

SERVICE MANUAL

AM/FM STEREO RECEIVER

SANSUI 9090/8080



SANSUI ELECTRIC CO., LTD.

NOTE:

This service manual includes two model numbers, #9090 and #8080 together as indicated Model **A** and **B** in parts lists, schematic diagram and others.

MODEL **A** # 9090

MODEL **B** # 8080

When ordering parts, use the parts name and stock No. after confirming either Model **A** or **B**.

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1. SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT

Min. RMS, both channels driven, from 20 to 20,000Hz, with no more 0.2% total harmonic distortion

*MODEL **A** { 110 watts per channel into 8 ohms
Min. RMS, both channels driven, at 1kHz, with no more than 0.2% total harmonic distortion 120 watts per channel into 8 ohms

*MODEL **B** { 80 watts per channel into 8 ohms
Min. RMS, both channels driven, at 1kHz, with no more than 0.2% total harmonic distortion 90 watts per channel into 8 ohms

LOAD IMPEDANCE 8 ohms

POWER BANDWIDTH 20 to 20,000Hz at or below rated min. RMS power output and total harmonic distortion

TOTAL HARMONIC DISTORTION less than 0.2% at or below rated min. RMS power output

INTERMODULATION DISTORTION (70Hz : 7kHz=4.1 SMPTE method) less than 0.2%

FREQUENCY RESPONSE (at 1 watt) 10 to 30,000Hz ±1dB

RIAA CURVE DEVIATION (PHONO) +0.5dB, -0.5dB (30Hz to 15kHz)

DAMPING FACTOR approximately 10 at 8 ohm load
INPUT SENSITIVITY AND IMPEDANCE (1kHz. for rated power output)

PHONO 2.5mV/50 kilo ohms (Max. input capability: 200mV at 1kHz, less than 0.2% total harmonic distortion.)

TAPE PLAY, AUX 100mV/50 kilo ohms
OUTPUT LEVEL (1,000Hz)
TAPE-1, 2 REC (pin jacks) 100mV

TAPE-2 REC/PLAY (DIN socket) 30mV
PRE OUT 750mV

CHANNEL SEPARATION (at rated output 1,000Hz)
PHONO better than 50dB

TAPE PLAY, AUX better than 50dB

HUM AND NOISE
PHONO better than 70dB

TAPE PLAY, AUX better than 80dB

CONTROLS
BASS ±10dB (50Hz)

*MODEL **A** ONLY
TONE SELECTOR (turnover frequency) 150, 300Hz

MIDRANGE ±5dB (1.5kHz)

TREBLE ±10dB (10kHz)

*MODEL **A** ONLY
TONE SELECTOR (turnover frequency) 1.5, 3kHz

LOUDNESS +10dB (50Hz)
+8dB (10kHz)

LOW FILTER -10dB (50Hz)

HIGH FILTER -10dB (10kHz)

AUDIO MUTING -20dB

FM SECTION

TUNING RANGE 88 to 108MHz

SENSITIVITY (IHF) 1.7µV (DIN) 0.9µV

QUIETING SLOPE (Mono) 3µV (50dB)

TOTAL HARMONIC DISTORTION
STEREO less than 0.3%

NONO less than 0.2%

SIGNAL TO NOISE RATIO (mono) better than 85dB

SELECTIVITY better than 1.5dB

CAPTURE RATIO better than 75dB (98MHz)

IMAGE REJECTION better than 90dB (98MHz)

IF REJECTION better than 90dB (98MHz)

SPURIOUS REJECTION less than 34dB

SPURIOUS RADIATION better than 40dB (1kHz)

STEREO SEPARATION 30 to 15,000Hz ^{+0.5} _{-2.0} dB

FREQUENCY RESPONSE 30 to 15,000Hz ^{+0.5} _{-2.0} dB

ANTENNA INPUT IMPEDANCE 75Ω unbalanced
300Ω balanced

AM SECTION

TUNING RANGE 535 to 1,605kHz

SENSITIVITY (Bar antenna) 50dB/m (1,000kHz)

SELECTIVITY better than 50dB (1,000kHz)

IMAGE REJECTION better than 80dB/m (1,000kHz)

IF REJECTION better than 80dB/m (1,000kHz)

OTHERS
POWER REQUIREMENTS
POWER VOLTAGE 100, 120, 220, 240V (50/60Hz)

POWER CONSUMPTION
*MODEL **A** 270 watts (rated)

*MODEL **B** 180 watts (rated)

DIMENSIONS 540mm (21-⁵/₁₆") W
182mm (7-³/₁₆") H
399mm (15-¹/₁₆") D

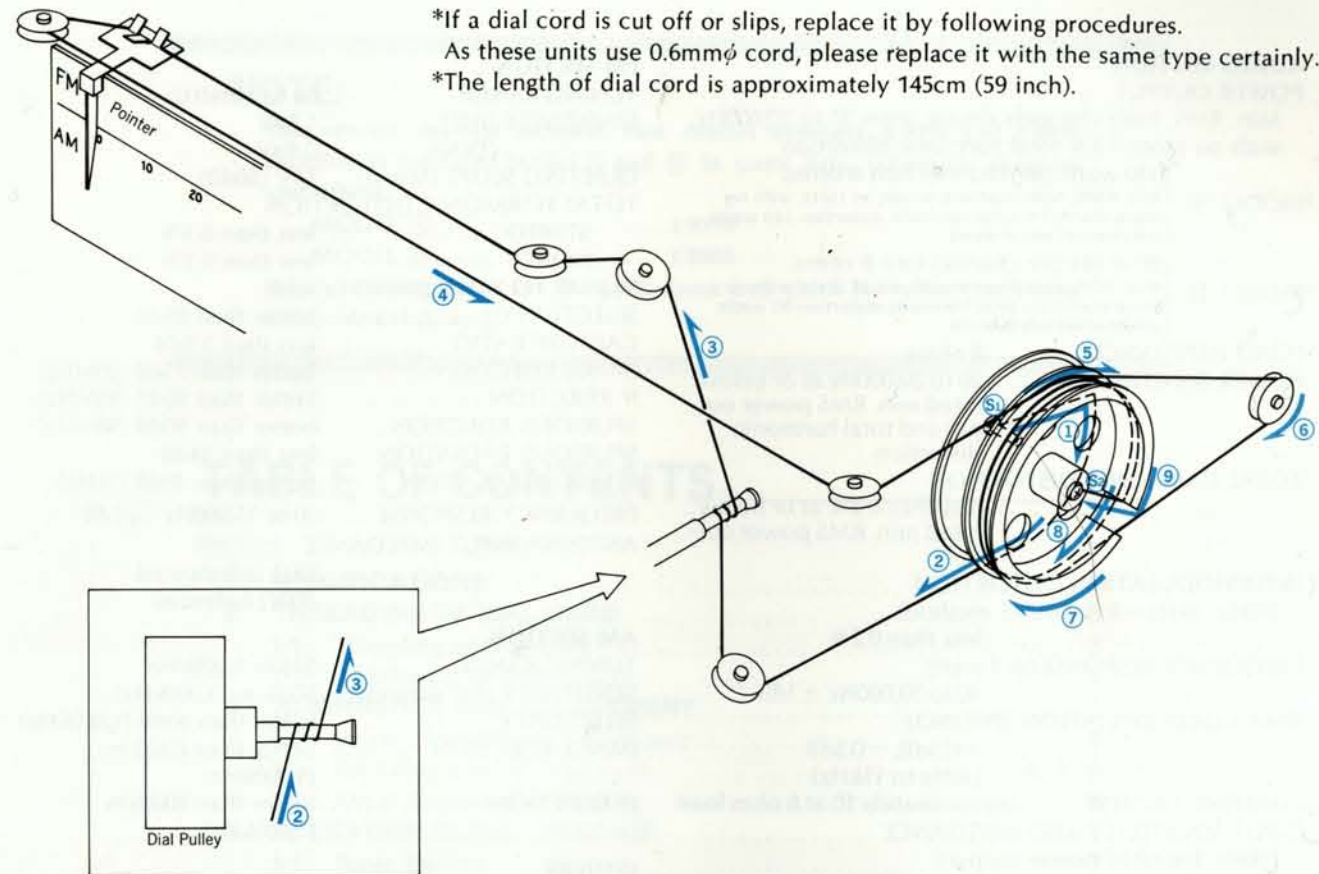
WEIGHT
*MODEL **A** { 23.3 kg (51.4 lbs) net
25.7 kg (56.7 lbs) packed

*MODEL **B** { 20.9 kg (46.1 lbs) net
23.3 kg (51.4 lbs) packed

NOTE: In this specifications, there are two model numbers as model **A** and **B**. Regarding name of model **A**, **B**, please refer to "Notes" indicated on page 1.

* Design and specifications subject to change without notice for improvements.

2. THREADING OF DIAL CORD



*If a dial cord is cut off or slips, replace it by following procedures.
As these units use 0.6mmφ cord, please replace it with the same type certainly.
*The length of dial cord is approximately 145cm (59 inch).

2-1. Threading of Dial Cord

Thread the dial cord in numerical order from ① to ⑨ as Fig. 2-1.

- 1) Close the variable capacitor completely (Max. capacitance).
- 2) Tie dial cord to the screw, S1.
- 3) Thread cord in the direction of arrow from ① to ⑨
- 4) After ⑨, tie the cord to the screw S2 of the dial pulley.

2-2. Attachment of Dial Pointer

- 1) Close the variable capacitor completely.
 - 2) Set the dial pointer to the 0 position on dial scale.
- *Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

Stock No.	Description
6036051	Dial Cord (0.6mmφ)
6146670	D44 Type Pulley

3. ALIGNMENTS AND ADJUSTMENT

Abbreviation

Equipment

AM FM Generator Oscilloscope Genescope
AM Signal Generator AM SG
FM Signal Generator FM SG
Multiplex Stereo Generator Scope
Oscilloscope Audio Osc.
Audio Oscillator Dist. Meter

Others

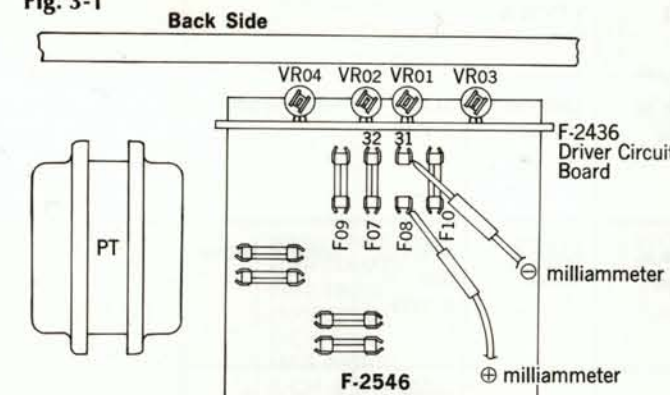
Clockwise CW.
Counterclockwise CCW.
Antenna ANT.
Modulation MOD.

3-1. Driver Circuit Board Adjustments (See Fig. 3-1, 3-2 on page 4)

Note: 1. Master Volume Minimum
2. Before adjustment, run the unit for more than 4 minutes, then check and readjust necessary.

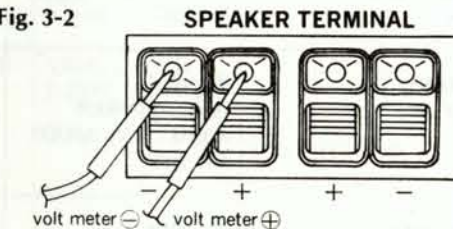
STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1.	DC 0V L-CH	DC volt Meter	Speaker Terminal L-CH	VR01 F-2436	0V ±10mV	◦ Step down meter range accordingly. ◦ Change leads polarity if meter swings backward.
2.	DC 0V R-CH	Same as above	Speaker Terminal R-CH	VR02 F-2436	Same as above	Same as above
3.	Bias Current L-CH	DC Milliammeter	F07 F-2546	VR03 F-2436	*MODEL A 50mV ± 1mA *MODEL B 30mA ± 1mA	◦ Step down meter range accordingly
4.	Bias Current R-CH	Same as above	F08 F-2546	VR04 F-2436	Same as above	◦ Same as above

Fig. 3-1



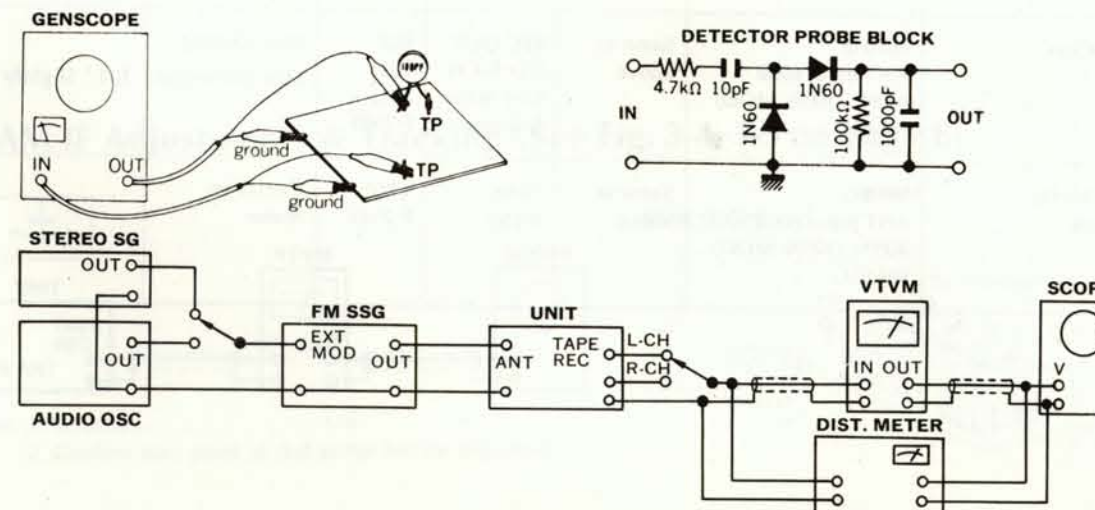
Note: In adjustment above, there are two model numbers as model A and B. Regarding name of model A, B, please refer to "Note" indicated on page 1.

Fig. 3-2

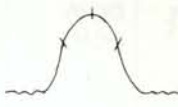

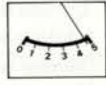
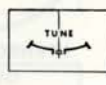


3-2. FM Adjustment & Alignment

Note: 1. Selector FM AUTO
2. FM MUTING Switch OFF
3. Connection Connect the output of genescope to TP through 100pF ceramic capacitor.
{ Output level of genescope After attenuator
4. Sweep width 1.5~2cm/150kHz
{ Frequency band 9.5~11.5MHz



1) FM IF Adjustment & Tracking (See Fig. 3-3, 3-4, 3-5 on page 6)

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1.	IF coil	Output 90dB Genescope	TP01 FM, AM Pack F-1519	Terminal 01 of F-2549. Use Detector Probe	L05 F-1519	Max. IF waveform	
		Output 50dB Genescope	Same as above	TP01 F-2549	T01 F-2549	Same as above	
2.	Muting Coil	Output 50dB Genescope	Same as above	TP04 F-2549	T04 F-2549	Same as above	
3.	Discriminator Coil	Output 50dB Genescope	Same as above	TP03 F-2549	T02 T03 F-2549	Max. linearity of S Curve	
4.	90MHz Dial Calibration	90MHz ANT Input 60dB 400Hz (100% MOD) FM SSG	ANT Terminal 300Ω	REC OUT L or R-CH VTVM & Scope	L06 F-1519	Max. Output	
	106MHz Dial Calibration	106MHz ANT Input 60dB 400Hz (100% MOD) FM SSG	Same as above	Same as above	TC04 F-1519	Same as above	
5.	90MHz RF Adj.	90MHz ANT Input 60dB 400Hz (100% MOD) FM SSG	Same as above	Same as above	L01, L02, L03 F-1519	Same as above	
	106MHz RF Adj.	106MHz ANT Input 60dB 400Hz (100% MOD) FM SSG	Same as above	Same as above	TC01 TC02 TC03 F-1519	Same as above	
6.	Signal Meter Volume	98MHz ANT Input 100dB 400Hz (100% MOD) FM SSG	Same as above	Signal Meter	VR02 F-2549	4.7 on meter	
7.	Distortion	98MHz ANT Input 60dB 400Hz (100% MOD) FM SSG	Same as above	REC OUT L or R-CH Dist meter & Scope	T02 T03 } T01 } F-2549	Max. Output Min. Distortion	T01..Slightly adjust
8.	Tune Meter Volume	98MHz ANT Input 60dB 400Hz (100% MOD) FM SSG	Same as above	Tune meter	VR01 F-2549	Center on meter	

2) MPX Alignment (See Fig. 3-4, 3-5 on page 6)

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1.	PLL VCO Adj.	98MHz ANT Input 60dB FM SSG Pilot 19kHz (10% MOD) L-CH 1kHz (45% MOD) R-CH (0% MOD) STEREO SG	ANT Terminal 300Ω	Stereo Indicator	VR04 F-2549	Light Indicator	Adjust the VR within center of lighting level.
	PLL VCO Adj. In case of using Freq Counter		Make short between TP03 of F-2549 and chassis	TP02 F-2549 Use Freq. Counter	VR04 F-2549	76kHz (±200Hz)	
2.	Separation	98MHz ANT Input 60dB FM SSG Pilot 19kHz (10% MOD) L-CH (0% MOD) R-CH 1kHz (45% MOD) STEREO SG	ANT Terminal 300Ω	REC OUT L-CH VTVM & Scope	VR05 F-2549	Min. Output -35dB	
3.	Distortion	Same as above	Same as above	REC OUT L-CH Dist. meter & Scope	L05 1 Side 2 Side AM, FM Pack F-1519	Min. Distortion	If less than 0.3%, adjust L05 slightly.
4.	Separation	98MHz ANT Input 60dB FM SSG Pilot 19kHz (10% MOD) L-CH 1kHz (45% MOD) R-CH (0% MOD) STEREO SG	Same as above	REC OUT R-CH VTVM & Scope	VR05 F-2549	Min. Output -30dB	
5.	Muting level & Indicator level	98MHz ANT Input 23dB FM SSG Pilot 19kHz (10% MOD) L-CH 1kHz (45% MOD) R-CH (0% MOD) STEREO SG	Same as above	Stereo Indicator	VR03 F-2549	Muting level 23dB Indicator lighting level 23dB	

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1.	IF Coil	Genescope Output 70dB	TC05 FM, AM Pack F-1519	TP06 F-2549	CF04 F-2549	Max. Output	
2.	600kHz Dial Calibration	600kHz ANT Input 60dB 400Hz (MOD 30%) AM SSG	AM ANT Terminal	REC OCT L or R-CH VTVM & Scope	T05 F-2549	Same as above	
			Same as above	Same as above	TC05 FM, AM Pack F-1519	Same as above	
3.	600kHz RF Adj.	600kHz ANT Input 50dB 400Hz (MOD 30%) AM SSG	Same as above	Same as above	Bar Antenna T702	Same as above	
			Same as above	Same as above	TC06 FM, AM Pack F-1519	Same as above	
4.	Signal Meter	1000kHz ANT Input 80dB	Same as above	Signal Meter	VR06 F-2549	4.3 on meter	

Fig. 3-3

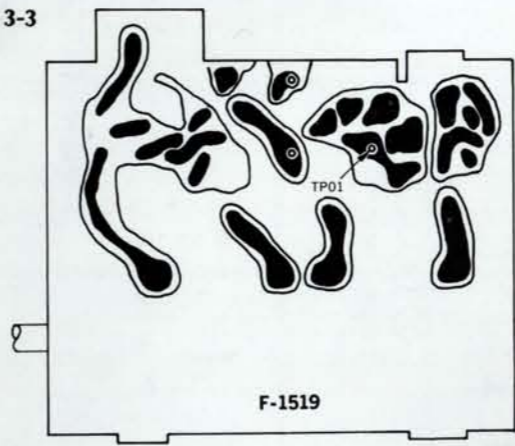
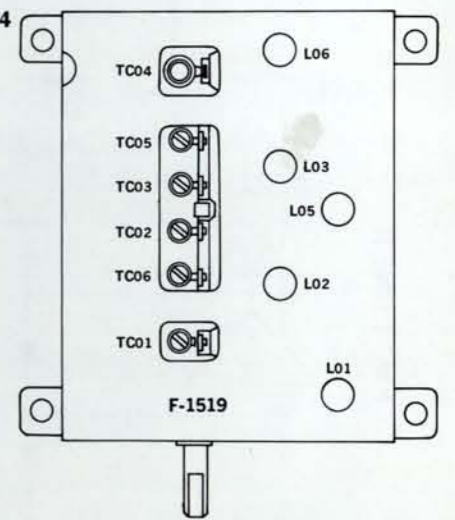


Fig. 3-4



3-3. AM IF Adjustments & Tracking (See Fig. 3-4, 3-5 on page 6)

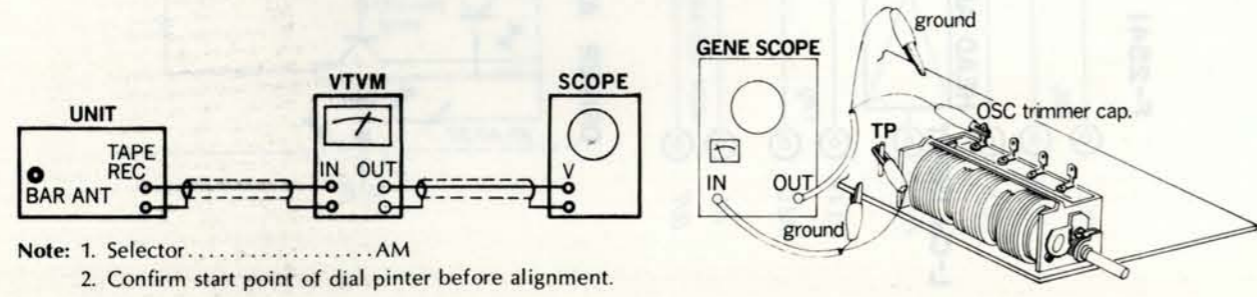
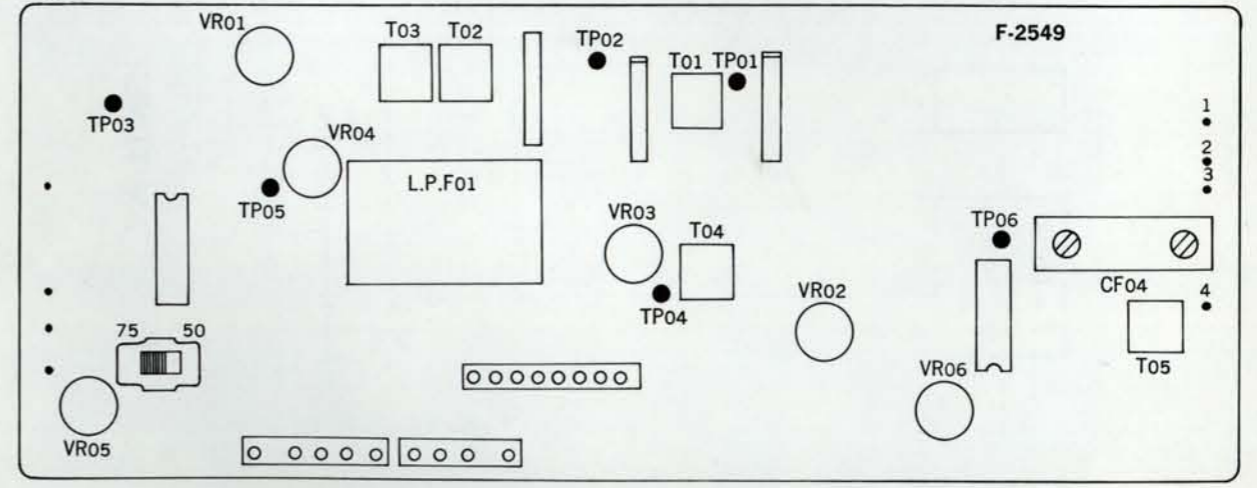
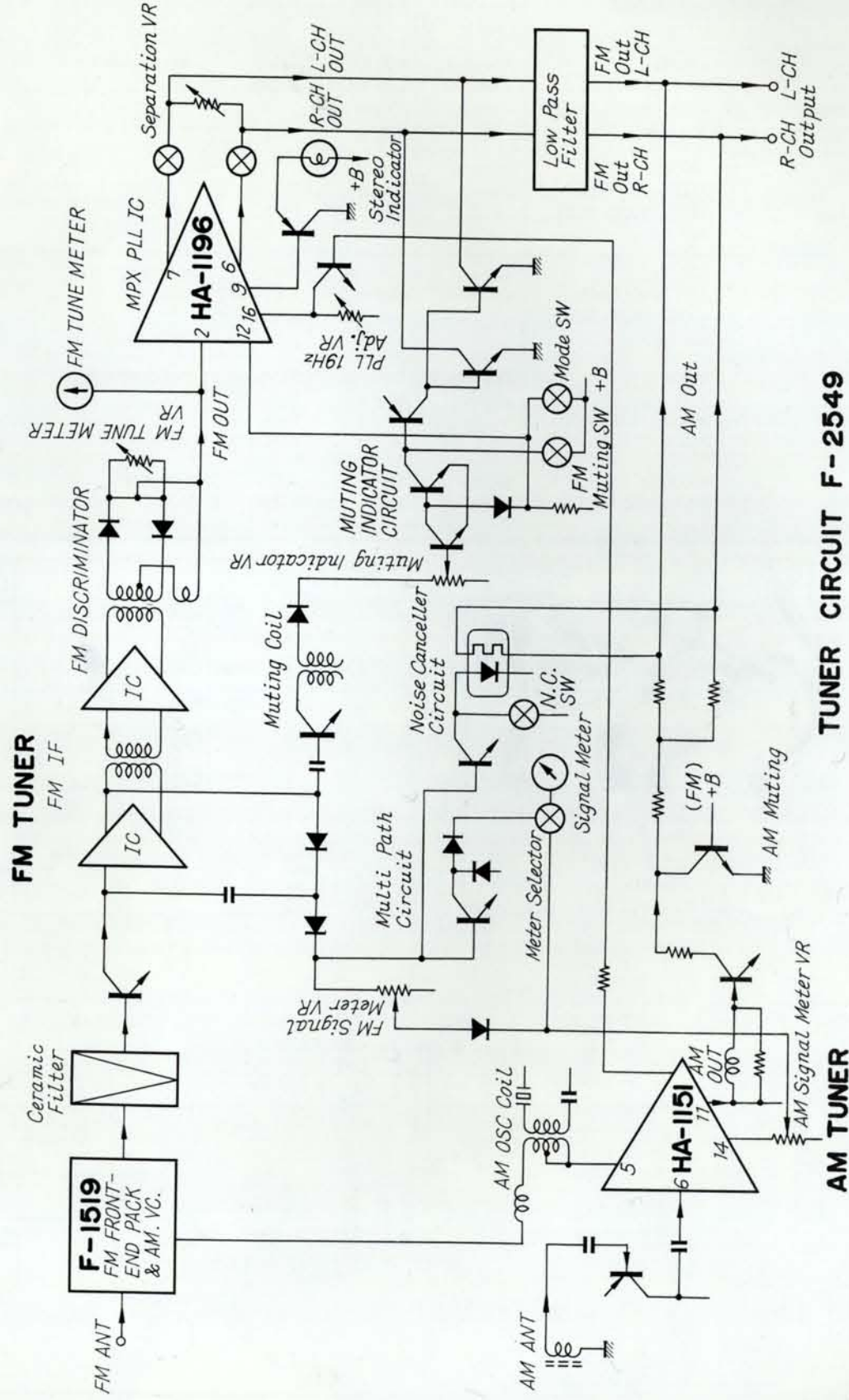


Fig. 3-5



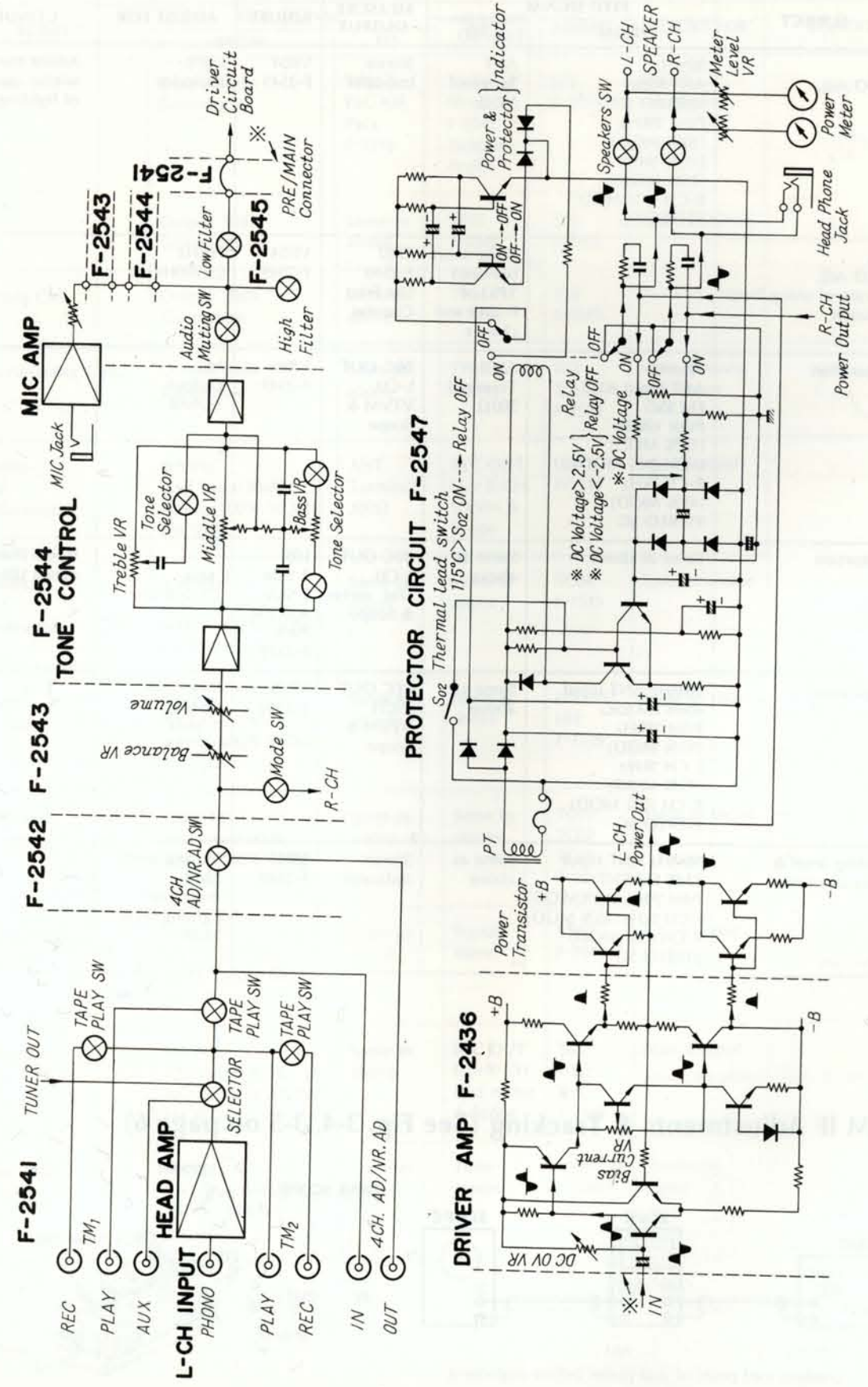
4. OPERATION BLOCK DIAGRAM

4-1. Tuner Section



TUNER CIRCUIT F-2549

4-2. Audio Section



5. TROUBLESHOOTING CHART

5-1. Audio Section

Symptom	Defective Circuit or Check Point	Cause
1) Troubles on Power Supply section	Defective parts in circuit on primary side of power transformer Defective rectifier circuit in secondary side of power transformer Defective or regulated power supply section	1. Power fuse, F701 opens 2. Defective power switch, S701 3. Imperfect contact of voltage selector 1. AC fuse, F01~F06 opens 2. Defective diode, D02, D03 on F-2546 1. Defective D01 on F-2546 2. Defective TR01~TR03 on F-2546
2) Troubles on protector section	Protector circuit inoperative when DC voltage is given to output of power stage Defective protection circuit with thermal lead switch Protector indicator does not flicker	1. Defective D04~D07 on F-2547 2. Defective TR01, TR02 on F-2547 3. Defective relay, RL01 1. Defective thermal lead switch, S702 2. Defective TR01, TR02 on F-2547 3. Defective relay, RL01 1. Defective TR03, TR04 on F-2547 2. Defective C06, C07 on F-2547 3. Defective LED01 on F-2548
3) Troubles on Power AMP. section	Quick acting fuse opens One channel inoperative Over-flow bias current	1. Power transistor shorted 2. Defective TR11~TR14 on F-2436 3. TR07 on F-2436 opens 4. Defective protector circuit 1. Defective TR01~TR03 on F-2436 1. Incorrect adjustment VR03, VR04 on F-2436
4) Troubles on Tone Control section	Inoperative tone control circuit Noise is produced by turning tone volume controls	1. Defective IC01 on F-2544 2. Defective TR01 on F-2544 1. Defective tone control volume VR01, VR02 on F-2544
5) Troubles on MIC AMP. section	Inoperative Mic AMP. circuit	1. Defective IC601 on F-2543 2. Defective TR601 on F-2543 3. Imperfect contact of MIC Jack
6) Troubles on Equalizer section	Inoperative equalizer circuit	1. Defective IC01, IC02 on F-2541 2. Imperfect contact of selector 3. Imperfect contact of Tape switch
7) Power meter inoperative	Meter circuit inoperative	1. Imperfect adjustment of VR01, VR02 on F-2547 2. Defective M701, M702 3. Defective D10~D12 on F-2547

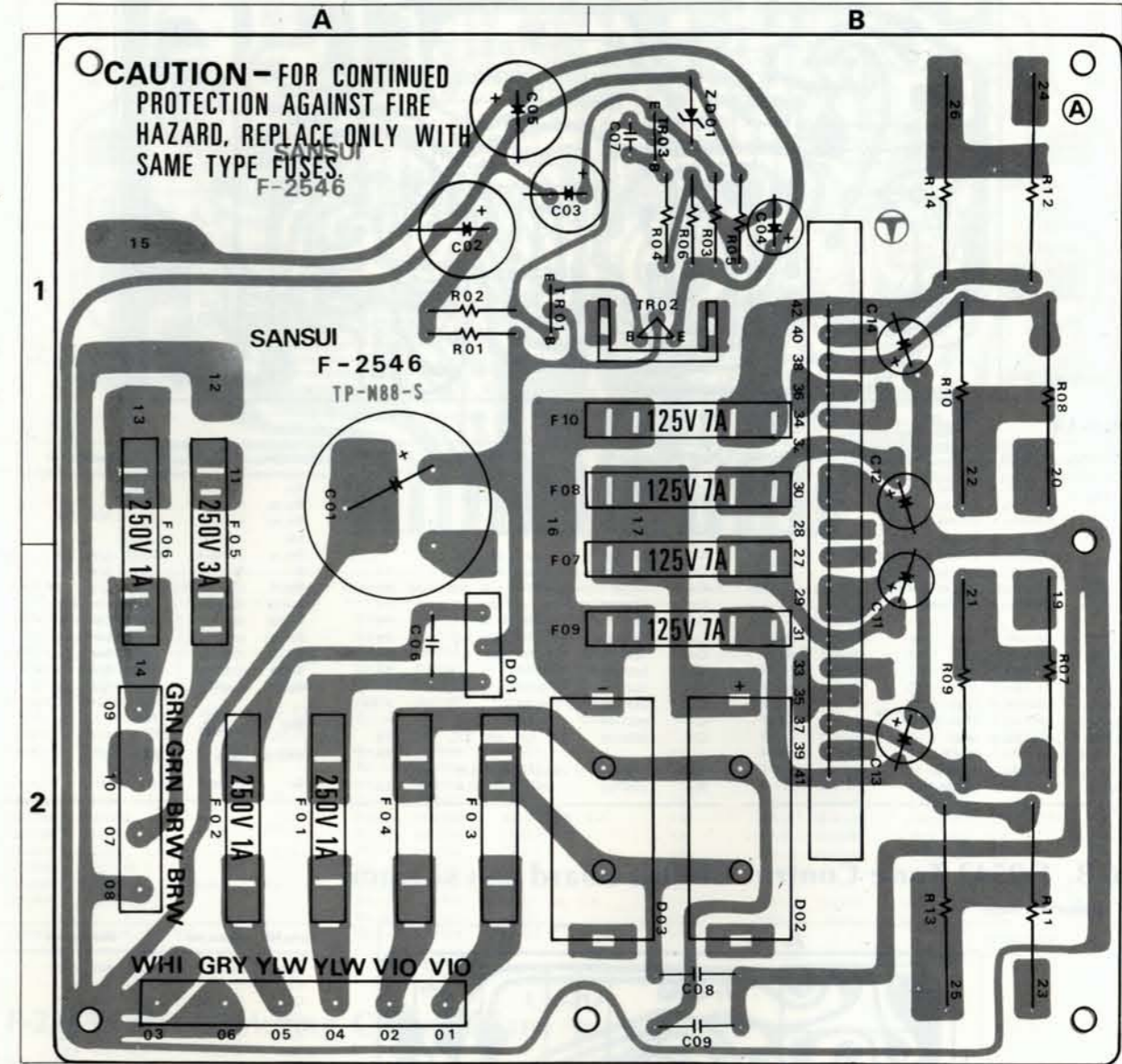
5-2. Tuner Section

Symptom	Defective Circuit or Check Point	Cause
1) Both AM and FM inoperative	Power supply section inoperative	1. Defective TR01 on F-2431 2. Imperfect contact of selector switch
2) AM inoperative	Defective semiconductors Defective coils	1. Defective TR12 on F-2549 2. Defective IC05 on F-2549 3. Defective TR13, TR14 on F-2549 1. Osc coil opens 2. Bar antenna coil opens
3) AM poor sensitivity	Incorrect adjustment	1. IF or Tracking out of adjustment
4) Signal meter does not properly operate	Defective meter circuit	1. Signal meter volume, VR06 out of adjustment 2. Defective signal meter, M703
5) FM inoperative	Defective FRONT-END PACK F-1519 Defective IF section	1. Defective FET01, TR01, 02 on F-1519 2. Coil, L01~L06 on F-1519 opened 1. Defective TR01~TR03 on F-2549 2. Defective IC01~IC03 on F-2549 3. T01, T02 on F-2549, opened
6) FM poor sensitivity	Incorrect adjustment Poor FM input signal	1. RF and Tracking out of adjustment 2. IF coil and discriminator coil out of adjustment 1. Weak electric field intensity area
7) Signal meter does not properly operate	Defective meter circuit	1. Defective D05~D07 on F-2549 2. Signal meter volume VR02 out of adjustment
8) MPX inoperative	Defective PLL circuit Defective semiconductors	1. Defective IC04 on F-2549 2. TR10, TR11 on F-2549 shorted
9) No channel separation on FM stereo reception	Incorrect adjustment	1. Muting coil, T04 out of adjustment 2. Muting, Indicator volume, VR03 out of adjustment 3. Free-run frequency adjust. Volume, VR04 out of adjustment 4. Separation volume, VR05 out of adjustment 5. Defective TR08 on F-2549
10) Troubles on Muting indicator circuit	Muting inoperative	1. Defective TR05~TR07 on F-2549 2. T04, VR03 on F-2549 out of adjustment 3. TR10, TR11 opens
11) Stereo indicator does not light up	Indicator circuit inoperative	1. Defective TR04, TR05 on F-2549 2. T04, VR03 on F-2549 out of adjustment 3. TR09 on F-2549 opens 4. Stereo indicator lamp, PL707 opens

6. PARTS LOCATION AND PARTS LIST

6-1. F-2546 Power Supply Circuit Board (Stock No. 7501281 MODEL A)
(Stock No. 7501271 MODEL B)

Conductor Side



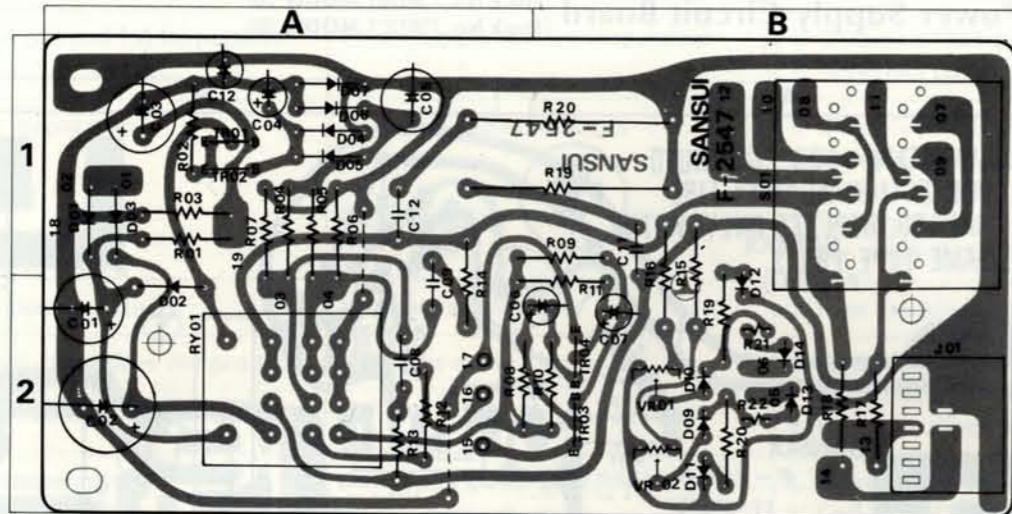
Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position		
TR01	0305930.1	25C1211 (C, D)	1 A	C07	0657221	220pF 50V C.C.	1 B	R10	0135338	0.33Ω SW Ce.R.	1 B		
TR02	0308390.2	25D313 (C, D, E)	1 B	C08	0655103	10000pF 500V C.C.	2 B	R01	0152220	22Ω 2W	2 B		
TR03	0305930.1	25C1211 (C, D)	1 B	C09	0655103	10000pF 500V C.C.	2 B	F01,02	0431220	AC Fuse 1A	2 A		
D01	0310530	1S1850	2 A	C11	0539001	4.7μF	80V E.C.	F05	0431260	AC Fuse 3A	2 A, 1 A		
	0310800	10DC2		C12	0539001	4.7μF		F06	0431220	AC Fuse 1A			
	0311420	C08P-2-N		C13	0539001	4.7μF		2310050	P Type Fuse Holder				
	0311310	SS-5		C14	0539001	4.7μF		2310150	P Type Fuse Holder T-1				
D02	0311310	SS-5	2 B	R01	0107332	3.3kΩ	1 A	01	2420170.1	18P Multi Connector			
D03	0311320	SS-5R	2 A, B		R02	0107332		3.3kΩ	*MODEL A only	R11-14	0135338	0.33Ω SW Ce.R.	1, 2 B
ZD01	0315970	EQA01-13R	1 B		R03	0107472		4.7kΩ		F07,08	0431290	AC Fuse 6A	2 A, 1 A
C01	0549206	1000μF 63V E.C.	1, 2 A		R04	0107102		1Ω			*MODEL B only	F07,10	0431280
	C02	0515221	220μF 50V E.C.	1 A	R05	0107223	22kΩ						
C03	0512101	100μF 16V E.C.	1 A, B	R06	0107333	33kΩ							
C04	0515470	47μF 50V E.C.	1 B	R07	0135338	0.33Ω							
C05	0515101	100μF 50V E.C.	1 A	R08	0135338	0.33Ω SW Ce.R.	1 B						
C06	0655103	10000pF 500V C.C.	2 A	R09	0135338	0.33Ω	2 B						

Note: In parts list above, there are two model numbers as model A and B. Regarding name of model A, B, please refer to "Notes" indicated on page 1.

6-2. F-2547 Protector Circuit Board (Stock No. 7593111)

Conductor Side

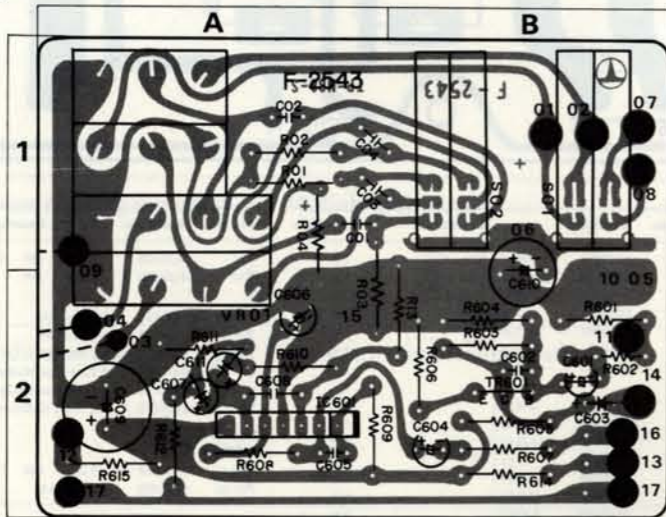


Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01	0305951, 3	2SC945 (Q, P, K)	1 A	D13, 14	0310970	1N60P	Diode	R03	0107223	22kΩ	1 A
	0306131, 3	2SC1364 (6, 7, 8)	1 A		0311060	1N60-P		R04, 05	0107473	47kΩ	1 A
TR02	0305951, 3	2SC945 (Q, P, K)	1 A	LD01	0319040	GL-40R8B L.E.D		R06, 07	0107432	3.3kΩ	1/4W C.R.
	0306131, 3	2SC1364 (6, 7, 8)	2 B					R08	0107152	1.5kΩ	1, 2 A
TR03	0305951, 3	2SC945 (Q, P, K)	2 B	C01	0513330	33nF 25V E.C.		R09, 10	0107224	220kΩ	1/4W C.R.
	0306131, 3	2SC1364 (6, 7, 8)	2 B	C02	0514221	220nF 35V E.C.	2 A	R11	0107152	1.5kΩ	1/4W C.R.
TR04	0305951, 3	2SC945 (Q, P, K)	2 B	C03	0510471	470nF 6.3V E.C.	2 A	R12	0107152	1.5kΩ	1/4W C.R.
	0306131, 3	2SC1364 (6, 7, 8)	2 B	C04	0515109	1nF 50V E.C.	1 A	R13, 14	0201100	10Ω	1W M.R.
D01	0310340	10D1	1 A	C05	0530470	47nF 6.3V E.C.	1 A	R15, 16	0201101	100Ω	1W M.R.
D02	0310340	10D1	2 A	C06	0515109	1nF 50V E.C.	1 A	R17, 18	0155221	220Ω	5W Ce.C.
D03	0310340	10D1	1 A	C07	0515109	1nF 50V E.C.	2 B	R19, 20	0133100	10Ω	3W Ce.C.
D04	0310330, 1	1N60	1 A	C08	0601108	0.1nF	2 B	R21, 22	0107180	18Ω	1/4W C.R.
D05	0310330, 1	1N60	1 A	C09	0601108	0.1nF	2 A	R23, 24	0107102	1kΩ	1/4W C.R.
D06	0310330, 1	1N60	1 A	C10	0601108	0.1nF	50V M.C.				
D07	0310330, 1	1N60	1 A	C11	0601108	0.1nF	1, 2 A	RL01	1150101	Relay	2 A
D08, 09	0310970	1N60P	2 B	C12	0535109	1nF 50V E.C.	1 B	VR01, 02	1035110	4.7kΩ B	2 B
D11, 12	0311160	152473D	2 B					SR	1102650	Rotary Switch	1 B
	0311180	151588		R01	0107104	100kΩ	1/4W C.R.				
				R02	0107100	10Ω	1/4W C.R.				

6-3. F-2543 Tone Control Circuit Board (Stock No. 7561171)

Conductor Side

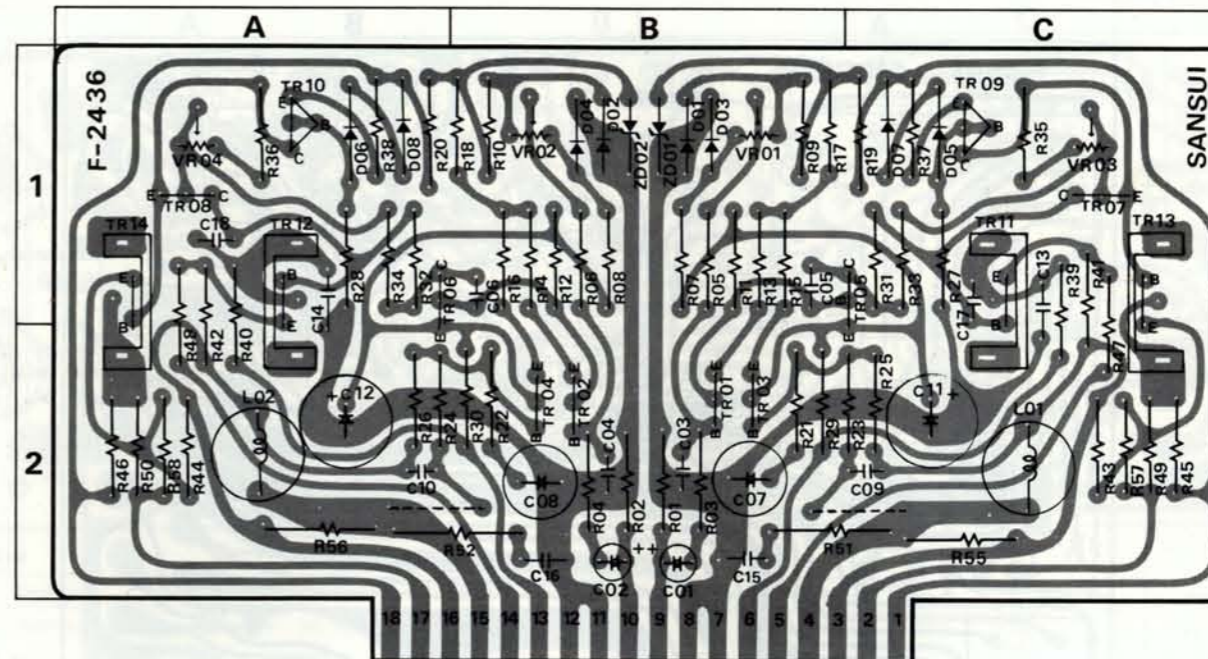


Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01	0306070-2	2SC1313 (F, G, H) Transistor	1 A	C01, 02	0620471	470pF 50V P.C.	1 A	VR01	1060320, 1	250kΩ BX2	1, 2 A
IC01	0360190	BA312 IC	2 A	C03, 04	0600277	0.027nF 50V M.C.	1 A	SR	1171120	Lever Switch	1 B
				C01	0600687	0.068nF 50V M.C.	2 B				

6-4. F-2436 Driver Circuit Board (Stock No. 7571201)

Conductor Side

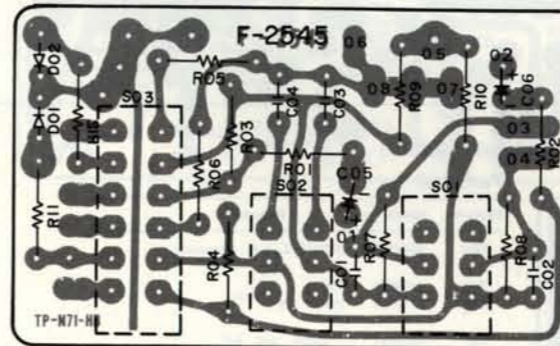


Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01, 02	0306271	2SC1708 (G)	2 B	C03, 04	0657101	100pF 50V C.C.	2 B	R25, 26	0107124	120kΩ	1/4W C.R.
TR03, 04	0306271	2SC1708 (G)	2 B	C05, 06	0657150	15pF 50V C.C.	1 B	R27, 28	0107333	33kΩ	1/4W C.R.
TR05, 06	0300700, 1	2SA818 (O, Y)	1, 2C, 1, 2A	C07, 08	0530101	100nF 6.3V E.C.	2 B	R29, 30	0191391	390Ω	1/4W Fuse Resistor
	0300801, 2	2SA849 (B, V)	1, 2C, 1, 2A	C11, 12	0519903	100nF 80V E.C.	2C, 2A	R31, 32	0107390	39Ω	1/4W C.R.
TR07, 08	0305871, 2	2SC984 (B, C)	1C, 1A	C13, 14	0651333	33000pF 50V C.C.	1, 2C, 1, 2A	R33, 34	0107332	3.3kΩ	1/4W C.R.
TR09, 10	0306260, 1	2SC1628 (O, Y)	1C, 1A	C15, 16	0601108	0.1nF 50V M.C.	2 B	R35, 36	0107152	1.5kΩ	1/4W C.R.
	0306411, 2	2SC1720 (B, V)	1C, 1A	C17, 18	0657101	100pF 50V C.C.	1C, 1A	R37, 38	0107181	180Ω	1/4W C.R.
TR11, 12	0308531, 2	2SD381 (2) (M, L)	1, 2C, 1, 2A	RL01	0107124	120kΩ	2 B	R39, 40	0191100	10Ω	1/4W Fuse Resistor
TR13, 14	0303371, 2	2SB536 (2) (M, L)	1, 2C, 1, 2A	R03, 04	0107103	10kΩ	2 B	R41, 42	0107151	150Ω	1/4W C.R.
				R05, 06	0107124	120kΩ	1 B	R43, 44	0191220	22Ω	1/4W Fuse Resistor
D01, 02	0311160	152473D	1 B	R07, 08	0107683	68kΩ	1 B	R45, 46	0107151	150Ω	1/4W C.R.
	0311180	151588		R09, 10	0107223	22kΩ	1/4W C.R.	R47, 48	0191479	4.7Ω	1/4W Fuse Resistor
D03, 04	0311160	152473D	1 B	R11, 12	0107102	1kΩ	1 B	R49, 50	0191479	4.7Ω	1/4W Fuse Resistor
	0311180	151588		R13, 14	0107220	22Ω	1 B	R51, 52	0153100	10Ω	3W Ce.C.
D05, 06	0340120	VD1212	1C, 1A	R15, 16	0107220	22Ω	1 B	SR01, 02	0107183	18kΩ	1/4W C.R.
	0315850	EQA01-09		R17, 18	0107332	3.3kΩ	1 B				
ZD01, 02	0315860	EQA01-09R	1 B	R19, 20	0201822	8.2kΩ	1W C.R.	VR01, 02	1035350	4.7kΩ(B) DC OV Adjust Volume	1 B
	0315870	EQA01-09S		R21, 22	0107182	1.8kΩ	2 B	VR03, 04	1035310	1kΩ(B) Bias Current Adjust Volume	1C, 1A
C01, 02	0519103	0.47nF 50V E.C.	2 B	R23, 24	0107274	270kΩ	2D, 2A				

6-5. F-2545 Filter & Muting Circuit Board (Stock No. 7593091)

Conductor Side

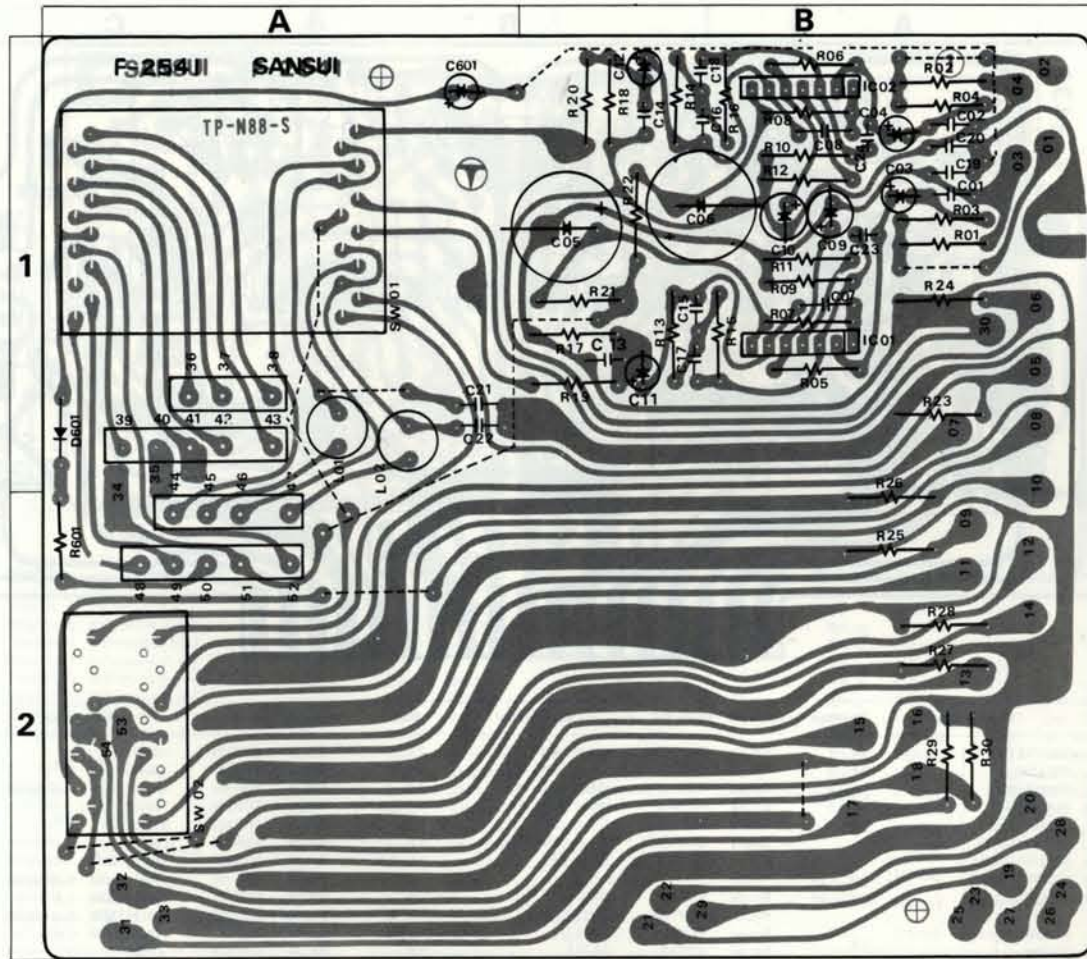


Parts List

Parts No.	Stock No.	Description
D01, 02	0311160	152473D
	0311180	151588
D03, 04	0310970	1N60P
	0311060	1N60-P
C01, 02	0600187	0.018nF 50V M.C.
C03, 04	0600187	0.018nF 50V M.C.
C05, 06	0519105	2.2nF 50V E.C.
R01, 02	0107332	3.3kΩ
R03, 04	0107273	27kΩ
R05, 06	0107332	3.3kΩ
R07, 08	0107824	820kΩ
R09, 10	0107153	1.5kΩ
SR	1131170	Push Switch

6-6. F-2541 Equalizer Circuit Board (Stock No. 7550731)

Conductor Side

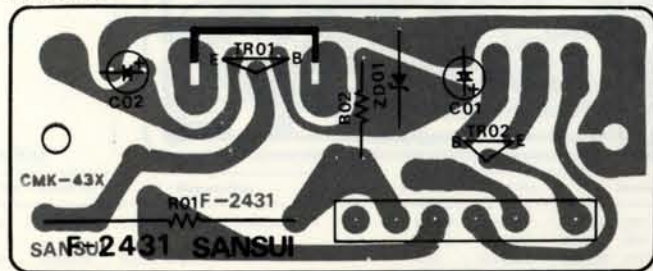


Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
IC01,02	0360190	BA312 IC	1B	C19,20	0657473	47000pF 50V C.C.	1B	R19,20	0107221	220Ω	1B
D001	0311160	Diode	1A	C21,22	0600826	0.0082μF 50V M.C.	1A	R21,22	0107681	680Ω	1B
	0311180			1S1588	C23,24	0657220	22pF 50V C.C.	1B	R23,24	0107224	220kΩ
C01,02	0657470	47pF 50V C.C.	1B	C601	0515109	1μF 50V E.C.	1A	R25,26	0107224	220kΩ	2B
C03,04	0519102	3.3μF 50V E.C.	1B	C901	0657473	47000pF 50V C.C.	1B	R27,28	0107224	220kΩ	2B
C05,06	0515471	470μF 50V E.C.	1B	R01,02	0107563	56kΩ	1B	R29,30	0107224	220kΩ	2B
C07,08	0657470	47pF 50V C.C.	1B	R03,04	0107472	4.7kΩ	1B	R601	0107223	22kΩ	2B
C09,10	0510470	47μF 6.3V E.C.	1B	R05,06	0107823	82kΩ	1B	L01,02	4900090	Inductor	1A
C11,12	0519101	1μF 50V E.C.	1B	R07,08	0107394	390kΩ	1B				
C13,14	0657331	330pF 50V C.C.	1B	R09,10	0107821	820Ω	1B	S01	1103550	Rotary Switch	
C15,16	0600276	0.0027μF 50V M.C.	1B	R11,12	0107330	33Ω	1B	S02	1102660	Rotary Switch	
C17,18	0600107	0.01μF 50V M.C.	1B	R13,14	0107273	27kΩ	1B		2410570	5P Pin Assy Type D	
				R15,16	0107334	330kΩ	1B		2410580	3P Pin Assy Type D	
				R17,18	0107224	220kΩ	1B		2410590	4P Pin Assy Type D	

6-7. F-2431 Power Supply Circuit Board (Stock No. 7501301)

Conductor Side

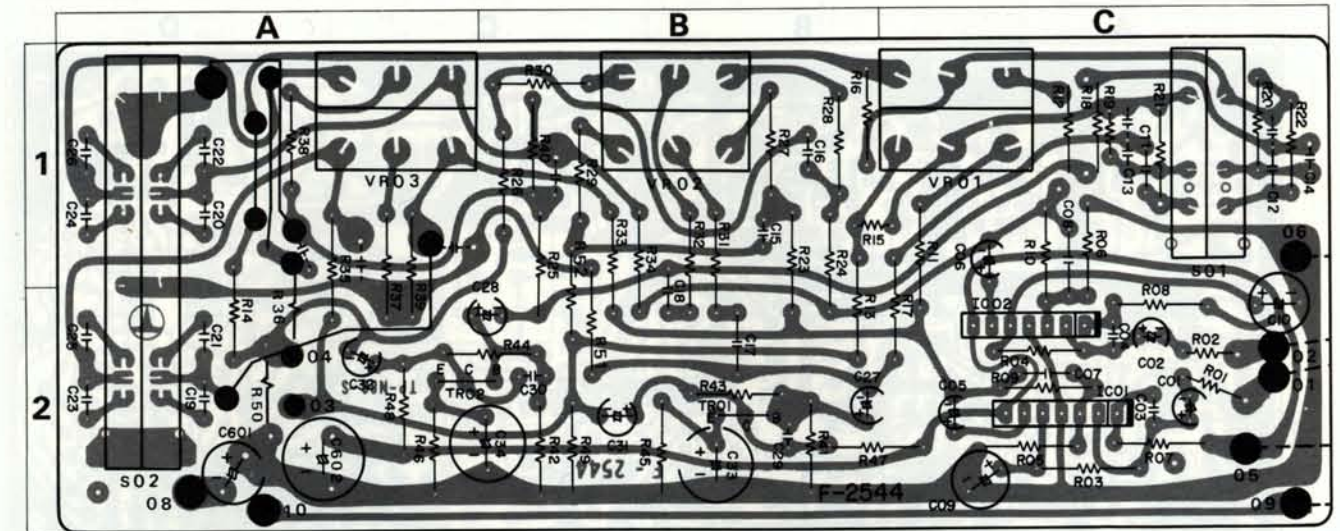


Parts List

Parts No.	Stock No.	Description
TR01	0308390-2	2SD313 (C, D, E) Transistor
D001	0310340	10D1 Diode
ZD01	0315970	EQA01-13R Diode
C01	0512221	220μF 16V E.C.
C02	0512101	100μF 16V E.C.
C03	0511471	470μF 10V E.C.
R01	0183391	390Ω 3W C.e.R.
R02	0107472	4.7kΩ 1/4W C.R.
R03	0183391	390Ω 3W C.e.R.

6-8. F-2544 Tone Control Circuit Board (Stock No. 7561191 MODEL A) (Stock No. 7561181 MODEL B)

Conductor Side



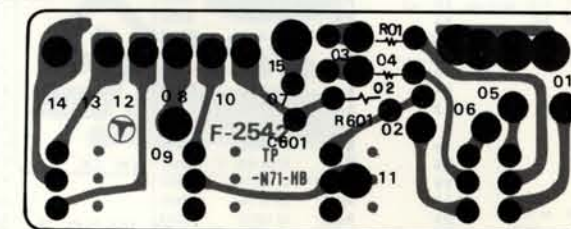
Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01,02	0306070-2	2SC1313 (F, G, H) Transistor	2B, 1A, B	R01,02	0106222	2.2kΩ	2C	R49,50	0107224	220kΩ	2B, 2A
IC01,02	0360190	BA312 IC	2C	R03,04	0107154	150kΩ	2C	R51,52	0107273	27kΩ	1/4W C.R. 1,2B
C01,02	0519101	1μF 50V E.C.	2C	R05,06	0107102	1kΩ	2C, 1C	VR01	1010930,1	100kΩ B	1C
C03,04	0657330	33pF 50V C.C.	2C	R07,08	0107474	470kΩ	1C, 1,2C	VR11,12	1010930,1	100kΩ B	1B
C05,06	0519001	10μF 25V E.C.	1C	R13,14	0107562	5.6kΩ	1B, C	VR03	1010930,1	100kΩ B	1A
C07,08	0657101	100pF 50V C.C.	1C	R15	0106274	270kΩ	1B	*MODEL A Only			
C09,10	0510470	47μF 6.3V E.C.	1,2C	R16	0107274	270kΩ	1C	C11,12	0600106	0.001μF 50V M.C.	1C
C13,14	0600186	0.0018μF	1C	R17,18	0107222	2.2kΩ	1,2C, 1C	C21,22	0600127	0.012μF 50V M.C.	2A, 1A
C15,16	0600336	0.0033μF	1B	R23,24	0107682	6.8kΩ	1B	C25,26	0600127	0.012μF 50V M.C.	2A, 1A
C17,18	0600476	0.0047μF	1,2B	R25,26	0107682	6.8kΩ	1B	*MODEL B Only			
C19,20	0600337	0.033μF	1A	R27,28	0107562	5.6kΩ	1/4W C.R. 1B	R09,10	0107123	12kΩ	1/4W C.R. 2C, 1,2C
C23,24	0600337	0.033μF	1A	R29,30	0107562	5.6kΩ	1B	R19	0106824	820kΩ	1/4W C.R. 1C
C27,28	0519105	2.2μF 50V E.C.	2A, B	R31,32	0107223	22kΩ	1,2B	R20	0107824	820kΩ	1/4W C.R. 1C
C29,30	0657329	2.2μF 35V T.C.	2A, B	R33,34	0107153	15kΩ	1,2B	R21,22	0107824	820kΩ	1/4W C.R. 1C
C31,32	0519001	10μF 25V E.C.	2A	R35,36	0107153	15kΩ	1,2A	S01	1171240	Lever Switch	1C
C33,34	0510221	220μF 6.3V E.C.	2A, B	R37,38	0107222	2.2kΩ	1,2A, 1A	S02	1171220	Lever Switch	1,2A
C601	0510471	470μF 6.3V E.C.	2A	R39,40	0107224	220kΩ	1,2A, 1B				
C602	0514221	220μF 35V E.C.	2A	R41,42	0107124	120kΩ	2B				
				R43,44	0107474	470kΩ	2B, 2A, B				
				R45,46	0107331	330kΩ	2B, 2A				
				R47,48	0107562	5.6kΩ	2B, C, 2A				

Note: In parts list above, there are two model numbers as model A and B. Regarding name of model A, B, please refer to "Notes" indicated on page 1.

6-9. F-2542 Accessory Switch Circuit Board (Stock No. 7593071)

Conductor Side

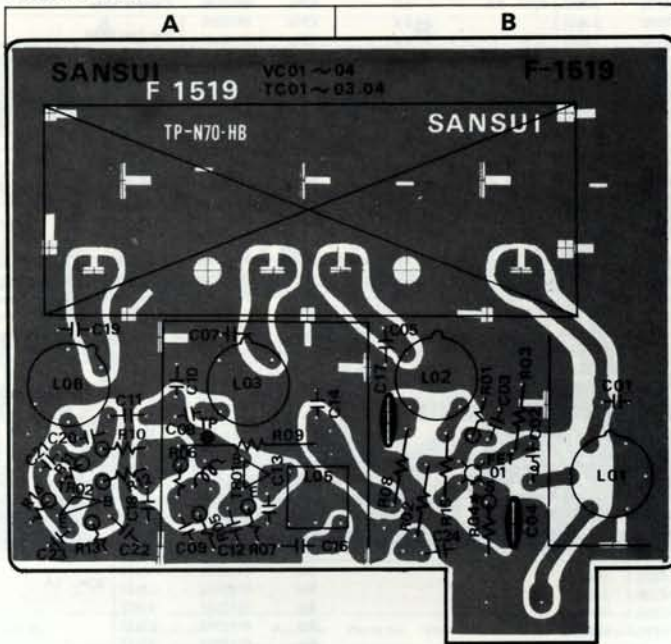


Parts List

Parts No.	Stock No.	Description
C601	0512330	33μF 16V E.C.
R01,02	0107822	8.2kΩ
R601	0107102	1kΩ
R901	0107681	680Ω
S01	1131160	Push Switch
S02	1171120	Lever Switch
	2410700	6P Pin Assy Type F

6-15. F-1519 FM Pack (Stock No. 7510650)

Conductor Side



Parts No.	Stock No.	Description	Position
C01	0669342	5.6pF	B
C02	0657102	1000pF	B
C03	0657223	0.022μF	B
C04	0659015	2200pF	B
C05	0669345	10pF	B
C06	0679023	0.39pF	B
Capacitor			
C07	0669345	10pF	A
C08	0669210	10pF	A
C09	0657102	1000pF	A
C10	0661220	22pF	A
C11	0669202	2.2pF	A
C12	0657223	0.022μF	A
C13	0660121	120pF	A
C14	0657223	0.022μF	A
C16	0660331	330pF	A
C17	0659015	2200pF	B
C18	0657223	0.022μF	A
C19	0669375	15pF	A
C20	0657102	1000pF	A
C21	0669209	8.2pF	A
C22	0657223	0.022μF	A
50V C.C.			
C23	0661220	22pF	A
C24	0657223	0.022μF	B
R01	0106105	1MΩ	¼W C.R.(E.L.R.)
R02	0113104	100kΩ	¼W S.R.
R03	0113104	100kΩ	B
R04	0106101	100Ω	(3SK41(1)K)
	0106680	68Ω	(3SK41(1)L)
R05	0106682	6.8kΩ	¼W C.R.(E.L.R.)
R06	0106123	12kΩ	A
R07	0106392	3.9kΩ	A
R08	0113121	120Ω	¼W S.R.
R09	0113271	270Ω	A
R10	0106392	3.9kΩ	A
R11	0106121	120Ω	A
R12	0106682	6.8kΩ	¼W C.R.
R13	0106222	2.2kΩ	A
R14	0106182	1.8kΩ	A
R15	0113680	68Ω	¼W S.R.
	2260010	Test Pin	

Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01	0305800.1	2SC1047 (A, B)	Transistor	L04	4290110	Choke Coil	A
TR02	0305790.1	2SC930 (C, D)		L05	4235910	IF Coil	A, B
FET01	0370131.2	3SK41 (K, L)	FET	L06	4220430	OSC Coil	A
L01	4200640	Antenna Coil	B	VC01~04	1220130	FM, AM Variable Capacitor	A, B
L02	4210330	RF Coil (1)	B	TC01~03		FM OSC Trimmer	A, B
L03	4210220	RF Coil (2)	A	TC04	1230090	FM OSC Trimmer	A, B

6-16 Figures

Semiconductor

SEMICONDUCTORS	COMPLETE CIRCUIT BOARD	SEMICONDUCTORS	COMPLETE CIRCUIT BOARD	SEMICONDUCTORS	COMPLETE CIRCUIT BOARD
2SA849 2SC945 2SC1364	F-2436 F-2547	BA312	F-2541 F-2543 F-2544	1N60 1N60P	F-2545 F-2547 F-2549 F-2552
2SC984	F-2436	PC555A	F-2431	10D1	F-2431 F-2547
2SA628 2SC711 2SC738D 2SC1312 2SC1313 2SC1708	F-2436 F-2543 F-2544 F-2549 F-2550	HA1151	F-2549	VD1212	F-2436
2SC1720	F-2436	2SA818 2SC1628	F-2436	1S2473D 1S1588	F-2436 F-2541 F-2545 F-2549
2SB536 2SD313 2SD381	F-2431 F-2436	HA1196	F-2549	EQA01-09 EQA01-09R EQA01-09S EQA01-13R	F-2431 F-2436

Connector & Pin Ass'y

Connector

Type A (3~10 pins)	Type B (2~6 pins)	Stock No.
		2 Pins 2420250
		3 Pins 2420220
		4 Pins 2420230
		5 Pins 2420210
		6 Pins 2420240

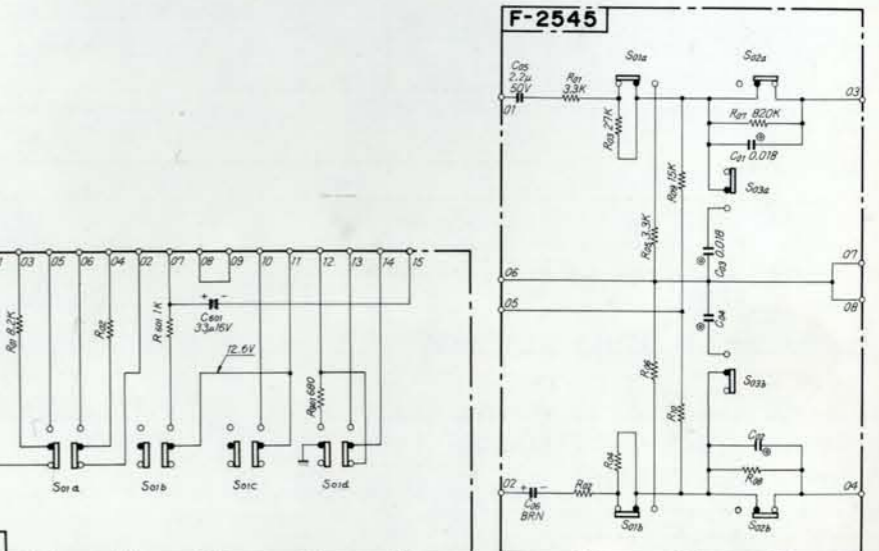
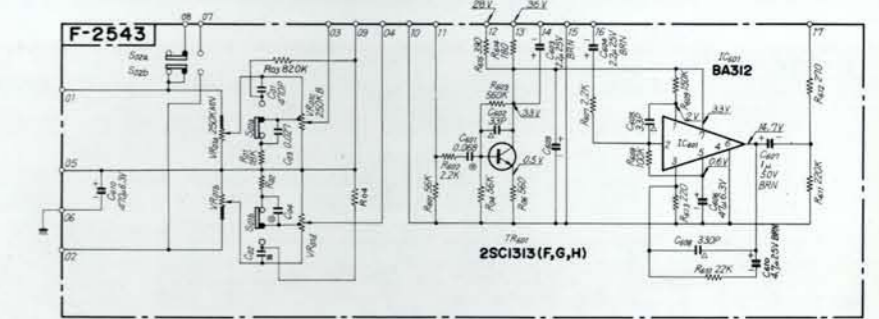
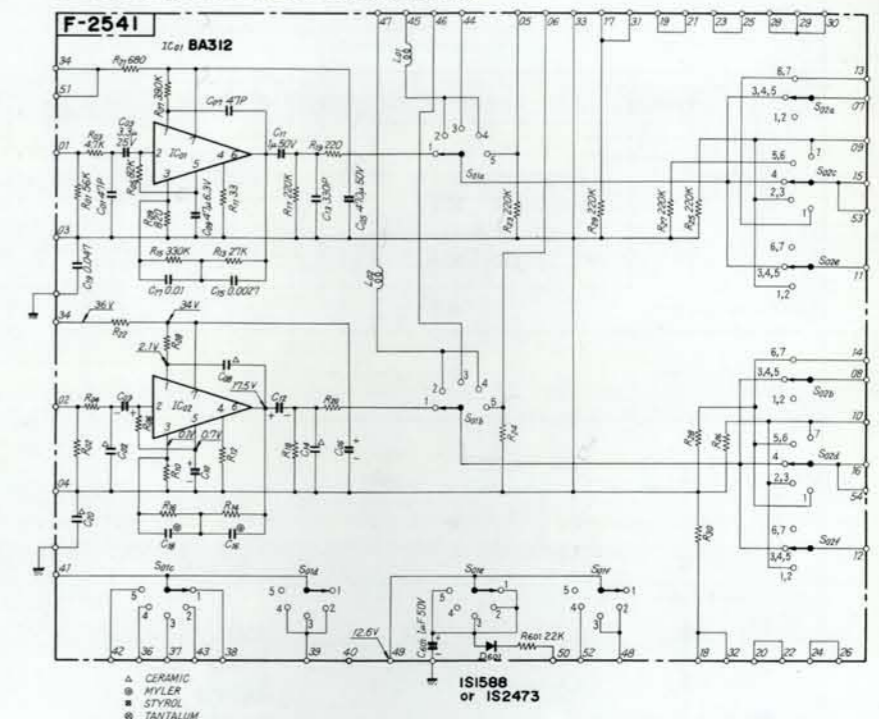
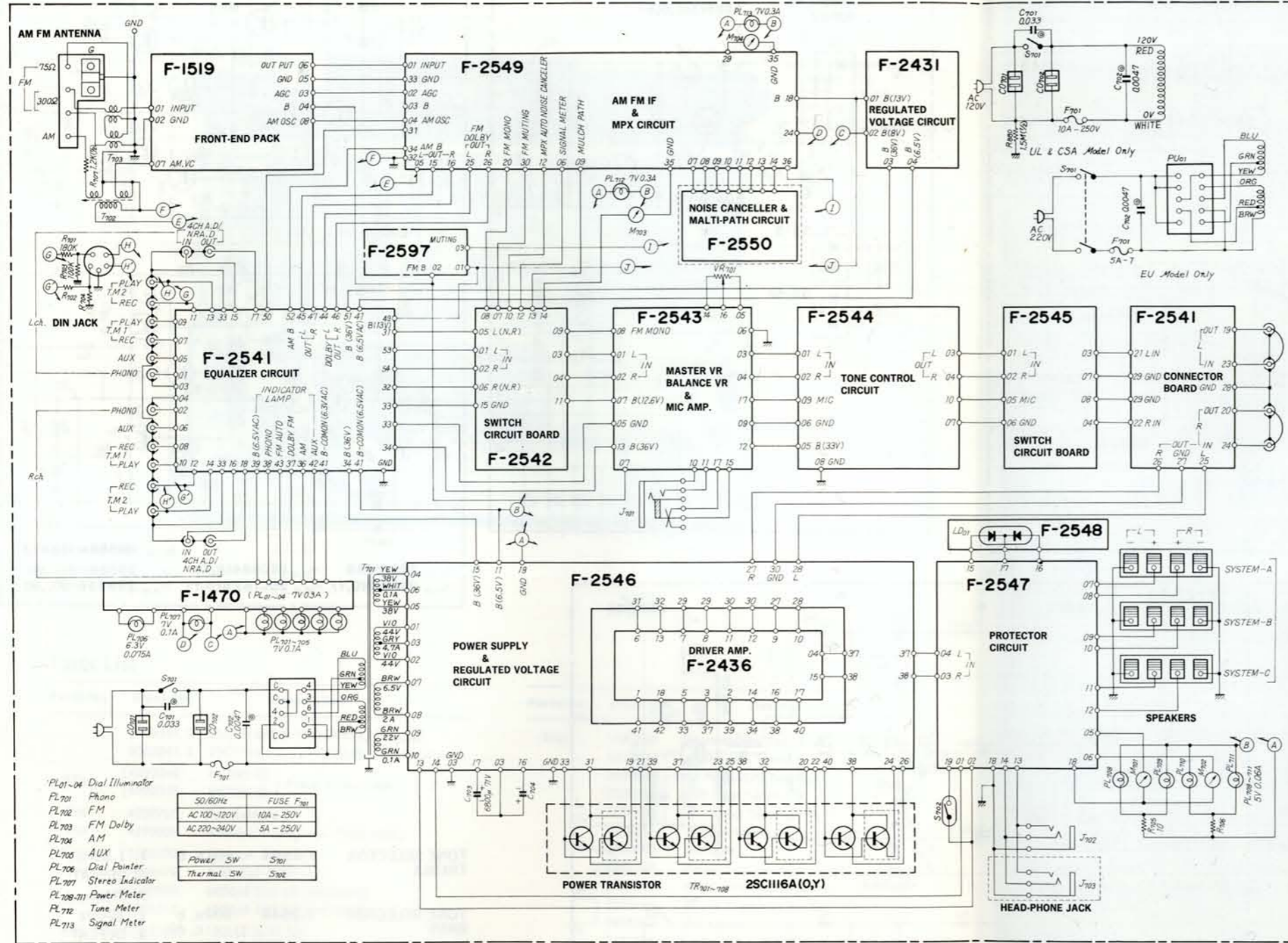
NOTE: Since stock number of female connectors (type B) with wires are not shown in each parts list of Complete circuit board, please refer to the above parts list when ordering the connector.

Pin Ass'y

Type A (3~10 pins)	Type B (3~10 pins)	Type C (3~10 pins)
Type D (2~6 pins)	Type E (2~6 pins)	Type F (2~6 pins)

7. SCHEMATIC DIAGRAM

* La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 * Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.
 * Design and specifications subject to change without notice for improvement.

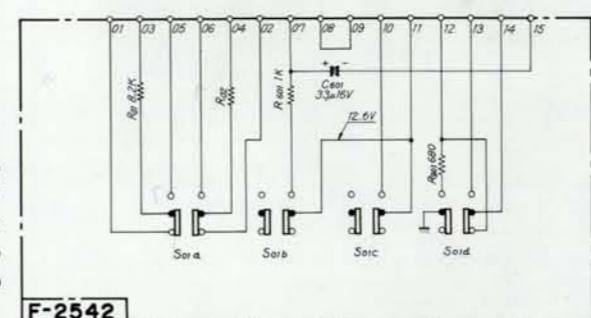


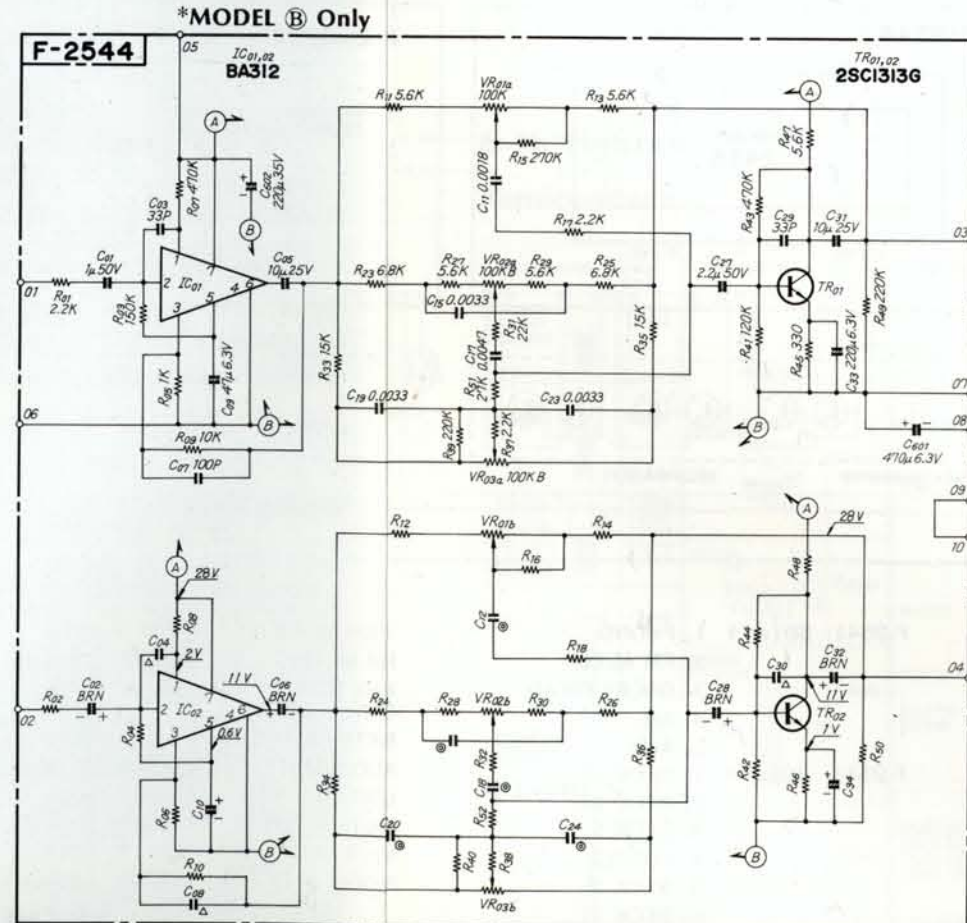
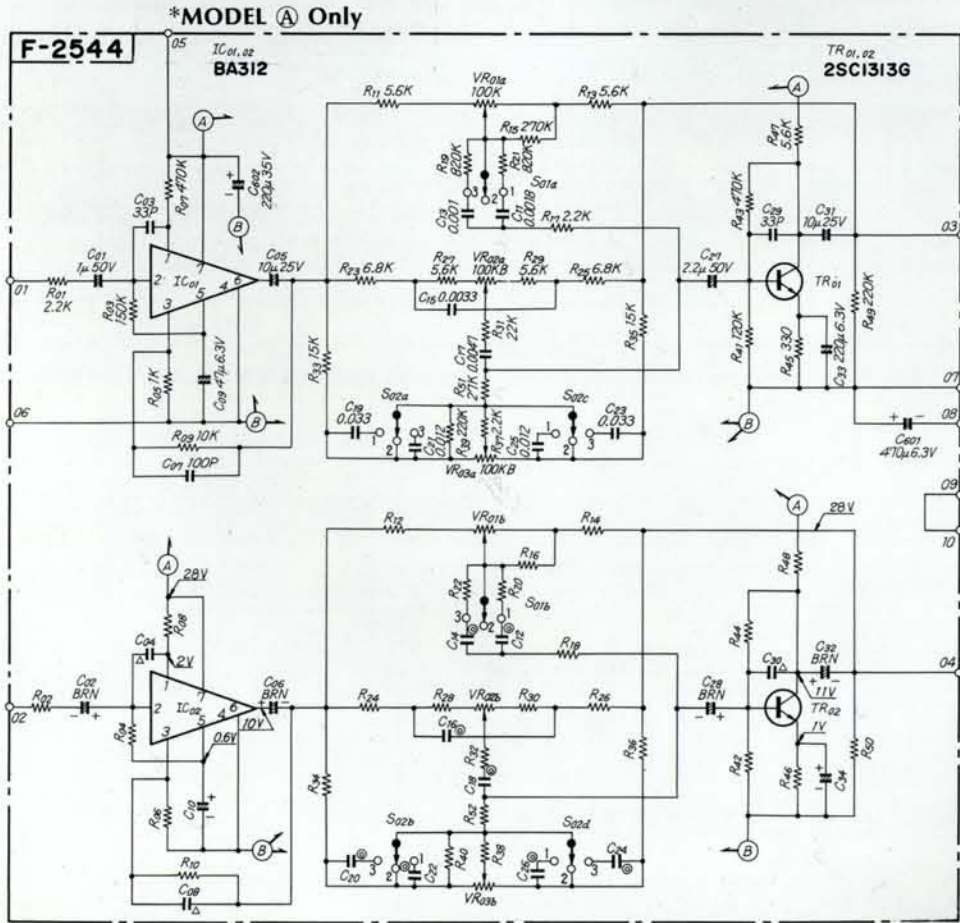
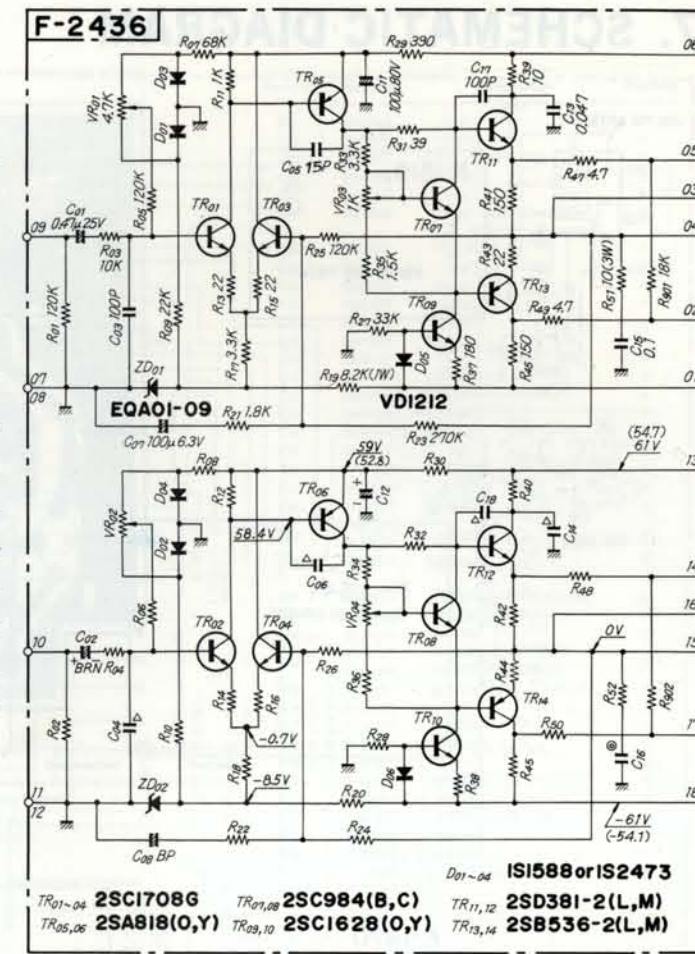
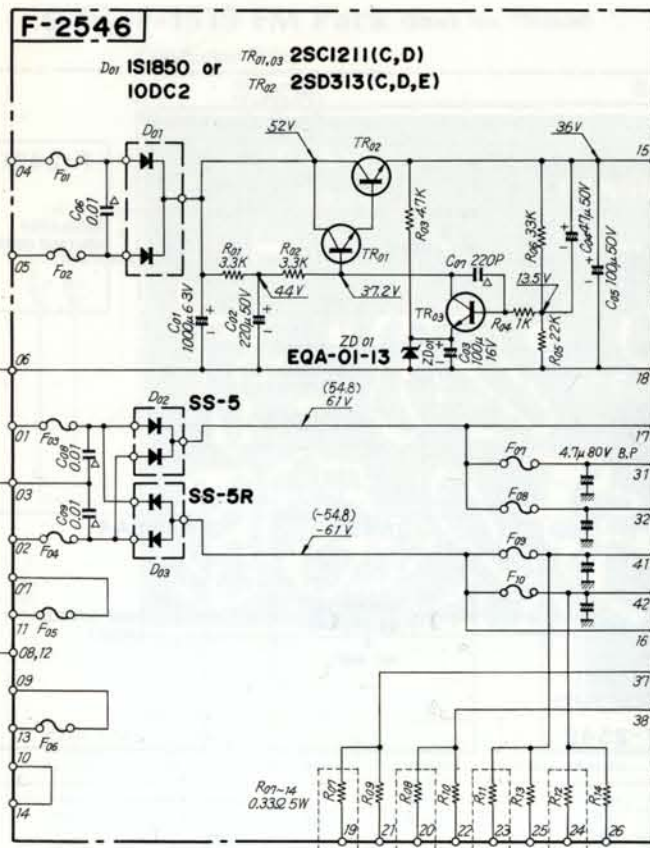
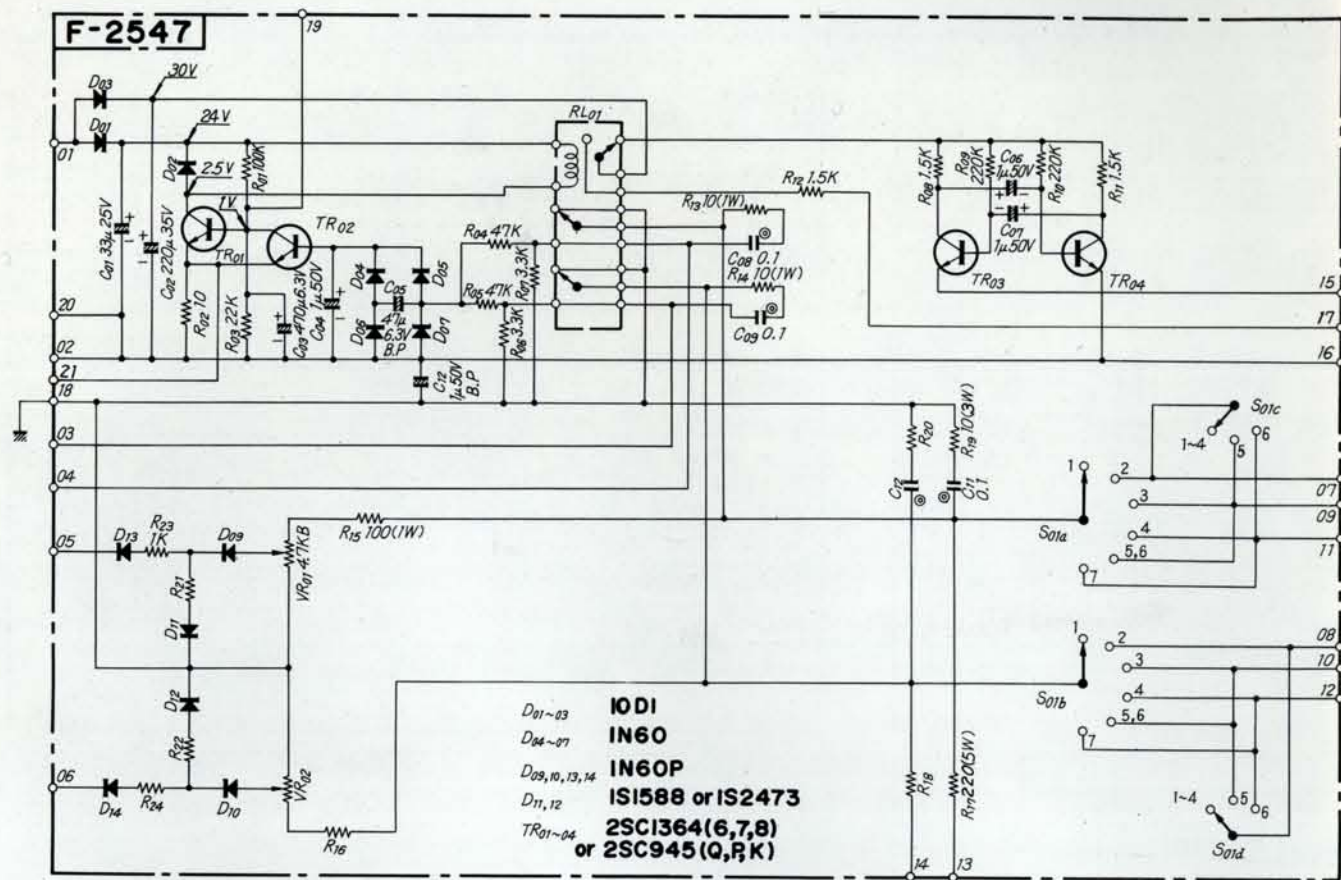
- PL01-04 Dial Illuminator
 - PL701 Phono
 - PL702 FM
 - PL703 FM Dolby
 - PL704 AM
 - PL705 AUX
 - PL706 Dial Pointer
 - PL707 Stereo Indicator
 - PL708-711 Power Meter
 - PL712 Tune Meter
 - PL713 Signal Meter
- | | |
|-------------|-----------|
| 50/60Hz | FUSE F701 |
| AC 100-120V | 10A-250V |
| AC 220-240V | 5A-250V |
- | | |
|------------|------|
| Power SW | S701 |
| Thermal SW | S702 |

Note: In model B, the sections in [] on schematic diagram above are not installed.

Schematic diagrams in this manual are combined with ones of model A and B. Therefore, when you use these diagrams, refer to the Notes shown in diagrams on page 18, 19 or 20. Regarding name of model A, B, please refer to "Notes" indicated on page 1.

- | | | | | |
|-----------|---------------|----------------|--------------------|----------------|
| SELECTOR | F-2541 S01a~f | 1. PHONO | 4-CH AD/NR.AD | F-2542 S01a |
| | | 2. FM AUTO | FM MUTING | F-2542 S01b |
| | | 3. DOLBY FM AD | MPX NOISE CANCELER | F-2542 S01c |
| | | 4. AM | METER SELECTOR | F-2542 S01d |
| | | 5. AUX | AUDIO MUTING | F-2545 S01a, b |
| TAPE PLAY | F-2541 S02a~f | 1. DECK 1 | LOW FILTER | F-2545 S02a, b |
| | | 2. DECK 2 | HIGH FILTER | F-2545 S03a, b |
| | | 3. DECK 1 | LOUDNESS | F-2543 S01a, b |
| | | 4. SOURCE | MODE | F-2543 S02a, b |
| | | 5. DECK 2 | | |
| | | 6. DECK 1 | | |
| | | 7. DECK 1 | | |

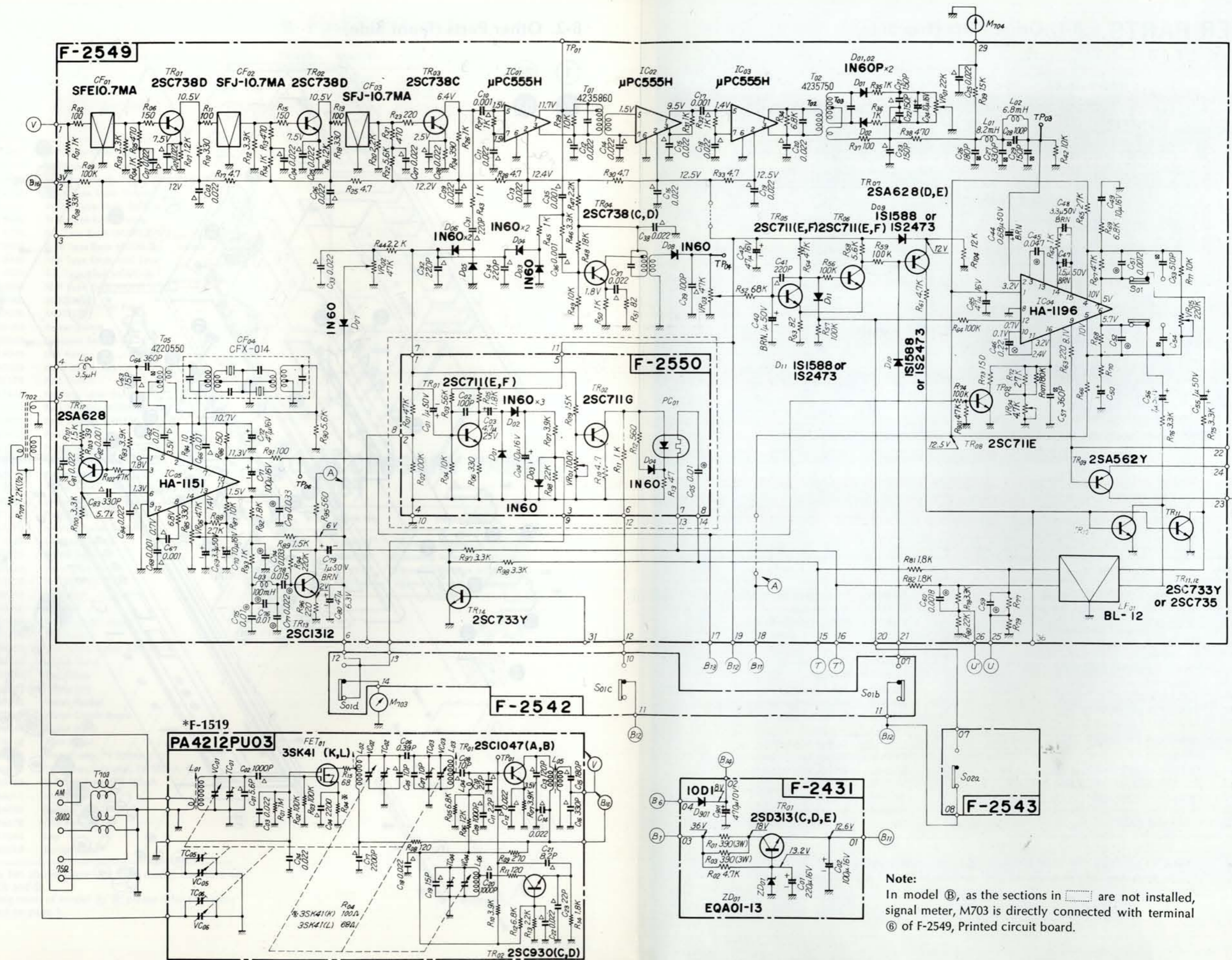




TONE SELECTOR	F-2544	S01a, b	1. 1.5kHz
TREBLE			2. DEFFAT
			3. 3kHz
TONE SELECTOR	F-2544	S02a, b	1. 300Hz
BASS		c, d	2. DEFEAT
			3. 150Hz
SPEAKERS	F-2547	S01a, d	1. OFF
SELECTOR			2. A
			3. B
			4. C
			5. A+B
			6. A+C

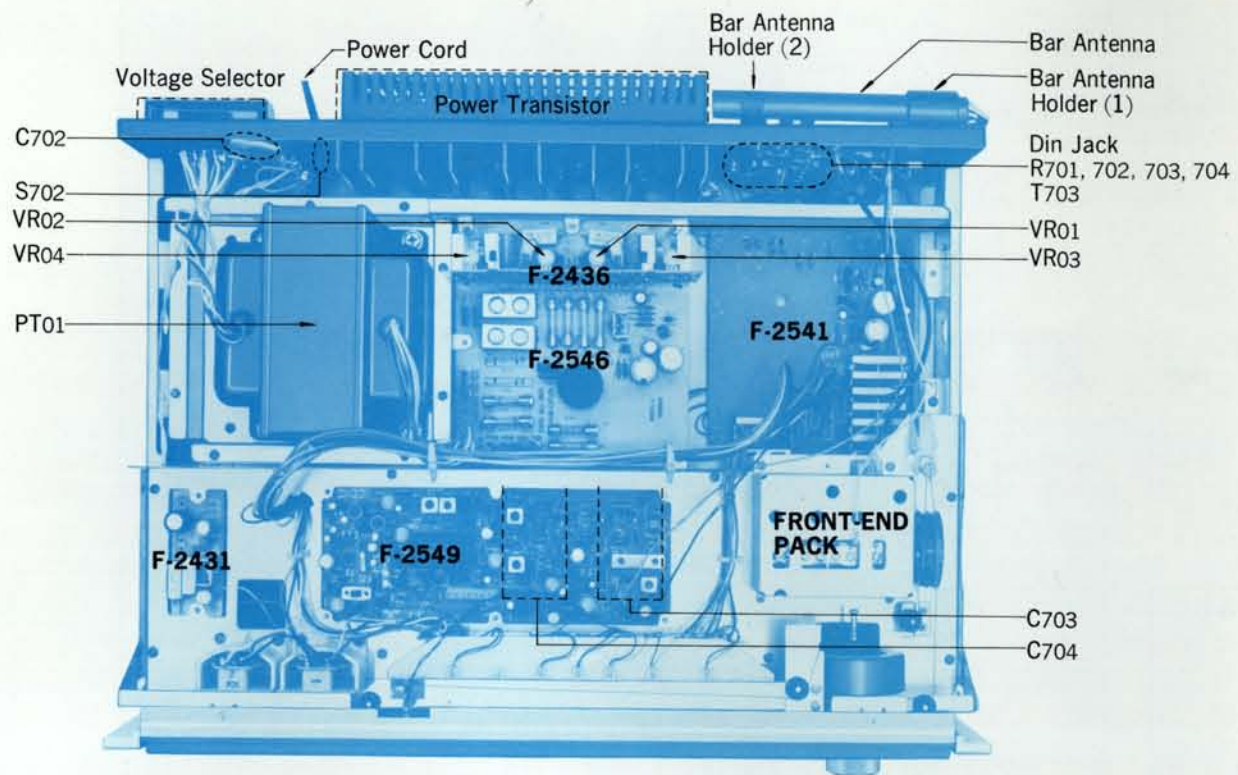
Note:

- In model (B), the section in [] on schematic diagram above are not installed.
- Each voltage in parentheses () shows the value of model (B) in volts.



Note:
In model (B), as the sections in [] are not installed, signal meter, M703 is directly connected with terminal (6) of F-2549, Printed circuit board.

8. OTHER PARTS 8-1. Other Parts (Top Side)



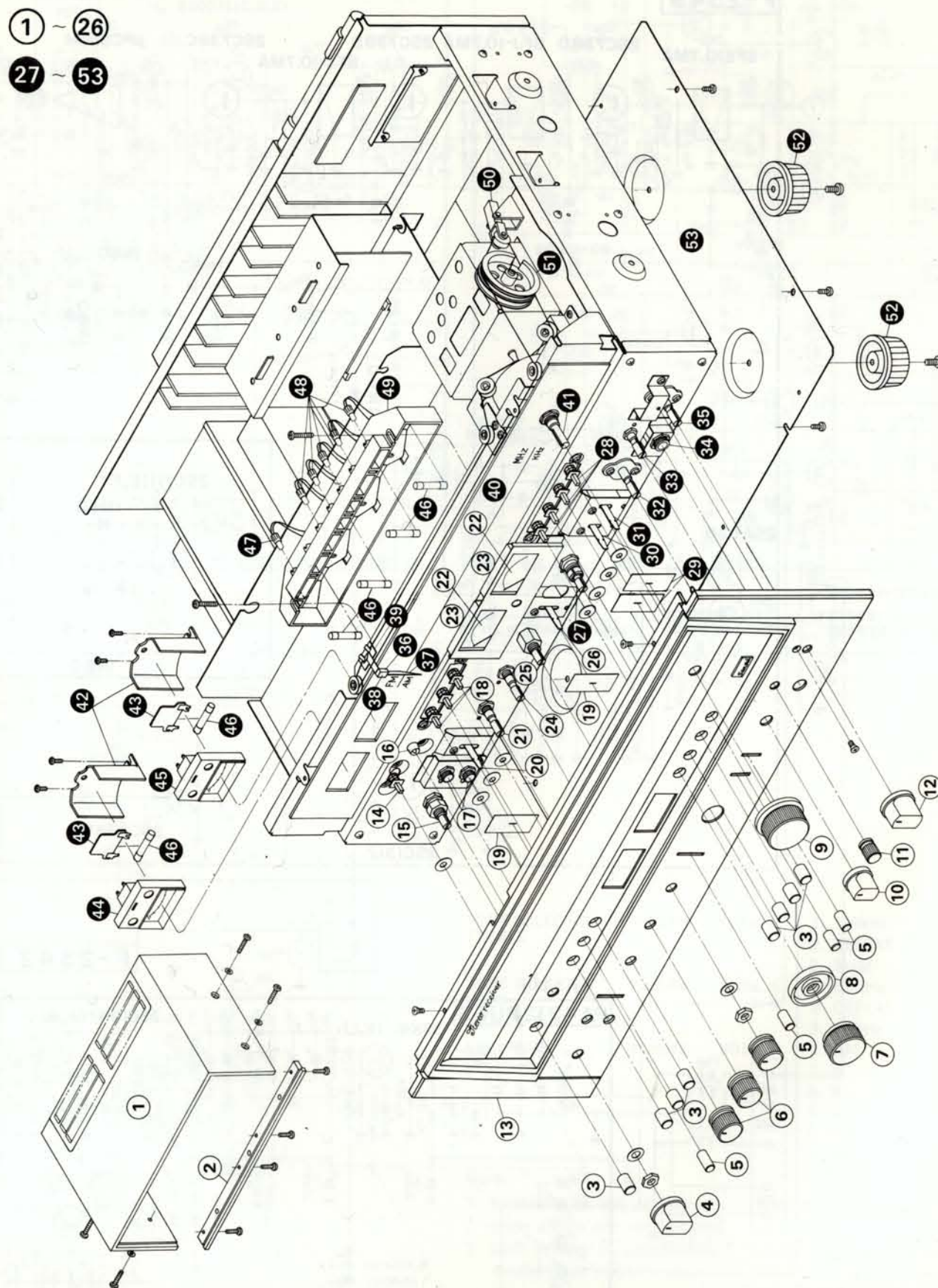
Parts List

Parts No.	Stock No.	Description
	0306331, 2	2SC1116A(O, Y) MODEL(A) } Power
	0305841, 2	2SC1116 (O, Y) MODEL(B) } Transistor
PT01	{ 4002340 4002350	MODEL(A) MODEL(B) } Power Transformer
T702	4200760	Bar Antenna
T703	4290021	Antenna Transformer, 75Ω/300Ω
C701	0605337	0.033μF 250V M.C.
C702	0605476	0.0047μF 250V M.C.
C703, 704	0559843	6800μF 71V E.C. MODEL(A)
	0559515	6800μF 63V E.C. MODEL(B)
R701, 702	0113184	180kΩ ¼W S.R.
R703, 704	0113104	100kΩ ¼W S.R.
F701	0431280	5A 250V (AC 220~240V) } MODEL(A)
	0431320	10A 250V (AC 100~120V) } Power Fuse
	0431270	4A 250V (AC 220~240V) } MODEL(B)
	0431300	7A 250V (AC 100~120V) } Power Fuse
R707	0103122	1.2kΩ ½W C.R.

Parts No.	Stock No.	Description
S702	1900020	Thermal Lead Switch
	2210190	3P Antenna Terminal
	2200340	8P PRE/MAIN Terminal
	2200360	12P Input Terminal
	2290160	4P Output Terminal
	2230051	Ground Terminal
	2430040, 1	Din Jack
	2300060	Power Fuse Holder
	2460010	PRE/MAIN Connector
	2030040	Power Transistor Socket
	2450060	AC Outlet
	2410091	Voltage Selector Plug
	2410830	Voltage Selector Socket
	5268600	Voltage Selector Cover
	{ 3800290 3800261	MODEL(A) MODEL(B) } Power Cord
	5286450	Bar Antenna Holder (1)
	5286480	Bar Antenna Holder (2)

Note: In parts list above, there are two model numbers as model (A) and (B).
Regarding name of model (A), (B), please refer to "Notes" indicated on page 1.

8-2. Other Parts (Front Side)



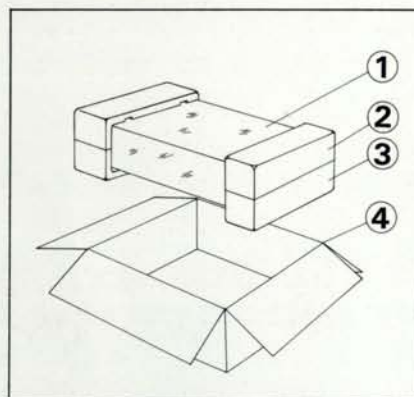
Parts List (Front Side)

Parts No.	Stock No.	Description
1	5726933	MODEL(A) Bonnet
	5726923	MODEL(B) Bonnet
2	5996092	MODEL(A) Panel Sash
	5996102	MODEL(B) Panel Sash
3	5326550	Push Knob (B)
4	5318400	E-2 Type Knob MODEL(A) Speakers Knob
	5318380	M-7 Type Knob MODEL(B) Speakers Knob
5	7106130	C-2 Type Knob, Lever Switch
6	5318410	S-10 Type Knob, Tone Control Knob
7	5318440	W1-6 Type Knob, Volume
8	5318431	WO-8 Type Knob, Balance
9	5318420	T-12 Type Knob, Tuning
10	5318390	E-1 Type Knob MODEL(A) Tape Copy Switch
	5318410	S-10 Type Knob MODEL(B) Tape Copy Switch
11	5318340	N-6 Type Knob, MIC Level
12	5318400	E-2 Type Knob MODEL(A) Selector Knob
	5318380	M-7 Type Knob MODEL(B) Selector Knob
13	7007160	MODEL(A) Front Panel
	7007170	MODEL(B) Front Panel
14	1131190	Power Switch
15	1102650	Speakers Switch
16	0319040	LED Ass'y
17	2430200	Head phone Jack
18	1131170	Push Switch
19	5047470	Masking, Lever Switch
20	1171220	Bass Selector MODEL(A) only
21	1010930	Bass Volume, 100kΩ B
22	4300920	Power Meter
23	7726040	Power Meter Circuit Board
24	1010930, 1	Midrange Volume, 100kΩ B
25	1010930, 1	Treble Volume, 100kΩ B
26	1171240	Treble Selector MODEL(A) only
27	1060320, 1	Master & Balance Volume, 250kΩ MN
28	1131180	Push Switch
29	5047470	Masking, Lever Switch
30	1171120	Loudness Switch
31	1171120	MODE Switch
32	1102660	Tape Copy Switch
33	1005170, 1	MIC Volume, 20kΩ
34	2430170	MIC Jack
35	1103550	Selector
36	5416350	Holder, Dial Pointer
37	5416050	Dial Pointer
38	0400200	Dial Pointer Lamp, 6.3V 75mA
39	5516030	Teflon Sheet
40	5407930	Dial Glass
41	7036451	Tuning Unit
42	5269330	Meter Holder
43	7726060	Meter Circuit Board
44	4300740	Signal Meter
45	4300750	Tune Meter
46	0420040	Meter Lamp, 7V 330mA
47	0400420	FM Stereo Indicator, 7V 100mA
48	0400420	Indicator Lamp, 7V 100mA
49	5066211	Illumination Box
50	7136080	Tension Unit
51	6146670	Dial Pulley, D-44
52	5517050	Leg
53	5058510	Bottom Plate

Note: In parts list above, there are two model numbers as model (A) and (B).
Regarding name of model (A), (B), please refer to "Notes" indicated on page 1.

9. PACKING LIST

Parts No.	Stock No.	Description
1	9116271	Vinyl Cover
2	9027940	Stylofoam Packing (A)
3	9027930	Stylofoam Packing (B)
4	9009020	Carton Case MODEL(A)
	9008420	Carton Case MODEL(B)
5	5996080	Curl Stopper



10. ACCESSORY PARTS LIST

Stock No.	Description
9209270	Operating Instructions MODEL(A)
9209280	Operating Instructions MODEL(B)
9237030	Schematic Diagram MODEL(A)
9237040	Schematic Diagram MODEL(B)

9. PACKING LIST

Part List (Front Side)

Part No.	Part Name	Quantity	Unit
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10. ACCESSORY PARTS LIST

Part No.	Part Name	Quantity	Unit
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