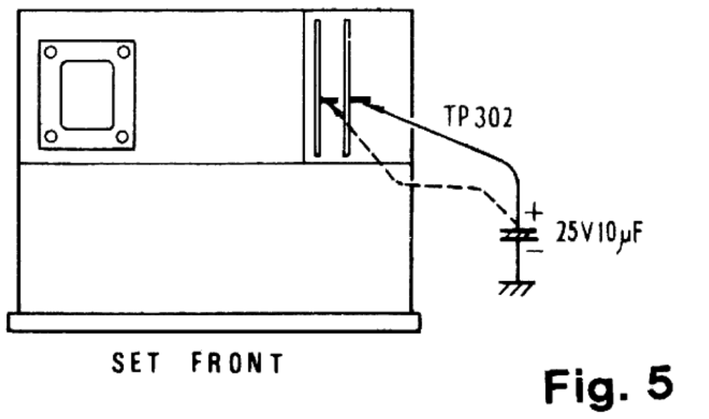


Fig. 5

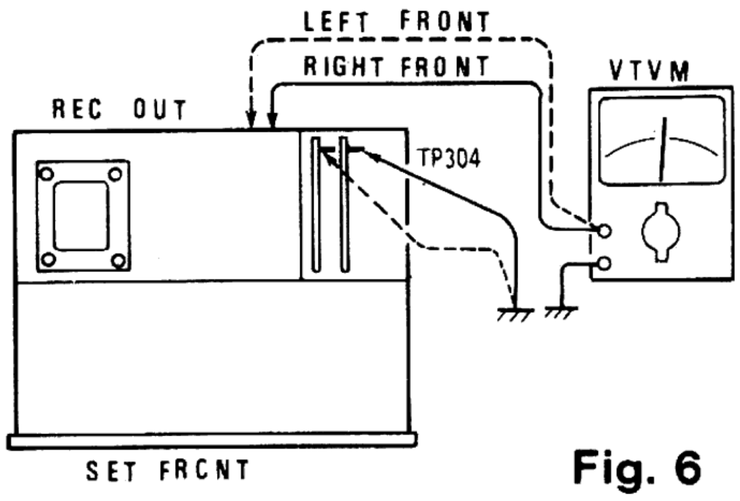


Fig. 6

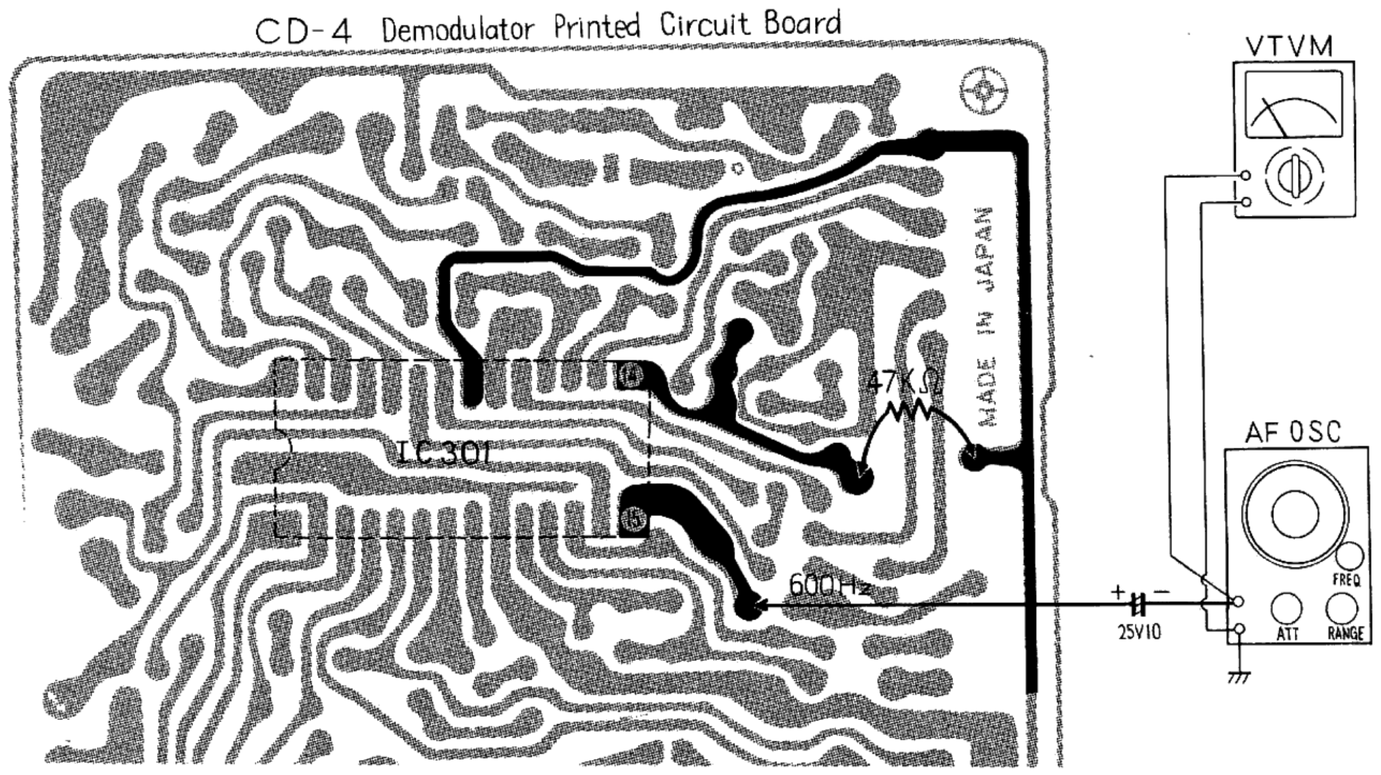


Fig. 7

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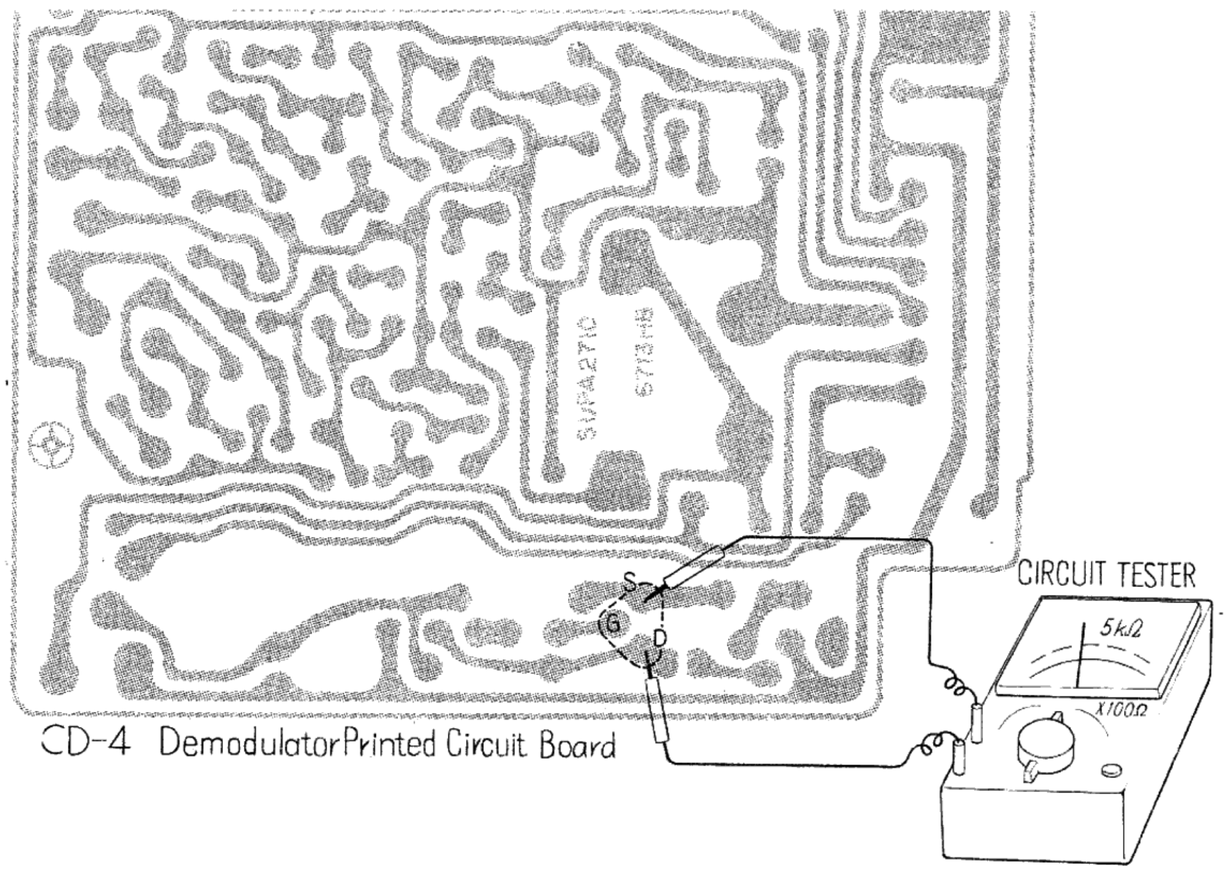
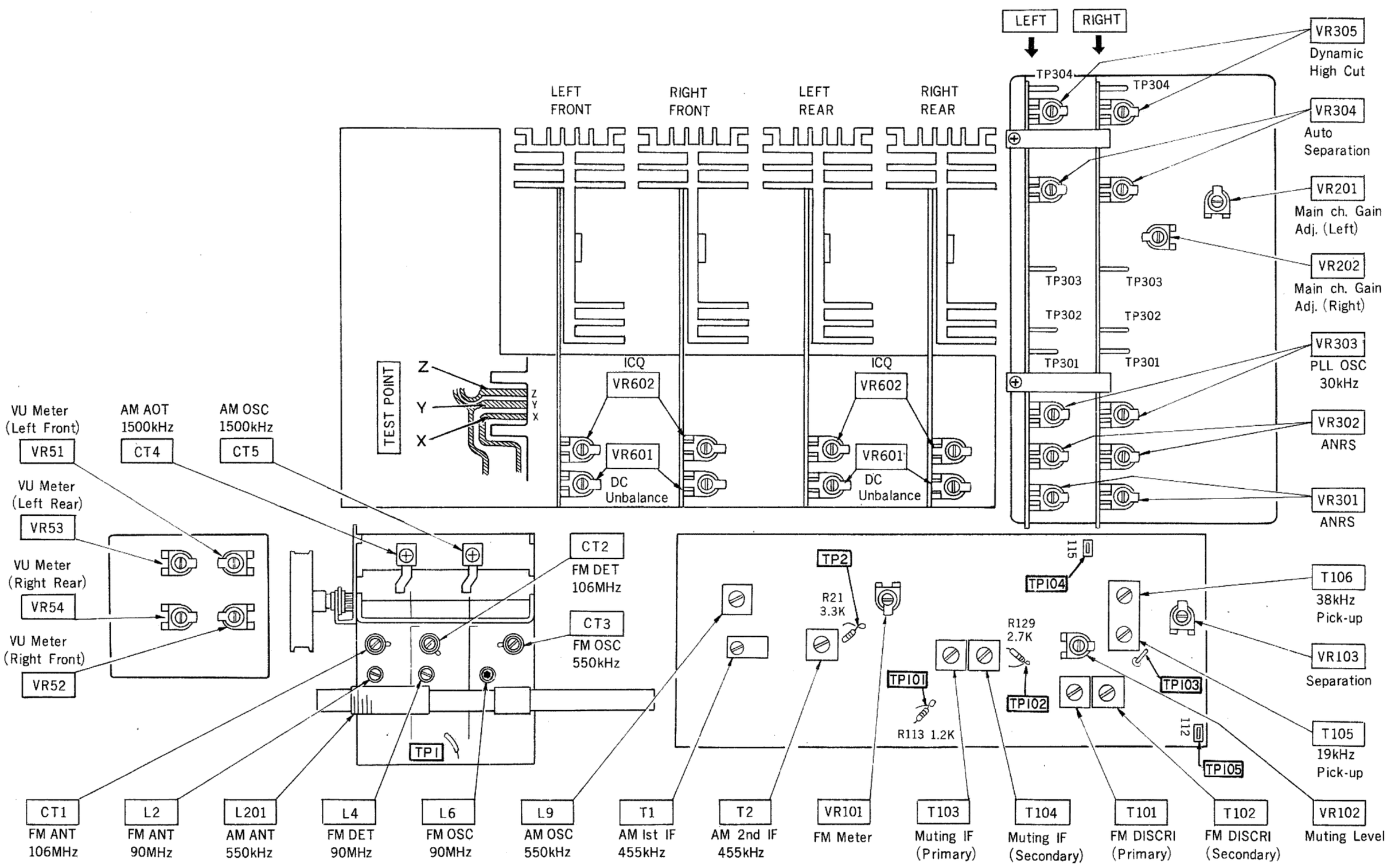
Fig. 8

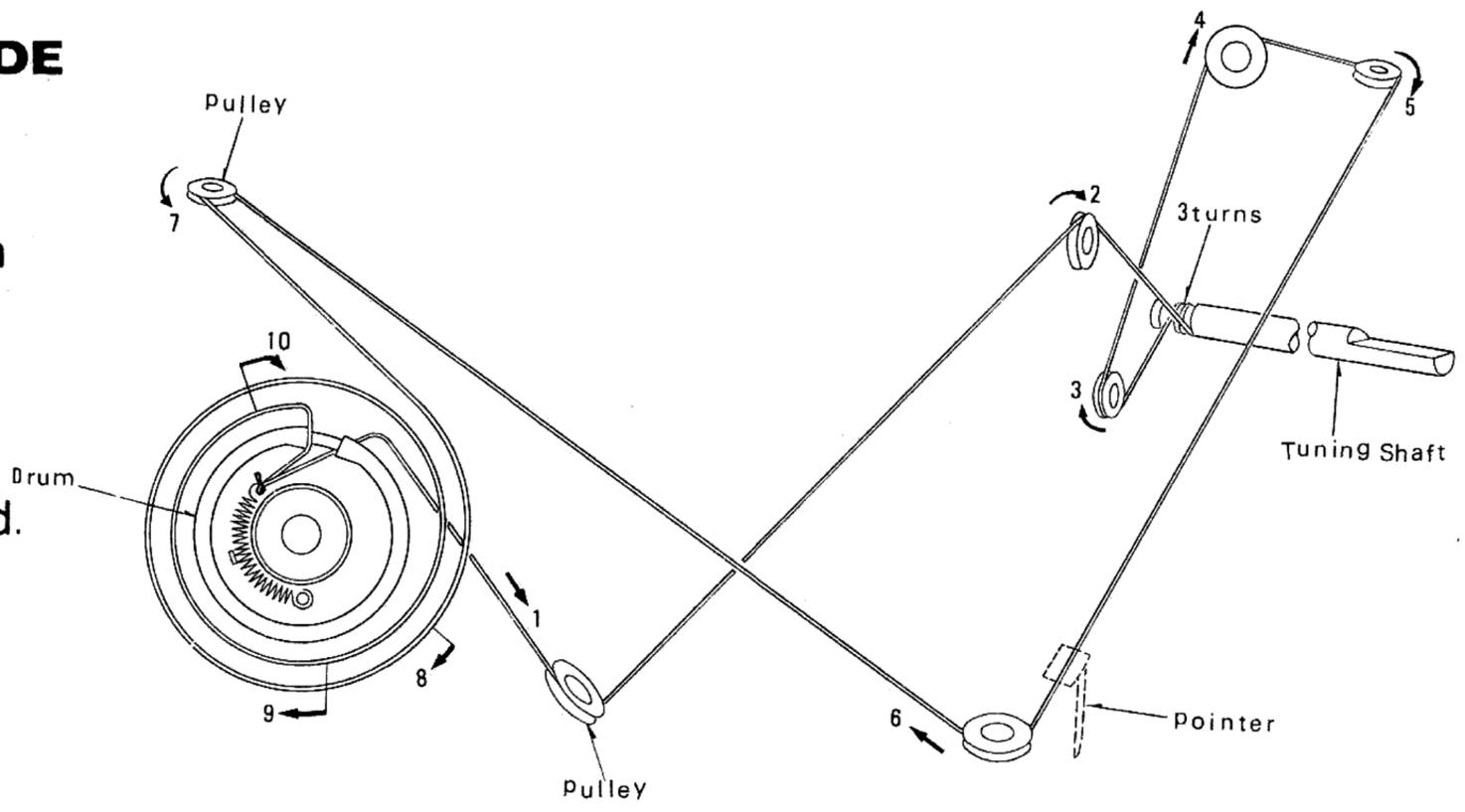


■ ALIGNMENT POINTS



■ DIAL CORD INSTALLATION GUIDE

1. Dial cord length is 63-1/8" (160cm).
2. Tuning gang is positioned at maximum capacity.
   (Frequency is minimum.)
3. Arrow marks (1～10) indicate correct order and direction of stringing dial cord.



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ALIGNMENT INSTRUCTIONS----READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes :

1. Volume control ..... Minimum (Main Amp Alignment)
   Variable (VU Meter Alignment)
2. Speakers switch..... Main
3. Selector switch ..... Aux
4. Mode switch ..... 4ch. Discrete
5. VU meter switch ..... Normal (OFF)
6. Maintain line voltage 120V
7. The I_{CQ} adjustment should be started 1~3 minutes after setting the power switch to the ON position.
8. Before adjusting, I_{CQ} adjusting volumes ($VR_{602} \times 4$) should be turned to the left side completely.
9. Adjust all channel (Left-Front, Left-Rear, Right-Front and Right-Rear) by following adjustment method.

MAIN AMPLIFIER ALIGNMENT

	CIRCUIT	DC VTVM CONNECTION	ADJUSTMENT POINTS	REMARKS
1	DC Unbalance	Connect DC VTVM between TEST POINT Ⓧ and TEST POINT Ⓨ	VR601	Make sure that DC VTVM becomes 0mV
2	I_{CQ}	Connect DC VTVM between TEST POINT Ⓨ and TEST POINT Ⓩ	VR602	Make adjustment so that the indication on DC VTVM becomes 2.5mV.

VU METER ALIGNMENT

	INPUT	OUTPUT	ADJUSTMENT POINTS	REMARKS
3	Connect oscillator and VTVM to AUX terminal of set rear panel. (Input ..... 200 mV 1kHz)	Connect VTVM to speaker terminals. Output level ... 14 V, 8Ω	VR51 (L-Front) VR52 (R-Front) VR53 (L-Rear) VR54 (R-Rear)	Make adjustments so that the indication on VU meter of set becomes 0dB.

Notes :

1. Volume control ..... Maximum (AM-RF)
   Minimum (AM-IF, FM-IF)
   Variable (FM-RF)
2. Bass and treble control ..... Center
3. Selector switch ..... AM
   FM-Auto (FM-RF, FM-IF)
4. Loudness switch ..... OFF
5. Muting switch ..... OFF
6. Speakers switch..... Main
7. Tape-monitor switch ..... Source
8. Mode switch ..... Stereo
9. Maintain line voltage at 120 volts.
10. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR or SWEEP GENERATOR		RECEIVER DIAL SETTING (DISTANCE)	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	CONNECTION	FREQUENCY				
	AM ALIGNMENT					
4	High side through 0.001μF to antenna terminal, Common to chassis.	455kHz (20kHz Sweep)	Point of non-interference	Connect vert. amp. of scope to **TP**2.	T1 (1st IFT) T2 (2nd IFT)	Adjust for maximum output.
5	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550kHz (30% Mod. with 400Hz)	550kHz [4.6mm (3/16″)]	Connect meter to speakers terminal of set.	L9 (OSC Coil) L201 (ANT Coil)	Adjust for maximum output. Adjust L201 by moving coil bobbin along ferrite core.
6	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500kHz (30% Mod. with 400Hz)	1500kHz [131mm (5 5/32″)]	Connect meter to speakers terminal of set.	CT5 (OSC Trimmer) CT4 (ANT Trimmer)	Adjust for maximum output. Repeat steps (5) and 6)
	FM-IF ALIGNMENT					
7			Point of non-interference.	Connect DC VTVM between **TP**104 and **TP**105.	T102 (FM DISCRI IFT) (S)	Make sure that VTVM becomes 0V.
8	High side through 0.001μF to **TP**1. Common to chassis.	10.7MHz (400kHz Sweep)	Point of non-interference.	Connect vert. amp. of scope through detector to **TP**101. Refer to figure 1.		Confirm center frequency.
9	High side through 0.001μF to **TP**1. Common to chassis.	10.7MHz (400kHz Sweep)	Point of non-interference.	Connect vert. amp. of scope to **TP**102.	T103 (Muting IFT) (P) T104 (Muting IFT) (S)	Adjust for maximum sharp and proper linearity. Adjust to center frequency as step (8) Refer to figure 2.
	FM-RF ALIGNMENT					
10	Connect to FM antenna terminal through FM dummy antenna. (Refer to fig 3)	90MHz (100% Mod. with 400Hz)	90MHz [17.3mm (21/32″)]	Output meter across speaker terminals.	L6 (FM OSC Coil) * L4 (FM DET Coil) L2 (FM ANT Coil)	Adjust for maximum output.
11	Connect to FM antenna terminal through FM dummy antenna. (Refer to fig. 3)	106MHz (100% Mod. with 400Hz)	106MHz [122.7mm (4 27/32″)]	Output meter across speaker terminals.	CT3 (FM OSC Trimmer) CT2 (FM DET Trimmer) CT1 (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (10) and (11)

* Use six cornered alignment tool for aligning FM OSC coil (L6).

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	SIGNAL GENERATOR		RECEIVER DIAL SETTING	INDICATOR (DISTORTION METER and SIGNAL METER)	ADJUSTMENT POINTS	REMARKS
	CONNECTION	FREQUENCY				
	MUTING LEVEL ALIGNMENT					
	Note : Muting switch.....ON					
12	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) Output 28 dB (IHF)	98 MHz (Input Level 16dB)	Output meter or speaker across speaker terminals.	VR102 (Muting Level)	Adjust so that output can be obtained.
	FM-MONO DISTORTION ALIGNMENT					
	Note : Muting switch ..... OFF					
13	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) Output 72 dB	98 MHz	Connect distortion meter to speaker terminals.	T101 (FM DISCRI IFT) (P)	Adjust for minimum distortion.
	SIGNAL METER ALIGNMENT					
14	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (30% Mod. with 400 Hz) Output 72 dB	98 MHz	Signal meter of set.	VR101 (Indicated Position)	Adjust for about 4.8 point of signal meter indication.

Notes :

Stereo-modulator ..... Connect stereo-modulator output to EXT. MOD. terminal of signal generator. Internal OSC 1 kHz. Pilot signal modulation 10%.

Signal generator ..... Frequency approximately 98 MHz. Output level 72 dB. Modulation mode to FM.

1. Selector ..... FM-Auto
2. Bass and treble control ..... Center
3. Speakers switch ..... Main
4. Mode switch ..... Stereo
5. Maintain line voltage at 120 volts.
6. Muting switch ..... OFF
7. Loudness switch ..... OFF
8. Tape monitor switch ..... Source
9. Dummy load ..... 8 Ω

	SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE and MOD. RATE	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	19kHz, 38kHz COIL and PHASE ALIGNMENT				
15	FM antenna terminal through dummy antenna.	Pilot signal to ON.	Connect scope to **TP**103. Common to chassis.	T105 (19 kHz Coil)	Adjust for maximum output.
16	〃	〃 L (or R) 30% Mod.	Connect scope to speaker terminals.	T106 (38 kHz Coil)	Adjust for minimum right (or left) output.
	SEPARATION ALIGNMENT				
17	FM antenna terminal through dummy antenna.	L (and R) 30% Mod.	Output meter across speaker terminals through low pass filter. (Low Pass Filter fc=15kHz~19kHz)	VR103 (Separation)	Adjust for minimum right (and left) output.

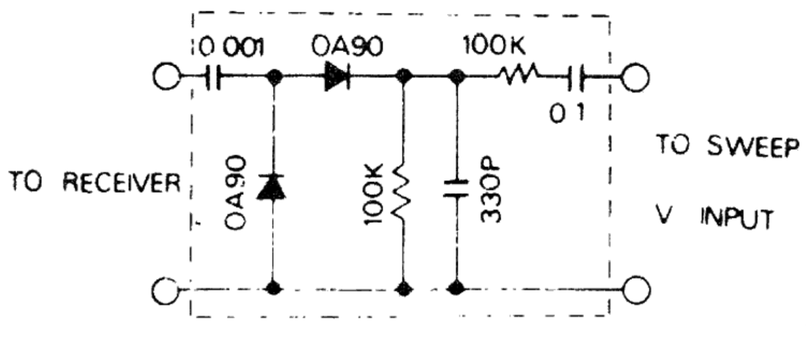


Fig. 1

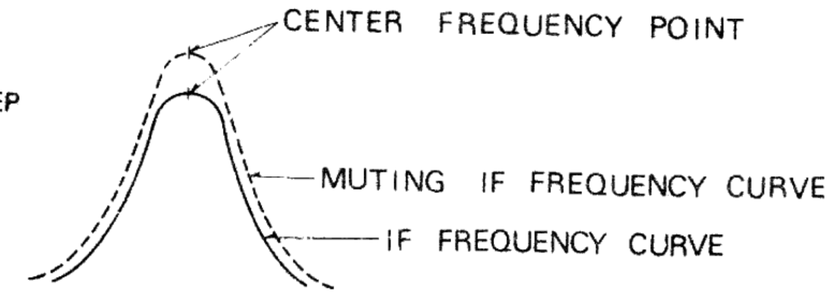
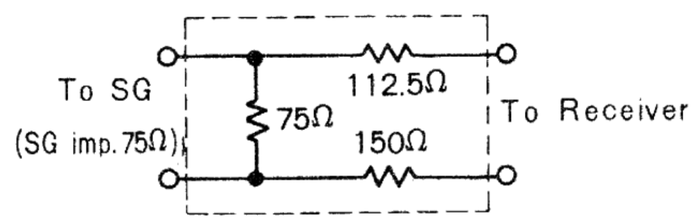


Fig. 2



300Ω FM Dummy Antenna

Fig. 3

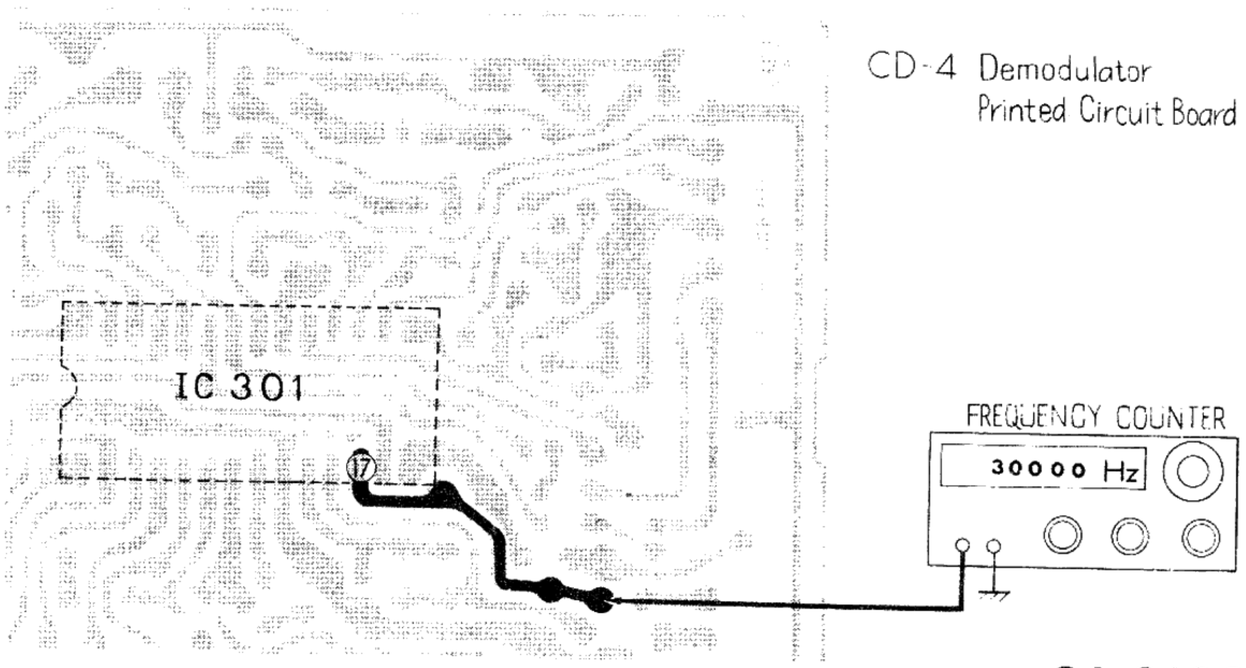


Fig. 4

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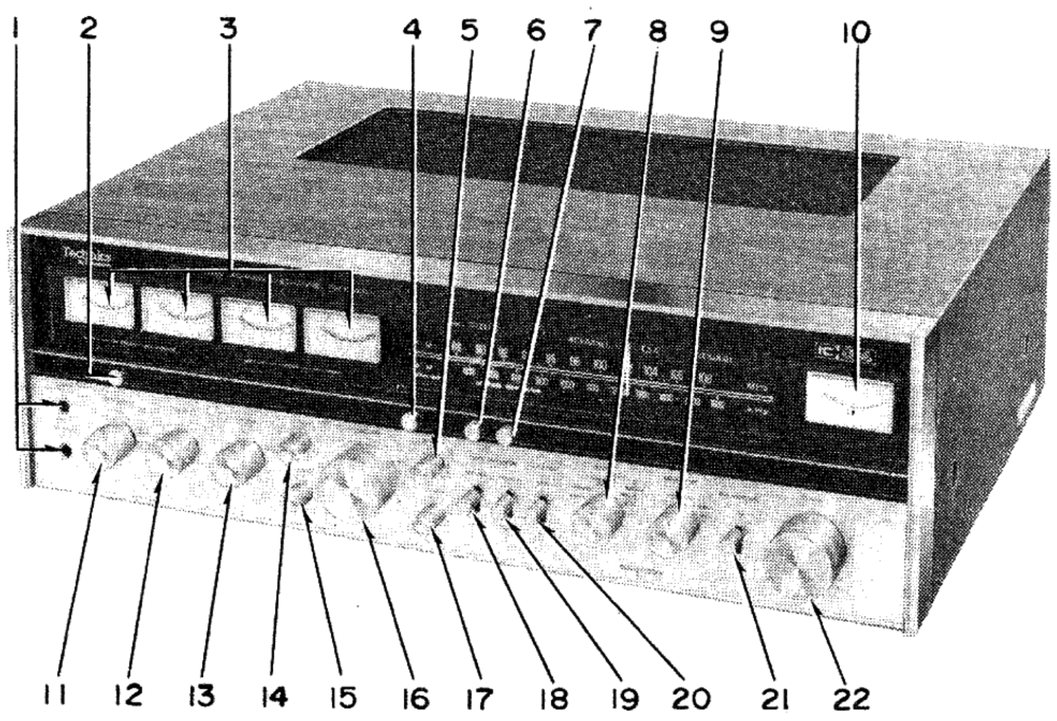
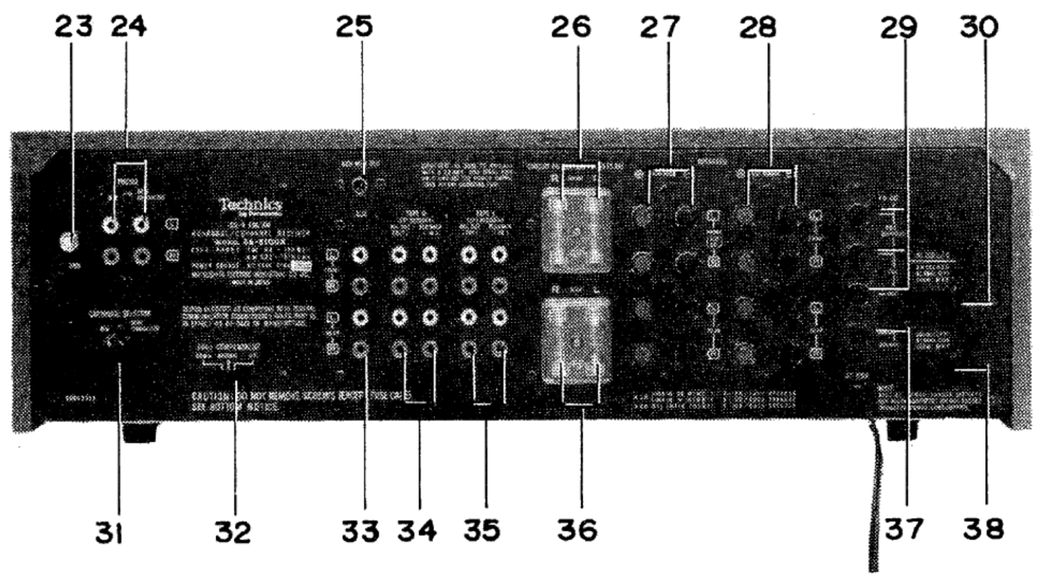
■ LOCATION OF CONTROLS

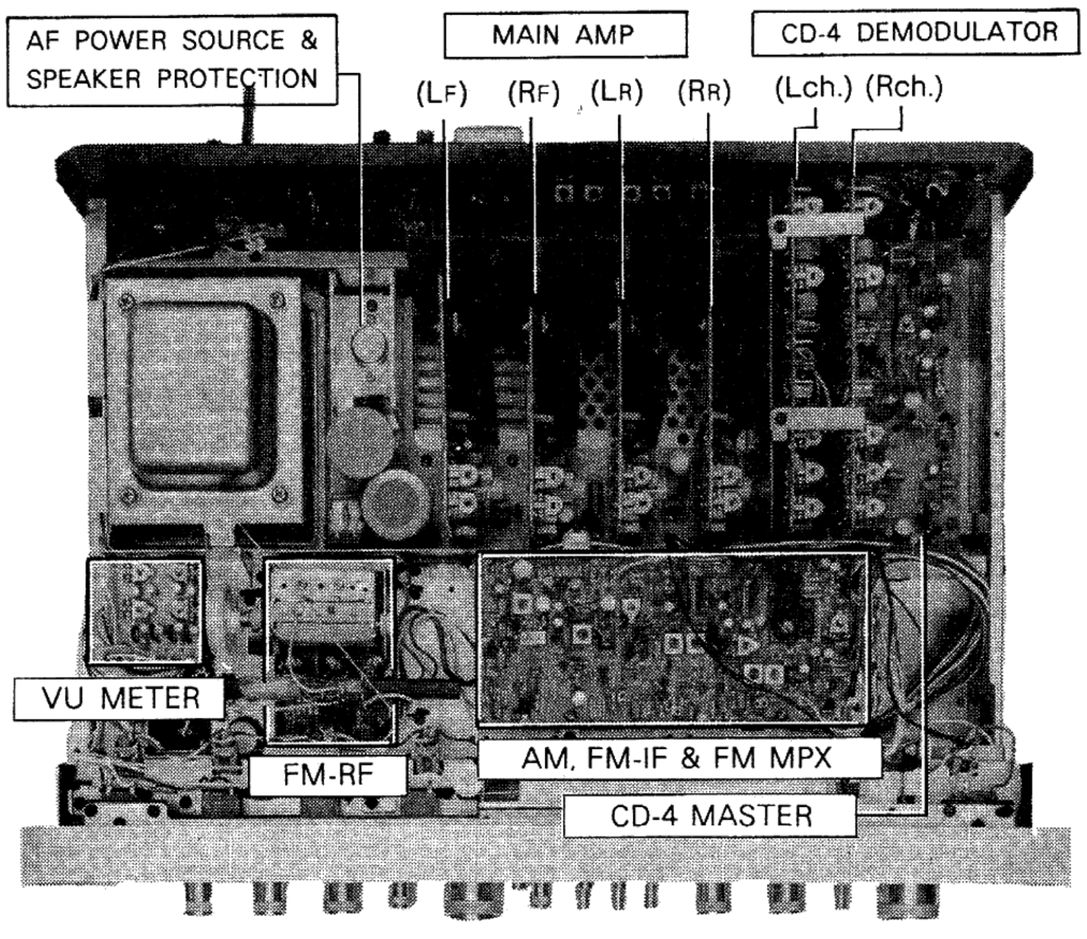


1. HEADPHONES JACK
2. POWER SOURCE SWITCH (S10)
3. VU [OUTPUT LEVEL] METERS
4. VU METER RANGE SWITCH (S3)
5. RIGHT-FRONT CH. LEVEL CONTROL
6. LOUDNESS SWITCH (S7)
7. CD-4 HI-BLEND SWITCH (S11)
8. MODE SWITCH (S2)
9. SELECTOR SWITCH (S1)
10. SIGNAL METER
11. SPEAKERS SELECTOR SWITCH (S9)
12. BASS CONTROL
13. TREBLE CONTROL
14. LEFT-FRONT CH. LEVEL CONTROL
15. LEFT-REAR CH. LEVEL CONTROL
16. VOLUME CONTROL
17. RIGHT-REAR CH. LEVEL CONTROL
18. 4CH. TAPE MONITOR 1 SWITCH (S5)
19. 4CH. TAPE MONITOR 2 SWITCH (S6)
20. HIGH FILTER SWITCH (S8)
21. FM MUTING SWITCH (S4)
22. TUNING CONTROL

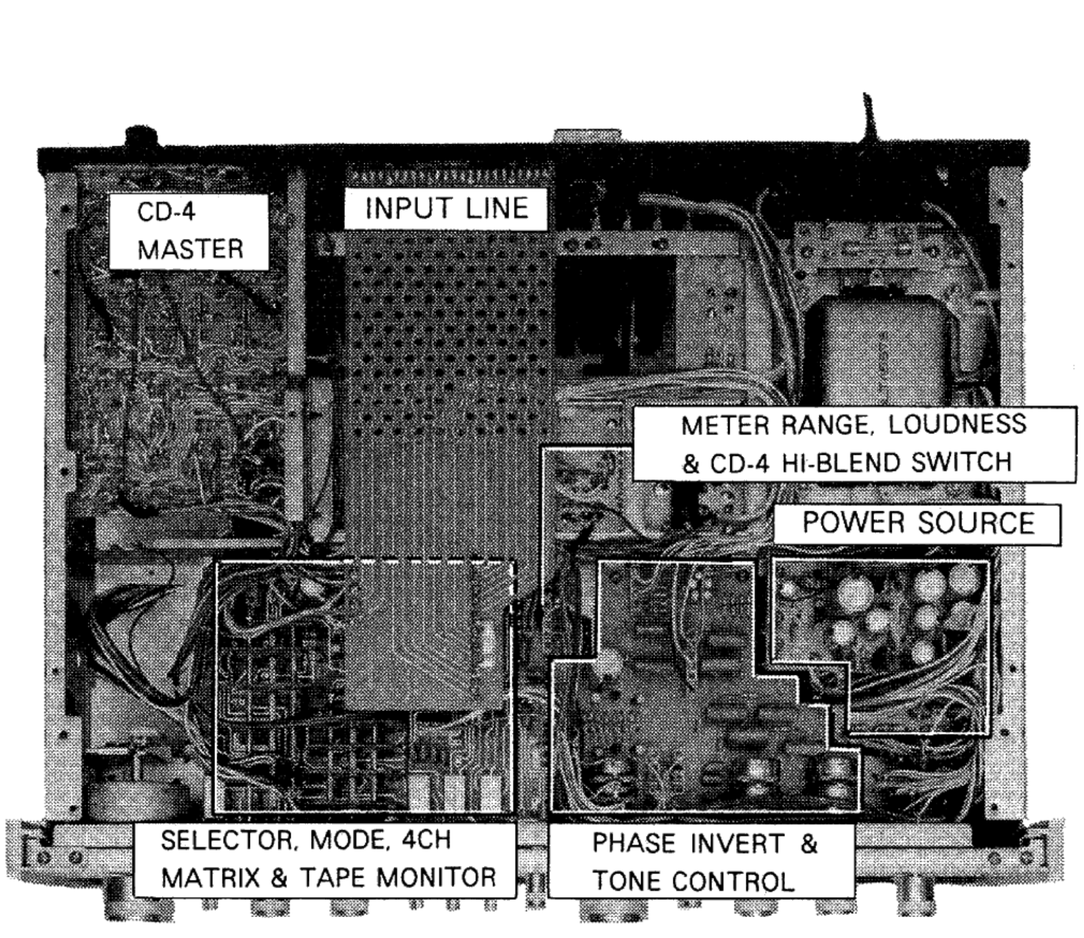


23. GROUND TERMINAL
24. PHONO INPUT [MM AND SC] TERMINALS
25. 4CH. MPX OUTPUT TERMINAL
26. CIRCUIT PROTECTION FUSES.....Front Channel
27. 4CH. MAIN SPEAKER TERMINALS
28. 4CH. REMOTE SPEAKER TERMINALS
29. FM EXT ANTENNA TERMINALS
30. AC OUT LET ..... Switched
31. CARTRIDGE SELECTOR SWITCH (S16)
32. 30kHz COMPENSATOR SWITCH (S15)
33. AUX INPUT TERMINALS
34. 4CH. TAPE MONITOR 2 TERMINALS
35. 4CH. TAPE MONITOR 1 TERMINALS
36. CIRCUIT PROTECTION FUSES.....Rear Channel
37. AM EXT. ANTENNA TERMINAL
38. AC OUTLET.....Unswitched

■ LOCATION OF CIRCUIT BOARDS



Top View



Bottom View

■ TO REMOVE IC OF CD-4 DEMODULATOR

1. Remove CD-4 demodulator p.c.b. of set.
2. Insert screw driver between IC_{301} and IC socket. (As shown fig. 9)
3. Turn screw driver (Left or Right side) 90 degrees. (As shown fig. 10)
4. Remove IC_{301} from IC socket.

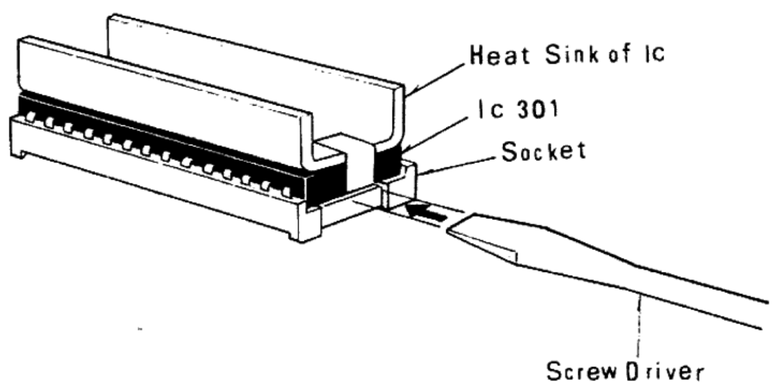


Fig. 9

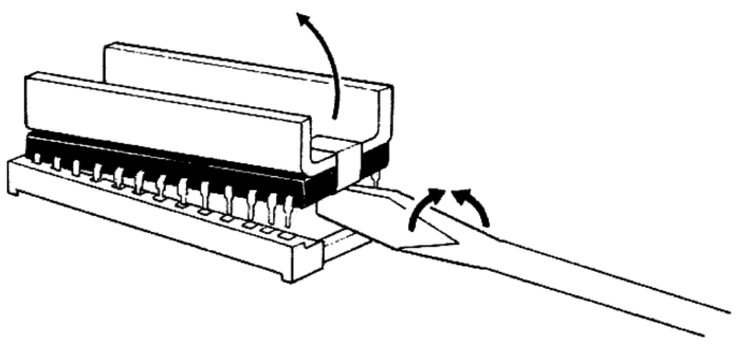


Fig. 10

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■ TO REMOVE TUNER CIRCUIT

1. Remove four (4) cabinet mounting screws.
2. Remove cabinet from chassis.
3. Remove control knobs from front panel as shown Cabinet and Chassis Parts Location.
4. Remove six (6) front panel mounting black screws as shown Cabinet and Chassis Parts Location.
5. Remove front panel from chassis.
6. Remove nine (9) tuner circuit mounting black screws. no. 1～9, as photo 1 and 2.
7. Then tuner circuit can be moved in front of chassis as photo 3, and remove tuner circuit from chassis.

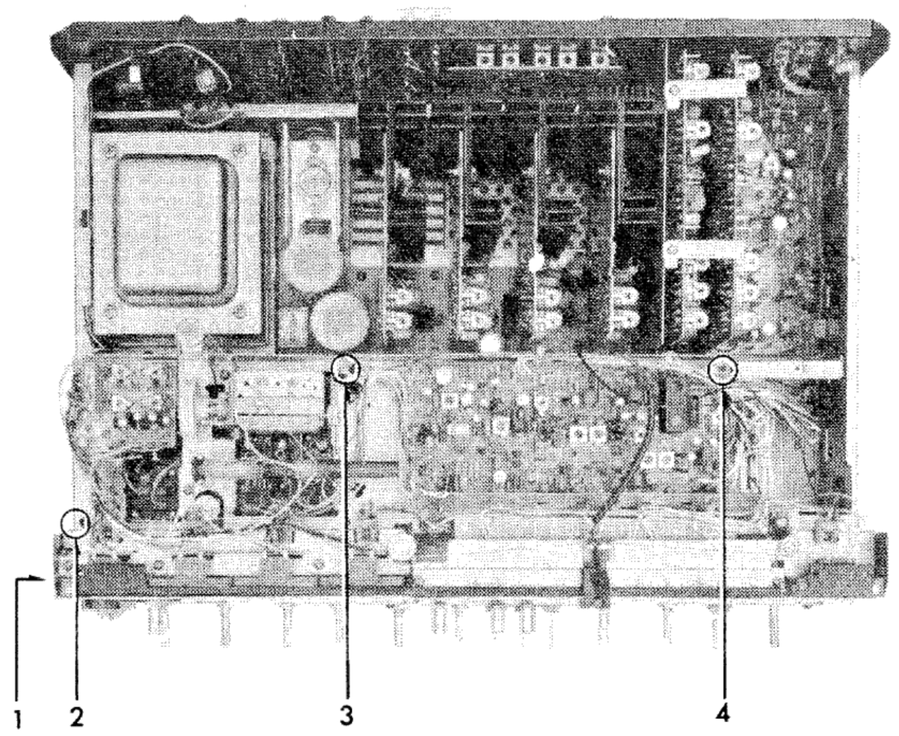


Photo 1

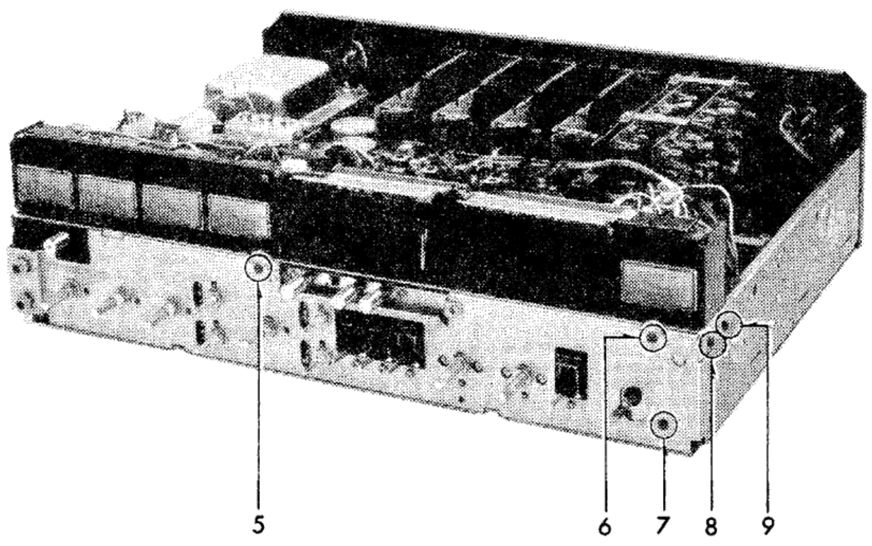


Photo 2

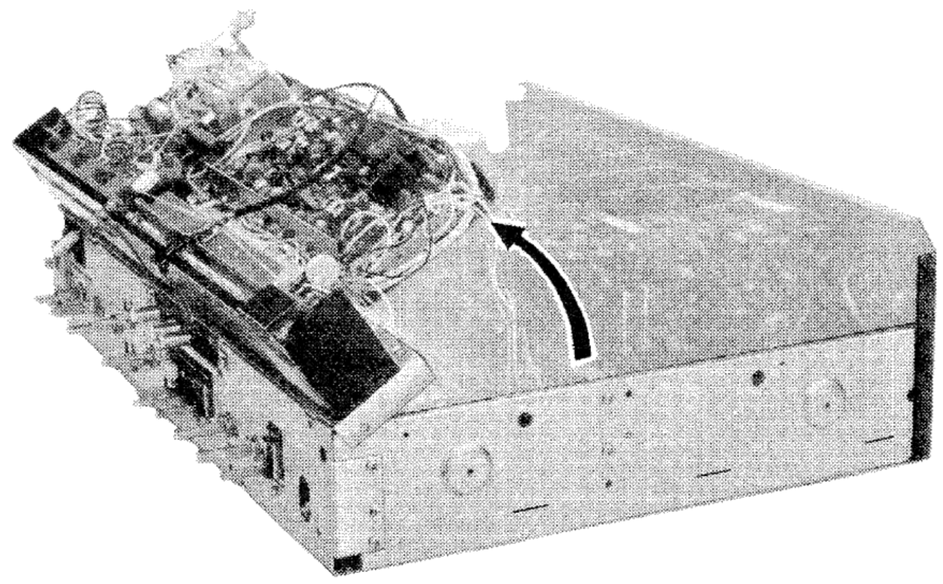
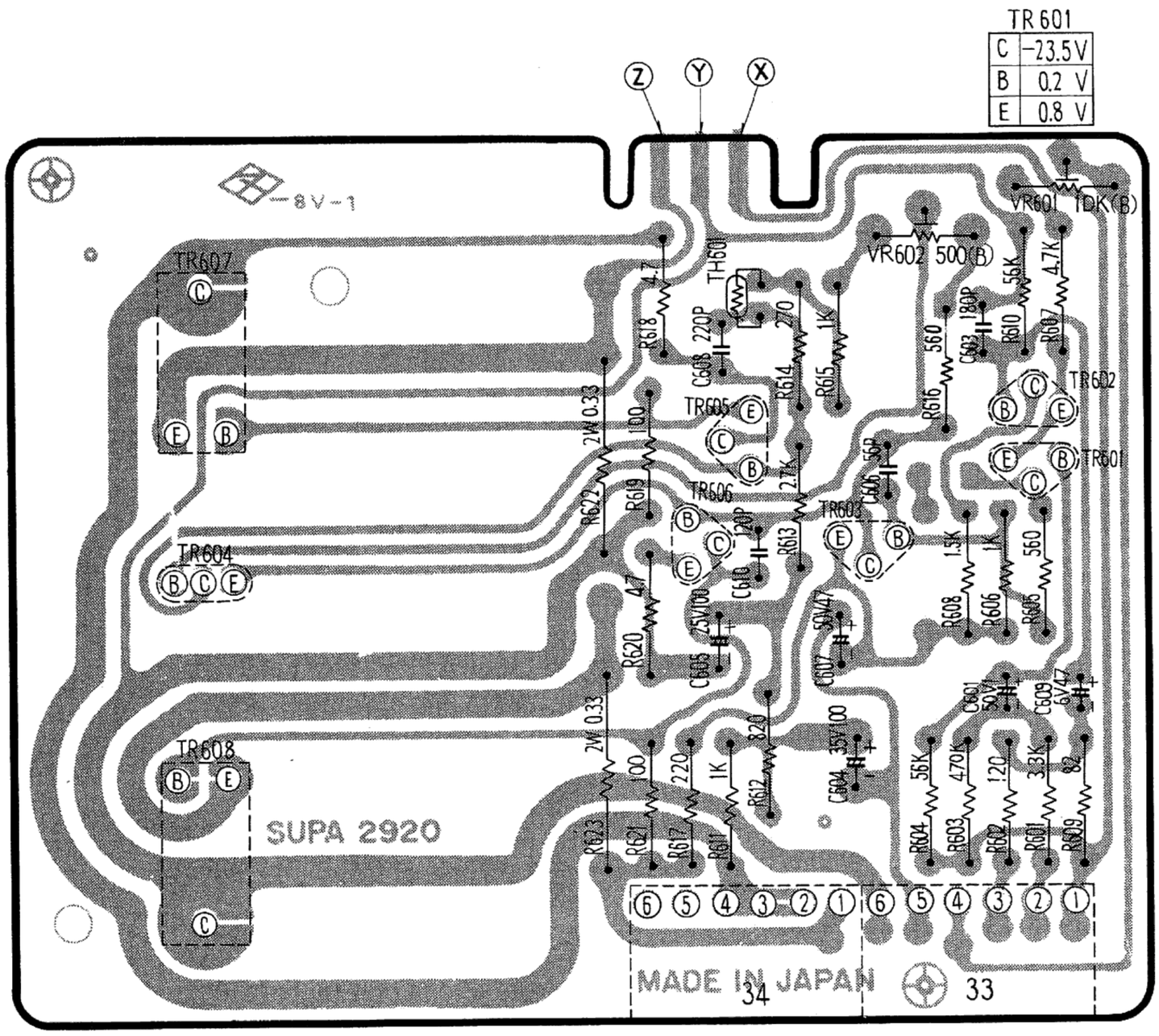


Photo 3

MAIN AMPLIFIER Circuit Board (Left-Front Channel)

Other channels (Right-Front, Left-Rear and Right-Rear) are same as Left-Front channel.



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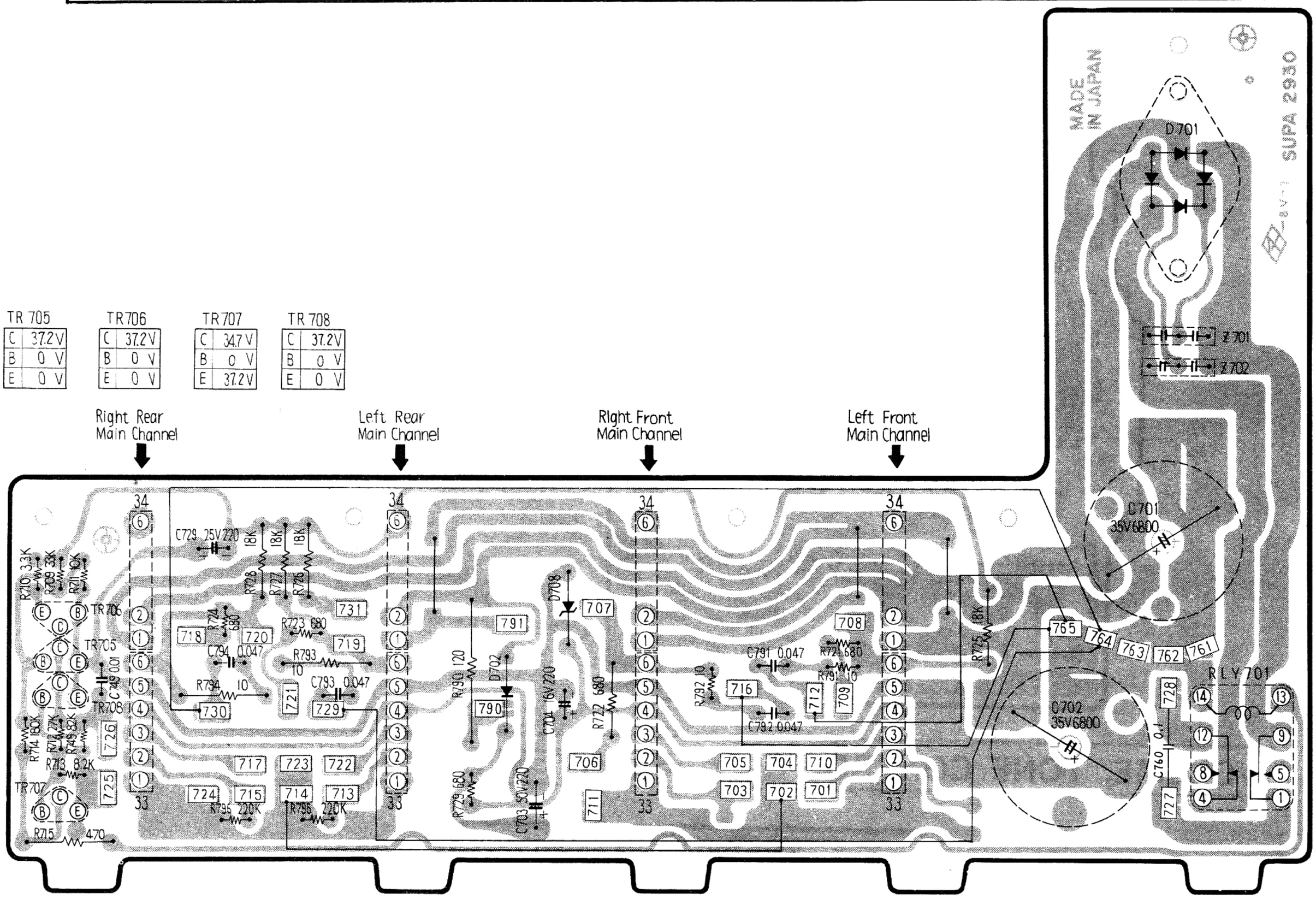
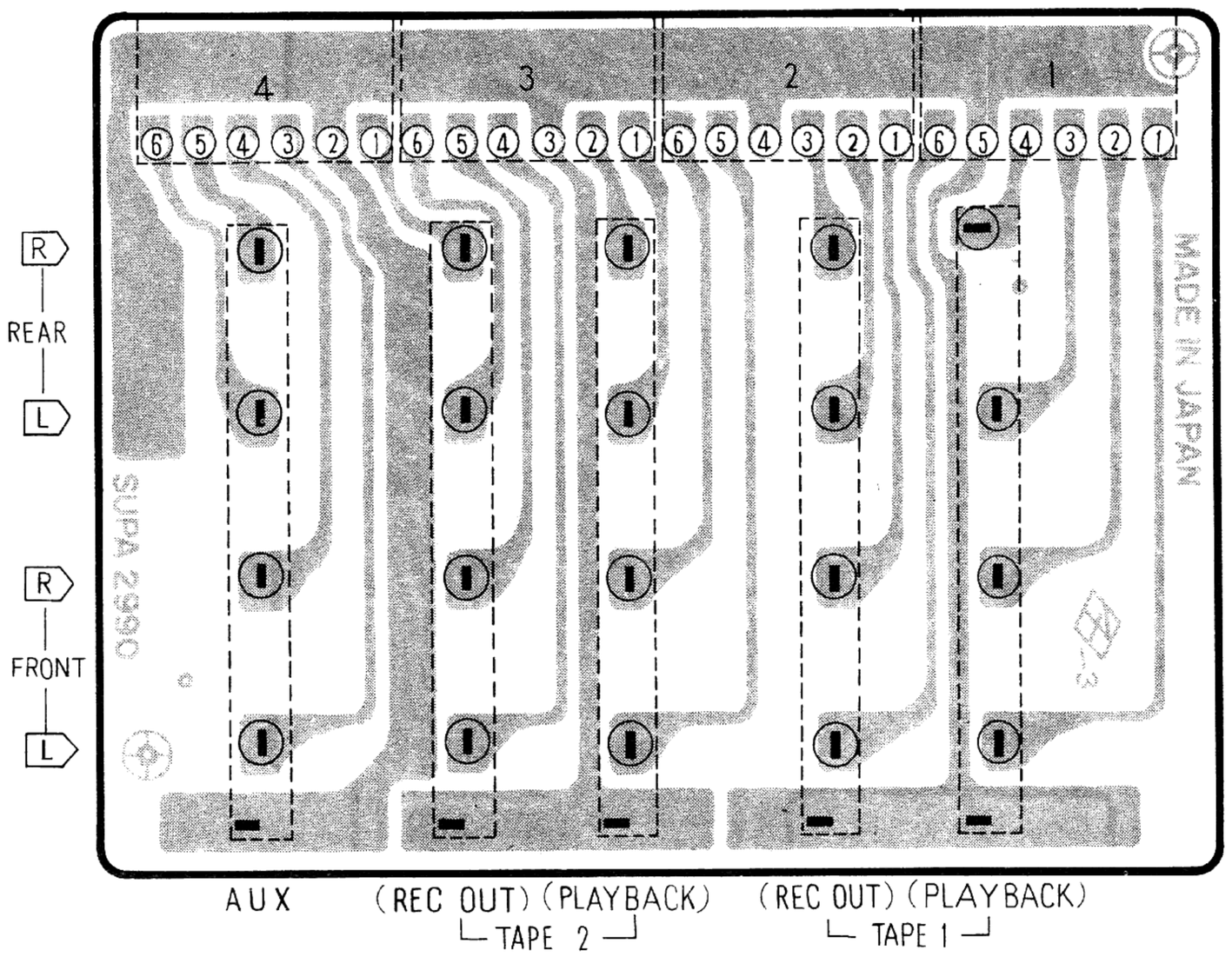
MAIN AMP POWER SOURCE & SPEAKERS PROTECTION Circuit Board



INPUT TERMINAL Circuit Board



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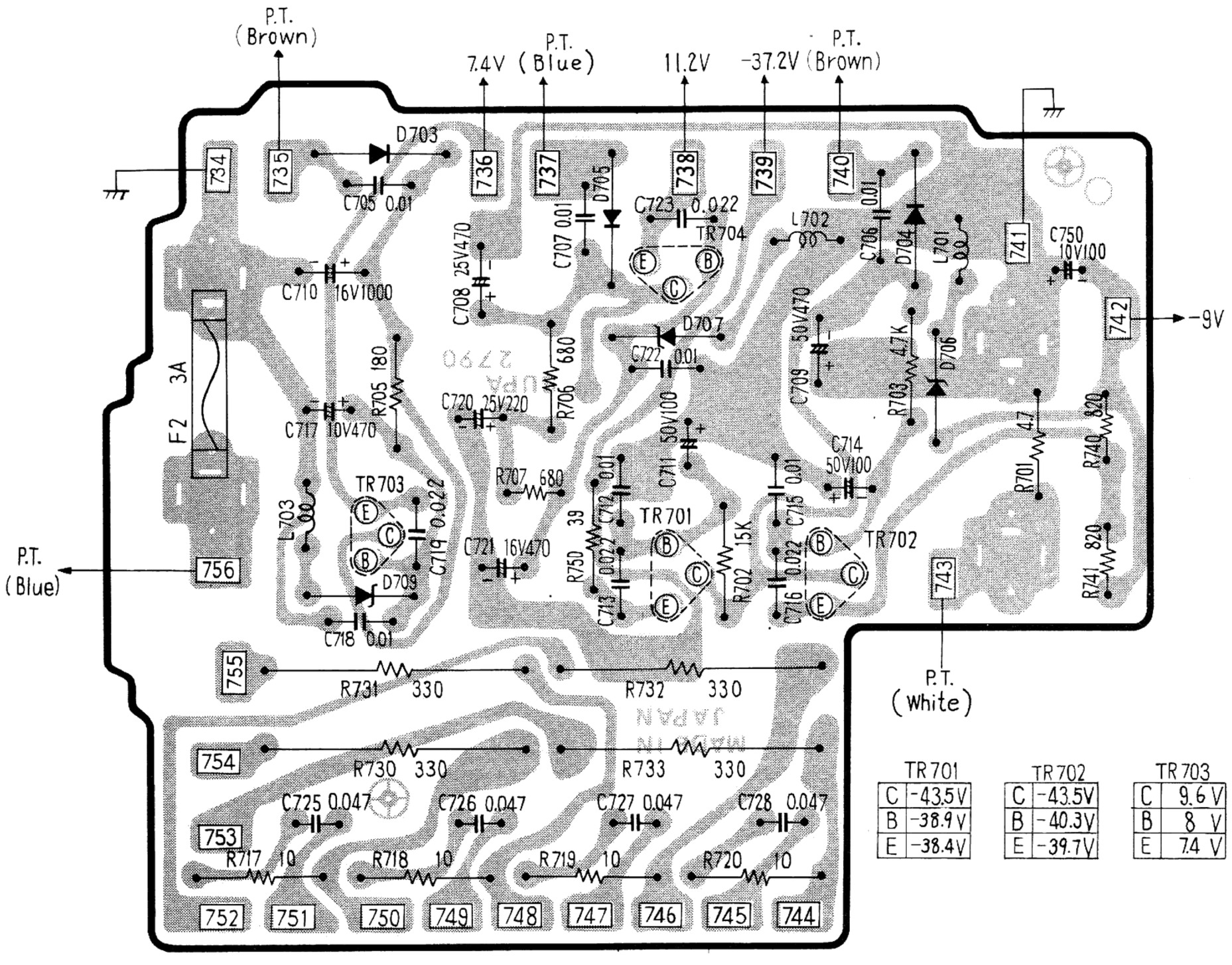
POWER SOURCE Circuit Board



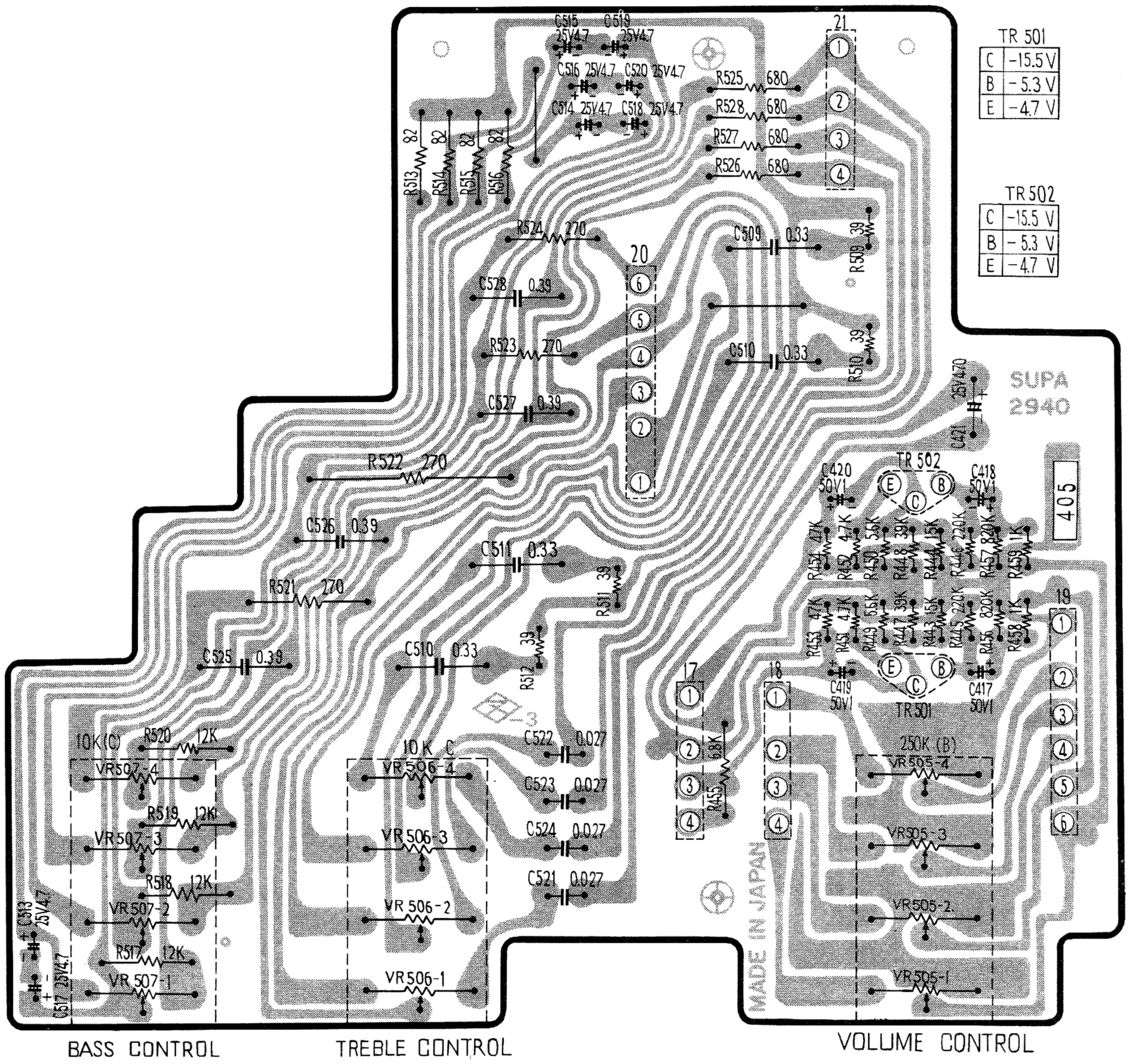
TR701	
C	-43.5V
B	-38.9V
E	-38.4V

TR702	
C	-43.5V
B	-40.3V
E	-39.7V

TR703	
C	9.6V
B	8 V
E	7.4 V

TR704	
C	16.2V
B	11.8V
E	11.2V

VOLUME, TONE CONTROL & PHASE INVERTER Circuit Board



TR 501	
C	-15.5 V
B	- 5.3 V
E	-4.7 V

TR 502	
C	-15.5 V
B	- 5.3 V
E	-4.7 V

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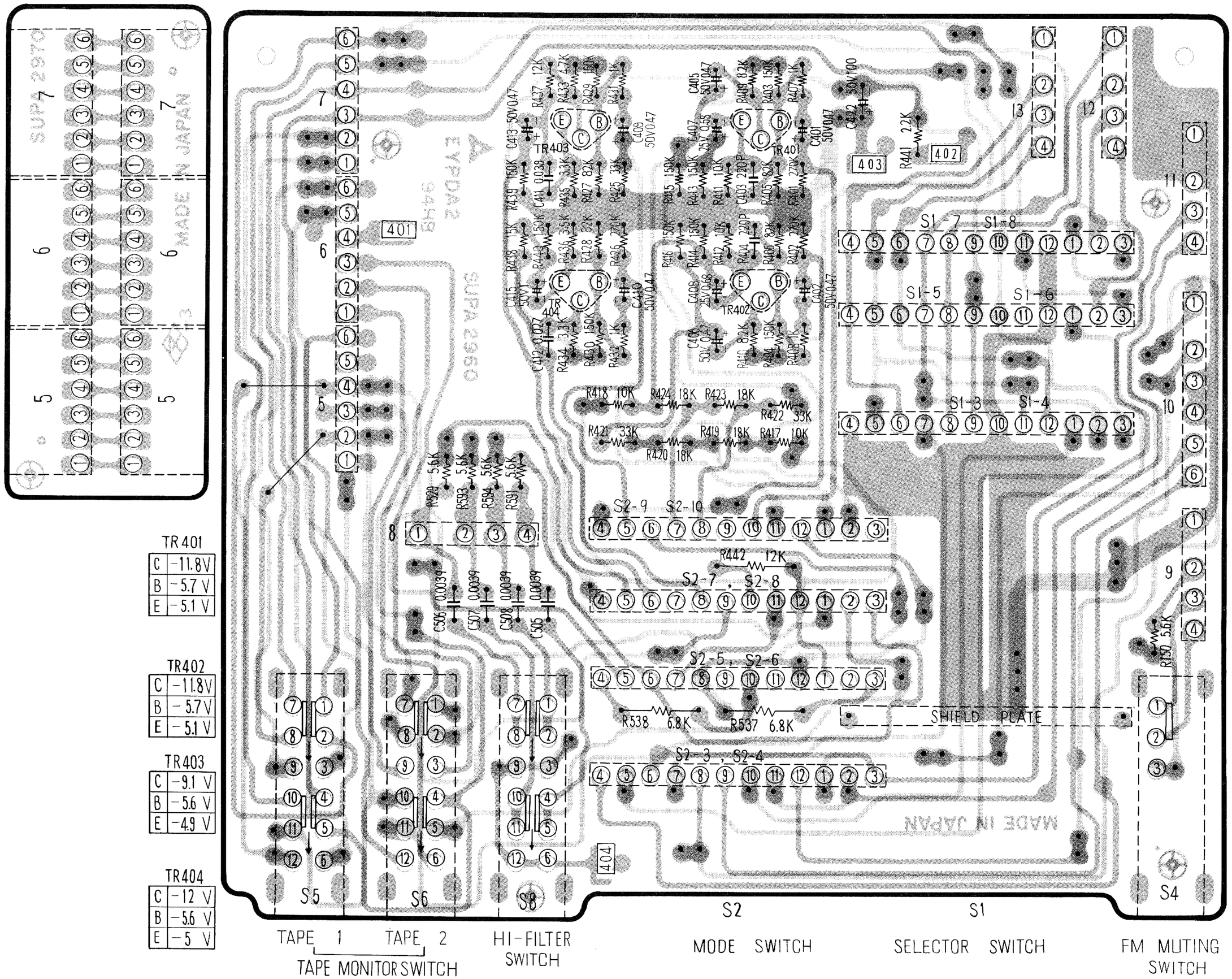
SELECTOR, MODE, LEVER SWITCH & 4CH MATRIX Circuit Board



INPUT LINE CONNECTION Circuit Board

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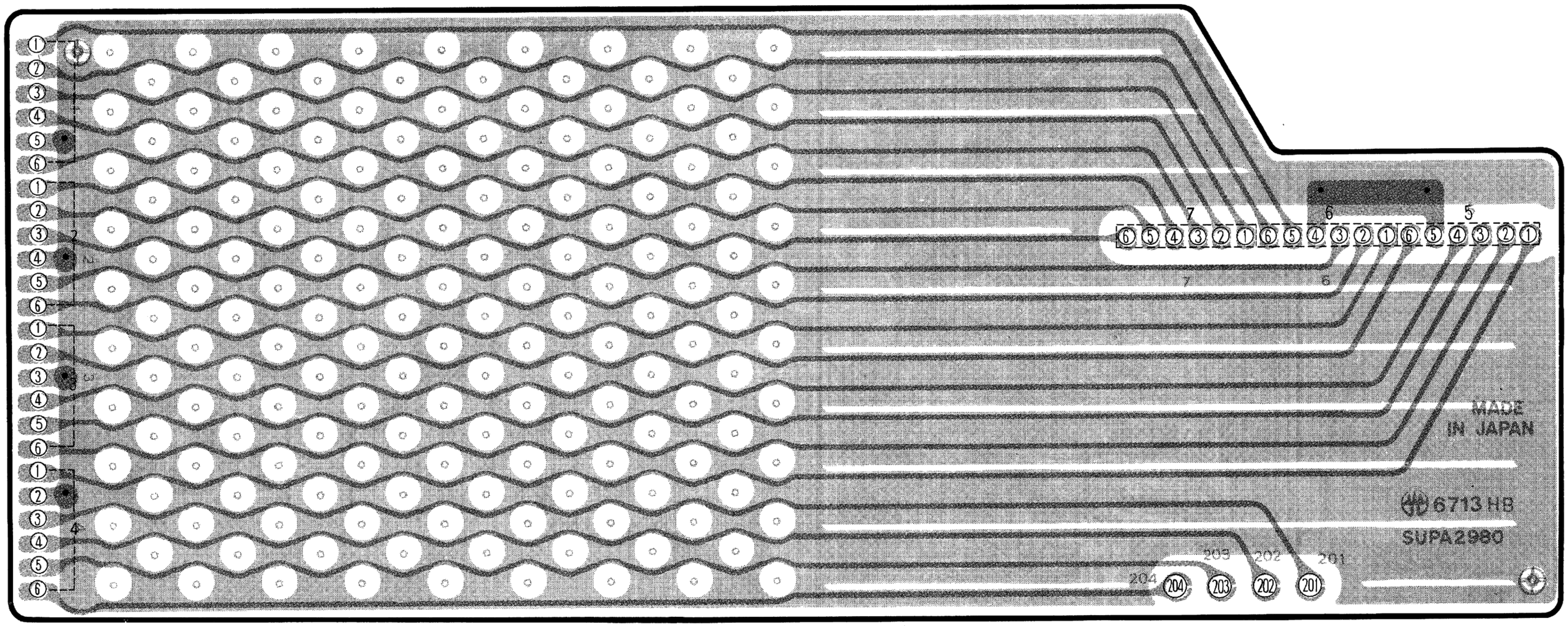
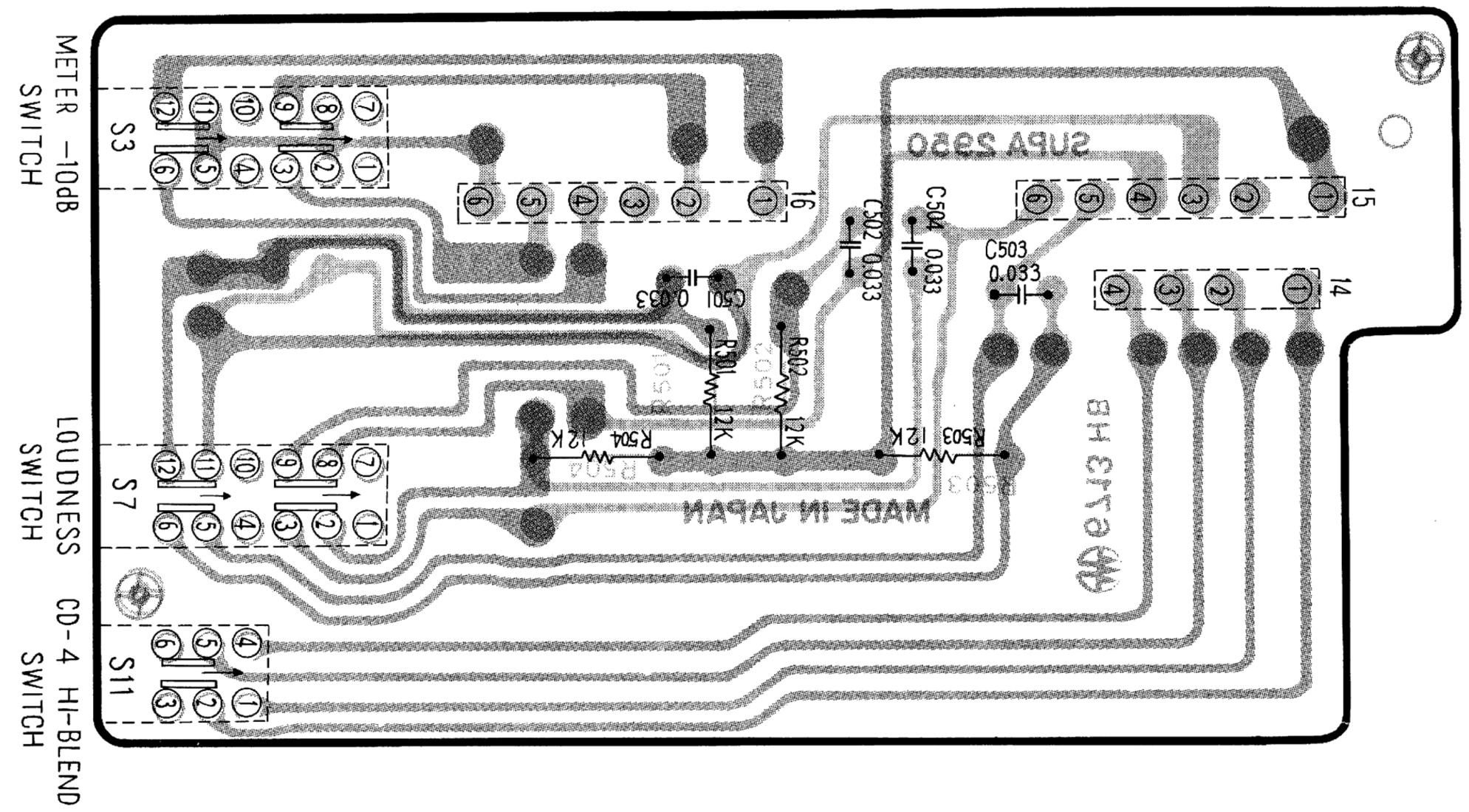


PUSH SWITCH Circuit Board

Circuit View on Top of p.c.b.

Circuit View on Bottom of p.c.b.



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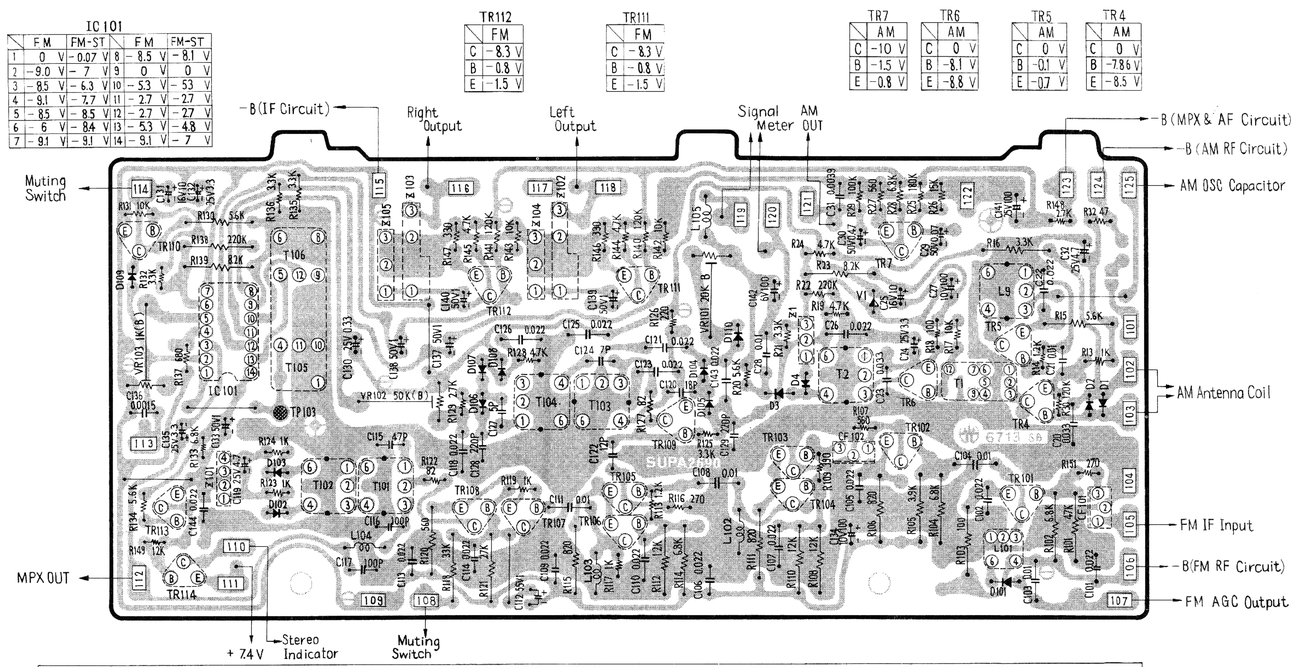
AM/FM-IF & FM MPX Circuit Board



IC 101

	FM	FM-ST		FM	FM-ST
1	0 V	- 0.07 V	8	- 8.5 V	- 8.1 V
2	- 9.0 V	- 7 V	9	0 V	0 V
3	- 8.5 V	- 6.3 V	10	- 5.3 V	- 5.3 V
4	- 8.1 V	- 7.7 V	11	- 2.7 V	- 2.7 V
5	- 8.5 V	- 8.5 V	12	- 2.7 V	- 2.7 V
6	- 6 V	- 8.4 V	13	- 5.3 V	- 4.8 V
7	- 9.1 V	- 9.1 V	14	- 8.1 V	- 7 V

TR112

	FM
C	- 8.3 V
B	- 0.8 V
E	- 1.5 V

TR111

	FM
C	- 8.3 V
B	- 0.8 V
E	- 1.5 V

	AM
C	- 10 V
B	- 1.5 V
E	- 0.8 V

TR6

	AM
C	0 V
B	- 8.1 V
E	- 8.8 V

TR5

	AM
C	0 V
B	- 0.1 V
E	- 0.7 V

TR4

	AM
C	0 V
B	- 7.86 V
E	- 8.5 V

TR & IC	TR110 TR113 TR114 IC101 TR108 TR112 TR107 TR105 TR106 TR111 TR109 TR103 TR104 TR7 TR102 TR6 TR5 TR4 TR101
D & V	D109 D102 D103 D106 D107 D108 D104 D105 D110 D3 D4 V1 D101 D2 D1
T & L	T105 T106 T102 T101 L104 T104 T103 L103 L102 T2 T1 L101 L9

TR110

	FM	MUTING OFF
C	- 0.9 V	- 9.0 V
B	- 8.6 V	- 8.4 V
E	- 9.0 V	- 9.1 V

TR 113

	FM	FM-ST
C	- 9 V	- 7 V
B	- 9.1 V	- 8.4 V
E	- 9 V	- 9 V

TR 114

	FM	FM-ST
C	0 V	7.2 V
B	7.1 V	6.7 V
E	7.4 V	7.4 V

TR108

	FM
C	- 0.2 V
B	- 5.8 V
E	- 6.4 V

TR107

	FM
C	0 V
B	- 5.8 V
E	- 6.4 V

TR106

	FM
C	- 0.3 V
B	- 5.8 V
E	- 6.5 V

TR105

	FM
C	- 0.3 V
B	- 5.8 V
E	- 6.5 V

TR109

	FM
C	- 0.2 V
B	- 7.9 V
E	- 8.6 V

TR103

	FM
C	0 V
B	- 4.4 V
E	- 5.1 V

TR104

	FM
C	0 V
B	- 4.4 V
E	- 5.1 V

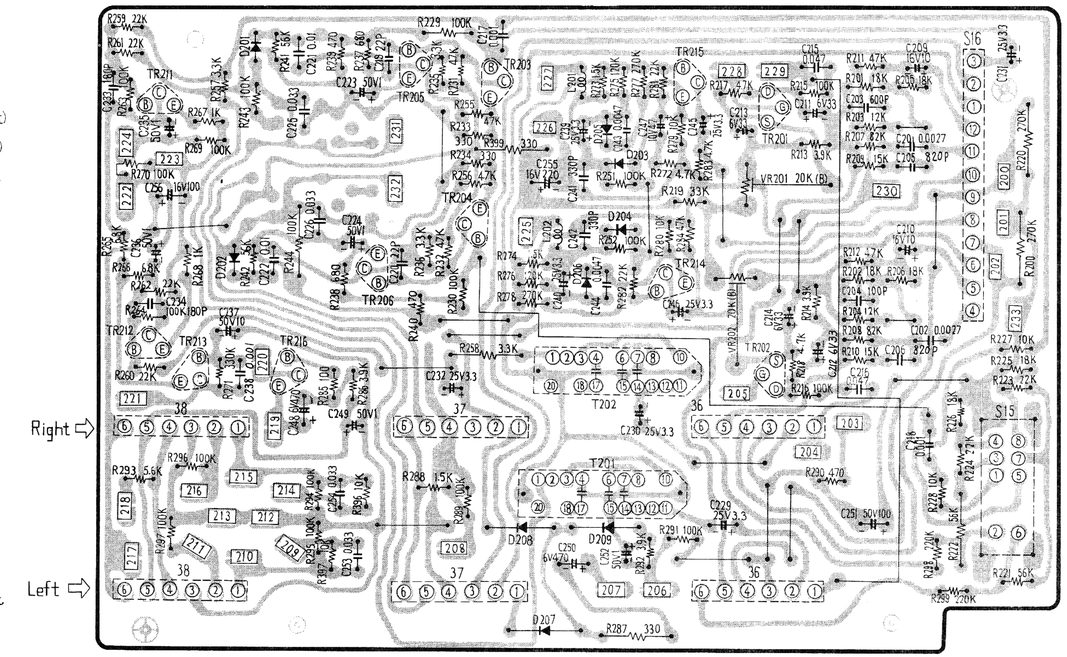
TR102

	FM
C	- 1.74 V
B	- 5.84 V
E	- 6.54 V

TR101

	FM
C	0 V
B	- 8 V
E	- 8.67 V

CD-4 MASTER Circuit Board



TR 211

	Non-Sig
C	- 15.9 V
B	- 2.8 V
E	- 2.2 V

TR 212

	Non-Sig
C	- 15.9 V
B	- 2.8 V
E	- 2.2 V

TR 213

	Non-Sig
C	- 37.2 V
B	- 32.2 V
E	- 31.6 V

TR 214

	Non-Sig
C	2.2 V
B	2.8 V
E	2.2 V

TR 215

	Non-Sig
C	2.2 V
B	2.8 V
E	2.2 V

TR 216

	Non-Sig	CD - 4
C	0 V	6.4 V
B	6.29 V	6.0 V
E	6.8 V	6.8 V

TR 201

	Non-Sig
D	1.0 V
G	0 V
S	1.0 V

TR 202

	Non-Sig
D	1.0 V
G	0 V
S	1.0 V

TR 203

	Non-Sig
C	2.8 V
B	0.73 V
E	0.12 V

TR 204

	Non-Sig
C	2.8 V
B	0.73 V
E	0.12 V

TR 205

	Non-Sig
C	6.8 V
B	2.8 V
E	2.2 V

TR 206

	Non-Sig
C	6.5 V
B	2.8 V
E	2.2 V

CD-4 DEMODULATOR (Left or Right) Circuit Board

TR307

	Non-Sig
D	0.75 V
G	0 V
S	0.75 V

TR306

	Non-Sig
C	0 V
B	13.4 V
E	13.4 V

TR305

	Non-Sig
C	13.4 V
B	0 V
E	0 V

TR304

	Non-Sig
C	- 14.9 V
B	- 2.9 V
E	- 2.28 V

TR303

	Non-Sig
C	- 37.2 V
B	- 3.4 V
E	- 2.8 V

TR302

	Non-Sig
C	- 13.6 V
B	- 3 V
E	- 2.3 V

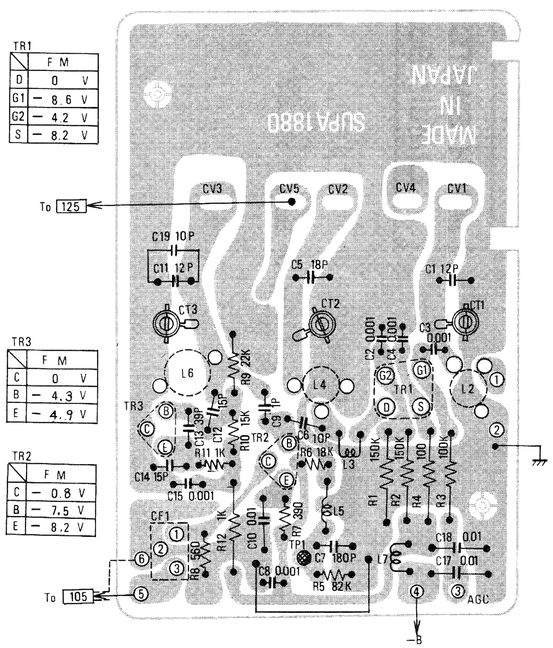
TR301

	Non-Sig
C	- 37.2 V
B	- 3.4 V
E	- 2.8 V

IC 301

	Non-Signal		Reception
1	5.6 V	15	4.5 V
2	2.1 V	16	2.4 V
3	5.6 V	17	6.8 V
4	5.6 V	18	9.5 V
5	2.1 V	19	9.5 V
6	5.7 V	20	0 V
7	6.1 V	21	3.4 V
8	13.1 V	22	3.4 V
9	5.6 V	23	6.1 V
10	1.4 V	24	5.5 V
11	5.6 V	25	0.6 V
12	5.6 V	26	1.1 V
13	6.8 V	27	5.7 V
14	1.4 V	28	4.8 V
	CD - 4		
14	6.8 V		

FM-RF Circuit Board



TR1

	FM
D	0 V
G1	- 8.6 V
G2	- 4.2 V
S	- 8.2 V

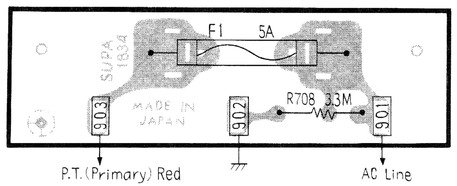
TR3

	FM
C	0 V
B	- 4.3 V
E	- 4.9 V

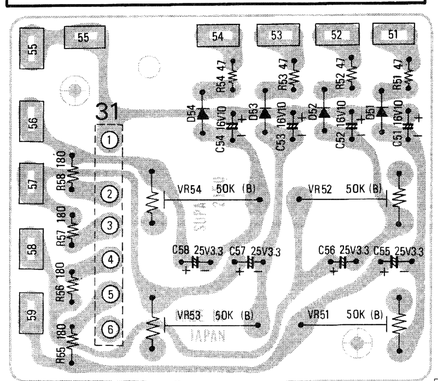
TR2

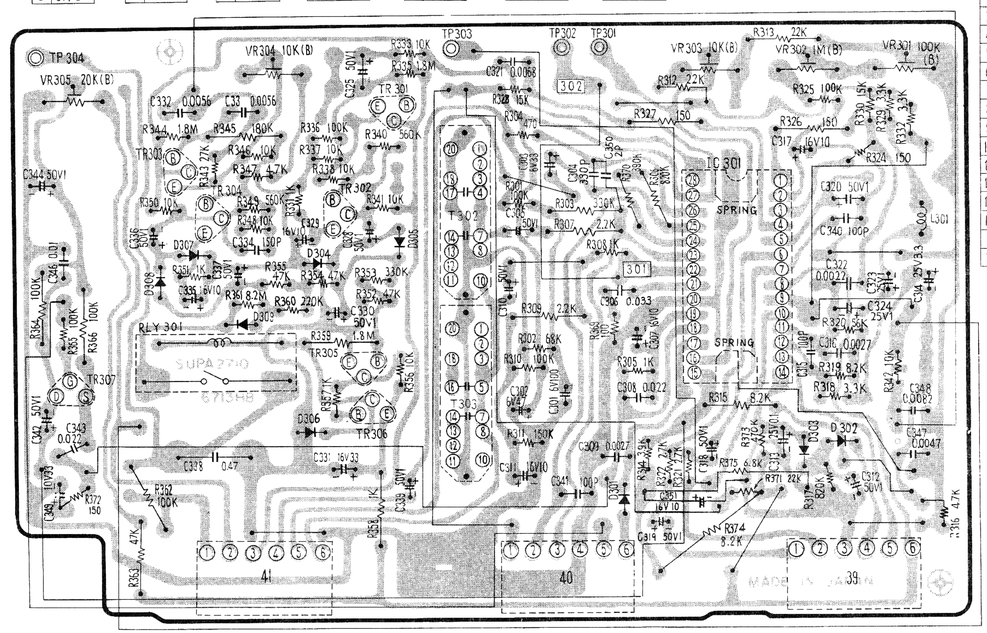
	FM
C	- 0.8 V
B	- 7.5 V
E	- 8.2 V

AC LINE FUSE Circuit Board



VU METER Circuit Board





■ REPLACEMENT PARTS LIST

NOTE

1 Part numbers are indicated on most mechanical parts
Please use this part number, for parts orders

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
INTEGRATED CIRCUIT ..... FM Circuit				
IC101	SVIALA3300	FM MPX Circuit	1	
INTEGRATED CIRCUIT ..... CD-4 Demodulator Circuit				
IC(301)×2	SVIQSI5022	CD-4 Demodulator	2	
TRANSISTORS ..... FM, AM, AF & Power Source Circuit				
TR1	3SK39Q	FM RF Amplifier	1	
TR2	2SC922M	FM Mixer	1	
TR3	2SC839H	FM Oscillator	1	
TR4,5,6, 101～109	2SC829C	AM Mix, Osc. & IF Amplifier FM IF & Muting Amplifier	12	
TR7,111,112	2SA666Q	AM & FM AF Amplifier	3	
TR110,(604)×4	2SC828R	Muting Switching & Thermo Compensation	5	
TR113	2SC1318R	Stereo Indicator Switching	1	
TR114	2SA733MAP	Stereo Indicator Lamp Driver	1	
TR401,402,403 404,501,502	2SA722T	4ch. Matrix & Phase Inverter	6	
TR(601,602)×4	2SA666A-AD3	Differential Amp. [Use in paris]	8	
TR(603,605)×4	2SC1509Q	Driver Amplifier	8	
TR(606)×4	2SA777Q	Driver Amplifier	4	
TR(607,608)×4	2SC789-70(O)	Power Amplifier	8	
TR701,702	2SA684Q	Ripple Filter	2	
TR703	2SD330D	Voltage Stabilizer	1	
TR704	2SC1383R	Voltage Stabilizer	1	
TR705,706,708	2SA720R	Speaker Protection Switching	3	
TR707	2SC1384Q	Protection Relay Driver	1	
	SMXA60	Insulator, for 2SC789-70	8	
TRANSISTORS ..... CD-4 Demodulator Circuit				
T201,202, (307)×2	2SK30A-Y	Gain Control & Lock Range Control	4	
TR203,204, 205,206, (305)×2	2SC828R	Lock Range & Auto Separation	6	
TR211,212	2SA722T	2 Channel Amplifier	2	
TR213,216, (306)×2	2SA564R	Ripple Filter, CD-4 Radar Switching & Auto Separation	4	
TR214,215	2SC1327T	Semi Conductor Muting	2	
TR(301,302, 303,304)×2	2SA564A-R	Auto Separation	8	
DIODES & VARIATE ..... FM, AM, AF & Power Source Circuit				
D1,2,3,4,101, 109	OA99	FM/AM AGC & AM Detector	6	
D51,52,53,54, 703	RVD10D1	Output Level Meter Detector & Rectifier	5	
D102,103	2-OA99	FM Discriminator	1 pair	
D104,105,106, 107,108,110	MA150	Meter & Muting Detector	6	
D701	SVDAS2HB10	Rectifier	1	
D702,704,705	SVDA10D1M	Rectifier	3	
D706	SVDAEQB0109R	9V Zener	1	
D707,708	SVDAEQA0112R	12V Zener	2	
D709	SVDAEQA0108	8V Zener	1	
V1	EYV320D1R2J3	Variatite, AOC	1	
DIODES ..... CD-4 Demodulator Circuit				
D201,202, (303,304, 305,307, 308)×2	OA99	Lock Range Control, 2ch, 4ch, Muting & Auto Separation	12	
D203,204,205, 206,207,208, 209,(301, 302,306, 309)×2	MA150	Semi Conductor Muting & Noise Cancel, VCO Stop, 2ch, 4ch, Muting & Auto Separation	15	
THERMISTORS & POSISTOR				
TH(601)×4	RRT251	Thermistor, Driver Circuit	4	
TH701	SRPZ101H102N	Posistor, Power Source	1	O

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
COILS & TRANSFORMERS ..... FM, AM & Power Source Circuit				
L1	SLAA4W1-3	Balun Coil	1	
L2	SLAA4N9	FM Antenna Coil	1	
L3	RLQY25S5	Choke Coil	1	
L4	SLDA4N18	FM Detector Coil	1	
L5	RLQY15G5	Choke Coil	1	
L6	SLOA4N9	FM OSC Coil	1	
L7,10	SLQX151-1Y	Choke Coil	2	
L8	SLFA2E15	AM Antenna Coil	1	
L9	SLOA2C6	AM OSC Coil	1	
L101	SLIA4B1	FM AGC Coil	1	
L102～105 701,702,703	SLQX101-2D	Choke Coil	7	
T1	RLI7W105S-T	AM 1st IF Transformer	1	
T2	RLI2C450	AM 2nd IF Transformer	1	
T101	SLIA4C541	FM DISCRI Transformer (P)	1	
T102	SLIA4C56	FM DISCRI Transformer (S)	1	
T103,104	SLIA4C241	FM Muting IF Transformer (P) & (S)	2	
T105,106	SLMA1Z2-K	19kHz & 38kHz Coil	1	
T701	SLTA5S7S	Power Transformer	1	O
COILS & TRANSFORMERS ..... CD-4 Demodulator Circuit				
L201,202	SLQX101-2D	Choke Coil	2	
L(301)×2	SLQR104-1K	Choke Coil	2	
T201,202	EUL-BPF204	Low Pass Filter	2	
T(302)×2	EUL-BPF202	Band Pass Filter } Pair	2	
T(303)×2	EUL-BPF203	Band Pass Filter }	2	
CERAMIC FILTERS				
CF1,101,102	RVFCF10M12CG	FM IF Circuit, Green (10.6MHz)	each 3	
	RVFCF10M12CB	FM IF Circuit, Black (10.65MHz)		
	RVFCF10M12CR	FM IF Circuit, Red (10.7MHz)		
	RVFCF10M12CW	FM IF Circuit, White (10.75MHz)		
	RVFCF10M12CY	FM IF Circuit, Yellow (10.8MHz)		
RESISTORS ..... FM, AM, AF & Power Source Circuit				
R509,510,511, 512	ERD14VJ390	39Ω, 1/4W, ± 5%, Carbon	4	
R32,51,52,53, 54	ERD14VJ470	47Ω, 1/4W, ± 5%, Carbon	5	
R122,127	ERD14VJ820	82Ω, 1/4W, ± 5%, Carbon	2	
R18	ERD14VJ101	100Ω, 1/4W, ± 5%, Carbon	1	
R55,56,57,58	ERD14VJ181	180Ω, 1/4W, ± 5%, Carbon	4	
R126	ERD14VJ221	220Ω, 1/4W, ± 5%, Carbon	1	
R116,151	ERD14VJ271	270Ω, 1/4W, ± 5%, Carbon	2	
R146,147	ERD14VJ331	330Ω, 1/4W, ± 5%, Carbon	2	
R7,109	ERD14VJ391	390Ω, 1/4W, ± 5%, Carbon	2	
R8,27,107	ERD14VJ561	560Ω, 1/4W, ± 5%, Carbon	3	
R137,707	ERD14VJ681	680Ω, 1/4W, ± 5%, Carbon	2	
R11,13,117, 119,123,124, 407,408,431 432,458,459	ERD14VJ102	1kΩ, 1/4W, ± 5%, Carbon	12	
R14	ERD14VJ122	1.2kΩ, 1/4W, ± 5%, Carbon	1	
R441	ERD14VJ222	2.2kΩ, 1/4W, ± 5%, Carbon	1	
R148	ERD14VJ272	2.7kΩ, 1/4W, ± 5%, Carbon	1	
R125,132,135, 136,434,435, 710	ERD14VJ332	3.3kΩ, 1/4W, ± 5%, Carbon	7	
R436	ERD14VJ392	3.9kΩ, 1/4W, ± 5%, Carbon	1	
R19,24,128, 144,145,433, 451,452	ERD14VJ472	4.7kΩ, 1/4W, ± 5%, Carbon	8	
R20,134,150, 449,450,591, 592,593,594	ERD14VJ562	5.6kΩ, 1/4W, ± 5%, Carbon	9	
R28,133	ERD14VJ682	6.8kΩ, 1/4W, ± 5%, Carbon	2	
R409,410,713	ERD14VJ822	8.2kΩ, 1/4W, ± 5%, Carbon	3	
R17,131,142, 143,411,412, 417,418	ERD14VJ103	10kΩ, 1/4W, ± 5%, Carbon	8	
R149,437	ERD14VJ123	12kΩ, 1/4W, ± 5%, Carbon	2	
R10,26,438, 443,444,711	ERD14VJ153	15kΩ, 1/4W, ± 5%, Carbon	6	
R6,419,420, 423,424	ERD14VJ183	18kΩ, 1/4W, ± 5%, Carbon	5	
R9	ERD14VJ223	22kΩ, 1/4W, ± 5%, Carbon	1	
R712	ERD14VJ273	27kΩ, 1/4W, ± 5%, Carbon	1	

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Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
R421,422,425, 709	ERD14VJ333	33kΩ, 1/4W, ± 5%, Carbon	4	
R447,448	ERD14VJ393	39kΩ, 1/4W, ± 5%, Carbon	2	
R453,454	ERD14VJ473	47kΩ, 1/4W, ± 5%, Carbon	2	
R5,405,406, 427,428,749	ERD14VJ823	82kΩ, 1/4W, ± 5%, Carbon	6	
R29	ERD14VJ104	100kΩ, 1/4W, ± 5%, Carbon	1	
R30,140,141	ERD14VJ124	120kΩ, 1/4W, ± 5%, Carbon	3	
R403,404,413, 414,415,416, 429,430,439, 440	ERD14VJ154	150kΩ, 1/4W, ± 5%, Carbon	10	
R25,714	ERD14VJ184	180kΩ, 1/4W, ± 5%, Carbon	2	
R22,445,446, 795,796	ERD14VJ224	220kΩ, 1/4W, ± 5%, Carbon	5	
R401,402,426	ERD14VJ274	270kΩ, 1/4W, ± 5%, Carbon	3	
R456,457	ERD14VJ824	820kΩ, 1/4W, ± 5%, Carbon	2	
R(618,620)×4	ERD14FJ4R7	4.7Ω, 1/4W, ± 5%, Carbon	8	
R750	ERD14FJ390	39Ω, 1/4W, ± 5%, Carbon	1	
R(619,621)×4	ERD14FJ101	100Ω, 1/4W, ± 5%, Carbon	8	
R513,514,515, 516,(609)×4	ERD14TJ820	82Ω, 1/4W, ± 5%, Carbon	8	
R4,103	ERD14TJ101	100Ω, 1/4W, ± 5%, Carbon	2	
R(602)×4	ERD14TJ121	120Ω, 1/4W, ± 5%, Carbon	4	
R705	ERD14TJ181	180Ω, 1/4W, ± 5%, Carbon	1	
R(617)×4	ERD14FJ221	220Ω, 1/4W, ± 5%, Carbon	4	
R521,522,523, 524,(614)×4	ERD14TJ271	270Ω, 1/4W, ± 5%, Carbon	8	
R120, (605,616)×4	ERD14TJ561	560Ω, 1/4W, ± 5%, Carbon	9	
R525,526,527, 528,706	ERD14TJ681	680Ω, 1/4W, ± 5%, Carbon	5	
R721,722,723, 724,729	ERD14FJ681	680Ω, 1/4W, ± 5%, Carbon	5	
R106,111,115, (612)×4	ERD14TJ821	820Ω, 1/4W, ± 5%, Carbon	7	
R12,(606,611, 615)×4	ERD14TJ102	1kΩ, 1/4W, ± 5%, Carbon	13	
R113	ERD14TJ122	1.2kΩ, 1/4W, ± 5%, Carbon	1	
R(608)×4	ERD14TJ152	1.5kΩ, 1/4W, ± 5%, Carbon	4	
R129,(613)×4	ERD14TJ272	2.7kΩ, 1/4W, ± 5%, Carbon	5	
R16,21, (601)×4	ERD14TJ332	3.3kΩ, 1/4W, ± 5%, Carbon	6	
R105	ERD14TJ392	3.9kΩ, 1/4W, ± 5%, Carbon	1	
R(607)×4, 703	ERD14TJ472	4.7kΩ, 1/4W, ± 5%, Carbon	5	
R15,130	ERD14TJ562	5.6kΩ, 1/4W, ± 5%, Carbon	2	
R102,104,114, 455,537,538	ERD14TJ682	6.8kΩ, 1/4W, ± 5%, Carbon	6	
R23,139	ERD14TJ822	8.2kΩ, 1/4W, ± 5%, Carbon	2	
R108,110,112, 114,442,501, 502,503,504, 517,518,519, 520	ERD14TJ123	12kΩ, 1/4W, ± 5%, Carbon	13	
R702	ERD14TJ153	15kΩ, 1/4W, ± 5%, Carbon	1	
R725,726,727 728	ERD14TJ183	18kΩ, 1/4W, ± 5%, Carbon	4	
R121	ERD14TJ273	27kΩ, 1/4W, ± 5%, Carbon	1	
R118	ERD14TJ333	33kΩ, 1/4W, ± 5%, Carbon	1	
R101	ERD14TJ473	47kΩ, 1/4W, ± 5%, Carbon	1	
R(604,610)×4	ERD14TJ563	56kΩ, 1/4W, ± 5%, Carbon	8	
R3	ERD14TJ104	100kΩ, 1/4W, ± 5%, Carbon	1	
R1, 3	ERD14TJ154	150kΩ, 1/4W, ± 5%, Carbon	2	
R138	ERD14TJ224	220kΩ, 1/4W, ± 5%, Carbon	1	
R(603)×4	ERD14TJ474	470kΩ, 1/4W, ± 5%, Carbon	4	
R701	ERD18FJ4R7	4.7Ω, 1/8W, ± 5%, Carbon [Model SA-8100X Only]	1	
R717,718,719, 720,791,792, 793,794	ERD12TJ100	10Ω, 1/2W, ± 5%, Carbon	8	
R715	ERD12TJ471	470Ω, 1/2W, ± 5%, Carbon	1	
R31	ERD12TJ184	180kΩ, 1/2W, ± 5%, Carbon	1	
R(622,623)×4	ERX2ANJR33	0.33Ω, 2W, ± 5%, Metallic	8	
R740,741	ERX2ANJR821	820Ω, 2W, ± 5%, Metallic	2	
R730,731,732, 733	ERG3ANJ331	330Ω, 3W, ± 5%, Metallic	4	
R790	ERG3ANJ121	120Ω, 3W, ± 5%, Metallic	1	o
R708	ERC12ZGK335	3.3MΩ, 1/2W, ±10%, Solid	1	

RESISTORS ..... CD-4 Demodulator Circuit

R285,(369)×2	ERD14VJ101	100Ω, 1/4W, ± 5%, Carbon	3	
R(324,372)×2	ERD14VJ151	150Ω, 1/4W, ± 5%, Carbon	4	
R233,234	ERD14VJ331	330Ω, 1/4W, ± 5%, Carbon	2	
R239,240,290, (304)×2	ERD14VJ471	470Ω, 1/4W, ± 5%, Carbon	5	
R237,238	ERD14VJ681	680Ω, 1/4W, ± 5%, Carbon	2	

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
R267,268, (305,308,331, 351,357)×2	ERD14VJ102	1kΩ, 1/4W, ± 5%, Carbon	12	
R273,274,288	ERD14VJ152	1.5kΩ, 1/4W, ± 5%, Carbon	3	
R(321,322)×2	ERD14VJ272	2.7kΩ, 1/4W, ± 5%, Carbon	4	
R235,236,257, (318,329, 332)×2	ERD14VJ332	3.3kΩ, 1/4W, ± 5%, Carbon	9	
R213,214,286, 292,(314)×2	ERD14VJ392	3.9kΩ, 1/4W, ± 5%, Carbon	6	
R217,218,272, 283,284, (316,347)×2	ERD14VJ472	4.7kΩ, 1/4W, ± 5%, Carbon	9	
R293	ERD14VJ562	5.6kΩ, 1/4W, ± 5%, Carbon	1	
R265,266	ERD14VJ682	6.8kΩ, 1/4W, ± 5%, Carbon	2	
R(319)×2	ERD14VJ822	8.2kΩ, 1/4W, ± 5%, Carbon	2	
R227,228,279, 280,396,397, (333,337, 338,341,342, 346,348,350, 356)×2	ERD14VJ103	10kΩ, 1/4W, ± 5%, Carbon	24	
R203,204	ERD14VJ123	12kΩ, 1/4W, ± 5%, Carbon	2	
R209,210, (328,330)×2	ERD14VJ153	15kΩ, 1/4W, ± 5%, Carbon	6	
R201,202,205, 206,225,226	ERD14VJ183	18kΩ, 1/4W, ± 5%, Carbon	6	
R223,224,259, 260,261,262, 281,282, (312)×2	ERD14VJ223	22kΩ, 1/4W, ± 5%, Carbon	10	
R(343)×2	ERD14VJ273	27kΩ, 1/4W, ± 5%, Carbon	2	
R219,	ERD14VJ333	33kΩ, 1/4W, ± 5%, Carbon	1	
R211,212,231, 232,255,256, (352,354, 355)×2	ERD14VJ473	47kΩ, 1/4W, ± 5%, Carbon	12	
R221,241,242, (320)×2	ERD14VJ563	56kΩ, 1/4W, ± 5%, Carbon	5	
R(302)×2	ERD14VJ683	68kΩ, 1/4W, ± 5%, Carbon	2	
R207,208	ERD14VJ823	82kΩ, 1/4W, ± 5%, Carbon	2	
R215,216,229, 230,243,251, 252,263,264, 269,270,289, 291,294,295, 296,297, (301,310, 362,365)×2	ERD14VJ104	100kΩ, 1/4W, ± 5%, Carbon	25	
R275,276	ERD14VJ124	120kΩ, 1/4W, ± 5%, Carbon	2	
R(311)×2	ERD14VJ154	150kΩ, 1/4W, ± 5%, Carbon	2	
R(336)×2	ERD14VJ184	180kΩ, 1/4W, ± 5%, Carbon	2	
R298,299, (360)×2	ERD14VJ224	220kΩ, 1/4W, ± 5%, Carbon	4	
R277,278	ERD14VJ274	270kΩ, 1/4W, ± 5%, Carbon	2	
R271,(353)×2	ERD14VJ334	330kΩ, 1/4W, ± 5%, Carbon	3	
R(370)×2	ERD14VJ394	390kΩ, 1/4W, ± 5%, Carbon	2	
R(340,349)×2	ERD14VJ564	560kΩ, 1/4W, ± 5%, Carbon	4	
R(306,317)×2	ERD14VJ824	820kΩ, 1/4W, ± 5%, Carbon	4	
R(326,327)×2	ERD14TJ151	150Ω, 1/4W, ± 5%, Carbon	4	
R287,399	ERD14TJ331	330Ω, 1/4W, ± 5%, Carbon	2	
R(358)×2	ERD14TJ102	1kΩ, 1/4W, ± 5%, Carbon	2	
R(307,309)×2	ERD14TJ222	2.2kΩ, 1/4W, ± 5%, Carbon	4	
R258	ERD14TJ332	3.3kΩ, 1/4W, ± 5%, Carbon	1	
R(315,374)×2	ERD14TJ822	8.2kΩ, 1/4W, ± 5%, Carbon	4	
R(313,371)×2	ERD14TJ223	22kΩ, 1/4W, ± 5%, Carbon	4	
R(363)×2	ERD14TJ473	47kΩ, 1/4W, ± 5%, Carbon	2	
R222	ERD14TJ563	56kΩ, 1/4W, ± 5%, Carbon	1	
R244,(364,325 366)×2	ERD14TJ104	100kΩ, 1/4W, ± 5%, Carbon	7	
R(345)×2	ERD14TJ184	180kΩ, 1/4W, ± 5%, Carbon	2	
R200,220	ERD14TJ274	270kΩ, 1/4W, ± 5%, Carbon	2	
R(303)×2	ERD14TJ334	330kΩ, 1/4W, ± 5%, Carbon	2	
R(335,344, 359)×2	ERC14GK185	1.8MΩ, 1/4W, ±10%, Solid	6	
R(361)×2	ERC14GK825	8.2MΩ, 1/4W, ±10%, Solid	2	
R(373)×2	ERD14VJ474	470kΩ, 1/4W, ± 5%, Carbon	2	
R(375)×2	ERD14TJ682	6.8kΩ, 1/4W, ± 5%, Carbon	2	

VARIABLE RESISTORS ..... FM, AM & AF Circuit

VR51,52,53, 54,102	EVLS3AA00B54	50kΩ(B), VU Meter & Muting Adj.	5	
VR101	EVLS3AA00B24	20kΩ(B), Signal Meter Adjustment	1	
VR103	EVLS3AA00B13	1kΩ(B), Separation Adjustment	1	
VR501,502, 503,504	EVH56A034BF5	250kΩ(B), Channel Level Control	4	
VR505	EWINXA030BF5	250kΩ(B), Volume Control	1	
VR506,507	EWI44A030C14	10kΩ(C), Bass & Treble Control	2	o
VR(601)×4	EVLS0AA00B14	10kΩ(B), DC Unbalance Adjustment	4	
VR(602)×4	EVLS0AA00B52	500Ω(B), ICQ Adjustment	4	

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Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
VARIABLE RESISTORS ..... CD-4 Demodulator Circuit				
VR201,202	EVLS3AA00B24	20kΩ(B), CD-4 Gain Adjustment	2	
VR(301)×2	EVLS0AA00B15	100kΩ(B), ANRS	2	
VR(302)×2	EVLS0AA00B16	1MΩ(B), ANRS	2	
VR(303, 304)×2	EVLS0AA00B14	10kΩ(B), VCO, Auto Separation	4	
VR(305)×2	EVLS0AA00B24	20kΩ(B), Lock Range	2	
CAPACITORS ..... FM, AM, AF & Power Source Circuit				
C9	ECCD1H010CC	1pF, 50WV, ±0.25pF, Ceramic	1	
C33,127	ECCD1H050CC	5pF, 50WV, ±0.25pF, Ceramic	2	
C124	ECCD1H070DC	7pF, 50WV, ±0.5pF, Ceramic	1	
C19	ECCD1H100KT	10pF, 50WV, ±10%, Ceramic	1	
C6	ECCD1H100KC	10pF, 50WV, ±10%, Ceramic	1	
C11	ECCD1H120KT	12pF, 50WV, ±10%, Ceramic	1	
C1,122	ECCD1H120KC	12pF, 50WV, ±10%, Ceramic	2	
C12,14	ECCD1H150KC	15pF, 50WV, ±10%, Ceramic	2	
C5,120	ECCD1H180KC	18pF, 50WV, ±10%, Ceramic	2	
C13	ECCD1H390KC	39pF, 50WV, ±10%, Ceramic	1	
C115	ECCD1H470KR	47pF, 50WV, ±10%, Ceramic	1	
C(606)×4	ECCD1H560K	56pF, 50WV, ±10%, Ceramic	4	
C116,117	ECCD1H101K	100pF, 50WV, ±10%, Ceramic	2	
C7,(603)×4	ECCD1H181K	180pF, 50WV, ±10%, Ceramic	5	
C128,129,403, 404	ECCD1H221K	220pF, 50WV, 10%, Ceramic	4	
C2,3,4,8,15	ECKD1H102PF	0.001μF, 50WV, $^{+100}_{-0}$%, Ceramic	5	
C10,17,18,103, 104,108,111, 705,707,712, 715,718,722, 749	ECKE1H103PF	0.01μF, 50WV, $^{+100}_{-0}$%, Ceramic	14	
C28	ECKE1H103MD	0.01μF, 50WV, ±20%, Ceramic	1	
C26,107,118, 121,123,125, 126,143,713, 716,719,723	ECKE1H223PF	0.022μF, 50WV, $^{+100}_{-0}$%, Ceramic	12	
C(610)×4	ECKD2H121K	120pF, 500WV, ±10%, Ceramic	4	
C(608)×4	ECKD2H221K	220pF, 500WV, ±10%, Ceramic	4	
C706	ECKD2H103PF	0.01μF, 500WV, $^{+100}_{-0}$%, Ceramic	1	
C136	ECQM05152KZ	0.0015μF, 50WV, ±10%, Polyester	1	
C31,505,506, 507,508	ECQM05392KZ	0.0039μF, 50WV, ±10%, Polyester	5	
C21	ECQM05103KZ	0.01μF, 50WV, ±10%, Polyester	1	
C22,101,102, 105,106,109, 110,113,114, 144	ECQM05223KZ	0.022μF, 50WV, ±10%, Polyester	10	
C412,521,522, 523,524	ECQM05273KZ	0.027μF, 50WV, ±10%, Polyester	5	
C20,23,501, 502,503,504	ECQM05333KZ	0.033μF, 50WV, ±10%, Polyester	6	
C411	ECQM05393KZ	0.039μF, 50WV, ±10%, Polyester	1	
C725,726,727, 728,791,792, 793,794	ECQM05473KZ	0.047μF, 50WV, ±10%, Polyester	8	
C509,510,511, 512	ECQM05334KZ	0.33μF, 50WV, ±10%, Polyester	4	
C525,526,527, 528	ECQM05394KZ	0.39μF, 50WV, ±10%, Polyester	4	
C760	ECQM2104MZ	0.1μF, 250WV, ±20%, Polyester	1	
C730	ECQU2A103MD	0.01μF, 250VAC, ±20%, Polyester	1	
C730(C)	ECQW8A103M	0.01μF, 800WV, ±20%, Polyester [Model SA-8100XC Only]	1	
C731	ECKDAL103PE	0.01μF, 150VAC, $^{+100}_{-0}$%, Ceramic	1	
C130	ECAG25ER33S	0.33μF, 25WV, Electrolytic	1	
C407,408	ECAG25ER68S	0.68μF, 25WV, Electrolytic	2	
C(609)×4	ECEA6V47	47μF, 6.3WV, Electrolytic	4	
C142	ECEA6V100	100μF, 6.3WV, Electrolytic	1	
C27,134,750	ECEA10V100	100μF, 10WV, Electrolytic	3	
C717	ECEA10V470	470μF, 10WV, Electrolytic	1	
C25,51,52,53, 54,131	ECEA16V10	10μF, 16WV, Electrolytic	6	
C704	ECEA16V220	220μF, 16WV, Electrolytic	1	
C721	ECEA16V470	470μF, 16WV, Electrolytic	1	
C710	ECEA16V1000	1000μF, 16WV, Electrolytic	1	
C24,55,56,57, 58,132,135	ECEA25V3R3	3.3μF, 25WV, Electrolytic	7	
C32,119	ECEA25V4R7	4.7μF, 25WV, Electrolytic	2	
C513,514,515, 516,517,518, 519,520	ECEA25V4R7LM	4.7μF, 25WV, Electrolytic	8	
C141,(605)×4	ECEA25V100	100μF, 25WV, Electrolytic	5	
C720,729	ECEA25V220	220μF, 25WV, Electrolytic	2	
C421,708	ECEA25V470	470μF, 25WV, Electrolytic	2	
C(604)×4	ECEA35V100	100μF, 35WV, Electrolytic	4	
C1010,1011	ECCD1H101K	100μF, 50WV, ±10%, Ceramic	2	

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
C112,133,137, 138,139,140, 150,415,417, 418,419,420, (601)×4	ECEA50V1G	1μF, 50WV, Electrolytic	16	
C(607)×4	ECEA50V47	47μF, 50WV, Electrolytic	4	
C422,711,714	ECEA50V100	100μF, 50WV, Electrolytic	3	
C703	ECEA50V220	220μF, 50WV, Electrolytic	1	
C709	ECEA50V470	470μF, 50WV, Electrolytic	1	
C29,30,401, 402,405,406, 409,410,413	ECEA50VR47G	0.47μF, 50WV, Electrolytic	9	
C701,702	ECET35R6800Y	6800μF, 35WV, Electrolytic	2	o
CAPACITORS ..... CD-4 Demodulator Circuit				
C219,220	ECCD1H220K	22pF, 50WV, ±10%, Ceramic	2	
C203,204, (315,340, 341)×2	ECCD1H101K	100pF, 50WV, ±10%, Ceramic	8	
C(334)×2	ECCD1H151K	150pF, 50WV, ±10%, Ceramic	2	
C233,234	ECCD1H181K	180pF, 50WV, ±10%, Ceramic	2	
C241,242	ECCD1H331K	330pF, 50WV, ±10%, Ceramic	2	
C238	ECKE1H102MY	0.001μF, 50WV, ±20%, Ceramic	1	
C217,218	ECQM05102KZ	0.001μF, 50WV, ±10%, Polyester	2	
C205,206	ECQS1821JZ	820pF, 125WV, ± 5%, Styrol	2	
C(322)×2	ECQM05222KZ	0.0022μF, 50WV, ±10%, Polyester	2	
C201,202	ECQM05272JZ	0.0027μF, 50WV, ± 5%, Polyester	2	
C(309,316)×2	ECQM05272KZ	0.0027μF, 50WV, ±10%, Polyester	4	
C243,244, (347)×2	ECQM05472KZ	0.0047μF, 50WV, ±10%, Polyester	4	
C(332,333)×2	ECQM05562KZ	0.0056μF, 50WV, ±10%, Polyester	4	
C(321)×2	ECQM05682KZ	0.0068μF, 50WV, ±10%, Polyester	2	
C(348)×2	ECQM05822KZ	0.0082μF, 50WV, ±10%, Polyester	2	
C221,222, (346)×2	ECQM05103KZ	0.01μF, 50WV, ±10%, Polyester	4	
C(308,343)×2	ECQM05223KZ	0.022μF, 50WV, ±10%, Polyester	4	
C225,226,253, 254,(306)×2	ECQM05333KZ	0.033μF 50WV, ±10%, Polyester	6	
C215,216	ECQM05473KZ	0.047μF, 50WV, ±10%, Polyester	2	
C(338)×2	ECQM05474KZ	0.47μF, 50WV, ±10%, Polyester	2	
C211,212, 213,214, (303)×2	ECEA6V33	33μF, 6.3WV, Electrolytic	6	
C(302)×2	ECEA6V47	47μF, 6.3WV, Electrolytic	2	
C(301)×2	ECEA6V100	100μF, 6.3WV, Electrolytic	2	
C248,250	ECEA6V470	470μF, 6.3WV, Electrolytic	2	
C(349)×2	ECEA10V33	33μF, 10WV, Electrolytic	2	
C247	ECEA10V47	47μF, 10WV, Electrolytic	1	
C209,210, (307,311, 329,317, 351 335)×2	ECEA16V10	10μF, 16WV, Electrolytic	14	
C(331)×2	ECEA16V33	33μF, 16WV, Electrolytic	2	
C256	ECEA16V100	100μF, 16WV, Electrolytic	1	
C255	ECEA16V220	220μF, 16WV, Electrolytic	1	
C(314)×2	ECEA25V3R3	3.3μF, 25WV, Electrolytic	2	
C229,230,231, 232,239,240, 245,246	ECSZ25EF3R3	3.3μF, 25WV, Electrolytic	8	
C(323,324)×2	ECSZ25EF1	1μF, 25WV, Electrolytic	4	
C223,224,249, 252,(312,325, 328,330,336, 337,342, 344)×2	ECEA50V1	1μF, 50WV, Electrolytic	20	
C235,236, (305,310, 318,319,320, 339)×2	ECEA50V1G	1μF, 50WV, Electrolytic	14	
C237	ECEA50V10	10μF, 50WV, Electrolytic	1	
C251	ECEA50V100	100μF, 50WV, Electrolytic	1	
C(313)×2	ECAG25ER1K	0.1μF, 25WV, Electrolytic	2	
C(350)×2	ECCD1H020CC	2pF, 50WV, ±0.25pF, Ceramic	2	
C(304)×2	ECCD1H331K	330pF, 50WV, ±10%, Ceramic	2	
VARIABLE CAPACITORS				
CV1,2,3,4,5 (CT4,5)	ECV5MX25X14G	Tuning Gang, FM & AM (Trimmer, AM ANT & OSC)	1	
CT1,2	ECV1ZW10P32	Trimmer, FM ANT & DET 10pF	2	
CT3	ECV1ZW06P35	Trimmer, FM OSC 6pF	1	

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Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
COMPONENT COMBINATIONS				
Z1	EXAF203Z471	AM Detector Circuit	1	
Z101	EXA5DL04C	FM Detector Circuit	1	
Z102,103	SXAM675F	Compensation, FM Charactor	2	
Z104,105	SXAA1HHE001	Low Pass Filter, 19kHz & 38kHz	2	
Z701,702	RXAF103P22HD	Hum Cancel, 0.01 μF(×2);500WV	2	
SWITCHES ..... FM, AM, AF & Power Source Circuit				
S1	SSRA66	Selector Switch	1	
S2	SSRA67	Mode Switch	1	
S3 7,11	SSHA50S	Meter Range, Loudness & CD-4 Hi-Blend Push Switch	1	o
S4	SSLA18S	FM Muting Switch	1	
S5,6	SSLA15S	Tape Monitor 1 & 2 Switch	2	
S8	SSLA19S	High Filter Switch	1	
S9	ESRC3A5F30AE	Speakers Switch	1	
S10	SSHA34SA	Power Source Switch	1	
SWITCHES ..... CD-4 Demodulator Circuit				
S15	QSS-1093	30kHz Compensator Switch	1	
S16	SSRA68	Cartridge Selector Switch	1	
RELAY ..... Power Source Circuit				
RLY701	SSYA1	Speakers Protection	1	
RELAY ..... CD-4 Demodulator Circuit				
RLY(301)×2	SSYA11	Auto Separation Control Switch	1	
LIGHTS				
PL1~9	**XAM35K**	Dial & Meter Lamp (6.3V 0.25A)	9	
PL10	XAMR18T500A	Dial Pointer Lamp (6.3V 70mA)	1	
PL11	XAMR41K40A	2 CHANNEL Indicator (7.5V 75mA)	1	
PL12	XAMR41K40C	4 CHANNEL Indicator (7.5V 75mA)	1	
PL13,14,15	XAMR41K40B	FM STEREO, CD-4 Indicator & CD-4 Radar (7.5V 75mA)	3	
FUSES				
F1	XBAS1B5001	Power Source (5A)	1	
F2	XBAS1B3003	Power Source (3A)	1	
F3,4,5,6	XBAS1A3301	Circuit Protection (3.3A)	4	
F7	XBA1M10NU100	Power Source (1A) [Model SA-8100XC Only]	1	
CABINET PARTS				
CA1	XTV3+8CK	Black Screw, Front Panel M'tg.	6	
CA2	SBNA103	Knob, Speakers, Mode Selector Switch & Bass, Treble Control	5	
CA3	SBNA102	Knob, Volume Control	1	
CA4	SBNA101	Knob, Channel Level Control	4	
CA5	SBLA2	Knob, Lever Switch	4	
CA6	SBNA111	Knob, Tuning Control	1	
	SYWA170A	Front Panel, Complete	1	o
(C)	SYWA171A	Front Panel, Complete [Model SA-8100XC]	1	o
CA9	SGXA61	Side Panel, Left Side	1	
CA10	SGUA27	Glass Plate, Dial	1	o
CA11	SGXA60	Side Panel, Right Side	1	
CA12	SQXA4102	Sticker	1	
CA13	SBCA47	Button, Power Source	1	
	SYUA100A	Bottom Board, Complete	1	
CA14	SKUA380	Bottom Board Only	1	
CA15	SKLA2-1	Leg	4	
CA16	SHEA3-1	Lock Pin, Leg M'tg.	4	
CA17	XTV3+8CR	Red Screw, Bottom Board M'tg.	7	
CA18	SKAA760	Cabinet	1	o
CA19	XSB4+16BVCS	Screw, Cabinet M'tg.	4	

Ref. No.	Part No.	Description	Per Set (Pcs.)	Remarks
	SYPA620AAS	Rear Panel, Complete	1	o
(C)	SYPA620BAS	Rear Panel, Complete [Model SA-8100XC]	1	o
CA20	SNEA204-2S	Bolt, Ground Terminal	1	
	SNEA404	Nut, Ground Terminal	1	
CA21	SJFA3417	Terminal, Phono Input	1	
CA22	SGPA620A	Rear Panel Only	1	o
CA22(C)	SGPA620B	Rear Panel [Model SA-8100XC]	1	o
CA23	SJFA3101	Terminal, 4CH MPX Output	1	
CA24	SJFA5201-1	Holder, Circuit Protection Fuses	2	
CA25	SJFA4806-1	Terminal, Speakers	2	
CA26	SJFA4401	Terminal, EXT. Antenna	1	
CA27	SJSA66-1	Socket, AC Outlet	2	
CA28	SJFA3019	Terminal, Tape Monitor & Aux	1	o
CA29	SBSA7	Knob, Cartridge Selector	1	
CA30	XSN26+12	Screw, Protection Fuse Cap	2	
	SJFA5202-1	Cap, Circuit Protection Fuses	2	
CA31	RHR111	Bushing, AC Cord	1	
CA32	**RJA10A**	AC Cord	1	
CHASSIS PARTS				
CH1	SSMA29	Meter, Output Level (VU)	4	
CH2	SJJA8-3	Jack, Headphones	2	
CH3	RJV1A	Holder, Meter Lamp	5	
CH4	SJSA64	Socket, Circuit Connection, 6 pin	6	
CH5	SUMA7	Mounting, Dial Scale	1	
CH6	SKDA450	Scale, Dial	1	o
CH7	SHGA650	Rubber, Dial Scale	1	o
CH8	SDR5	Pulley, Dial Cord	4	
CH9	SDY11	Shaft, Pulley Lock	4	
CH10	SDY9	Bracket, Pulley & Pulley Shaft	4	
CH11	RDR23	Pulley, Dial Cord, Large Size	1	
CH12	RNW150-2	Lock Washer, Pulley	3	
CH13	RDY32	Shaft, Pulley [RDR23]	1	
CH14	SDDA321S	Drum, Tuning	1	
	SDSA4121	Spring, Dial Cord	1	
	XXAR3H6S	Screw, Drum M'tg.	2	
CH15	SDAA8	Mounting, Dial Pointer	1	
CH16	SJSA205	Holder, Dial Lamp	1	
CH17	SDPA5022	Pointer, Dial	1	
CH18	SHGA202	Bracket, Channel Indicator	3	
CH19	SHGA203	Bracket, CD-4 Indicator	1	
CH20	SHPA523	Reflection Paper, Dial Light	1	o
CH21	RDZ05A	Cord, Dial 160cm [63-1/8"]	1 roll	
CH22	RDR20	Pulley, Dial Cord, Small Size	2	
	RDY34	Shaft, Pulley [RDR20]	2	
CH23	SMYA52	Heat Sink, Power Transistor	4	o
CH24	SUPA2990	Printed Circuit Board Only, Input	1	o
CH25	SSMA19-2	Meter, Signal	1	
CH26	SDTA5-1S	Tuning Shaft, Complete	1	
CH27	SJSA63	Socket, Circuit Connection, 4 pin	9	
CH28	SJTA309	6 pin Terminal, Circuit Connection	5	
CH29	SJTA308	4 pin Terminal, Circuit Connection	9	
CH30	SJSA65	Socket, Circuit Connection	18	
	SJTA701-1	Cramp, Lead Wire [SJSA63, SJSA64]	63	
	SJSA302	Socket, CD-4 Demodulator IC	2	
ACCESSORIES				
A1	SSAA3	FM Antenna Cord	1	
A2	XBAS1A3301	Circuit Protection Fuse (3.3A)	2	
PACKING PARTS				
P1	SPPA30	Soft Cover	1	
P2	SPHA6008	Polyethylene Sheet	1	
P3	SPSA103	Pad, Left Side	1	
P4	SPSA104	Pad, Right Side	1	
P5	SPSA97	Pad, Leg	2	
P6	SPGA590A	Carton Box	1	o
P6(C)	SPGA591A	Carton Box [Model SA-8100XC]	1	o
P7	SQFA211	Printed Matter, Complete	1	o
P7(C)	SQFA229	Printed Matter, Complete [Model SA-8100XC Only]	1	o

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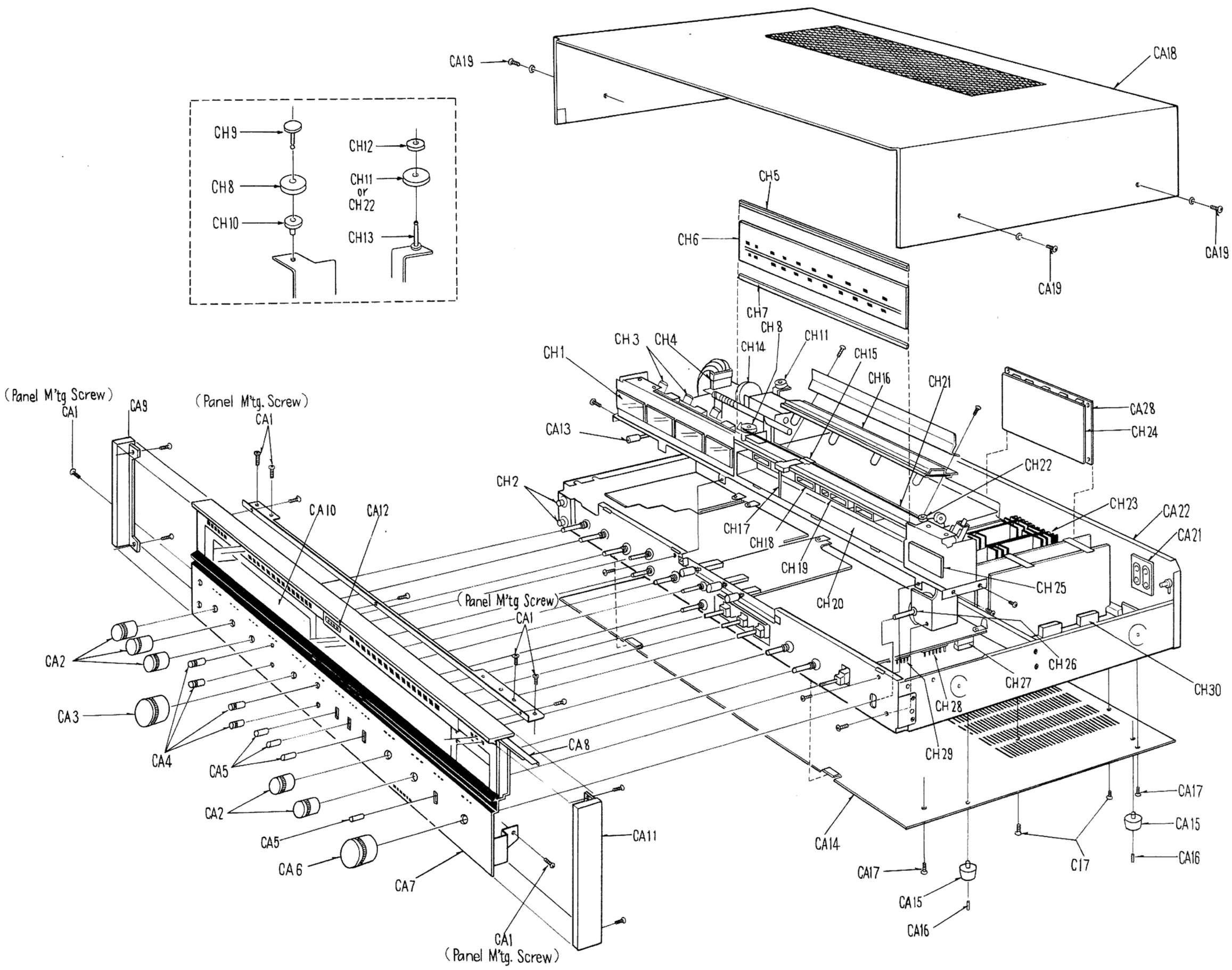
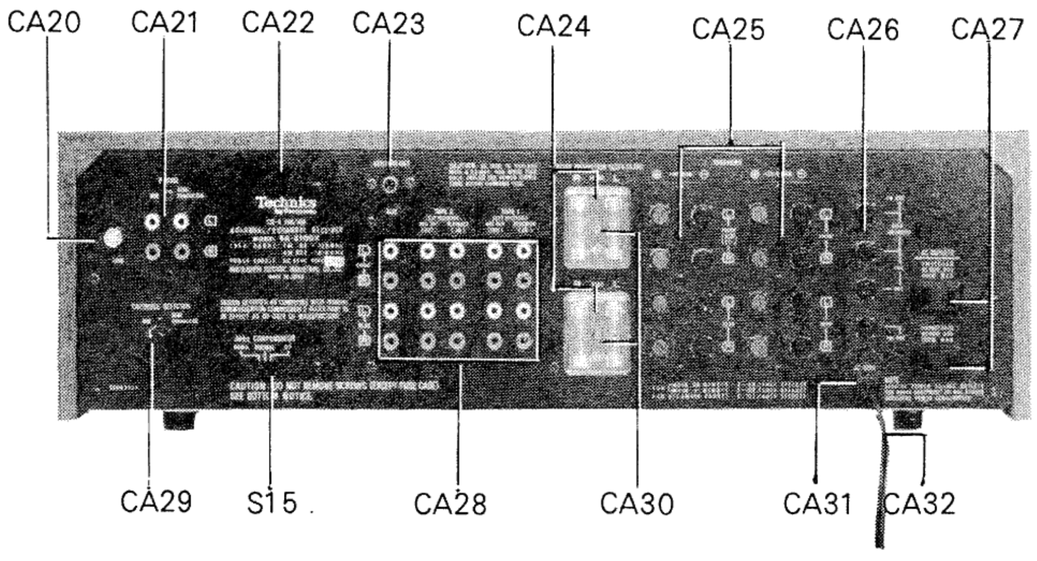
■ CABINET & CHASSIS PARTS LOCATION



CA1 (6pcs.) ..... Panel M'tg. Black Screws
CA17 (7 pcs.)..... Bottom Board M'tg. Red Screws
CA19 (4 pcs.)..... Cabinet M'tg. Screws

■ REAR PANEL PARTS



Ref. No.	Part No.	Description	Per Set (Pcs.)
	SYWA170A	Front Panel, Complete [Model SA-8100X]	1
	SYWA171A	Front Panel, Complete [Model SA-8100XC]	1
CA7	SGWA1290	Panel, Indicator [Model SA-8100X] (Use SYWA170A)	(1)
CA7 (C)	SGWA1291	Panel, Indicator [Model SA-8100XC] (Use SYWA171A)	(1)
CA8	SUSA42-2	Spring, Glass Plate M'tg. (Use SYWA170A or SYWA171A)	(2)
CA9	SGXA61	Side Panel, Left Side	1
CA10	SGUA27	Glass Plate, Dial	1
CA11	SGXA60	Side Panel, Right Side	1
CH26	SDTA5-1S	Tuning Shaft, Complete	1
	SDTA6005	Shaft Only (Use SDTA5-1S)	(1)
	SDXA705S	Flywheel (Use SDTA5-1S)	(1)

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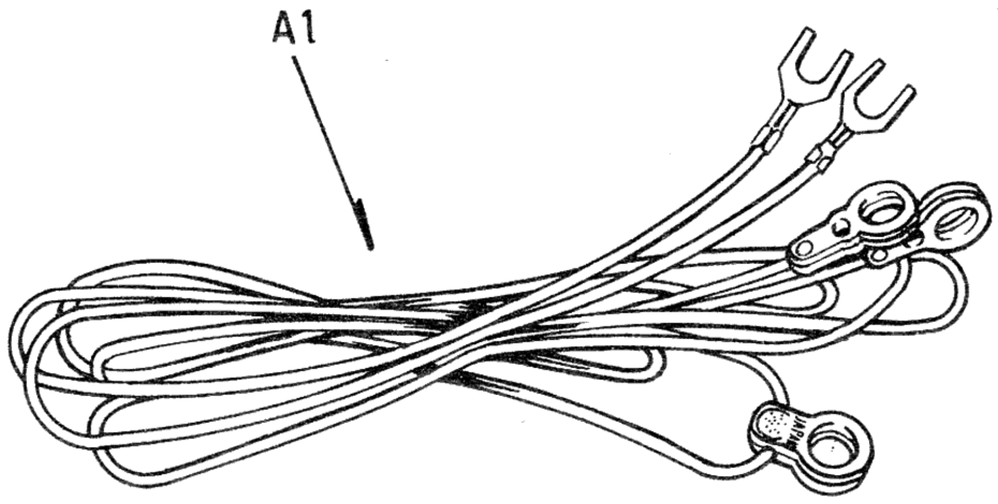
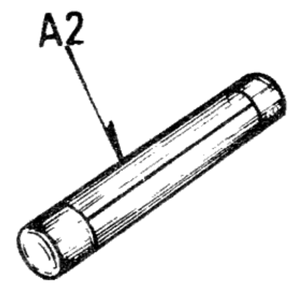
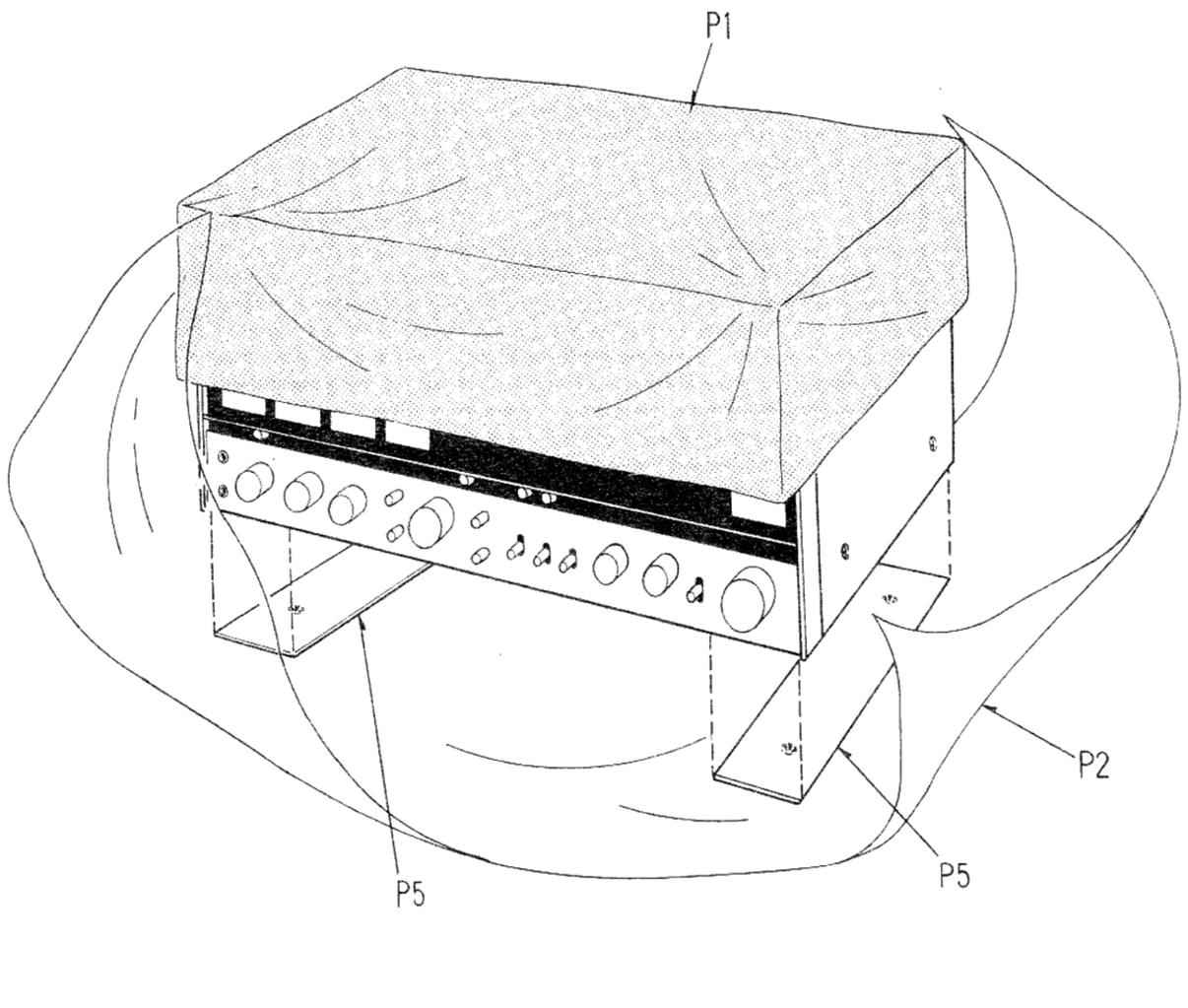
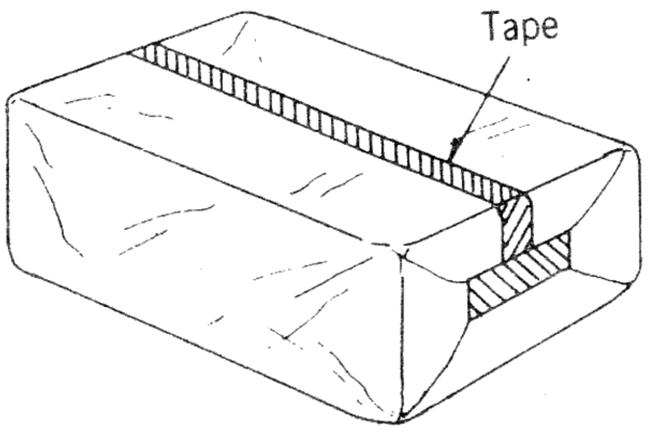
■ ACCESSORIES

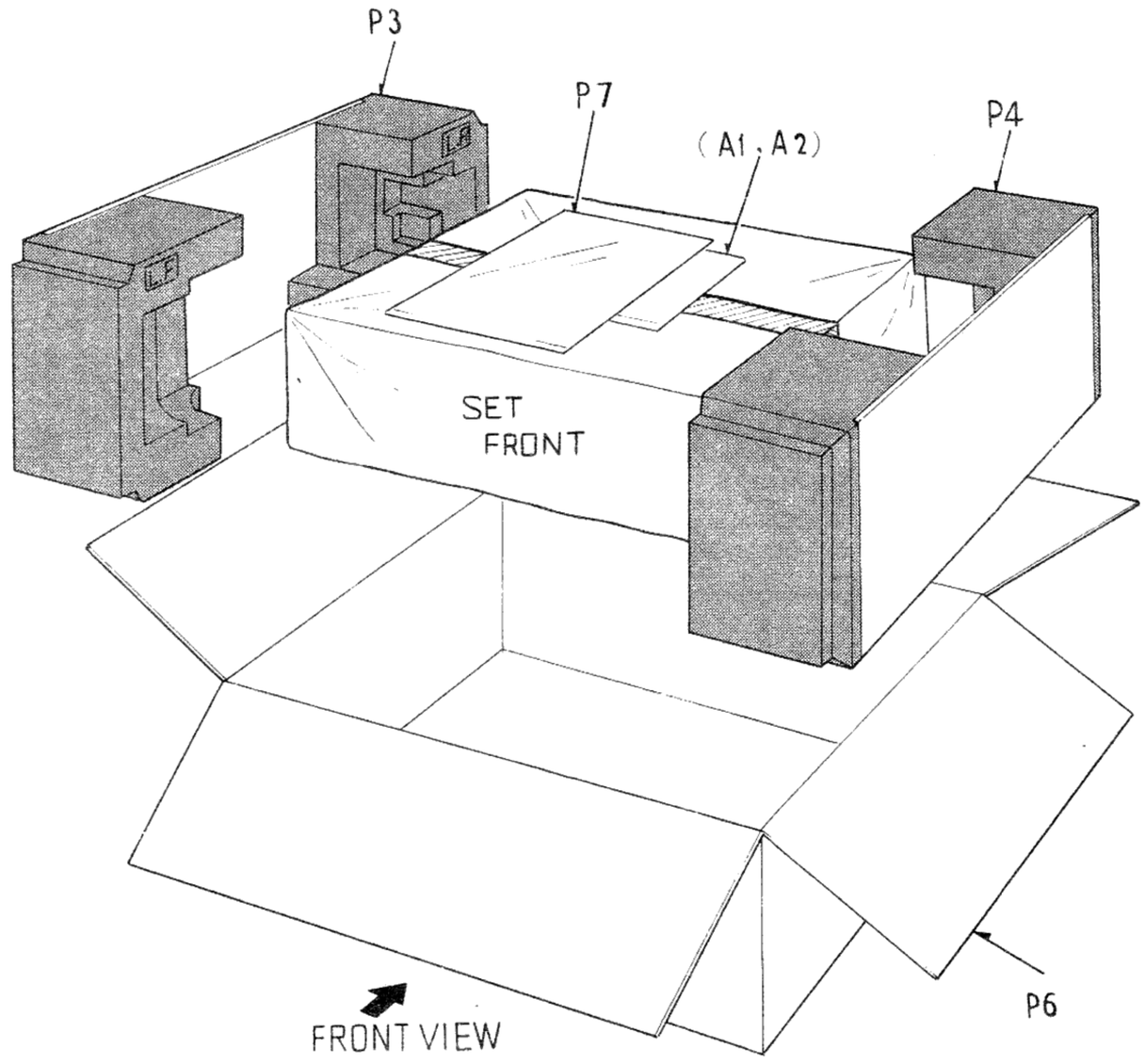




■ PACKINGS







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