



L. SPECIFICATIONS

SERVICE MANUAL

AM/FM STEREO RECEIVER

SANSUI 661



Sansui

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the 661 correctly. When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts List. For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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1. SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT (at rated distortion)

MUSIC POWER (IHF).....110W (4Ω 1,000Hz)
75W (8Ω 1,000Hz)

CONTINUOUS POWER

(Each Channel Driven) ..40/40W (4Ω 1,000Hz)
32/32W (8Ω 1,000Hz)
(Both Channels Driven) ..27+27W (8Ω 1,000Hz)
20+20W
(8Ω 20 to 20,000Hz)

TOTAL HARMONIC DISTORTION

(at rated power output)

OVERALL (from AUX)less than 0.5%

INTERMODULATION DISTORTION

(at rated power output, 70Hz : 7,000Hz = 4 : 1
SMPTE method)

OVERALL (from AUX)less than 0.5%

POWER BANDWIDTH (IHF) 15 to 40,000Hz

FREQUENCY RESPONSE (at 1 Watt power output)

OVERALL (from AUX)15 to 30,000Hz ± 1.0 dB
 ± 2.0 dB

EQUALIZATION (at TAPE REC output)

.....RIAA Curve
(30 to 15,000Hz ± 1.0 dB)

LOAD IMPEDANCE4 to 16Ω

DAMPING FACTOR60 (8Ω)

CHANNEL SEPARATION (1,000Hz, at rated power output)

PHONObetter than 45dB

AUXbetter than 45dB

HUM AND NOISE (IHF)

PHONObetter than 70dB

AUXbetter than 80dB

INPUT SENSITIVITY AND IMPEDANCE

(1,000Hz, for rated power output)

PHONO2.5mV 50kΩ

(Max. input capability: 150mV at rated distortion)

AUX100mV 50kΩ

TAPE-1

PLAY Pin Jacks100mV 50kΩ

REC/PLAY DIN Socket ..100mV 50kΩ

TAPE-2 (4-CH ADAPTOR)

PLAY Pin Jacks100mV 50kΩ

RECORDING OUTPUT

TAPE-1

REC Pin Jacks100mV

REC/PLAY DIN Socket ..30mV

TAPE-2 (4-CH ADAPTOR)

REC Pin Jacks100mV

SWITCHES AND CONTROLS

BASS ± 10 dB at 50Hz

TREBLE ± 10 dB at 10,000Hz

LOUDNESS+10dB at 50Hz,
+8dB at 10,000Hz

HIGH FILTER-10dB at 10,000Hz
(6dB/oct.)

TUNER SECTION

<FM>

TUNING RANGE88 to 108MHz

SENSITIVITY (IHF)2.2μV

TOTAL HARMONIC DISTORTION

MONO0.5%

STEREO0.7%

SIGNAL TO NOISE RATIO ..better than 60dB

SELECTIVITYbetter than 50dB

CAPTURE RATIO2.5dB

IMAGE REJECTIONbetter than 55dB at 98MHz

IF REJECTIONbetter than 60dB at 98MHz

SUPURIOUS RESPONSE REJECTION

.....better than 60dB at 98MHz

SPURIOUS RADIATIONless than 34dB

STEREO SEPARATIONbetter than 35dB at 400Hz

FREQUENCY RESPONSE30 to 12,000Hz ± 3.0 dB

ANTENNA INPUT IMPEDANCE

.....300Ω balanced, 75Ω unbalanced

<AM>

TUNING RANGE535 to 1,605kHz

SENSITIVITY (Bar Antenna) ..50dB/m at 1,000kHz

SELECTIVITYbetter than 28dB at 1,000kHz

IMAGE FREQUENCY REJECTION

.....better than 80dB/m at 1,000kHz

IF REJECTIONbetter than 80dB/m at 1,000kHz

OTHERS

SEMICONDUCTORS

TRANSISTORS45

FET.....1

ICs.....2

DIODES25

ZENER DIODES4

POWER REQUIREMENTS

VOLTAGE100, 117, 220, 240V, 50/60Hz

CONSUMPTION70W (rated), 210VA (max.)

DIMENSIONS444mm (17- $\frac{1}{2}$ ") W,

135mm (5- $\frac{3}{8}$ ") H,

300mm (11- $\frac{13}{16}$ ") D

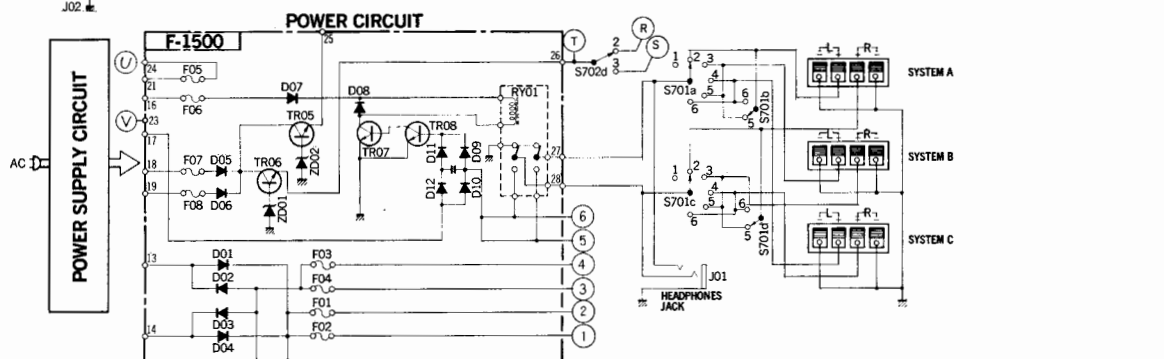
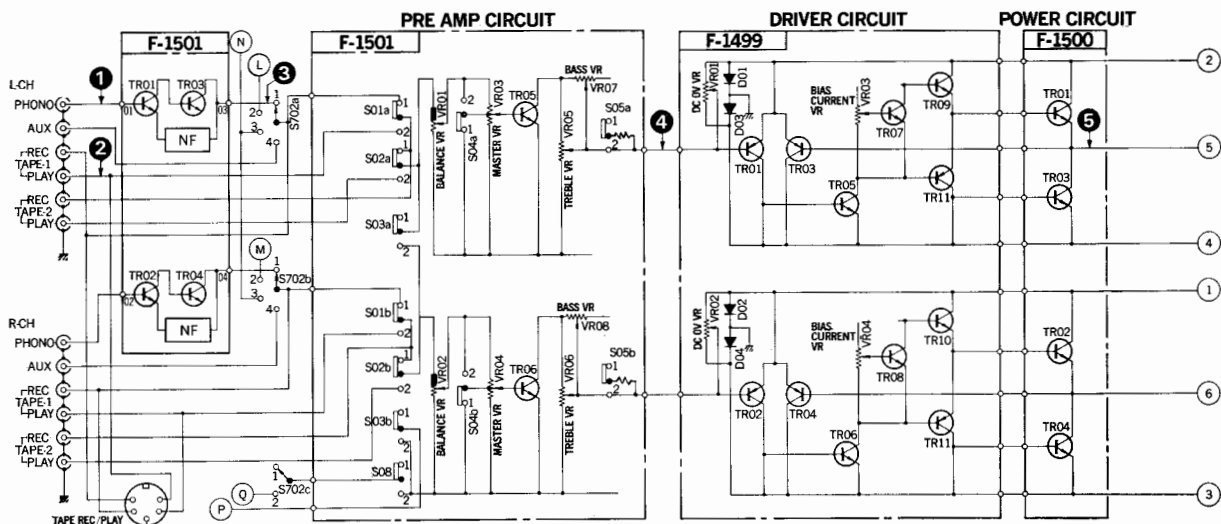
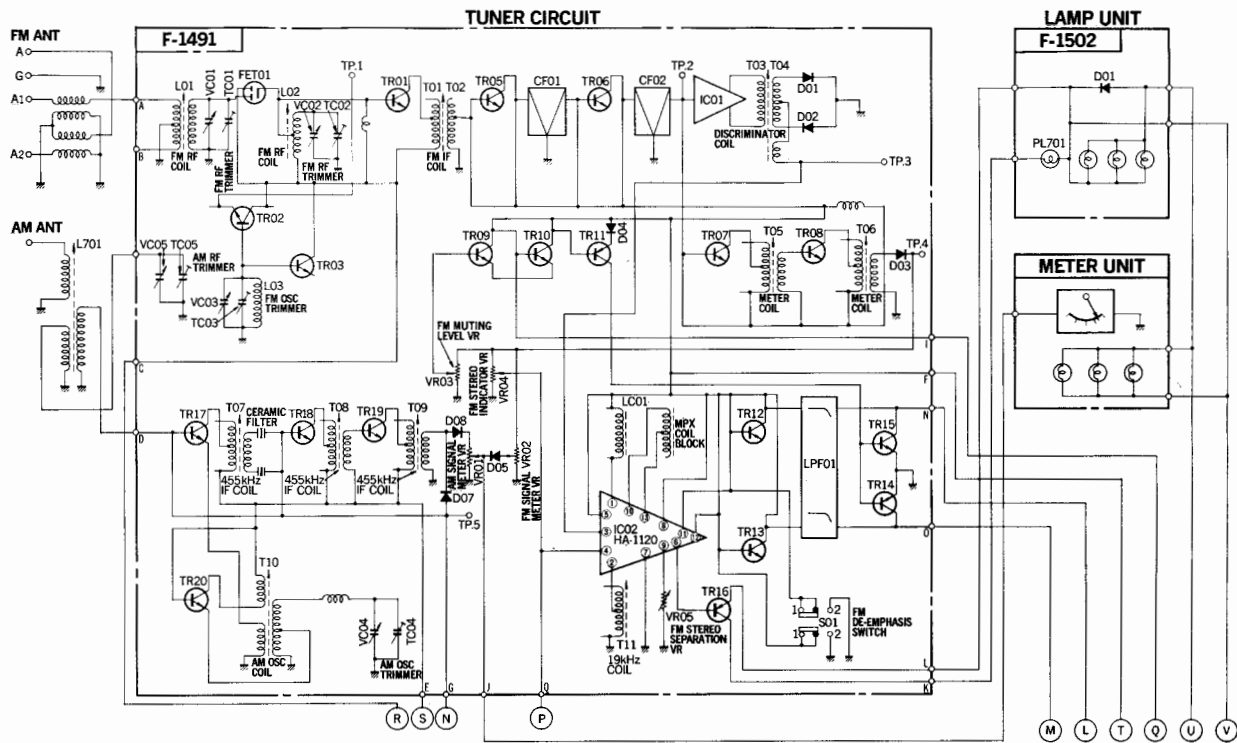
WEIGHT10kg (22.0 lbs.) net,

12.4kg (27.3 lbs.) packed

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

2. BLOCK DIAGRAM AND LEVEL DIAGRAM

2-1. Block Diagram

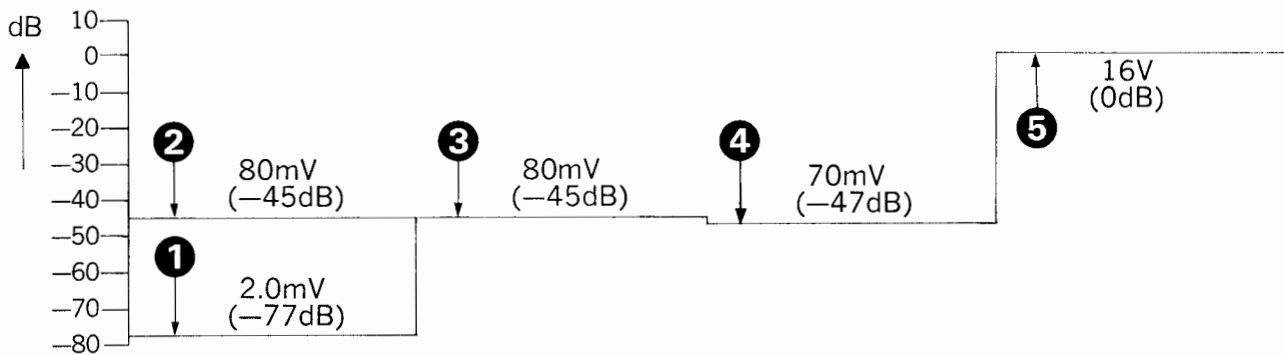


2-2. Level Diagram

* Each number (①, ②, ③....) indicated in Level Diagram undermentioned corresponds to the number in Block Diagram.

1. MASTER VOLUME controlMaximum
2. BASS, TREBLE, BALANCE volume controlCenter
3. InputPHONO 2.0mV 1kHz Sine Wave
AUX-1 80mV 1kHz Sine Wave
(output impedance of 600Ω at an audio oscillator)
4. Output16V (32W) 8Ω

Note: Each voltage value is for reference and measured by a VTVM. In some recorders, the actual voltage value is in minor difference from the reference value.



- | | | |
|-------------------------|-----------------------|----------------------|
| S01a, b: TAPE MONITOR-1 | S05a, b : HIGH FILTER | S702a-d: SELECTOR |
| 1. OFF | 1. OFF | 1. PHONO |
| 2. ON | 2. ON | 2. FM AUTO |
| S02a, b: TAPE MONITOR-2 | S08 : FM MUTING | 3. AUX |
| 1. OFF | 1. ON | S703 : POWER |
| 2. ON | 2. OFF | S01 : FM DE-EMPHASIS |
| S03a, b: MODE | S701a-d: SPEAKERS | 1. 75μs |
| 1. STEREO | 1. OFF | 2. 50μs |
| 2. MONO | 2. A | |
| S04a, b: LOUDNESS | 3. B | |
| 1. OFF | 4. A+B | |
| 2. ON | | |

3. THREADING OF DIAL CORD

If dial cord is cut or slips, replace cord by following procedures. As 661 is used 0.6mmφ cord, please replace it with same type certainly.

* Length of dial cord approx. 150cm (59 inch)

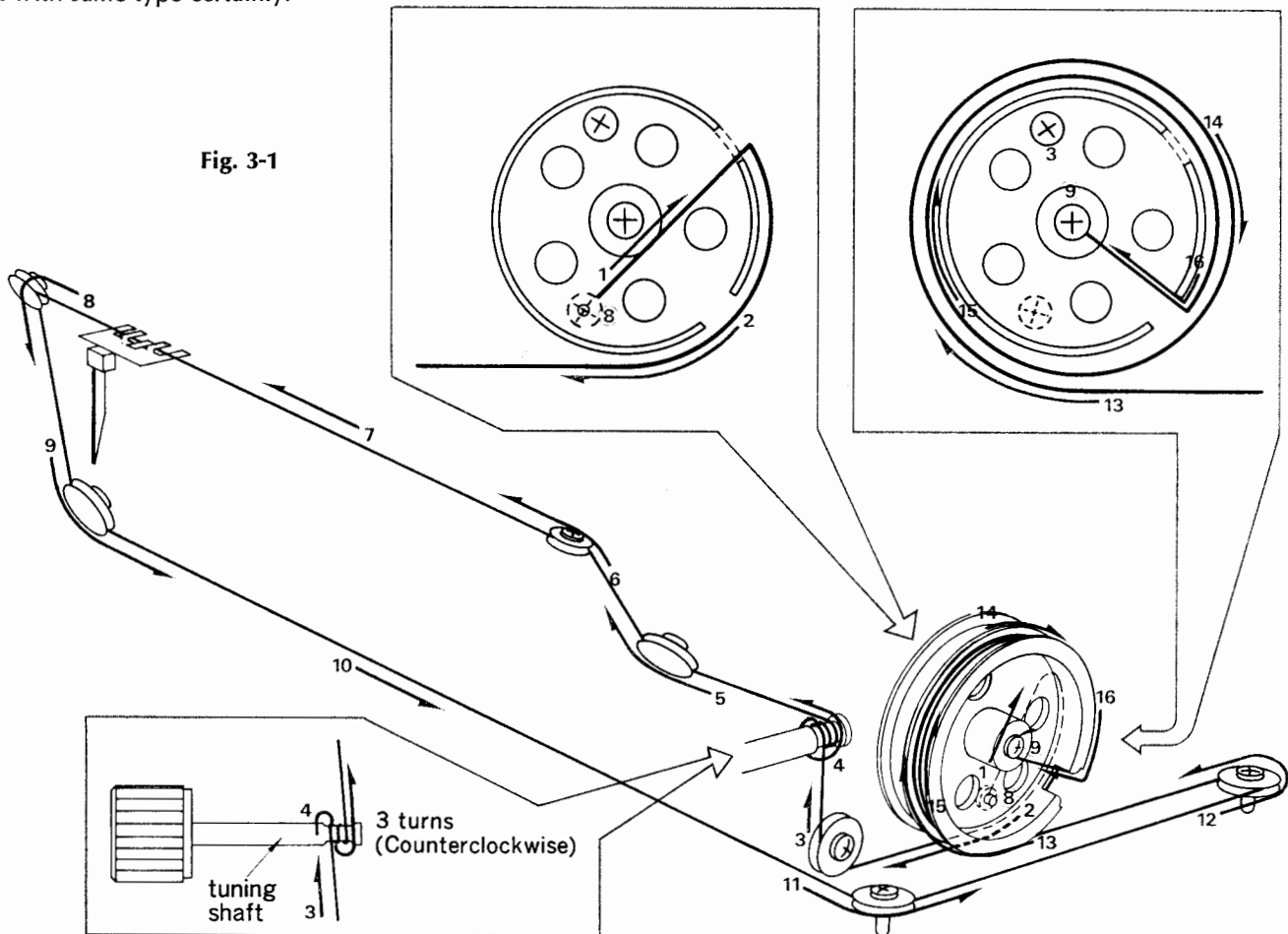


Fig. 3-1

1. Threading of Dial Cord

Thread dial cord in numerical order from 1 to 16 as shown in Fig. 3-1.

- 1) Close the variable capacitor completely (Max. capacitance) and tie cord to number ⑧ screw of the dial pulley.
- 2) Thread cord in the direction of arrow from 1 to 3, then wind cord three turns around the tuning shaft counterclockwise.
- 3) Thread cord in the direction of arrow from 4 to 12, then wind it two turns on the dial pulley from 13 to 16.
- 4) After 16, tie cord to number ⑨ screw of the dial pulley.

* When you perform procedure 4) successfully, please refer to the followings.

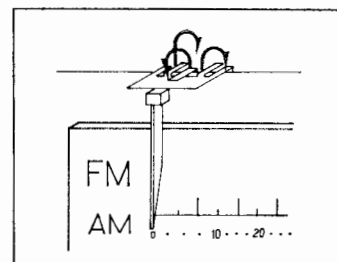
- ① To strengthen the dial cord tension, hold around the end of cord and pull it toward the Front Panel.
- ② Then, turn tuning shaft counterclockwise, as the cord tension will be more constantly obtained.
- ③ Tie the cord to number ⑨ screw of the dial pulley (same as procedure 4).

5) After procedures, lock the knots of cord with paint.

2. Attachment of Dial Pointer

- 1) Close the variable capacitor completely.
- 2) Set the dial pointer to "0" on dial scale and install the dial pointer ass'y (See Fig. 3-2).

Fig. 3-2



Stock No.	Description
6036050	Dial Cord (0.6mmφ)

4. ALIGNMENTS AND ADJUSTMENTS

Abbreviation

Equipment

AM FM Generator Oscilloscope..... Genescope
 AM Standard Signal Generator AM SSG
 FM Standard Signal Generator FM SSG
 FM Stereo Generator..... Stereo SG
 Oscilloscope Scope
 Audio Oscillator Audio Osci.
 Distortion Meter Dist. Meter

Others

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

4-1. Driver Circuit Board Adjustment (See Figs. 4-1, 4-2 and 4-3)

- Note:** 1. Master Volume.....Minimum
 2. Speaker SelectorSYSTEM (A)
 3. Make the SP terminals free (no load).
 4. Confirm the AC Power Supply voltage.
 5. After adjustment, run the unit for more than 5 minutes, then check and readjust necessary.
 6. Room temperature should be 18~28° (65~83°F) for bias current adjustment.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	DC 0V L-ch	DC volt meter	Speaker terminal L-ch (Fig. 4-1)	F-1499 VR01	0V ±10mV	○ Step down meter's range accordingly ○ Change lead's polarity if meter swings backward
2	DC 0V R-ch	Same as above	Speaker terminal R-ch (Fig. 4-1)	F-1499 VR02	Same as above	Same as above
3	Bias current L-ch	DC milliammeter	F-1500 F01 (Fig. 4-2)	F-1499 VR03	19±1mA	○ Step down meter's range accordingly
4	Bias current R-ch	Same as above	F-1500 F02 (Fig. 4-2)	F-1499 VR04	Same as above	Same as above

Fig. 4-1

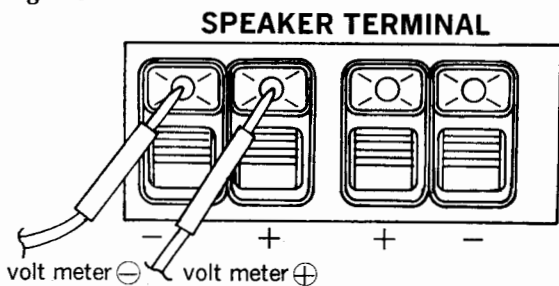


Fig. 4-2

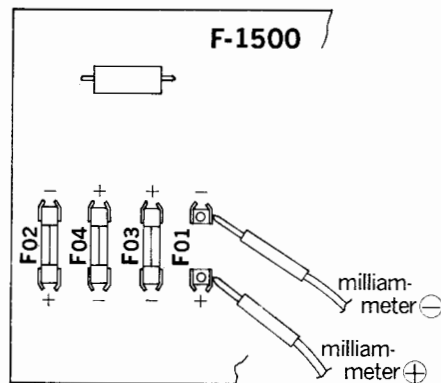
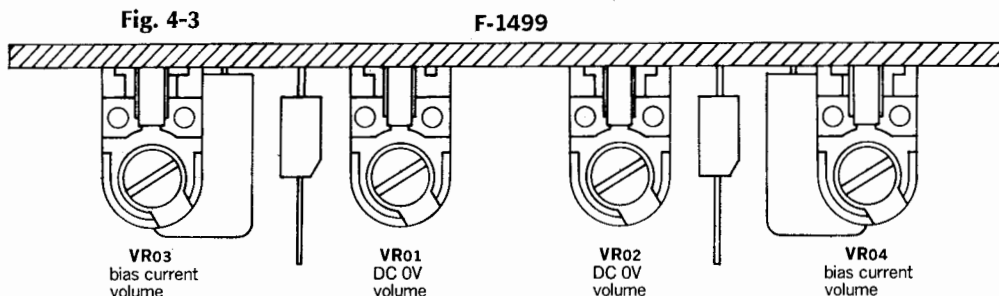


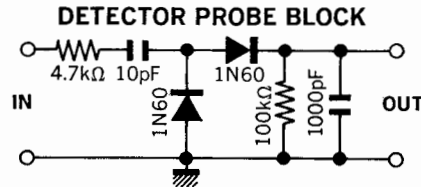
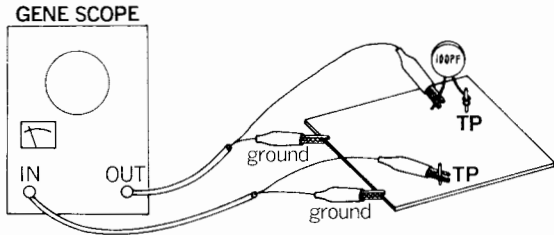
Fig. 4-3



4-2. FM IF Alignment (See Figs. 4-8 and 4-9 on page 10)

- Note:** 1. Selector.....FM AUTO
 2. Master VolumeMinimum
 3. Output level of genescopceAfter attenuator
 4. Sweepwidth.....1.5~2cm/150kHz
 5. Frequency band9.5~11.5MHz

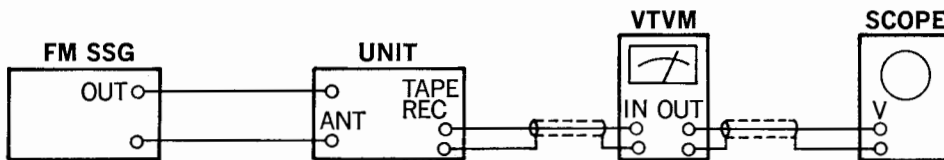
6. ConnectionConnect the output of genescopce to TP. 1 through 100pF ceramic capacitor.



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	IF coil	Output 55dB Genescopce	TP. 1 (Fig. 4-9)	TP. 2 (Fig. 4-9) Use Detector Probe	T01, T02	Max. IF waveform 1 as Fig. 4-8	○ Turn core of T05 CCW.
2	Meter coil	Same as above	Same as above	TP. 4 (Fig. 4-9) Direct from Genescopce	T05, T06	Max. IF waveform 2 Set the center of waveform 2 with waveform 1 as Fig. 4-8	
3	Descriminator coil	Same as above	Same as above	TP. 3 (Fig. 4-9) Direct from Genescopce	T03 T04	Max. linearity of S curve Set the center of S curve waveform 1 & 2 as Fig. 4-8	

4-3. FM Dial Calibration and RF Alignment (See Fig. 4-9 on page 10)

- Note:** 1. Selector.....FM AUTO
 2. Master VolumeMinimum
 3. FM Muting switchOFF (pushed in)
 4. Confirm start point of dial pointer before alignment.
 5. In Step 3, 4 and 5, readjust items of steps 1, 2, if not correctly, and repeat 3, 4 and 5 again.

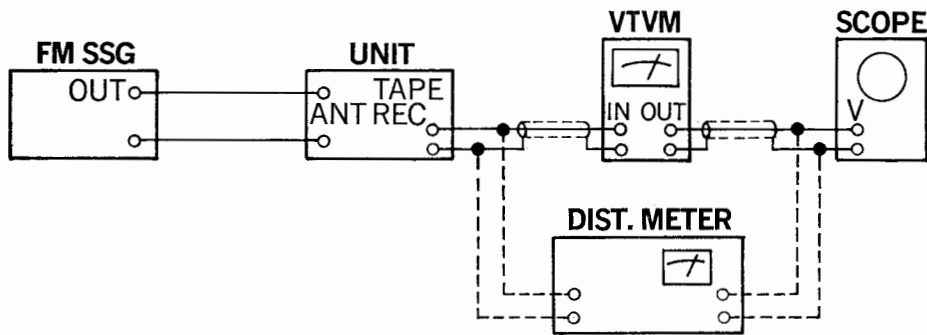



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	88MHz Dial Calibration	88MHz ANT input 60dB 1kHz (100% MOD) FM SSG	ANT terminal 300Ω	REC OUT L or R-ch VTVM & Scope	L03	Max. output	○ Set Dial on 88MHz
2	108MHz Dial Calibration	108MHz ANT input 60dB 1kHz (100% MOD) FM SSG	Same as above	Same as above	Trimmer TC03	Same as above	○ Set Dial on 108MHz

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
3	Confirm 88MHz Dial Calibration	Same as Step 1	Same as above	Same as above		Confirm 88MHz Dial Calibration	◦If not, repeat from Step 1
4	Confirm 98MHz Dial Calibration	98MHz ANT input 60dB 1kHz (100% MOD) FM SSG	Same as above	Same as above		Confirm 98MHz Dial Calibration	
5	Confirm 108MHz Dial Calibration	Same as Step 2	Same as above	Same as above		Confirm 108MHz Dial Calibration	◦If not, repeat from Step 2
6	88MHz RF Adj.	88MHz ANT input 10dB 1kHz (100% MOD) FM SSG	Same as above	Same as above	L01, L02	Max. output	◦Tune FM SSG (Max. indication of Signal Meter)
7	108MHz RF Adj.	108MHz ANT input 10dB 1kHz (100% MOD) FM SSG	Same as above	Same as above	Trimmer TC01, TC02	Same as above	Same as above

4-4. FM Signal Meter, Mono Distortion and Muting Adjustment (See Fig. 4-9 on page 10)

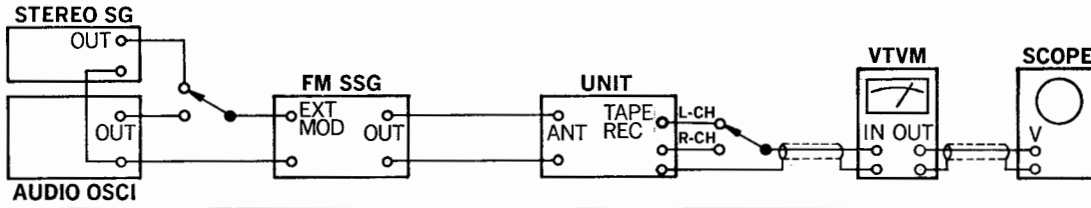
Note: 1. Selector.....FM AUTO
2. Master VolumeMinimum



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	Signal Meter	98MHz ANT input 66dB 1kHz (100% MOD) FM SSG	ANT terminal 300Ω	Signal Meter	VR02	4.3 on meter 	◦Tune FM SSG (Max. indication of Signal Meter) ◦Before adjustment, if meter swings out or not enough, preadjust VR02 until the reasonable point
2	Distortion	Same as above	Same as above	REC OUT L or R-ch Dist. meter & Scope	T03	Min. distortion	◦Tune FM SSG (Max. indication of signal meter)
3	Muting Level	98MHz ANT input 25dB 1kHz (100% MOD) FM SSG	Same as above	REC OUT L or R-ch VTVM & Scope	VR03	Audio signal just muted	◦Set FM MUTING switch to OFF (pushed in)

4-5. MPX Alignment (See Fig. 4-9 on page 10)

- Note:** 1. SelectorFM AUTO
 2. Master Volume.....Minimum
 3. FM MUTING switchOFF (pushed in)
 4. Before adjustment, turn VR04 CW (Max.) and VR05 to center.

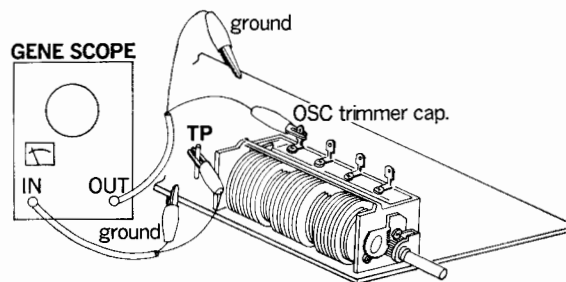
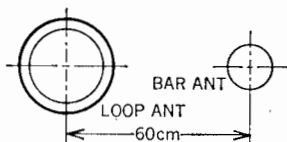


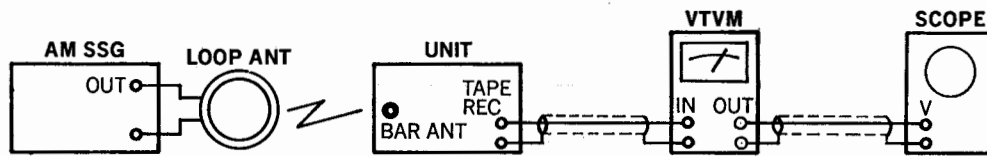
STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	19kHz coil	98MHz ANT input 60dB FM SSG Pilot 19kHz (10% MOD) L-ch 1kHz (45% MOD) R-ch (0% MOD) Stereo SG	ANT terminal 300Ω	REC OUT L-ch VTVM & Scope	T11	Max. output	◦ Tune FM SSG (Max. indication of signal meter)
2	Separation	Same as above	Same as above	REC OUT R-ch VTVM & Scope	VR05	Min. output	
3	Cofirm Separation	98MHz ANT input 60dB FM SSG Pilot 19kHz (10% MOD) L-ch (0% MOD) R-ch 1kHz (45% MOD) Stereo SG	Same as above	REC OUT L-ch VTVM & Scope		Min. output	◦ If less the 35dB, adjust VR05
4	Indicator (Lighting level)	98MHz ANT input 37dB FM SSG Pilot 19kHz (10% MOD) Stereo SG	Same as above	Stereo indicator lamp	VR04	Lighting Point	◦ Tune FM SSG (Max. indication of signal meter)

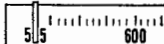


4-6. AM IF, Dial Calibration, RF and Signal Meter Alignment (See Figs. 4-5, 4-6, 4-7 and 4-9 on page 10)

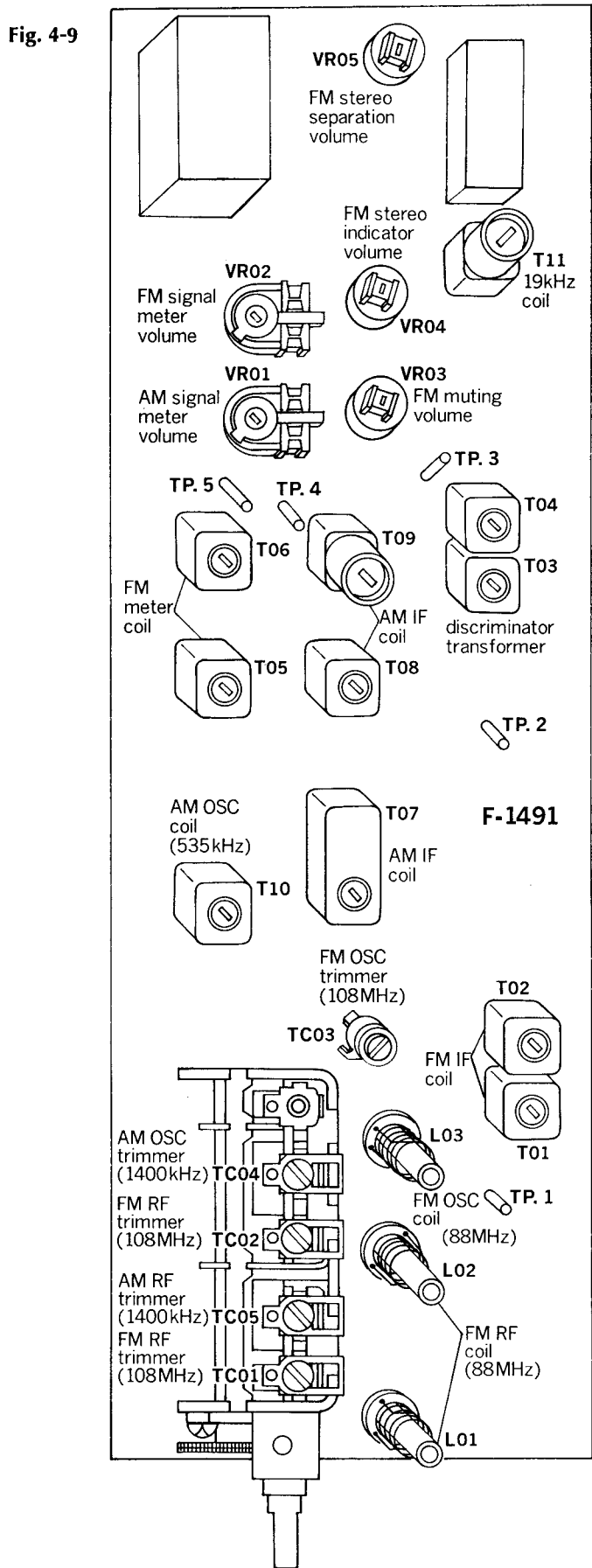
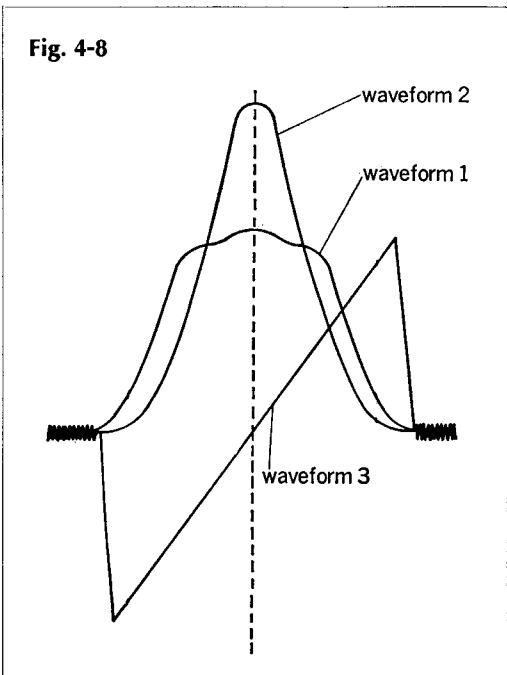
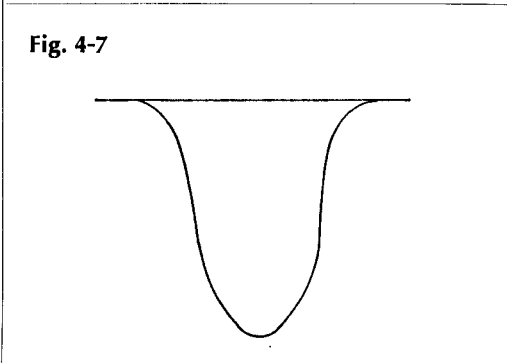
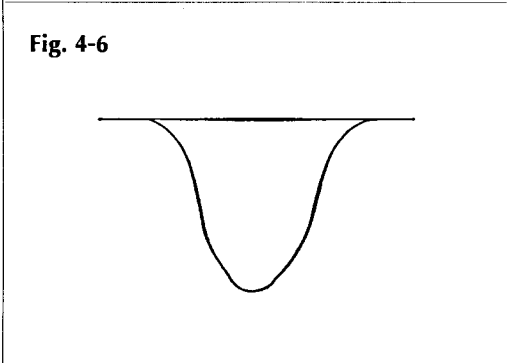
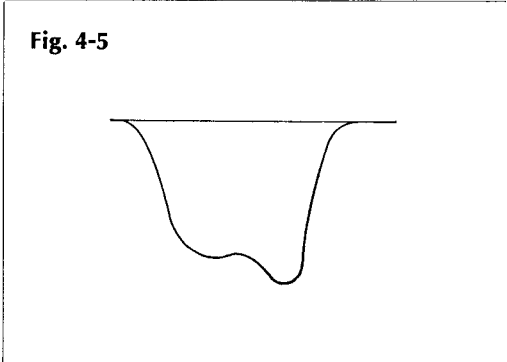
- Note:** 1. Selector.....AM
 2. Master VolumeMinimum
 3. Confirm start point of dial pointer before alignment.
 4. In case of using loop antenna, increase output of AM SSG for 26dB than bar antenna's direct input as it attenuates input sensitivity for 26dB (See Fig. 4-4).
 5. After adjustment of signal meter, confirm the meter's swing on FM. (If meter swings out or not enough, readjust VR02.) (See Page 8)

Fig. 4-4





STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	IF coil	Output 90dB Genescope	OSC trimmer cap. (TC04) (Fig. 4-9)	TP. 5 (Fig. 4-9)	T07	Max. IF wave-form as Fig. 4-5	○ Turn core T08 & T09 CCW.
2	IF coil	Output 70dB Genescope	Same as above	Same as above	T08	Max. IF wave-form as Fig. 4-6	
3	IF coil	Output 60dB Genescope	Same as above	Same as above	T09	Max. IF wave-form as Fig. 4-7	○ If not, readjust T07 & T08 slightly
4	535kHz Dial calibration	535kHz ANT input 86dB 400Hz (30% MOD) AM SSG Use loop ANT	Bar ANT	REC OUT L or R-ch VTVM & Scope	T10	Max. output	○ If broadcasting station is near, it might be used 
5	1400kHz Dial Calibration	1400kHz ANT input 86dB 400Hz (30% MOD) AM SSG Use loop ANT	Same as above	Same as above	Trimmer Cap. TC04	Same as above	Same as above 
6	Confirm 600kHz Dial Calibration	600kHz ANT input 86dB 400Hz (30% MOD) AM SSG Use loop ANT	Same as above	Same as above		Confirm 600kHz Dial Calibration	○ If not, repeat from Step 4
7	Confirm 1000kHz Dial Calibration	1000kHz ANT input 86dB 400Hz (30% MOD) AM SSG Use loop ANT	Same as above	Same as above		Confirm 1000kHz Dial Calibration	
8	Confirm 1400kHz Dial Calibration	Same as Step 5	Same as above	Same as above		Confirm 1400kHz Dial Calibration	○ If not, repeat from Step 5
9	600kHz RF Adj.	600kHz ANT input 50dB 400Hz (30% MOD) AM SSG Use loop ANT	Same as above	Same as above	Bar ANT L701	Max. output	
10	1400kHz RF Adj.	1400kHz ANT input 50dB 400Hz (30% MOD) AM SSG Use loop ANT	Same as above	Same as above	Trimmer Cap. TC05	Same as above	
11	Signal Meter	1000kHz ANT input 100dB 400Hz (30% MOD) AM SSG Use loop ANT	Same as above	Same as above	VR01	4 on meter 	○ Tune AM SSG (Max. indication of signal meter) ○ Before adjustment, if meter swings out or not enough, preadjust VR01 until the reasonable point



5. TROUBLESHOOTING CHART

5-1. Troubleshooting on Power Supply Section

Symptom	Check Point	Cause & What to Do
1. No power supplied to each section		
1-1. Each lamp not lighted		1. Imperfect contact of power supply plug 2. Defective power switch S703 3. Imperfect contact of voltage selector 4. Power fuse F701 open 5. F05 on F-1500 open 6. Defective power transformer
1-2. Each lamp lighted		
	1) +23V not supplied to emitter of TR05 and +13.2V not supplied to emitter of TR06 on F-1500	7. F07, F08 on F-1500 open 8. Defective D05, D06 on F-1500 9. Defective TR05, TR06 on F-1500 10. Defective ZD01, ZD02 on F-1500
	2) +27V not supplied to terminal [03] ([04]) on F-1499	11. F01, F02 on F-1500 open 12. Defective D01, D04 on F-1500 13. Defective TR01, TR02 on F-1500
	3) -27V not supplied to terminal [11] ([12]) on F-1499	14. F03, F04 on F-1500 open 15. Defective D02, D03 on F-1500 16. Defective TR03, TR04 on F-1500
	4) Normal voltages supplied to each terminal on F-1500	17. F06 on F-1500 open 18. Defective D07, D08 on F-1500 19. Defective TR07, TR08 on F-1500 20. Defective Relay RY101 on F-1500 21. Defective D09~D12 on F-1500

5-2. Troubleshooting on Audio Section

1. Quick acting fuse open

1-1. After replacement, fuse open again		1. Defective TR01, TR03 (TR02, TR04) on F-1500 2. Defective TR09, TR11 (TR10, TR12) on F-1499 3. Defective TR07 (TR08) on F-1499
1-2. After replacement, fuse not open		
	1) DC Bias current adjustable	4. Set the current to +19mA by VR03 (VR04)
	2) DC Bias current not adjustable	5. Defective VR03 (VR04) on F-1499 6. Defective TR05 (TR06) on F-1499
	3) Center voltage adjustable	7. Set the center voltage to 0V by VR01 (VR02) on F-1499
	4) Center voltage not adjustable	8. Defective TR01, TR03 (TR02, TR04) on F-1499 9. Defective TR05 (TR06) on F-1499 10. Defective D01, D03 (D02, D04) on F-1499 11. Defective VR01 (VR02) on F-1499

2. AUX inoperative

Symptom	Check Point	Cause & What to Do
2-1. Both channels inoperative		12. Defective power supply section (F-1500)
2-2. One channel inoperative		
1) L and R-ch will be operative when MODE switch is pushed in (It's MONO position)		13. Imperfect contact of SELECTOR switch S702a (S702b)
2) R-ch will be inoperative when MODE switch is pushed in		14. Defective TR05 (TR06) on F-1501
		15. Imperfect contact of TAPE MONITOR switch S01, S02, MODE switch S03
		16. Defective BALANCE volume VR01
		17. Imperfect contact of SELECTOR switch S702a (S702b)
		18. Imperfect contact of SP SELECTOR switch S701a (S701b)
		19. Defective F-1499

3. PHONO inoperative

3-1. Both channels inoperative		20. Defective power supply section (F-1500)
3-2. One channel inoperative		
1) Reverse the output cords of L and R-ch from turntable		
1-1) Inoperative channel reverse		21. Imperfect contact of the output cord
		22. Defective turntable
1-2) Inoperative channel not reverse		23. Defective TR01, TR03 (TR02, TR04) on F-1501
		24. Imperfect contact of SELECTOR switch S702a (S702b)

5-3. Troubleshooting on Tuner Section

1. Both FM and AM inoperative (PHONO operative)

1-1. Both channels inoperative		
1) +13.2V not supplied to terminal [C], [E], [F] on F-1491		1. Defective power supply section (F-1500)
2) +13.2V not supplied to terminal [C], [E] on F-1491		2. Imperfect contact of SELECTOR switch S702d
1-2. One channel inoperative		
1) AM section inoperative		3. Defective SELECTOR switch S702a (S702b)
2) FM section inoperative		4. Defective SELECTOR switch S702a (S702b)
		5. Defective TR12, TR13 on F-1491
		6. Defective Low Pass Filter L.P.F. 01

2. FM Section

*Before check, set MUTING switch to OFF (Pushed in)

2-1. FM inoperative only		
1) Tune FM signal or FM broadcasting station		
1-1) Signal meter operative (Interstation noise too low compared with proper unit)		7. Defective CF01, CF02 on F-1491
		8. Defective FET01, TR01~TR03 on F-1491
		9. Defective TR05, TR06 on F-1491
		10. Defective L01~L03 on F-1491
		*to page 12

Symptom	Check Point	Cause & What to Do
*from page 11		
	1-2) Signal meter inoperative	11. Defective T01, T02 on F-1491 12. Defective IC01 on F-1491 13. Defective T03, T04 on F-1491 14. Defective IC02 on F-1491 15. Defective D01, D02 on F-1491
2-2. Signal meter inoperative (FM broadcasting sound can be heard)		16. IF, RF out of adjustment on F-1491 17. Defective TR07, TR08 on F-1491 18. Defective T05, T06 on F-1491 19. Defective D03, D05 on F-1491 20. Defective VR02 on F-1491 21. Defective signal meter
2-3. Muting circuit inoperative (Signal meter operative)		22. Defective TR09~TR11 on F-1491 23. Defective TR14, TR15 on F-1491 24. Defective D04 on F-1491 25. Defective VR03 on F-1491 26. Imperfect contact of MUTING switch S08
2-4. No channel separation on FM stereo broadcasting *Confirm that SELECTOR switch is set to FM AUTO *Confirm signal meter operates		
	1) Indicator lamp not lighted	27. Defective the indicator lamp PL701 28. Defective TR16 on F-1491 29. Defective T11 on F-1491 30. Defective IC02 on F-1491 31. Defective VR04 for indicator lamp on F-1491 32. Defective VR05 for FM stereo separation on F-1491
	2) Indicator lamp lighted	33. Defective F-1500
		34. Defective TR16 on F-1491

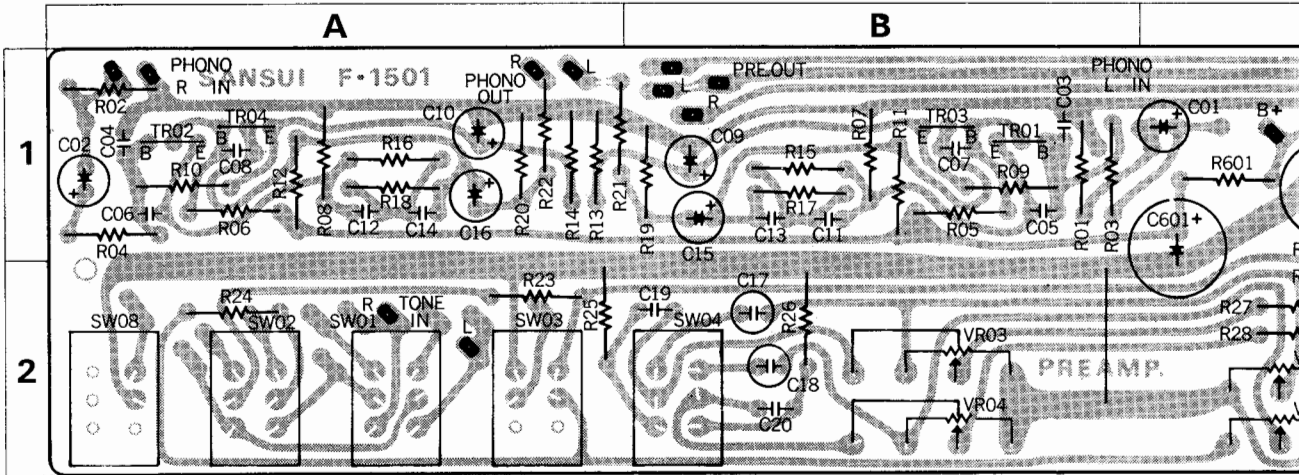
3. AM Section

3-1. AM inoperative		
	1) Interstation noise changes by touching the terminal D on F-1491	
	1-1) Increase	35. Defective bar antenna 36. Defective TR20 on F-1491 37. Defective T11 on F-1491
	1-2) No change	38. Variable capacitor shorted 39. Defective D07 on F-1491 40. Defective TR17~TR19 on F-1491 41. Defective T07~T09 on F-1491
3-2. Distortion		42. Defective D06, D07 on F-1491 43. IF out of adjustment on F-1491
3-3. Signal meter inoperative (AM broadcasting sound can be heard)		44. IF, RF out of adjustment on F-1491 45. Defective TR25 on F-1491 46. Defective D07, D08 on F-1491 47. Imperfect contact of VR01 on F-1491 48. Defective signal meter

6. PARTS LOCATIONS AND PARTS LIST

6-1. F-1501 Pre Amplifier Circuit Board (Stock No. 7550530 Complete Circuit Board F-1501)

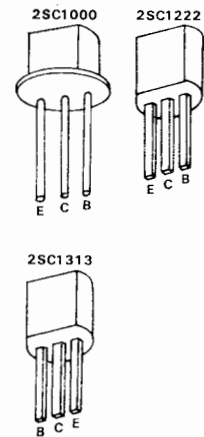
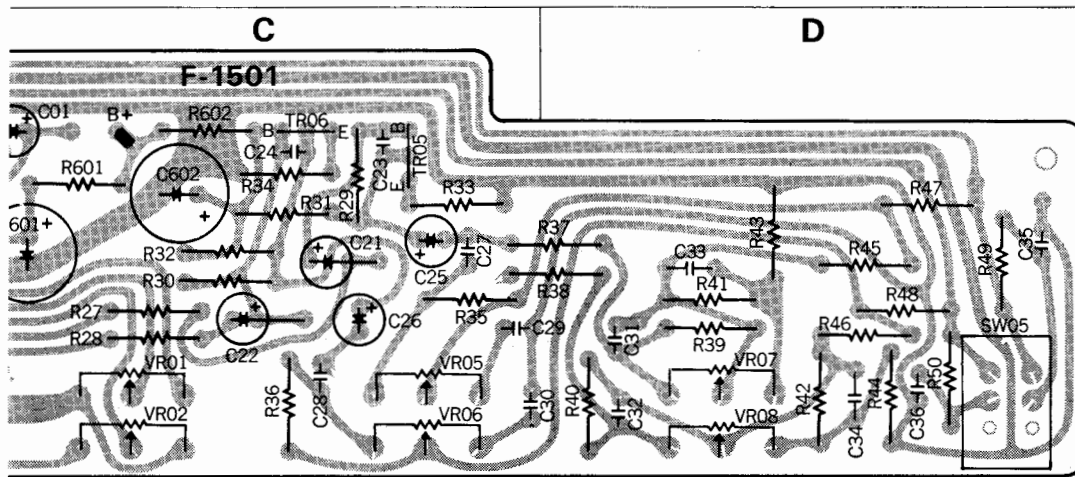
Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
TR01	0306070, 1	2SC1313 (R) (F, G)	1 B
	or	or	
	0306011, 2	2SC1222 (E, F)	
	0305880, 1	2SC1000 (GR, BL)	
	0306070, 1	2SC1313 (R) (F, G)	
	0306011, 2	2SC1222 (E, F)	
TR02	0306070, 1	2SC1313 (R) (F, G)	1 A
	or	or	
	0306011, 2	2SC1222 (E, F)	
	0305880, 1	2SC1000 (GR, BL)	
	0306070, 1	2SC1313 (R) (F, G)	
	0306011, 2	2SC1222 (E, F)	
TR03	0306070, 1	2SC1313 (R) (F, G)	1 B
	or	or	
	0306011, 2	2SC1222 (E, F)	
	0305880, 1	2SC1000 (GR, BL)	
	0306070, 1	2SC1313 (R) (F, G)	
	0306011, 2	2SC1222 (E, F)	
TR04	0306070, 1	2SC1313 (R) (F, G)	1 A
	or	or	
	0306011, 2	2SC1222 (E, F)	
	0305880, 1	2SC1000 (GR, BL)	
	0306070, 1	2SC1313 (R) (F, G)	
	0306011, 2	2SC1222 (E, F)	
TR05	0306070, 1	2SC1313 (R) (F, G)	1 C
	or	or	
	0306011, 2	2SC1222 (E, F)	
	0305880, 1	2SC1000 (GR, BL)	
	0306070, 1	2SC1313 (R) (F, G)	
	0306011, 2	2SC1222 (E, F)	
TR06	0306070, 1	2SC1313 (R) (F, G)	1 C
	or	or	
	0306011, 2	2SC1222 (E, F)	
	0305880, 1	2SC1000 (GR, BL)	
	0306070, 1	2SC1313 (R) (F, G)	
	0306011, 2	2SC1222 (E, F)	
C01	0573159	1.5 μ F	25V T.C. 1 C
C02	0573159	1.5 μ F	1 A
C03	0660330	33pF	1 B
C04	0660330	33pF	50V C.C. 1 A
C07	0660151	150pF	1 B
C08	0660151	150pF	1 A
C09	0510101	100 μ F	6.3V E.C. 1 B
C10	0510101	100 μ F	1 A

Parts No.	Stock No.	Description	Position
C11	0600107	0.01 μ F	1 B
C12	0600107	0.01 μ F	$\pm 5\%$ 50V M.C. 1 A
C13	0600276	0.0027 μ F	1 B
C14	0600276	0.0027 μ F	1 A
C15	0519103	0.47 μ F	50V E.C. 1 B
C16	0519103	0.47 μ F	1 A
C17	0620471	470pF	$\pm 5\%$ 50V P.C. 2 B
C18	0620471	470pF	2 B
C19	0600227	0.022 μ F	2 B
C20	0600227	0.022 μ F	$\pm 5\%$ 50V M.C. 2 B
C21	0601228	0.22 μ F	1 C
C22	0601228	0.22 μ F	2 C
C23	0660100	10 pF	50V C.C. 1 C
C24	0660100	10 pF	1 C
C25	0519103	0.47 μ F	50V E.C. 1, 2 C
C26	0519103	0.47 μ F	2 C
C27	0600276	0.0027 μ F	1, 2 C
C28	0600276	0.0027 μ F	2 C
C29	0600157	0.015 μ F	2 C
C30	0600157	0.015 μ F	2 C
C31	0600277	0.027 μ F	$\pm 5\%$ 50V M.C. 2 D
C32	0600277	0.027 μ F	2 D
C33	0600158	0.15 μ F	2 D
C34	0600158	0.15 μ F	2 D
C35	0600686	0.0068 μ F	1 D
C36	0600686	0.0068 μ F	2 D
C601	0514101	100 μ F	35V E.C. 1 C
C602	0514101	100 μ F	1 C
R01	0107563	56k Ω	1 B
R02	0107563	56k Ω	1 A
R03	0107222	2.2k Ω	$\pm 5\%$ 1/4 W C.R. 1 B
R04	0107222	2.2k Ω	1 A
R05	0107104	100k Ω	1 B



Parts No.	Stock No.	Description	Position
R06	0107104	100kΩ	1A
R07	0107821	820Ω	1B
R08	0107821	820Ω	1A
R09	0107224	220kΩ	1B
R10	0107224	220kΩ	1A
R11	0107472	4.7kΩ	1B
R12	0107472	4.7kΩ	1A
R13	0107331	330Ω	1A
R14	0107331	330Ω	1A
R15	0107394	390kΩ	1B
R16	0107394	390kΩ	1A
R17	0107273	27kΩ	1B
R18	0107273	27kΩ	1A
R19	0107104	100kΩ	1B
R20	0107104	100kΩ	1A
R21	0107681	680Ω	1A, B
R22	0107681	680Ω	1A
R23	0107103	10kΩ	2A
R24	0107103	10kΩ	2A
R25	0107183	18kΩ	2A
R26	0107183	18kΩ	2B
R27	0107331	330Ω	2C
R28	0107331	330Ω	2C
R29	0107105	1MΩ	1C
R30	0107105	1MΩ	2C
R31	0107472	4.7kΩ	1C
R32	0107472	4.7kΩ	1C
R33	0107471	470Ω	1C
R34	0107471	470Ω	1C
R35	0107224	220kΩ	2C
R36	0107224	220kΩ	2C
R37	0107123	12kΩ	1C, D
R38	0107123	12kΩ	2C, D
R39	0107474	470kΩ	2D

± 5% ¼W C.R.

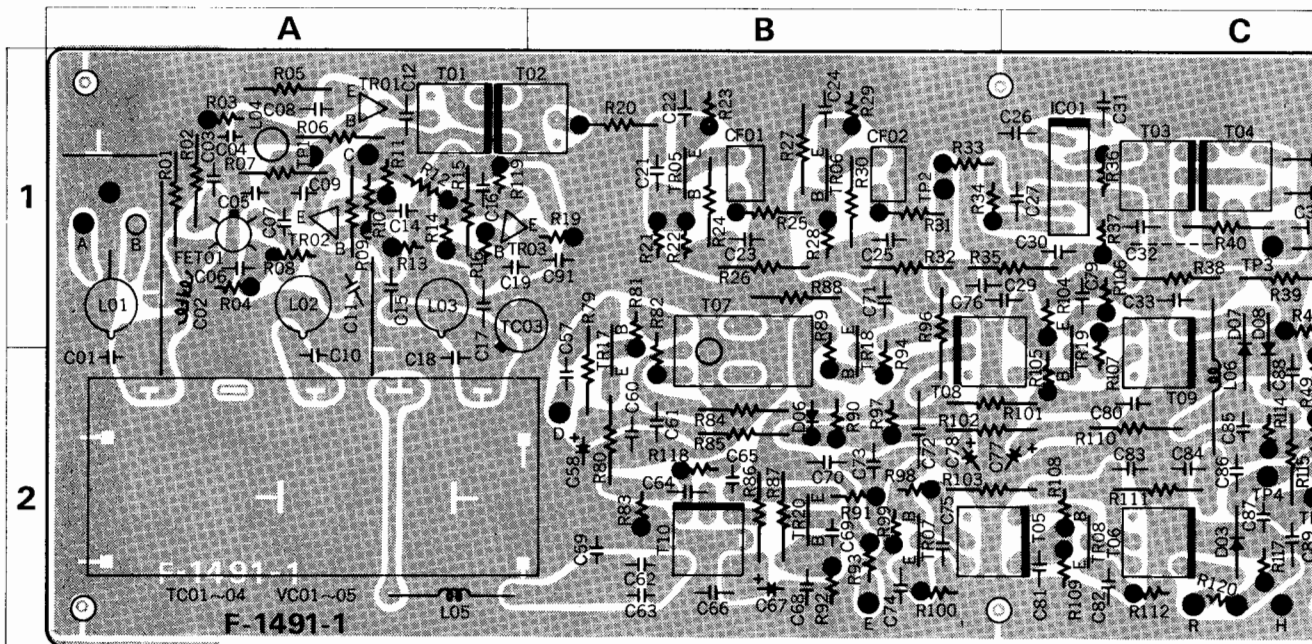
Parts No.	Stock No.	Description	Position
R40	0107474	470kΩ	2D
R43	0107272	2.7kΩ	1, 2 D
R44	0107272	2.7kΩ	2D
R45	0107472	4.7kΩ	2D
R46	0107472	4.7kΩ	2D
R47	0107472	4.7kΩ	1D
R48	0107472	4.7kΩ	2D
R49	0107824	820kΩ	1, 2 D
R50	0107824	820kΩ	2D
R601	0107101	100Ω	1C
R602	0107101	100Ω	1C
VR01, 02	1010950	250kΩ (MN)	2C
VR03, 04	1010920	250kΩ (B) × 2	2B
VR05, 06	1010960	100kΩ (A) × 2	2C
VR07, 08	1010960	100kΩ (A) × 2	2D
S01	1130770	Push Switch (5 Stage)	2A
S02	1130770		2A
S03	1130770		2A
S04	1130770		2B
S05	1130770		2D
S06	1130780	Push Switch (1 Stage)	2A

± 5W ¼W C.R.

— Abbreviations —

- C.R. : Carbon Resistor
- S.R. : Solid Resistor
- Ce.R. : Cement Resistor
- M.R. : Metallized Film Resistor
- M.C. : Mylar Capacitor
- E.C. : Electrolytic Capacitor
- BP.E.C.: Bi-Polar Electrolytic Capacitor
- C.C. : Ceramic Capacitor
- Mi.C. : Metallized Film Capacitor
- O.C. : Oil Capacitor
- P.C. : Polystyrene Capacitor
- T.C. : Tantalum Capacitor

6-2. F-1491A Tuner Circuit Board (Stock No. 7520730 Complete Circuit Board F-1491A) Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
TR01	0305801, 2	2SC1047 (B, C)	1 A
TR02	0305790, 1	2SC930 (C, D)	1 A
TR03	0305790, 1	2SC930 (C, D)	1 A, B
TR05	0306112, 3	2SC738 (C, D)	1 B
TR06	0306112, 3	2SC738 (C, D)	1 B
TR07	0305942, 3	2SC710 (C, D)	2 B
TR08	0305942, 3	2SC710 (C, D)	2 C
TR09	0305732, 3	2SC711 (F, G)	1, 2 C
TR10	0305732, 3	2SC711 (F, G)	1, 2 C
TR11	0300291, 2	2SA678 (6, 7)	2 C
TR12	0306141, 2	2SC1362 5 (7, 8)	2 D
TR13	0306141, 2	2SC1362 5 (7, 8)	1, 2 D
TR14	0306131, 2	2SC1364 (6, 7)	2 D
TR15	0306131, 2	2SC1364 (6, 7)	2 D
TR16	0300221	2SA562 (Y)	2 D
TR17	0305992	2SC403C (4)	1, 2 B
TR18	0305992	2SC403C (4)	1, 2 B
TR19	0305991	2SC403C (3)	1, 2 C
TR20	0305991	2SC403C (3)	2 B
} Transistor			
D01	0311060	1N60P	1 C
D02	0311060	1N60P	1 C
D03	0310400	1N34A	2 C
D04	0340090	DS430	1, 2 C
D05	0340090	DS430	2 C, D
D06	0310400	1N34A	2 B
D07	0310400	1N34A	1, 2 C
D08	0310400	1N34A	1, 2 C
} Diode			
IC01	0360060	TA7061AP	1 C
IC02	0360080	HA1120	1 D
} IC			
FET01	0370080, 1	3SK39 (Q, R) FET	1 A
C01	0669347	12pF ±0.5pF 50V C.C.	2 A

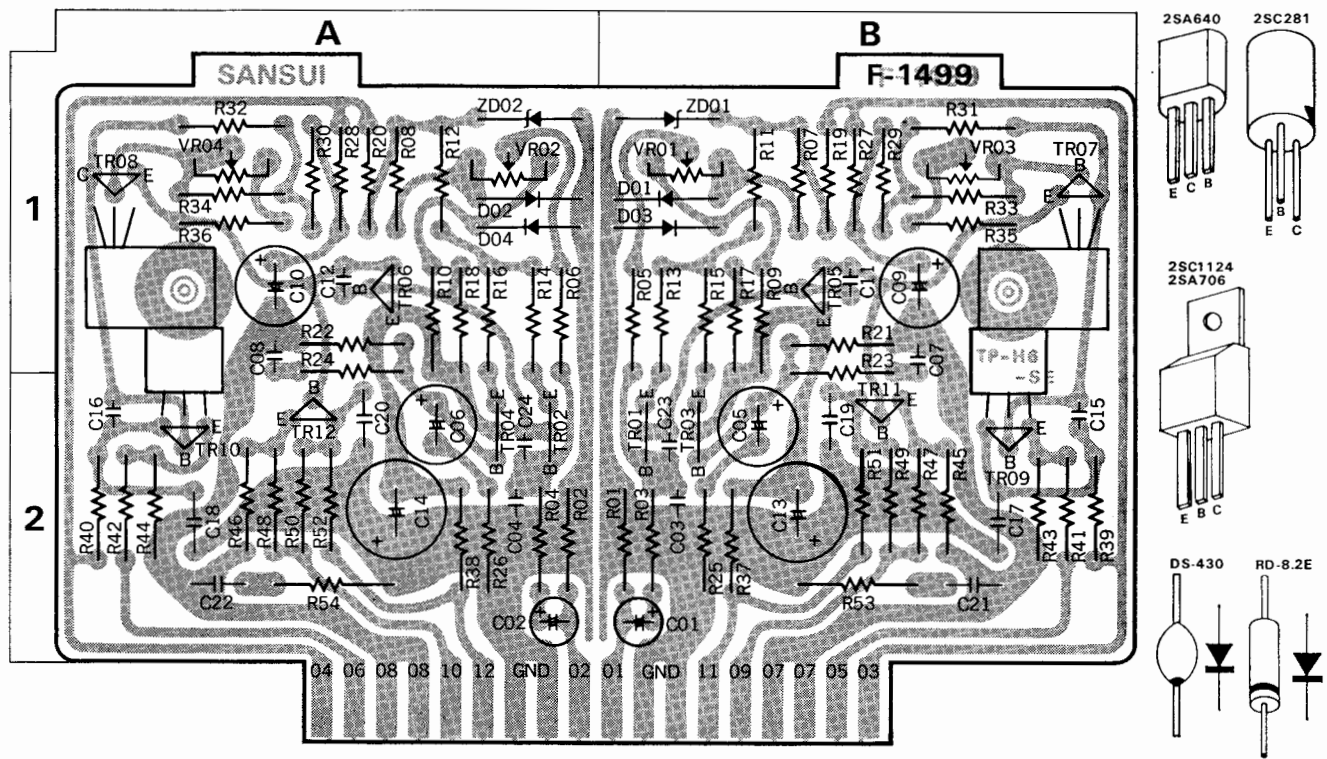
Parts No.	Stock No.	Description	Position
C02	0657102	0.001 μF } +80% -20% 50V C.C.	1 A
C03	0657223	0.022 μF } +80% -20% 50V C.C.	1 A
C04	0660221	220pF ±10% 50V C.C.	1 A
C05	0669019	18pF ±5% 50V C.C.	1 A
C06	0657223	0.022 μF } +80% -20% 50V C.C.	1 A
C07	0669005	8.2pF ±0.25pF 50V C.C.	1 A
C08	0657223	0.022 μF } +80% -20% 50V C.C.	1 A
C09	0669306	22pF } ±5% 50V C.C.	1 A
C10	0669019	18pF } ±5% 50V C.C.	2 A
C11	0657223	0.022 μF } +80% -20% 50V C.C.	1 A
C12	0657223	0.022 μF } +80% -20% 50V C.C.	1 A
C14	0657223	0.022 μF } +80% -20% 50V C.C.	1 A
C15	0669203	2.7pF ±0.25pF 50V C.C.	1 A
C17	0664100	10pF ±0.5pF 50V C.C.	1 A
C18	0669019	18pF ±5% 50V C.C.	2 A
C19	0664100	10pF ±0.5pF 50V C.C.	1 A, B
C21	0657223	0.022 μF } +80% -20% 50V C.C.	1 B
C22	0657223	0.022 μF } +80% -20% 50V C.C.	1 B
C23	0657223	0.022 μF } +80% -20% 50V C.C.	1 B
C24	0657223	0.022 μF } +80% -20% 50V C.C.	1 B
C25	0657223	0.022 μF } +80% -20% 50V C.C.	1 B
C26	0657223	0.022 μF } +80% -20% 50V C.C.	1 B, C
C27	0657223	0.022 μF } +80% -20% 50V C.C.	1 C
C28	0657223	0.022 μF } +80% -20% 50V C.C.	1 B, C
C29	0657223	0.022 μF } +80% -20% 50V C.C.	1 C
C30	0657223	0.022 μF } +80% -20% 50V C.C.	1 C
C31	0657223	0.022 μF } +80% -20% 50V C.C.	1 C
C32	0657473	0.047 μF } +80% -20% 50V C.C.	1 C
C33	0657223	0.022 μF } +80% -20% 50V C.C.	1 C
C34	0660221	220pF ±10% 50V C.C.	1 C
C35	0660221	220pF ±10% 50V C.C.	1 C
C36	0512100	10 μF 16V E.C.	1 C
C37	0660221	220pF ±10% 50V C.C.	1 C
C38	0513479	4.7 μF 25V E.C.	1 C

F-1491A Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
L01	4200570	3-304670 FM Antenna Coil	1 A	R58	0106273	27kΩ	± 5% ¼W C.R. (E.L.R.)
L02	4210200	3-304671 FM RF Coil	1 A	R59	0106121	560Ω	
L03	4220400	FM OSC Coil	1 A	R60	0107334	330kΩ	± 5% ¼W C.R.
L04	4290110	Peaking Coil	1 A	R61	0107472	4.7kΩ	
L05	4290010	3.5μH Peaking Coil	2 A	R62	0106391	390Ω	± 5% ¼W C.R. (E.L.R.)
L06	4290010	3.5μH Peaking Coil	2 A	R63	0106332	3.3kΩ	
LC01	4240710	MPX Coil	1 D	R64	0106562	5.6kΩ	± 5% ¼W C.R. (E.L.R.)
LPF01	0910220	BL-14 Low Pass Filter	2 D	R65	0106332	3.3kΩ	
VC01-05	1220150	Variable Capacitor	2 A	R66	0107332	3.3kΩ	± 5% ¼W C.R.
				R67	0106562	5.6kΩ	
R01	0107124	120kΩ	± 5% ¼W C.R.	R68	0106151	150Ω	± 5% ¼W C.R. (E.L.R.)
R02	0107101	100Ω		1 A	R69	0106273	
R03	0106222	2.2kΩ	± 5% ¼W C.R. (E.L.R.)	R70	0106391	390Ω	± 5% ¼W C.R. (E.L.R.)
R04	0106124	120kΩ		1 A	R71	0106184	
R05	0107102	1kΩ	± 5% ¼W C.R.	R72	0106332	3.3kΩ	± 5% ¼W C.R. (E.L.R.)
R06	0107153	1.5kΩ		1 A	R73	0106332	
R07	0107221	220Ω	± 5% ¼W C.R. (E.L.R.)	R74	0106332	3.3kΩ	± 5% ¼W C.R.
R08	0106224	220kΩ		1 A	R75	0106332	
R09	0107221	220Ω	± 5% ¼W C.R.	R76	0106332	3.3kΩ	± 5% ¼W C.R.
R10	0106473	47kΩ		1 A	R77	0106184	
R11	0106121	120Ω	± 5% ¼W C.R. (E.L.R.)	R79	0107103	10kΩ	± 5% ¼W C.R.
R12	0106102	1kΩ		1 A	R80	0107220	
R13	0106682	6.8kΩ	± 5% ¼W C.R. (E.L.R.)	R81	0106561	560Ω	± 5% ¼W C.R. (E.L.R.)
R14	0106152	1.5kΩ		1 A	R82	0106334	
R15	0107222	2.2kΩ	± 5% ¼W C.R.	R83	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)
R16	0106390	39Ω		1 B	R84	0107221	
R17	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)	R85	0107123	12kΩ	± 5% ¼W C.R.
R18	0106221	220Ω		1 B	R86	0107122	
R19	0106152	1.5kΩ	± 5% ¼W C.R. (E.L.R.)	R87	0107223	22kΩ	± 5% ¼W C.R.
R20	0106221	220Ω		1 B	R88	0107102	
R21	0106152	1.5kΩ	± 5% ¼W C.R. (E.L.R.)	R89	0106391	390Ω	± 5% ¼W C.R. (E.L.R.)
R22	0106332	3.3kΩ		1 B	R90	0106103	
R23	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)	R91	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)
R24	0107561	560Ω		1 B	R92	0106472	
R25	0106560	59Ω	± 5% ¼W C.R. (E.L.R.)	R93	0106121	120Ω	± 5% ¼W C.R. (E.L.R.)
R26	0107220	22Ω		1 B	R94	0106681	
R27	0107152	1.5kΩ	± 5% ¼W C.R. (E.L.R.)	R96	0107102	1kΩ	± 5% ¼W C.R. (E.L.R.)
R28	0106332	3.3kΩ		1 B	R97	0106124	
R29	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)	R98	0106153	15kΩ	± 5% ¼W C.R. (E.L.R.)
R30	0106102	1kΩ		1 B	R99	0106472	
R31	0106560	56Ω	± 5% ¼W C.R. (E.L.R.)	R100	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)
R32	0107220	22Ω		1 B	R101	0107221	
R33	0106181	180Ω	± 5% ¼W C.R. (E.L.R.)	R102	0107822	8.2kΩ	± 5% ¼W C.R. (E.L.R.)
R34	0106680	68Ω		1 B, C	R103	0107101	
R35	0107101	100Ω	± 5% ¼W C.R. (E.L.R.)	R104	0106472	4.7kΩ	± 5% ¼W C.R. (E.L.R.)
R36	0106562	5.6kΩ		1 B, C	R105	0106153	
R37	0106221	220Ω	± 5% ¼W C.R. (E.L.R.)	R106	0106561	560Ω	± 5% ¼W C.R. (E.L.R.)
R38	0107220	22Ω		1 C	R107	0106471	
R39	0107479	4.7Ω	± 5% ¼W C.R. (E.L.R.)	R108	0106153	15kΩ	± 5% ¼W C.R. (E.L.R.)
R40	0107101	100Ω		1 C	R109	0106472	
R41	0106682	6.8kΩ	± 5% ¼W C.R. (E.L.R.)	R110	0107103	10kΩ	± 5% ¼W C.R. (E.L.R.)
R42	0106102	1kΩ		1 C	R111	0107101	
R43	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)	R112	0106102	1kΩ	± 5% ¼W C.R. (E.L.R.)
R44	0106682	6.8kΩ		1 C	R113	0107479	
R45	0107102	1kΩ	± 5% ¼W C.R. (E.L.R.)	R114	0106103	10kΩ	± 5% ¼W C.R. (E.L.R.)
R46	0106153	15kΩ		1 C	R115	0107222	
R47	0106105	1MΩ	± 5% ¼W C.R. (E.L.R.)	R116	0106221	220Ω	± 5% ¼W C.R. (E.L.R.)
R48	0106560	56Ω		1 C	R117	0106473	
R49	0106473	47kΩ	± 5% ¼W C.R. (E.L.R.)	R118	0106100	10Ω	± 5% ¼W C.R. (E.L.R.)
R50	0107479	4.7Ω		2 C	R119	0106471	
R51	0106683	68kΩ	± 5% ¼W C.R. (E.L.R.)	R120	0106103	10kΩ	± 5% ¼W C.R. (E.L.R.)
R52	0106102	1kΩ		2 D	VR01	1035150	
R53	0107472	4.7kΩ	± 5% ¼W C.R. (E.L.R.)	VR02	1035150	22kΩ (B)	Semi-variable Resistor
R54	0107221	220Ω		2 C, D	VR03	1035190	
R55	0106473	47kΩ	± 5% ¼W C.R. (E.L.R.)	VR04	1035190	100kΩ (B)	Semi-variable Resistor
R56	0107472	4.7kΩ		1, 2 D	VR05	1035070	
R57	0107392	3.9kΩ	2 D	S01	1110240	Slide Switch	

6-3. F-1499A Driver Circuit Board (Stock No. 7570800 Complete Circuit Board F-1499A)

Conductor Side



Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR01	0300303, 5	2SA640 (K, L)	2 B	C11	0660100	10pF	1 B
TR02	0300303, 5	2SA640 (K, L)	2 A	C12	0660100	10pF ±10%	50V C.C. 1 A
TR03	0300303, 5	2SA640 (K, L)	2 B	C13	0515101	100µF	50V E.C. 2 B
TR04	0300303, 5	2SA640 (K, L)	2 A	C14	0515101	100µF	50V E.C. 2 A
TR05	0305901, 2	2SC1124 (2, 3)	1 B	C17	0657473	0.047µF	50V C.C. 2 B
TR06	0305901, 2	2SC1124 (2, 3)	1 A	C18	0657473	0.047µF	50V C.C. 2 A
TR07	0305121, 2	2SC281 (B, C)	1 B	C21	0601108	0.1µF	50V M.C. 2 B
TR08	0305121, 2	2SC281 (B, C)	1 A	C22	0601108	0.1µF	50V M.C. 2 A
TR09	0305900, 1	2SC1124 (1, 2)	2 B	R01	0107104	100kΩ	2 B
TR10	0305900, 1	2SC1124 (1, 2)	2 A	R02	0107104	100kΩ	2 A
TR11	0300390, 1	2SA706 ③ (1, 2)	2 B	R03	0107222	2.2kΩ	2 B
TR12	0300390, 1	2SA706 ③ (1, 2)	2 A	R04	0107222	2.2kΩ	2 A
D01	0340090	DS-430	1 B	R05	0107104	100kΩ	1 B
D02	0340090	DS-430	1 A	R06	0107104	100kΩ	± 5% 1/4W C.R. 1 A
D03	0340090	DS-430	1 B	R07	0107223	22kΩ	1 B
D04	0340090	DS-430	1 A	R08	0107223	22kΩ	1 A
ZD01	0316210	RD-8.2E (B)	1 B	R09	0107683	68kΩ	1 B
ZD02	0316210	RD-8.2E (B)	1 A	R10	0107683	68kΩ	1 A
C01	0519103	0.47µF	50V E.C. 2 B	R11	0107103	10kΩ	1 B
C02	0519103	0.47µF	50V E.C. 2 A				
C03	0660151	150pF	50V C.C. 2 B				
C04	0660151	150pF	50V C.C. 2 A				
C05	0511221	220µF	50V E.C. 2 B				
C06	0511221	220µF	50V E.C. 2 A				
C07	0660100	10pF	±10% 50V C.C. 1 B				
C08	0660100	10pF	±10% 50V C.C. 1 A				
C09	0515330	33µF	50V E.C. 1 B				
C10	0515330	33µF	50V E.C. 1 A				

to be continued

Abbreviations

- C.R. : Carbon Resistor
- S.R. : Solid Resistor
- Ce.R. : Cement Resistor
- M.R. : Metallized Film Resistor
- M.C. : Mylar Capacitor
- E.C. : Electrolytic Capacitor
- BP.E.C.: Bi-Polar Electrolytic Capacitor
- C.C. : Ceramic Capacitor
- Mi.C. : Mica Capacitor
- O.C. : Oil Capacitor
- P.C. : Polystyrene Capacitor
- T.C. : Tantalum Capacitor

F-1499A Parts List

Parts No.	Stock No.	Description	Position
R12	0107103	10kΩ	1 A
R13	0107100	10Ω	1 B
R14	0107100	10Ω	1 A
R15	0107100	10Ω	1 B
R16	0107100	10Ω	1 A
R17	0107152	1.5kΩ	1 B
R18	0107152	1.5kΩ	1 A
R19	0107682	6.8kΩ	1 B
R20	0107682	6.8kΩ	1 A
R21	0107104	100kΩ	1 B
R22	0107104	100kΩ	1 A
R23	0107103	10kΩ	1, 2 B
R24	0107103	10kΩ	1, 2 A
R25	0107471	470Ω	2 B
R26	0107471	470Ω	2 A
R27	0107182	1.8kΩ	1 B
R28	0107182	1.8kΩ	1 A
R29	0107472	4.7kΩ	1 B
R30	0107472	4.7kΩ	1 A
R31	0107390	39Ω	1 B
R32	0107390	39Ω	1 A
R33	0107332	3.3kΩ	1 B
R34	0107332	3.3kΩ	1 A
R35	0107152	1.5kΩ	1 B
R36	0107152	1.5kΩ	1 A
R37	0107151	150Ω	2 B
R38	0107151	150Ω	2 A
R39	0107100	10Ω	2 B
R40	0107100	10Ω	2 A
R41	0107479	4.7Ω	2 B
R42	0107479	4.7Ω	2 A
R43	0107221	220Ω	2 B
R44	0107221	220Ω	2 A
R45	0107221	220Ω	2 B
R46	0107221	220Ω	2 A
R49	0107479	4.7Ω	2 B
R50	0107479	4.7Ω	2 A
R51	0107221	220Ω	2 B
R52	0107221	220Ω	2 A
R53	0171100	10Ω	2 B
R54	0171100	10Ω	2 A
VR01	1033091	5kΩ (B)	1 B
VR02	1033091	5kΩ (B)	1 A
VR03	1033051	1kΩ (B)	1 B
VR04	1033051	1kΩ (B)	1 A

± 5% 1/4W CR..

± 5% 1/4W C.R.

± 10% 1W M.R.

Semi-Variable Resistor

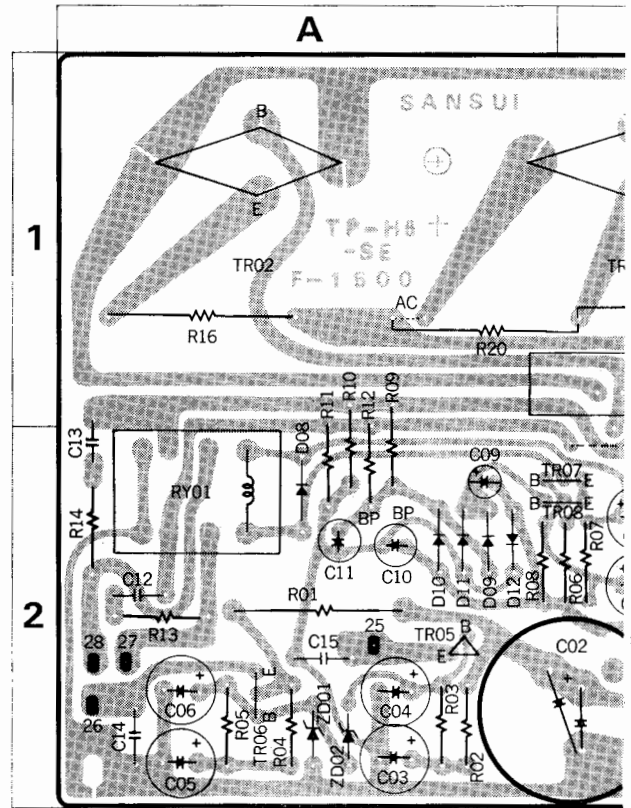
Abbreviations

C.R. : Carbon Resistor	BP.E.C.: Bi-Polar Electrolytic Capacitor
S.R. : Solid Resistor	C.C. : Ceramic Capacitor
Ce.R. : Cement Resistor	Mi.C. : Mica Capacitor
M.R. : Metallized Film Resistor	O.C. : Oil Capacitor
M.C. : Mylar Capacitor	P.C. : Polystyrene Capacitor
E.C. : Electrolytic Capacitor	T.C. : Tantalum Capacitor

6-4. F-1500A Power Circuit Board

(Stock No. 7591930 Complete Circuit Board F-1500A)

Conductor Side

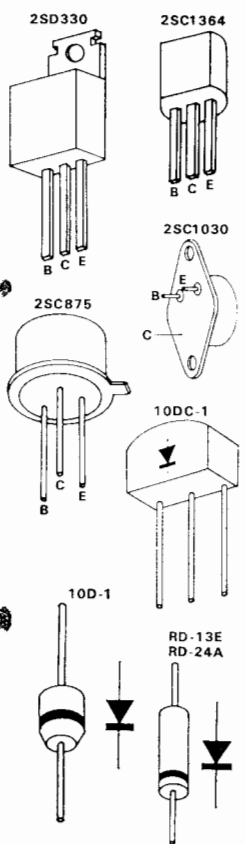
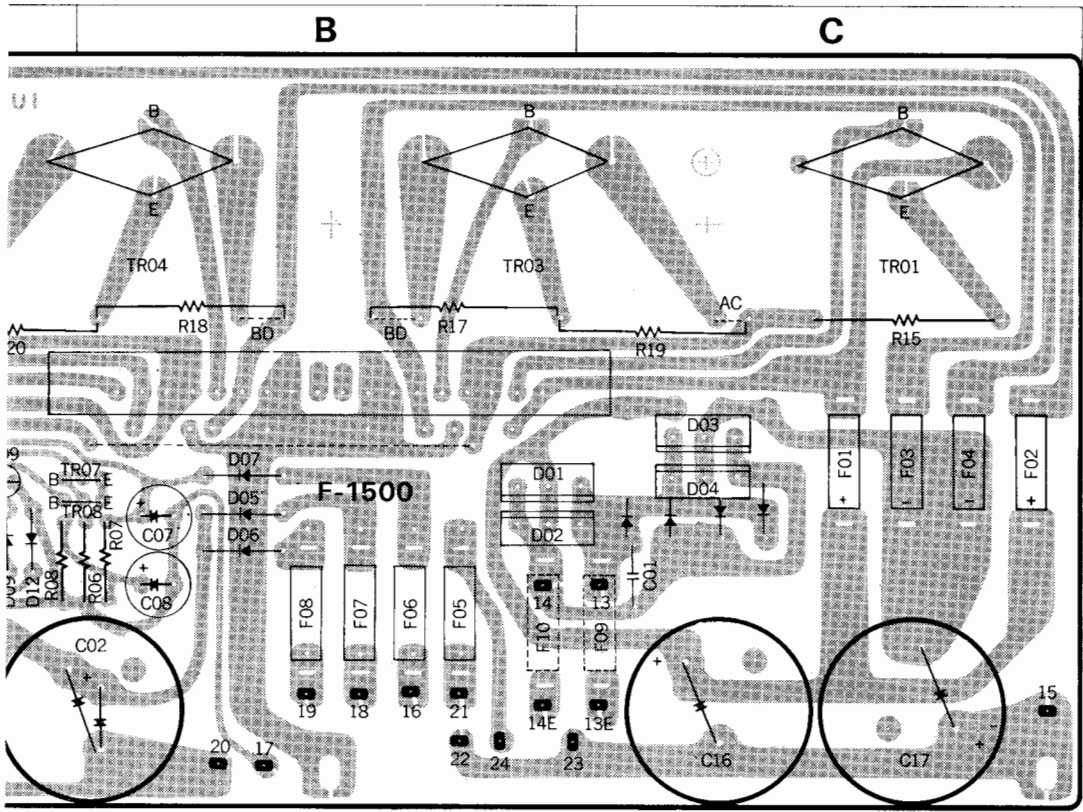


Parts List

Parts No.	Stock No.	Description	Position
TR01	0305630-2	2SC1030 (A, B, C)	1 C
TR02	0305630-2	2SC1030 (A, B, C)	1 A
TR03	0305630-2	2SC1030 (A, B, C)	1 B, A
TR04	0305630-2	2SC1030 (A, B, C)	1 A, B
TR05	0305981, 2	2SC875 (E, F)	2 A
TR06	0308361, 2	2SD330 (D, E)	2 A
TR07	0306131, 2	2SC1364 (6, 7)	2 A, B
TR08	0306131, 2	2SC1364 (6, 7)	2 A, B
D01	0310680	10DC-1	2 B, C
D02	0310680	10DC-1	2 B, C
D03	0310670	10DC-1 (R)	1, 2 C
D04	0310670	10DC-1 (R)	2 C
D05	0310340	10D-1	2 B
D06	0310340	10D-1	2 B
D07	0310340	10D-1	2 B
D08	0310340	10D-1	2 A
D09	0310400	1N34A	2 A
D10	0310400	1N34A	2 A
D11	0310400	1N34A	2 A
D12	0310400	1N34A	2 A
ZD01	0316310	RD13E (B)	2 A
ZD02	0315420	RD24A-N	2 A

Diode

Zener Diode



Parts No.	Stock No.	Description	Position
C01	0659011	0.01 μ F 500V C.C.	2 C
C02	0549004	1000 μ F 35V E.C.	2 A, B
C03	0515470	47 μ F 50V E.C.	2 A
C04	0515470	47 μ F 50V E.C.	2 A
C05	0513101	100 μ F 25V E.C.	2 A
C06	0512101	100 μ F 16V E.C.	2 A
C07	0515330	33 μ F 50V E.C.	2 B
C08	0510221	220 μ F 6.3V E.C.	2 B
C09	0515109	1 μ F 50V E.C.	2 A
C10	0535109	1 μ F 50V B.P.E.C.	2 A
C11	0530470	47 μ F 6.3V B.P.E.C.	2 A
C12	0601108	0.1 μ F $\pm 10\%$ 50V M.C.	2 A
C13	0601108	0.1 μ F $\pm 10\%$ 50V M.C.	1, 2 A
C14	0657473	0.047 μ F 50V C.C.	2 A
C15	0657473	0.047 μ F 50V C.C.	2 A
C16	0549006	3300 μ F 35V E.C.	2 C
C17	0549006	3300 μ F 35V E.C.	2 C
C21	0515109	1 μ F 50V E.C.	
C22	0515109	1 μ F 50V E.C.	
R01	0132820	82 Ω 2W Ce.R.	2 A
R02	0107122	1.2k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	2 A
R03	0107332	3.3k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	2 A
R04	0107122	1.2k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	2 A
R05	0107332	3.3k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	2 A
R06	0107100	10 Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	2 B

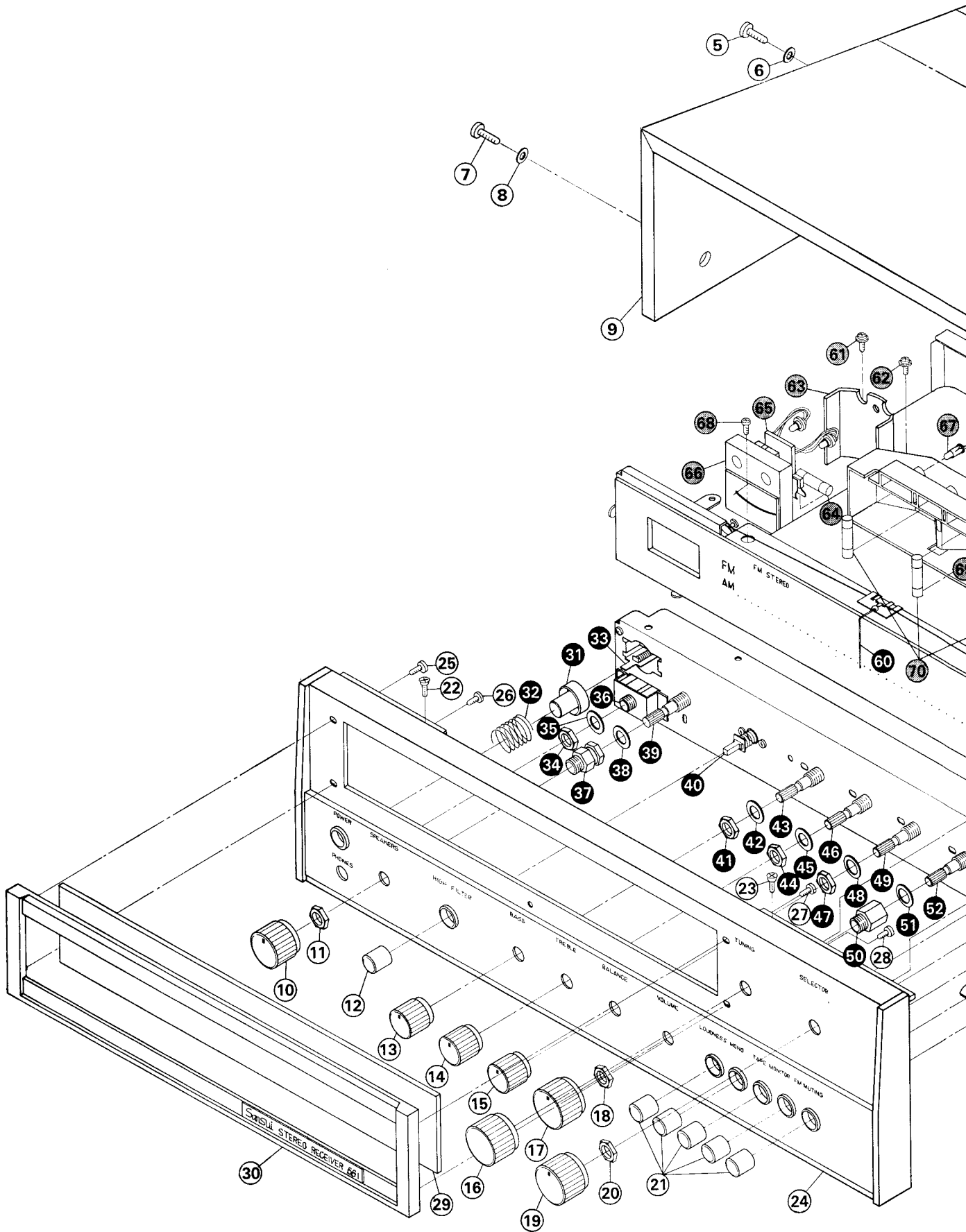
Parts No.	Stock No.	Description	Position
R07	0107823	82k Ω	2 B
R08	0107223	22k Ω	2 B
R09	0107473	47k Ω	$\pm 5\%$ $\frac{1}{4}$ W C.R. 1, 2 A
R10	0107473	47k Ω	$\pm 5\%$ $\frac{1}{4}$ W C.R. 1, 2 A
R11	0107332	3.3k Ω	1, 2 A
R12	0107332	3.3k Ω	1, 2 A
R13	0103100	10 Ω	$\pm 5\%$ $\frac{1}{2}$ W C.R. 2 A
R14	0103100	10 Ω	$\pm 5\%$ $\frac{1}{2}$ W C.R. 2 A
R15	0132338	0.33 Ω	1 C
R16	0132338	0.33 Ω	2 W Ce.R. 1 A
R17	0132338	0.33 Ω	2 W Ce.R. 1 B
R18	0132338	0.33 Ω	1 B
RY01	1150250	MY2-0 Relay	2 A
F01	0433630	4A Quick Acting Fuse	1, 2 C
F02	0433630		1, 2 C
F03	0433630		1, 2 C
F04	0433630		1, 2 C
F05	0432900	5A Wired-in Fuse	2 B
F06	0432820	0.8A Wired-in Fuse	2 B
F07	0432850	2A Wired-in Fuse	2 B
F08	0432850	2A Wired-in Fuse	2 B
	2420170	18P Connector	1 B
	2260010	Test Pin	

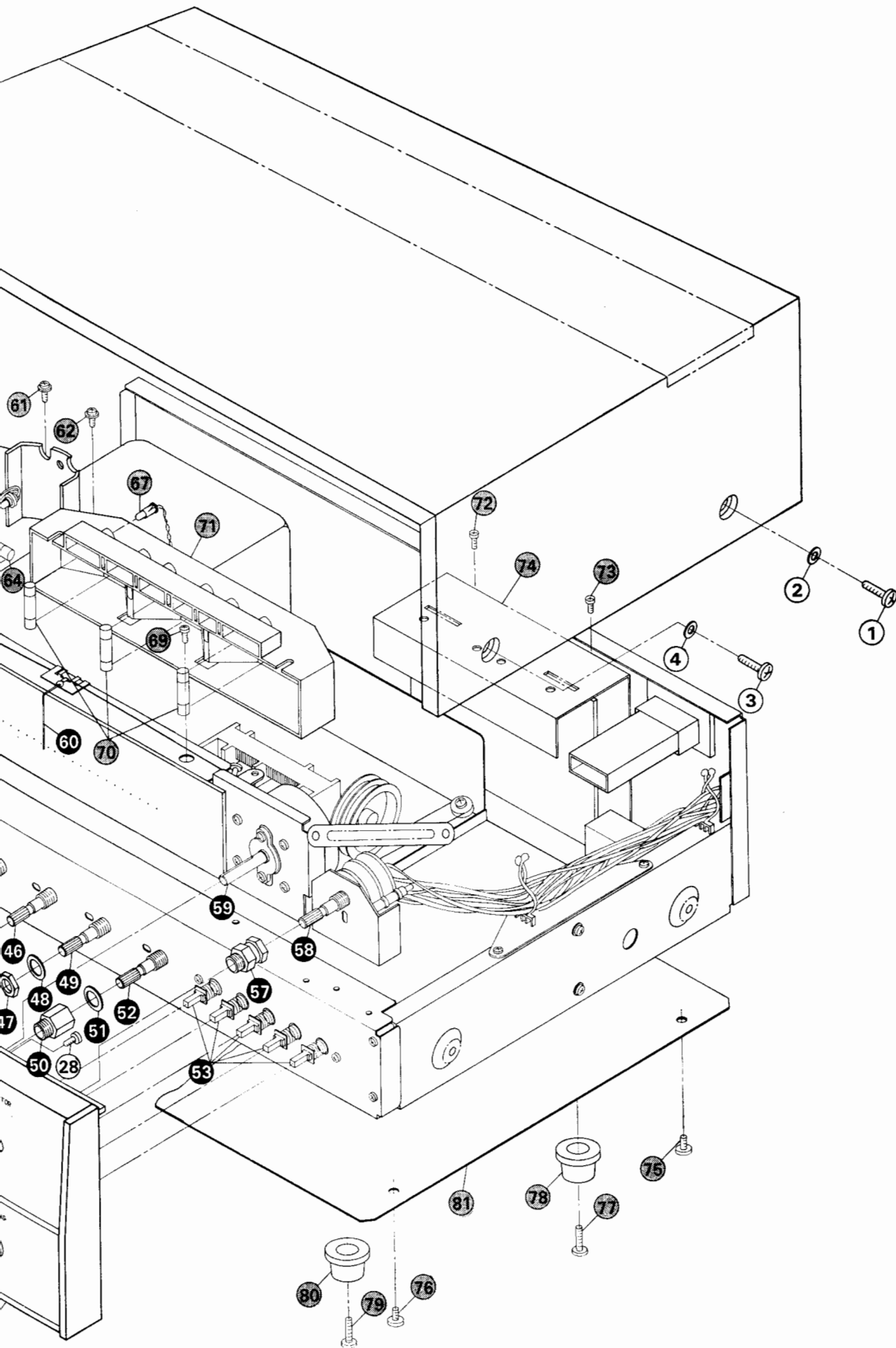
6-5. Other Parts (Front Side)

Parts List

Parts No.	Stock No.	Description
1	5101165	Binding Head Screw, M4×14
2	5186110	Plain Washer, 4φ
3	5101165	Binding Head Screw, M4×14
4	5186110	Plain Washer, 4φ
5	5101165	Binding Head Screw, M4×14
6	5186110	Plain Washer, 4φ
7	5101165	Binding Head Screw, M4×14
8	5186110	Plain Washer, 4φ
9	5726830	Wood Bonnet
10	5317720	L-1 Type Knob, SPEAKERS
11		Hex. Nut, M9
12	5326410	Push Button
13	5317740	S-3 Type Knob, BASS volume
14	5317740	S-3 Type Knob, TREBLE volume
15	5317740	S-3 Type Knob, BALANCE volume
16	5317820	T-6 Type Knob, TUNING
17	5317720	L-1 Type Knob, VOLUME
18		Hex. Nut, M9
19	5317730	M-3 Type Knob, SELECTOR
20		Hex. Nut, M9
21	5326410	Push Button
22	5102543	Flat Countersunk Head Screw, M3×6
23	5102543	Flat Countersunk Head Screw, M3×6
24	{ 5308940 5407540	Front Panel Dial Scale
25	5101043	Binding Head Screw, M3×6
26	5101043	Binding Head Screw, M3×6
27	5101043	Binding Head Screw, M3×6
28	5101043	Binding Head Screw, M3×6
29	5047690	Smoked Plate
30	5308900	Frame, smoked plate
31	7106083	Push Button, POWER switch
32	6906031	Spring, POWER switch
33	1130350	Push Switch, POWER
34		Hex. Nut, M9
35		Plain Washer, 9φ
36	2430200	Headphone Jack
37	5236481	Spacer Nut, M9
38		Plain Washer, 9φ
39	1101470	Rotary Switch Y-1-4-4, SPEAKERS
40	1130780	Push Switch
41		Hex. Nut, M8
42		Plain Washer, 8φ
43	1010960	100kΩ (B)×2 BASS Volume
44		Hex. Nut, M8
45		Plain Washer, 8φ
46	1010960	100kΩ (B)×2 TREBLE Volume
47		Hex. Nut, M8
48		Plain Washer, 8φ
49	1010950	250kΩ (MN) BALANCE Volume
50	5236451	Spacer Nut, M8
51		Plain Washer, 8φ
52	1010920	250kΩ (B)×2 VOLUME
53	1130770	Puse Switch (5 Stage)
57	5236481	Spacer Nut, M9
58	1102520	Rotary Switch Y-2-5-4, SELECTOR
59	7036380	Tuning Ass'y
60	5416361	Dial Pointer
61	5109122	Binding Head Tapping Screw, M3×8
62	5109122	Binding Head Tapping Screw, M3×8
63	5269330	Holder, signal meter

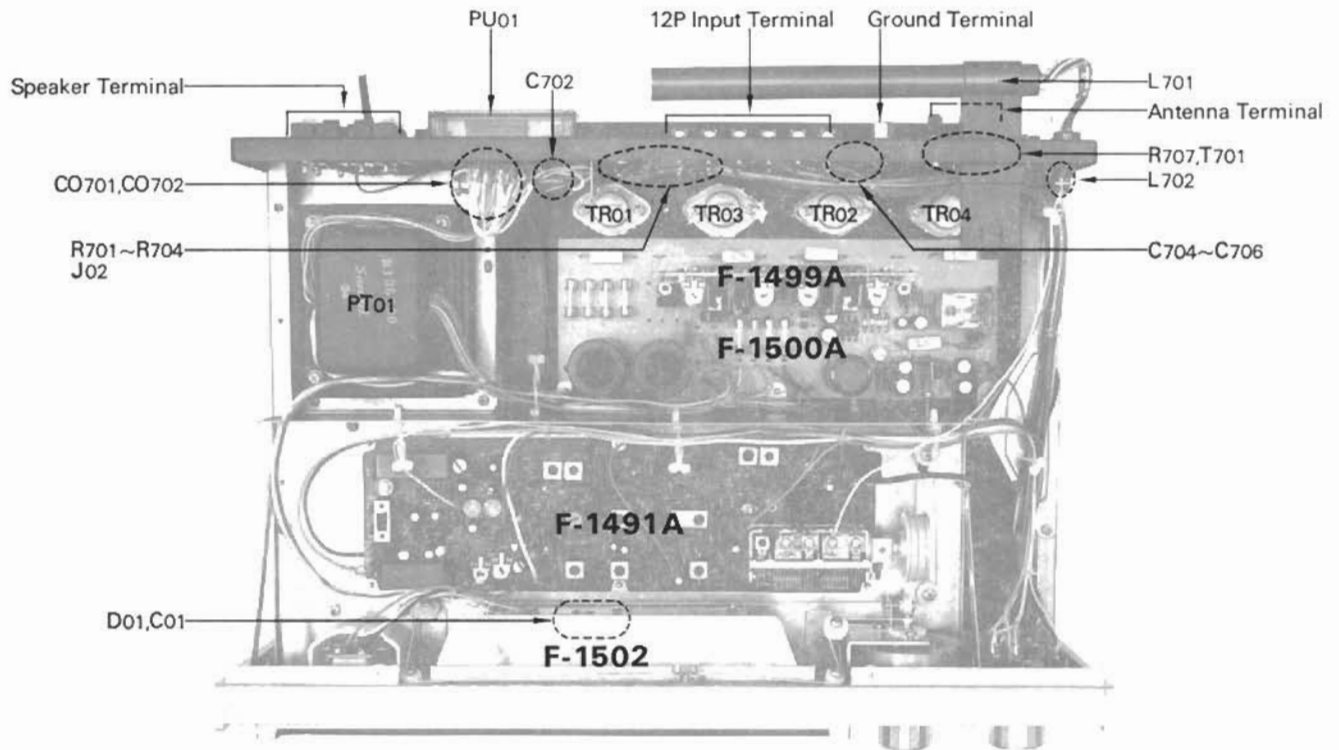
Parts No.	Stock No.	Description
64	0420040	Fuse Type Lamp (7V 300mA)
65	7726050	Meter Lamp Ass'y
66	4300610	Signal Meter
67	0400300	Lead Type Lamp (7V 100mA), STEREO Indicator
68	5109122	Binding Head Tapping Screw, M3×8
69	5109122	Binding Head Tapping Screw, M3×8
70	0420040	Fuse Type Lamp (7V 300mA)
71	5058150	Illuminator Box
72	5109122	Binding Head Tapping Screw, M3×8
73	5109122	Binding Head Tapping Screw, M3×8
74	5269350	P.C.B Holder
75	5101161	Binding Head Screw, M4×6
76	5101161	Binding Head Screw, M4×6
77	5101165	Binding Head Screw, M4×14
78	5516911	Rubber Foot
79	5101165	Binding Head Screw, M4×14
80	5516911	Rubber Foot
81	5058120	Bottom Plate





- ① ~ ③①
- ③② ~ ③③
- ③④ ~ ③⑤

6-6. Other Parts (Top Side)

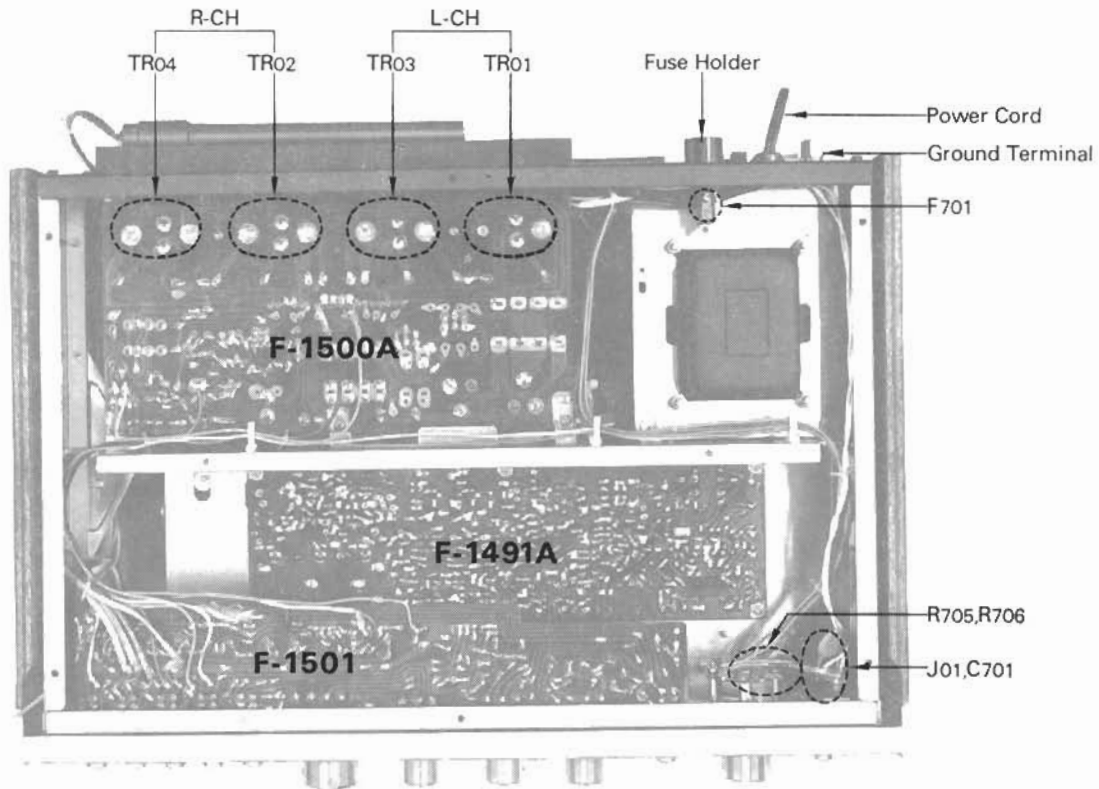


Top Side Parts List

Parts No.	Stock No.	Description		
D01	0310880	10D05	Diode	
C01	0501331	330 μ F	10V	E.C.
C702	0659802	0.0047 μ F	1.4KV	M.C.
C704	0657473	0.047 μ F	50V	C.C.
C705	0657473	0.047 μ F		
C706	0657473	0.047 μ F		
R701	0107104	100k Ω	$\pm 5\%$	$\frac{1}{4}$ W C.R.
R702	0107104	100k Ω		
R703	0107184	180k Ω		
R704	0107184	180k Ω		
R707	0107122	1.2k Ω		
L701	4200610	Bar Antenna		
L702	4900100	Micro-Inductor		

Parts No.	Stock No.	Description	
T701	4290021	75 Ω : 300 Ω FM Balun	
PT01	4001380	Power Transformer	
PU01	2410090	Voltage Selector, Plug	
		Voltage Selector, Socket	
J02	2430040	DIN Connector	
CO701, 702	2450040	AC Outlet	
	2200360	12P Input Terminal	
	2290100	4P Speaker Terminal	
	2210190	Antenna Terminal	
	2230050	Ground Terminal	

6-7. Other Parts (Bottom Side)



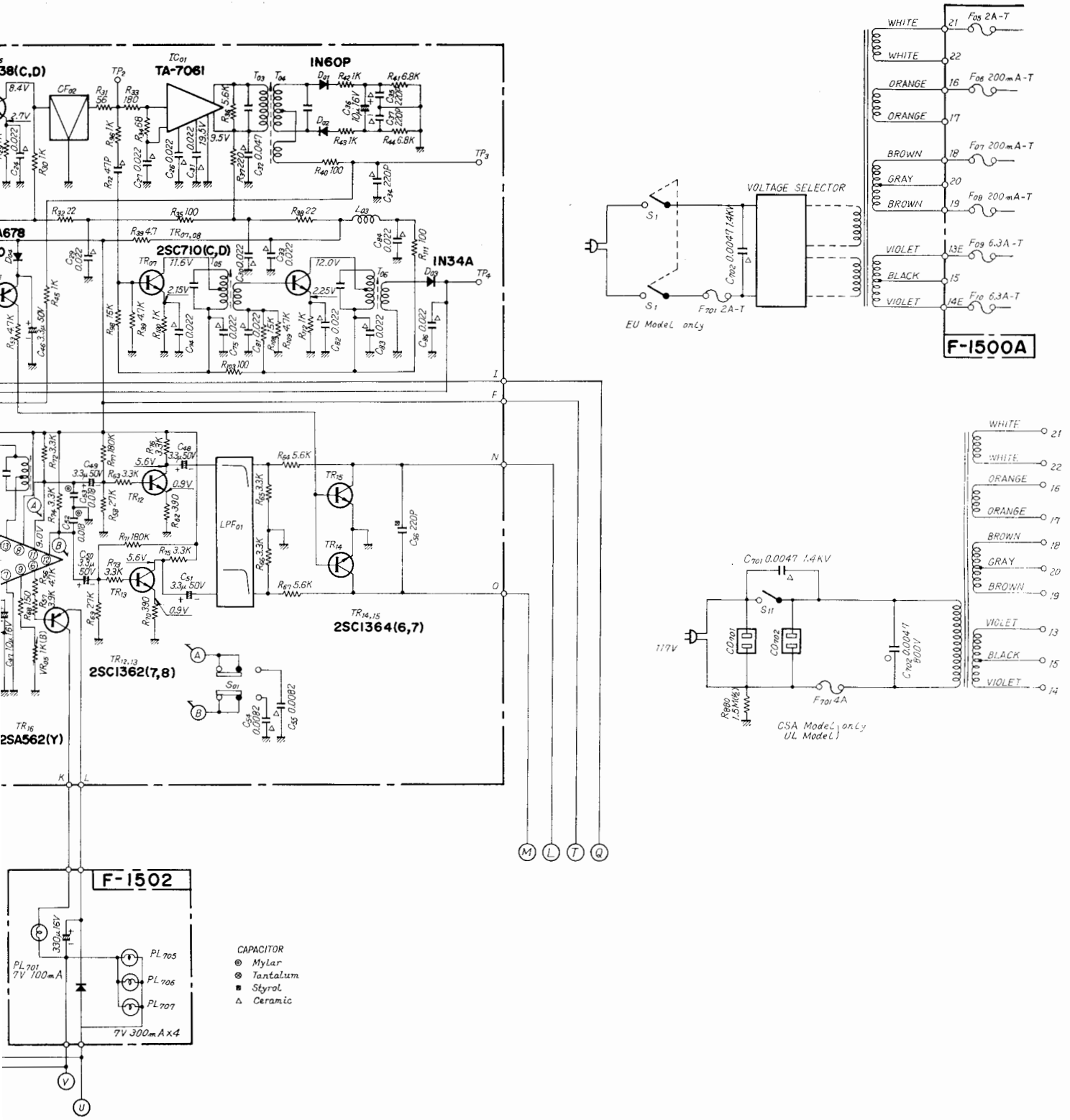
Bottom Side Parts List

Parts No.	Stock No.	Description
TR01	0305630-2	2SC1030 (A, B, C)
TR02	0305630-2	2SC1030 (A, B, C)
TR03	0305630-2	2SC1030 (A, B, C)
TR04	0305630-2	2SC1030 (A, B, C)
		Transistor
C701	0659802	0.0047 μ F 1.4KV M.C.
R705	0171471	470 Ω
R706	0171471	470 Ω
		$\pm 10\%$ 1 W Ce.R.
F701	{ 0431270	4A Power Fuse (100~117V)
	{ 0431250	2.5A Power Fuse (200~240V)
	2300060	Fuse Holder
J01	2430020	Headphone Jack
	3800020	Power Cord
	2230050	Ground Terminal

Abbreviations

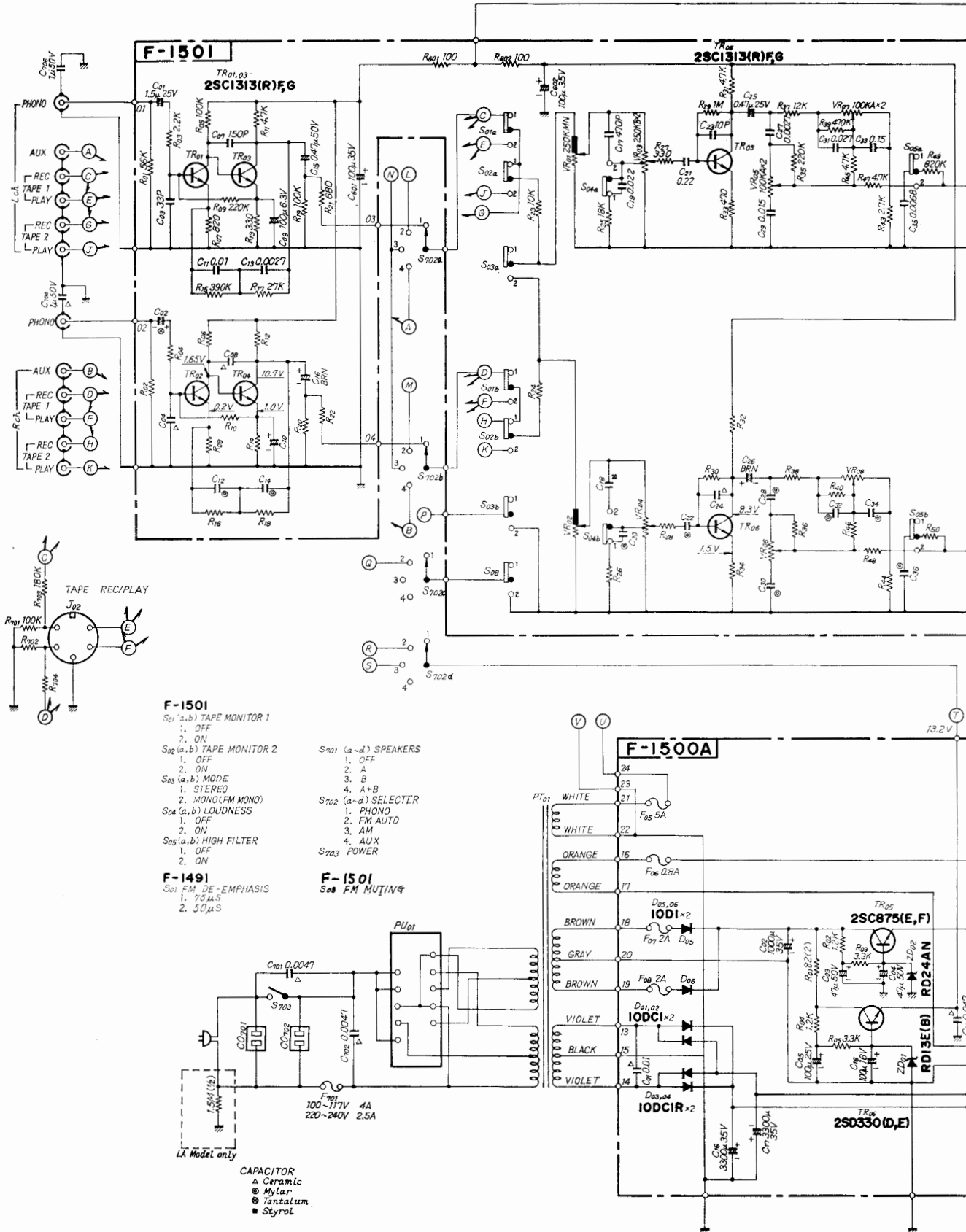
C.R.	: Carbon Resistor	BP.E.C.:	Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor	C.C.	: Ceramic Capacitor
Ce.R.	: Cement Resistor	Mi.C.	: Mica Capacitor
M.R.	: Metallized Film Resistor	O.C.	: Oil Capacitor
M.C.	: Mylar Capacitor	P.C.	: Polystyrene Capacitor
E.C.	: Electrolytic Capacitor	T.C.	: Tantalum Capacitor

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

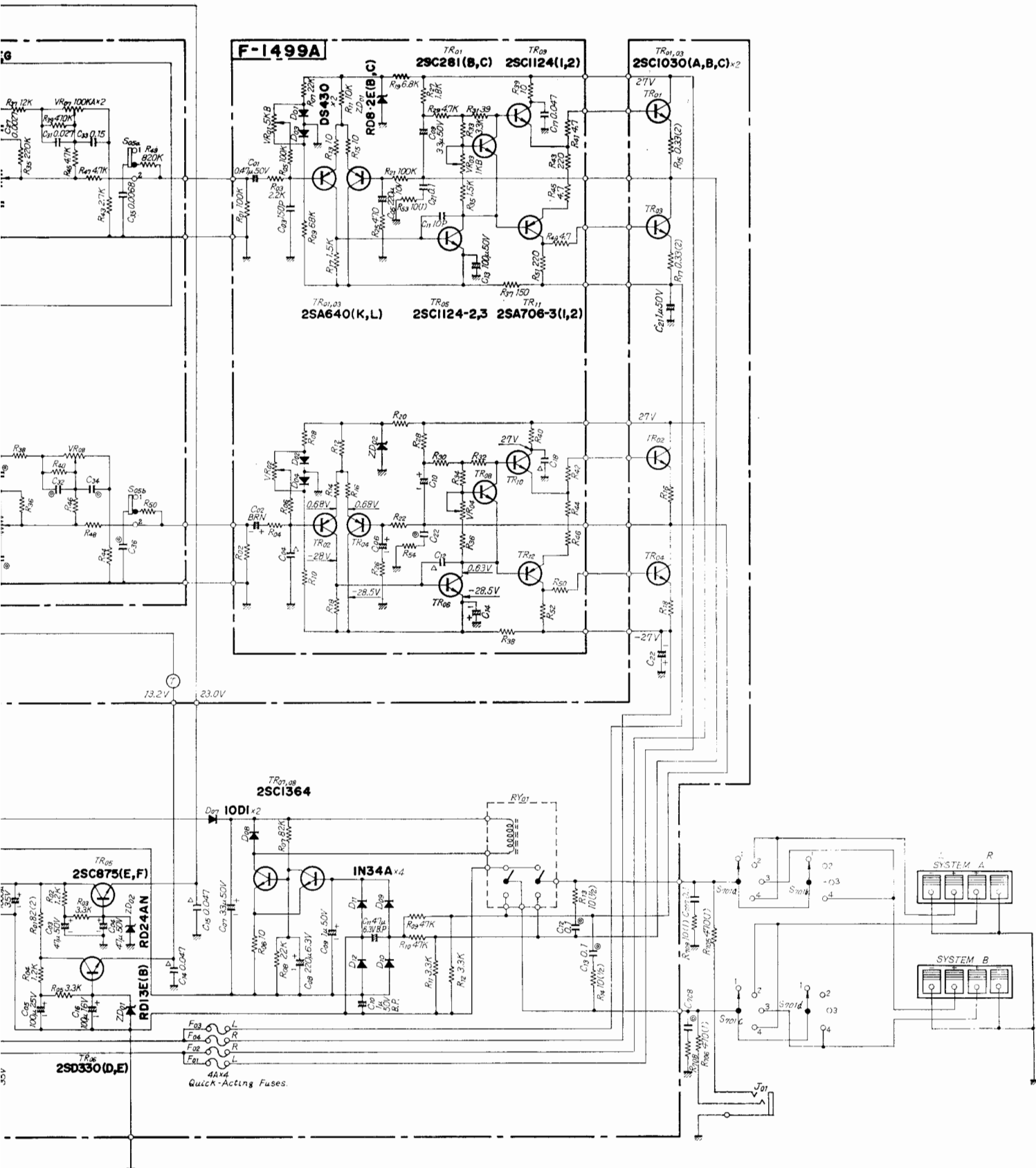


8. SCHEMATIC DIAGRAM OF AUDIO SECTION

* Design a

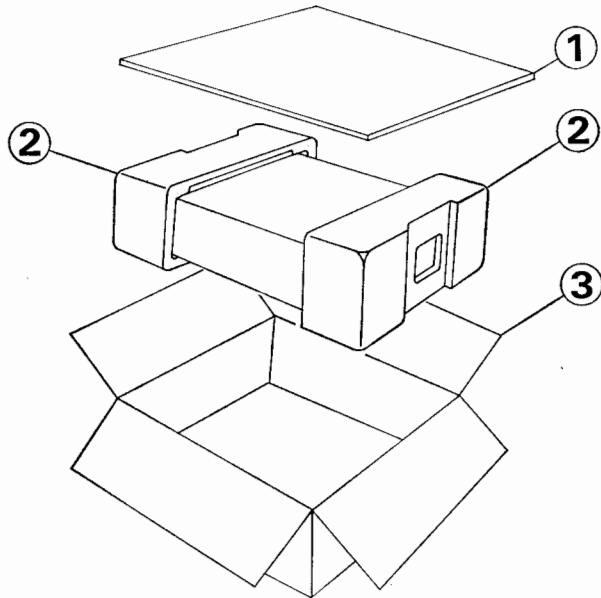


* Design and specifications subject to change without notice for improvements.



9. PACKING LIST

Parts No.	Stock No.	Description
1	9017330	Inner Packing (upper)
2	9027770	Stylofoam Packing
3	9007530	Carton Case



10. ACCESSORY PARTS LIST

Parts No.	Stock No.	Description
9406020		Polishing Cloth
0433630		4A Quick Acting Fuse
9207900		Operating Instructions
9227900		Operating Instruction Sheet

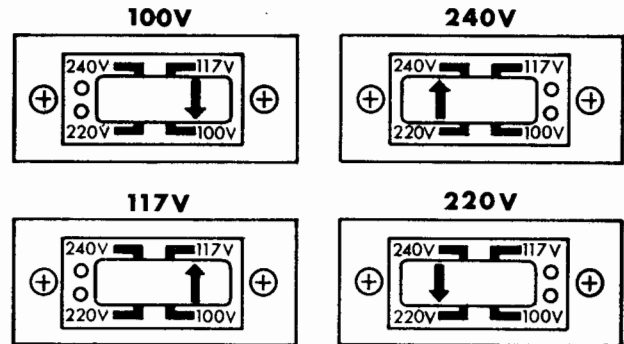
11. MAINTENANCE

11-1. Voltage Adjustment

The Voltage Selector on the rear panel enables you to operate at correct voltage in any areas. The voltage has been preadjusted at the factory, but can be easily changed as follows, in compliance with to the line voltage using in your area.

- 1) Remove the two screws securing the name plate on the unit's rear panel, then remove the name plate.
- 2) Unplug the Voltage Selector plug once, and reset it so that the arrow mark on it faces the correct voltage indication. Also change the power fuse when the power supply voltage has changed. For 100/117 volt operation, use a 4-ampere glass-tubed fuse. For 220/240 volt operation, use a 2.5-ampere one.

Note: The Voltage Selector can be used to eliminate the trouble caused by the considerable voltage fluctuation. In this case, it should be set to the peak voltage.





SANSUI ELECTRIC CO., LTD.

14-1, 2-chome, Izumi, Suginami-ku, Tokyo 168, Japan.
TELEPHONE: (03) 323-1111/TELEX: 232-2076