

SERVICE MANUAL

AM/FM STEREO RECEIVER **SANSUI 551**



Sansui

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the 551 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

CONTINUOUS RMS POWER OUTPUT	16 Watts per channel × 2 (both channels driven)
LOAD IMPEDANCE	8Ω
POWER BAND	20 to 20,000Hz
TOTAL HARMONIC DISTORTION	less than 0.8% (from AUX)
Music power (IHF)	70W (4Ω 1,000Hz) 50W (8Ω 1,000Hz)
Continuous rms power output	17+17W (8Ω 1,000Hz)
INTERMODULATION DISTORTION (at rated power output, 70Hz : 7,000Hz = 4 : 1 SMPTE method)	
OVERALL (from AUX)	less than 0.8%
FREQUENCY RESPONSE (at 1 Watt power output)	
OVERALL (from AUX)	15 to 30,000Hz $\begin{matrix} +1.0\text{dB} \\ -2.0\text{dB} \end{matrix}$
EQUALIZATION (at TAPE REC output)	RIAA Curve (30 to 15,000Hz ±1.5dB)
DAMPING FACTOR	20 (8Ω)
CHANNEL SEPARATION (1,000Hz, at rated power output)	
PHONO	better than 45dB
AUX	better than 45dB
HUM AND NOISE (IHF)	
PHONO	better than 70dB
AUX	better than 80dB
INPUT SENSITIVITY AND IMPEDANCE (1,000Hz, for rated power output)	
PHONO	2.5mV 50kΩ (Max. input capability: 90mV at 0.5% distortion)
AUX	150mV 50kΩ
TAPE	
PLAY Pin Jacks	150mV 50kΩ
REC/PLAY DIN Socket	150mV 50kΩ
RECORDING OUTPUT	
TAPE	
REC Pin Jacks	150mV
REC/PLAY DIN Socket	30mV
SWITCHES AND CONTROLS	
BASS	+10dB, -10dB at 50Hz
TREBLE	+10dB, -10dB at 10,000Hz
LOUDNESS	+10dB at 50Hz +8dB at 10,000Hz
HIGH FILTER	-10dB at 10,000Hz (6dB/oct)

TUNER SECTION

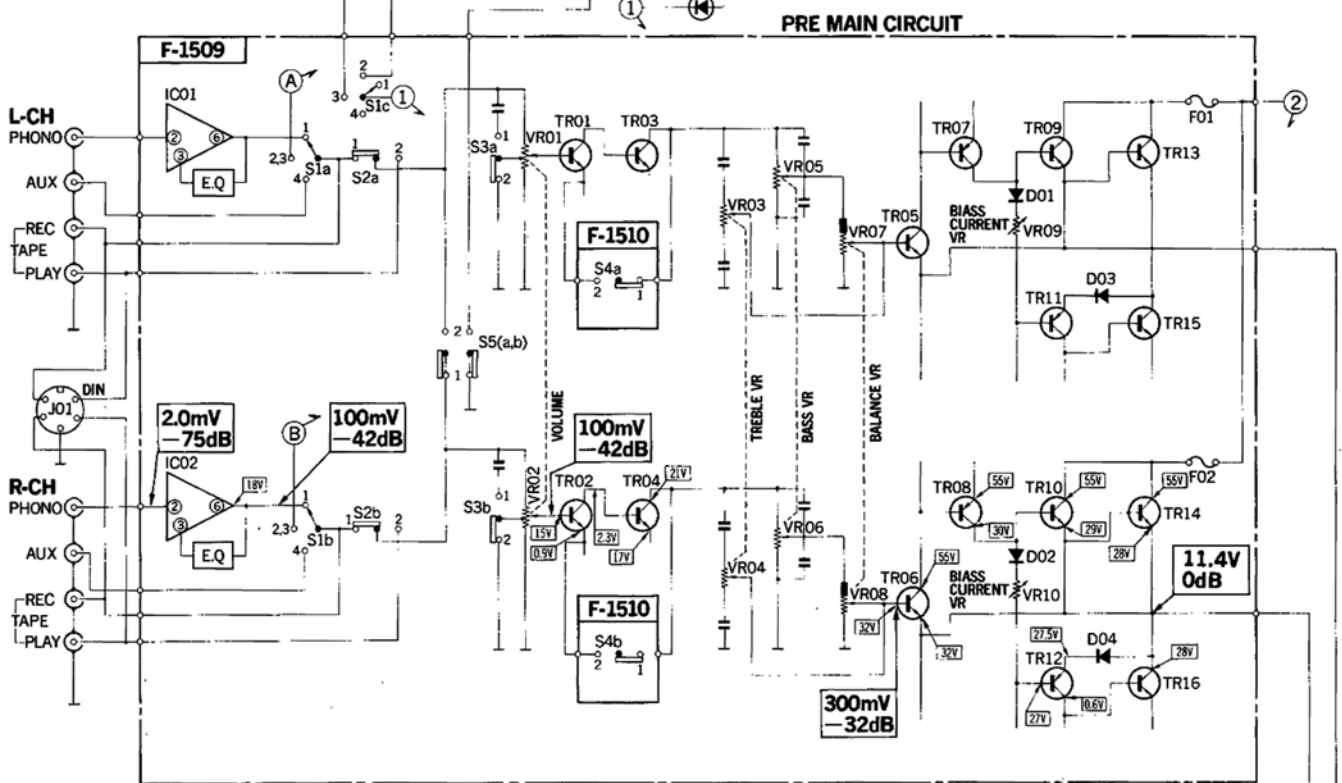
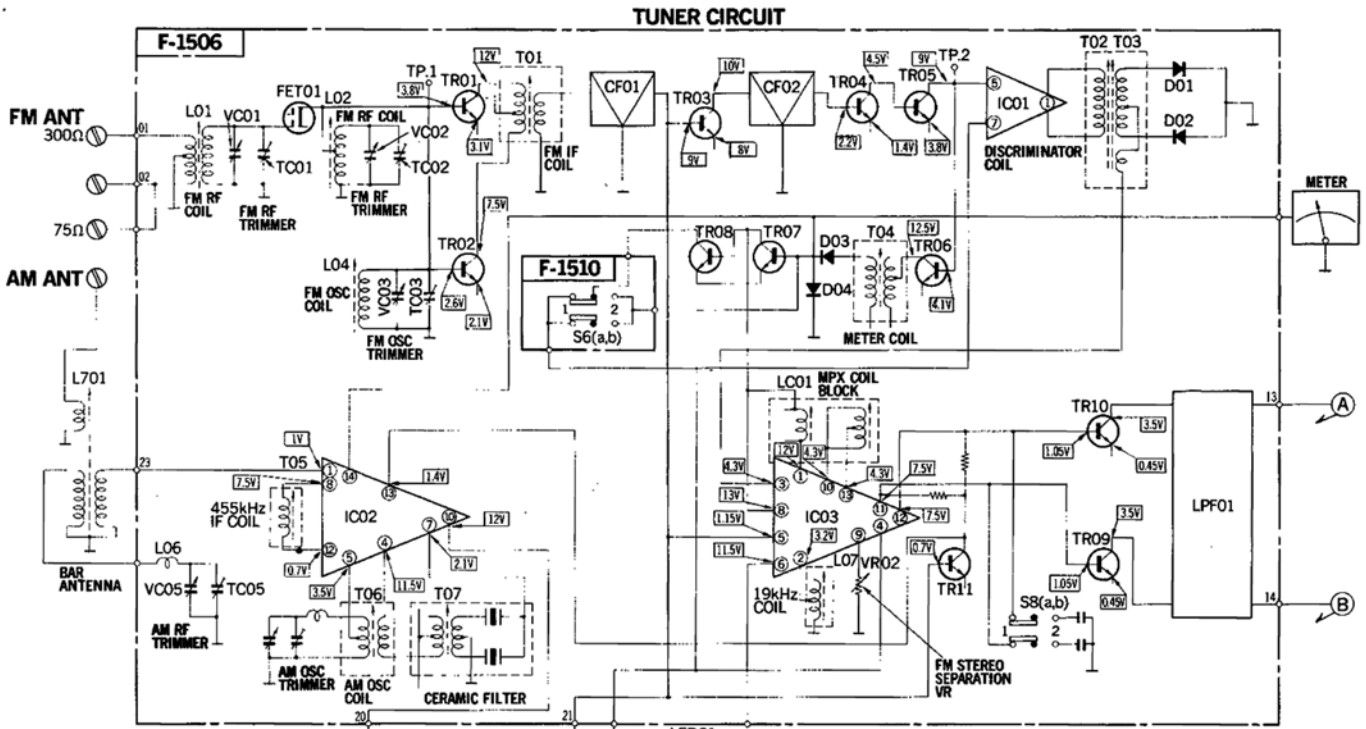
<FM>	
TUNING RANGE	88 to 108MHz
SENSITIVITY (IHF)	2.5μV
TOTAL HARMONIC DISTORTION	
MONO	0.4%
STEREO	0.7%
SIGNAL TO NOISE RATIO	better than 65dB
SELECTIVITY	better than 60dB
CAPTURE RATIO	2.5dB
IMAGE REJECTION	better than 55dB at 98MHz
IF REJECTION	better than 75dB at 98MHz
SPURIOUS RESPONSE REJECTION	better than 65dB at 98MHz
SPURIOUS RADIATION	less than 34dB
STEREO SEPARATION	better than 40dB at 1kHz
FREQUENCY RESPONSE	30 to 15,000Hz
ANTENNA INPUT IMPEDANCE	300Ω balanced, 75Ω unbalanced
<AM>	
TUNING RANGE	535 to 1,605kHz
SENSITIVITY (Bar Antenna)	53dB/m at 1MHz
SELECTIVITY	better than 30dB at 1MHz
IMAGE FREQUENCY REJECTION	better than 80dB/m at 1MHz
IF REJECTION	better than 80dB/m at 1MHz

OTHERS

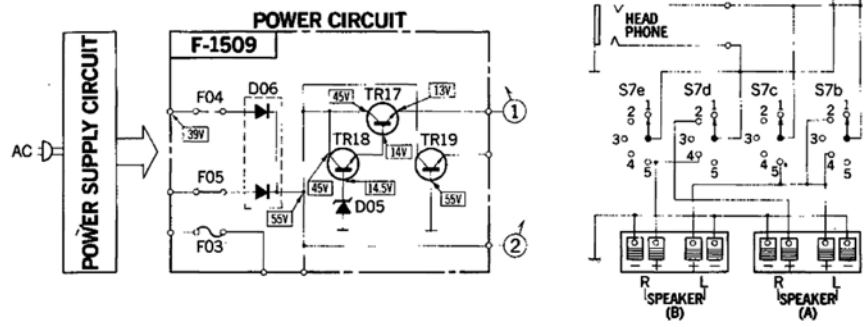
SEMICONDUCTORS	
TRANSISTORS	30
DIODES	10
FET	1
ICs	5
ZENER DIODE	1
Light Emitted Diode (LED)	1
POWER REQUIREMENTS	
VOLTAGE	100, 117, 220, 240V 50/60Hz
CONSUMPTION	60W (rated), 140W (max.)
DIMENSIONS	424mm (16 $\frac{3}{4}$ ") W, 135mm (5 $\frac{3}{8}$ ") H, 285mm (11 $\frac{1}{4}$ ") D
WEIGHT	7.7kg (17.0 lbs.) net 10.1kg (22.3 lbs.) Packed

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

2. BLOCK DIAGRAM AND VALUE OF EACH LEVEL



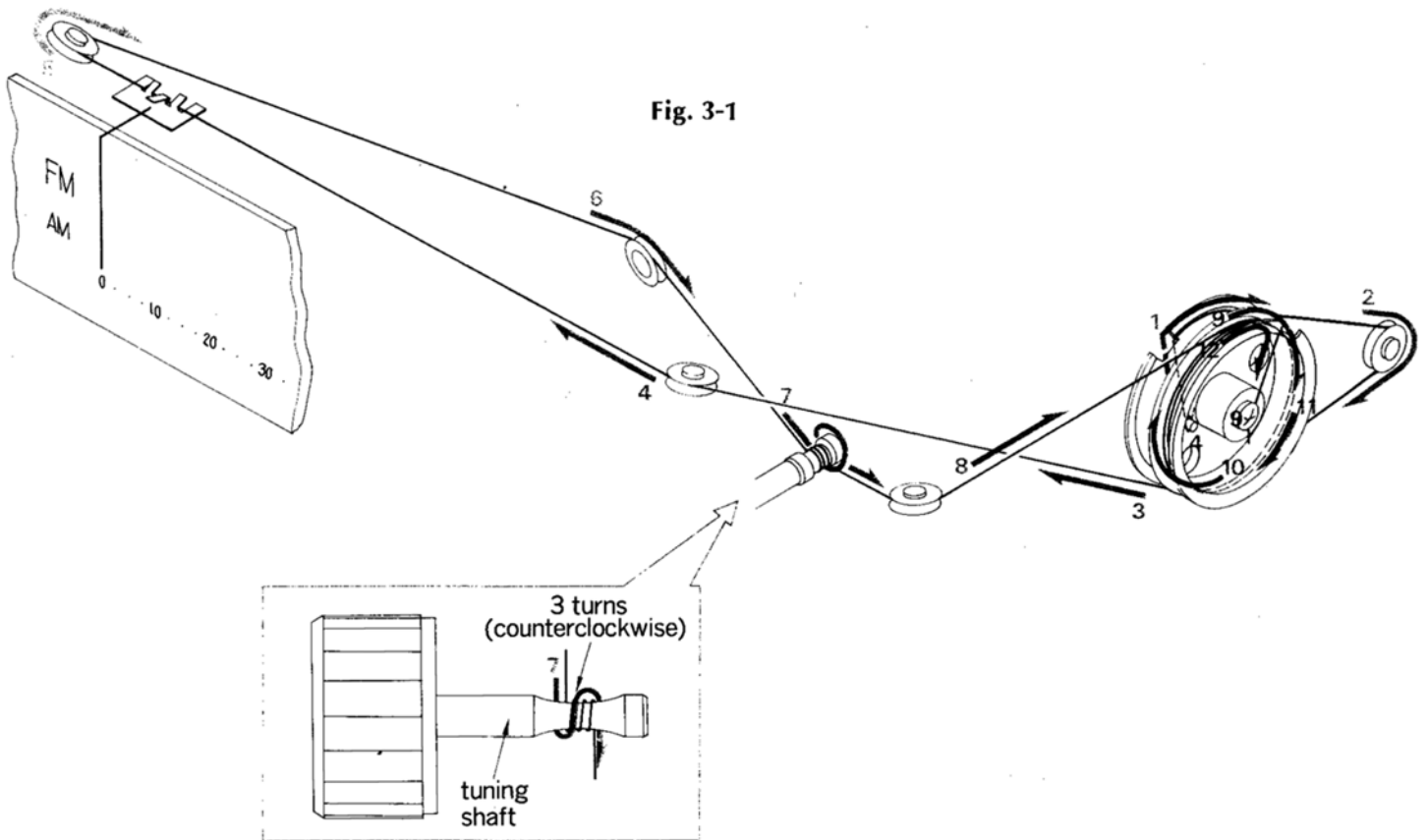
- S1(a-c): SELECTOR
 1. PHONO
 2. FM AUTO
 3. AM
 4. AUX
- S2(a, b): TAPE MONITOR
 1. OFF
 2. ON
- S3(a, b): LOUDNESS
 1. ON
 2. OFF
- S4(a, b): HIGH FILTER
 1. OFF
 2. ON
- S5(a, b): MODE
 1. STEREO
 2. MONO
- S6(a, b): FM MUTING
 1. OFF
 2. ON
- S7(a-e): POWER, SPEAKERS
 1. POWER OFF
 2. SPEAKER(A)
 3. SPEAKER OFF(HEAD PHONE)
 4. SPEAKER(B)
 5. SPEAKER(A+B)
- S8(a,b): FM DE-EMPHASIS
 1. 50μS
 2. 75μS



3. THREADING OF DIAL CORD

If a dial cord is cut off or slips, replace it by following procedures. As 551 uses 0.6mmφ cord, please replace it with the same type certainly.

*The length of dial cord is approximately 170cm (66 inch).



3-1. Threading of Dial Cord

Thread dial cord in numerical order from 1 to 12 as shown in Fig. 3-1.

- 1) Close the variable capacitor completely (Max. capacitance) and tie cord to number ④ screw of the dial pulley.
- 2) Thread cord in the direction of arrow from 1 to 6, then wind cord three turns around the tuning shaft counterclockwise.
- 3) Thread cord in the direction of arrow from 7 to 8, then wind it two turns on the dial pulley from 9 to 12.
- 4) After 12, 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.

Stock No.	Description
6036050	Dial Cord (0.6mmφ)

3-2. 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.

*Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

Conditions of Level Measuring

*Value of each level in block diagram was measured by the followings.

1. MASTER VOLUME control Maximum
2. BASS, TREBLE, BALANCE volume control Center
3. Input PHONO 2.0mV 1kHz Sine Wave
AUX 100mV 1kHz Sine Wave

(Output impedance of 600Ω at an audio oscillator)

4. Output 11.4V (16W) 8Ω

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

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 Osc
 Distortion Meter Dist. Meter

Others

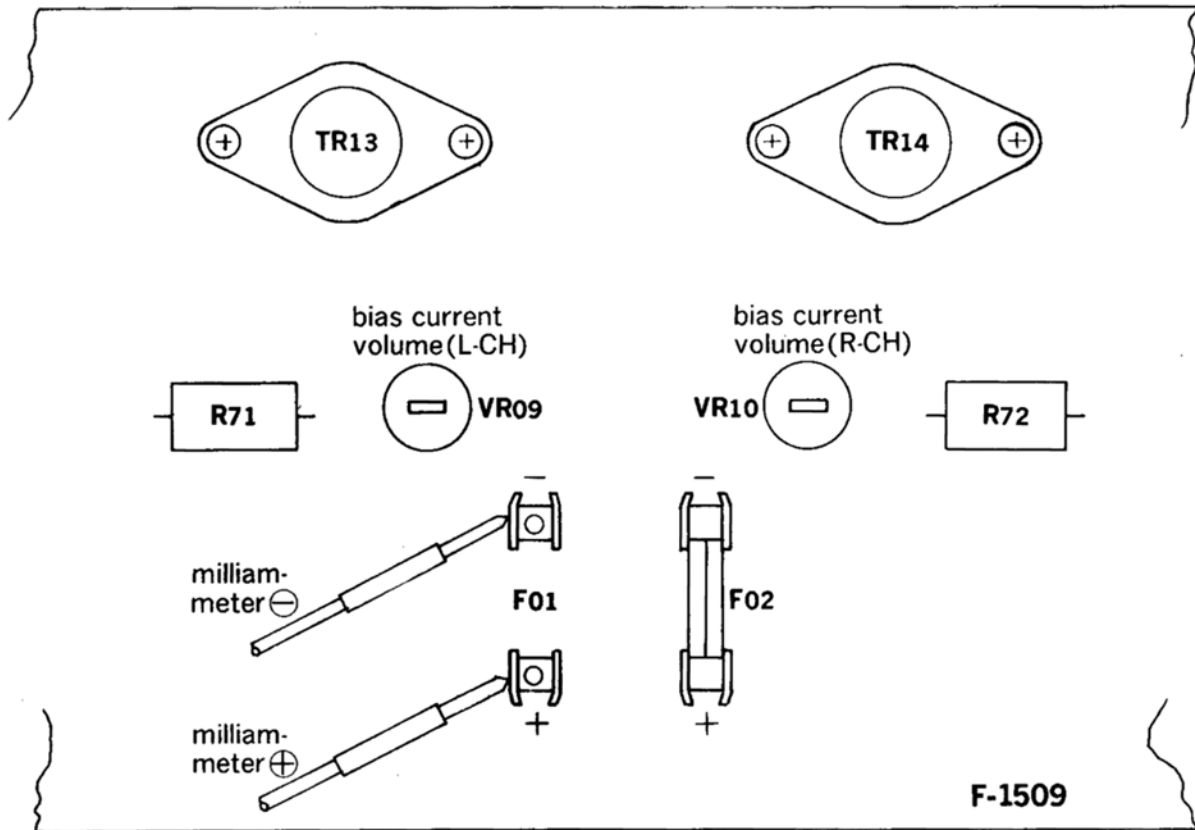
Clockwise CW.
 Counterclockwise..... CCW.
 Antenna ANT.
 Modulation..... MOD.

4-1. Driver Circuit Board Adjustment (See Fig. 4-1)

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

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	Bias current L-ch	DC milliammeter	F-1509 F01 (Fig. 4-1)	F-1509 VR09 (Fig. 4-1)	20±1mA	◦ Step down meter's range accordingly
2	Bias current R-ch	DC milliammeter	F-1509 F02 (Fig. 4-1)	F-1509 VR10 (Fig. 4-1)	20±1mA	◦ Change lead's polarity if meter swings backward

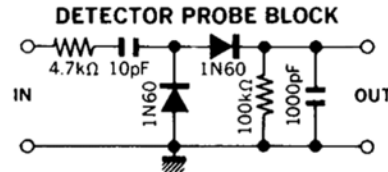
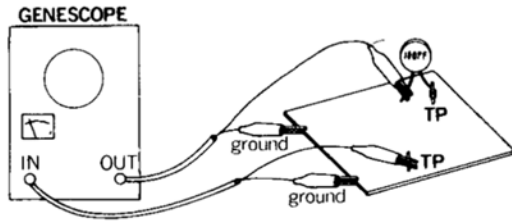
Fig. 4-1



4-2. FM IF Alignment (See Figs. 4-5 and 4-6 on page 8)

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

6. ConnectionConnect the output of genescope to TP. 1 through 100pF ceramic capacitor.
 7. FM Muting SwitchOFF (Push in)

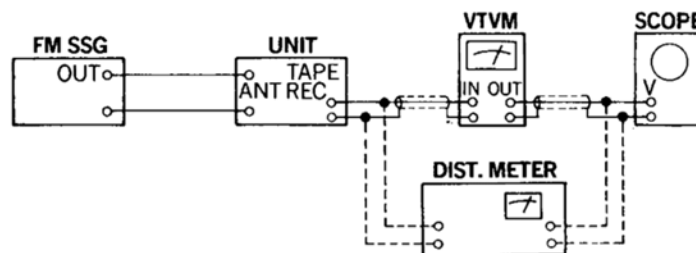


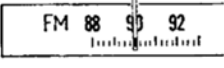
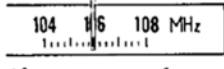
STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	IF Coil	Output 65dB Genescope	TP. 2 (Fig. 4-6)	TP. 2 (Fig. 4-6) Use Detector Probe	T01 (Fig. 4-6)	Max. IF waveform 1 as Fig. 4-5	
2	Discriminator Coil	Output 70dB Genescope	TP. 1 (Fig. 4-6)	TP. 3 (Fig. 4-6) Direct from Genescope	T02 (Fig. 4-6) T03 (Fig. 4-6)	Max. linearity of S curve Set the center of S curve to of waveform 1 as Fig. 4-5.	
3	Meter Coil	Output 70dB Genescope	TP. 1 (Fig. 4-6)	TP. 4 (Fig. 4-6) Direct from Genescope	T04 (Fig. 4-6)	Max. IF waveform 2 Set the center of waveform 2 to of waveform 1 as Fig. 4-5	

4-3. FM Dial Calibration, MONO Distortion and RF Alignment

(See Fig. 4-6 on page 8)

- Note:** 1. Selector.....FM AUTO
 2. Master VolumeMinimum
 3. Confirm start point of dial pointer before alignment.
 4. FM Muting switchOFF (Push in)

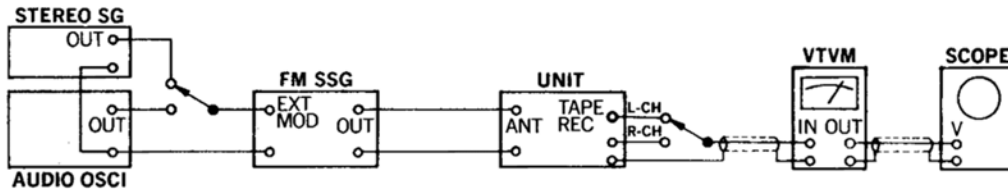


STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	90MHz Dial Calibration	90MHz ANT input 60dB 400Hz (100% MOD) FM SSG	FM ANT terminal 300Ω	REC OUT L or R-ch VTVM & Scope	L04 (Fig. 4-6)	Max. Output	◦ Set Dial or 90MHz 
2	106MHz Dial Calibration	106MHz ANT input 60dB 400Hz (100% MOD) FM SSG	Same as above	Same as above	TC03 (Fig. 4-6)	Max. Output	◦ Set Dial or 106MHz 
3	Confirm 90MHz Dial Calibration	Same as Step 2	Same as above	Same as above		Confirm 90MHz Dial Calibration	◦ If not, repeat from Step 1

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
4	Confirm 106MHz Dial Calibration	Same as Step 2	Same as Step 1	Same as Step 1		Confirm 106MHz Dial Calibration	◦ If not, repeat from Step 2
5	90MHz RF Adj.	90MHz ANT input 50dB 400Hz (100% MOD) FM SSG	Same as above	Same as above	L01 L02 (Fig. 4-6)	Max. Output	◦ Tune FM SSG (Max. indication of Signal Meter)
6	106MHz RF Adj.	106MHz ANT input 50dB 400Hz (100% MOD) FM SSG	Same as above	Same as above	TC01 TC02 (Fig. 4-6)	Max. Output	Same as above
7	Distortion	98MHz ANT input 60dB 400Hz (100% MOD) FM SSG	Same as above	REC OUT L or R-ch Dist. meter & Scope	T03 (Fig. 4-6)	Min. Distortion	◦ Turn core T02 Max. output

4-4. MPX Alignment (See Fig. 4-6 on page 8)

- Note:** 1. Selector.....FM AUTO
 2. Master VolumeMinimum
 3. FM Muting switchOFF (Push in)

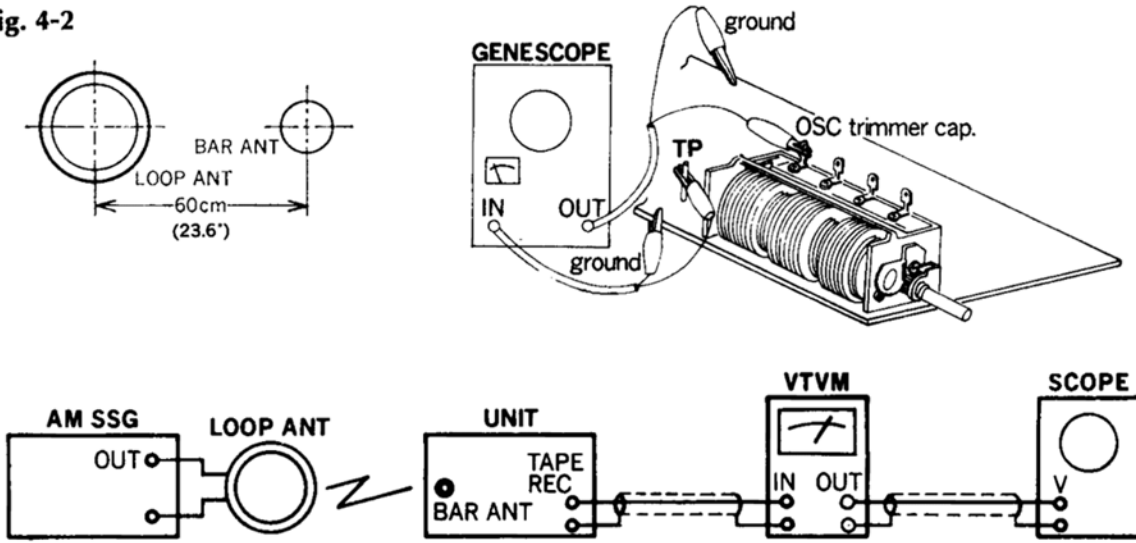


STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	19KHz Coil	98MHz ANT input 60dB FM SSG Pilot 19KHz (10% MOD) L-CH 1KHz (45% MOD) R-CH (0% MOD) Stereo SG	FM ANT terminal 300Ω	REC OUT L-ch VTVM & Scope	L07 (Fig. 4-6)	Max. Output	
2	Separation	Same as above	Same as above	REC OUT R-ch VTVM & Scope	VR02 (Fig. 4-6)	Min. Output	
3	Confirm 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 than 40dB, adjust VR02

4-5. AM IF, Dial Calibration, RF Alignment (See Figs. 4-3, 4-4 and 4-6 on page 8)

- 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. 4-2)

Fig. 4-2



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	IF coil	Output 70dB Genescope	OSC Trimmer Cap. TC04 (Fig. 4-6)	TP. 5 (Fig. 4-6)	T07 (Fig. 4-6)	Max. IF waveform as Fig. 4-3	
2	IF coil	Output 60dB Genescope	Same as above	Same as above	T05 (Fig. 4-6)	Max. IF waveform as Fig. 4-4	
3	Confirm IF coil	Same as above	Same as above	Same as above		Max. IF waveform as Fig. 4-3, 4-4	◦If not, repeat from Step 1 & 2
4	535KHz Dial Calibration	535KHz ANT input 86dB 1KHz (30% MOD) AM SSG Use loop ant.	Bar ant.	REC OUT L or R-ch VTVM & Scope	T06 (Fig. 4-6)	Max. Output	◦If broadcasting station is near, it might be used
5	1400KHz Dial Calibration	1400KHz ANT input 86dB 1KHz (30% MOD) AM SSG Use loop ant.	Bar ant.	Same as above	TC04 (Fig. 4-6)	Max. Output	◦Same as above
6	Confirm 535KHz Dial Calibration	Same as Step 4	Same as above	Same as above		Max. Output	◦If not, repeat from Step 4
7	Confirm 1000KHz Dial Calibration	1000KHz ANT input 86dB 1KHz (30% MOD) AM SSG Use loop ant.	Bar ant.	REC OUT L or R-ch VTVM & Scope		Max. Output	
8	Confirm 1400KHz Dial Calibration	Same as Step 5	Same as above	Same as above		Max. Output	◦If not, repeat from Step 5
9	600KHz RF Adj.	600KHz ANT input 76dB 1KHz (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 76dB 1KHz (30% MOD) AM SSG Use loop ant.	Same as above	Same as above	TC05 (Fig. 4-6)	Max. Output	

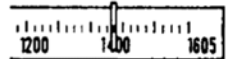
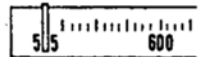


Fig. 4-3

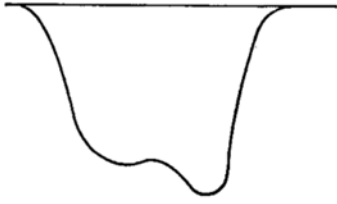


Fig. 4-4

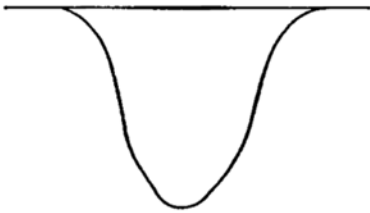


Fig. 4-5

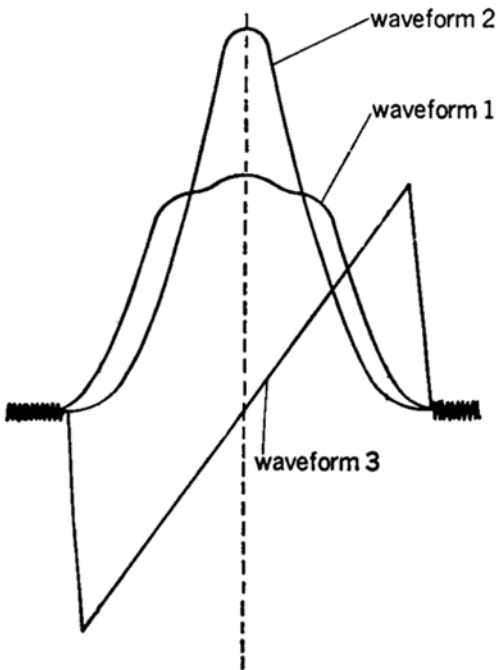
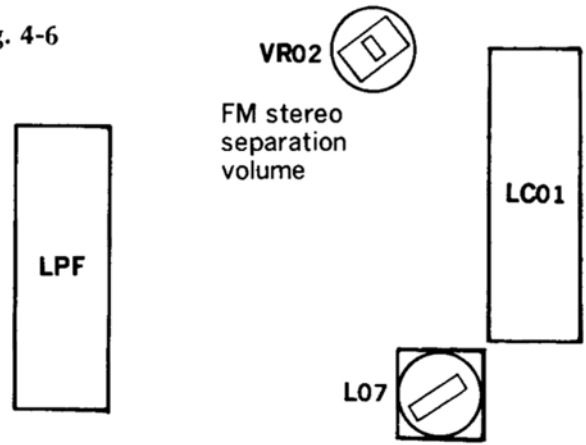
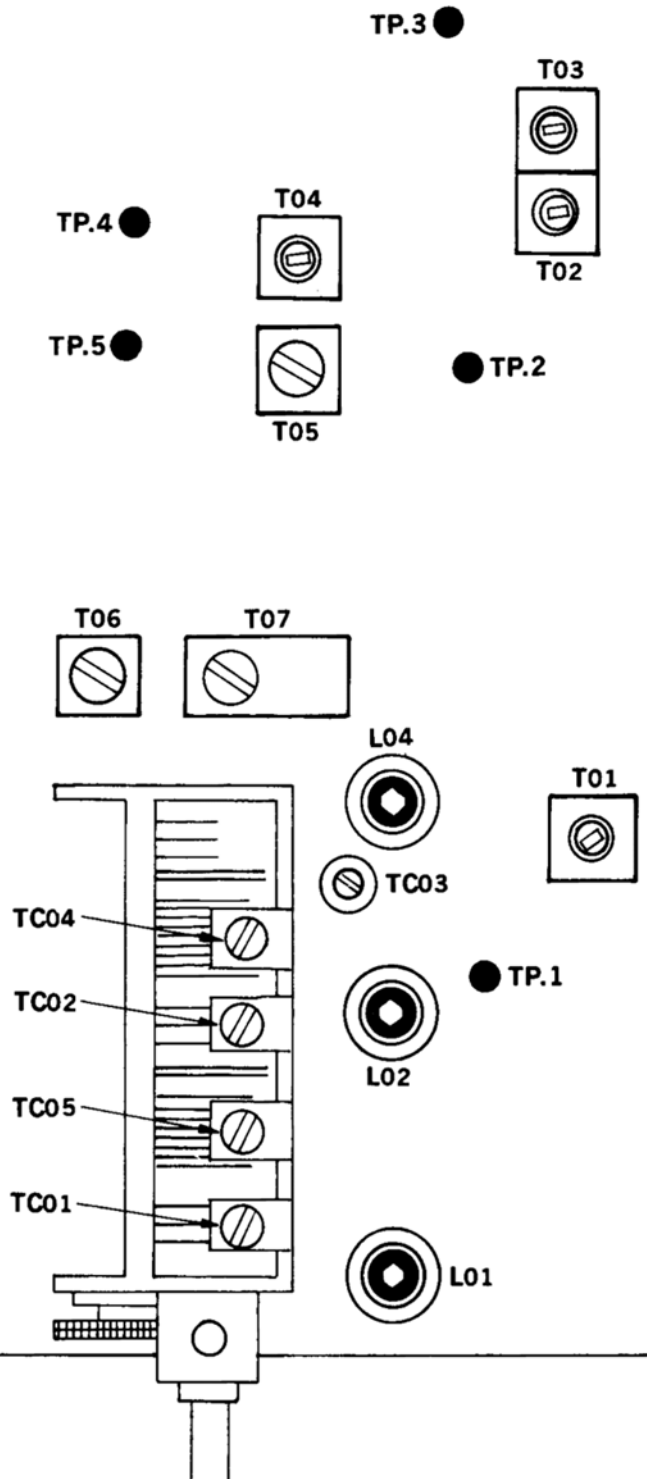


Fig. 4-6



F-1506



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, S11 3. Power fuse F701 opens 4. F03 on F-1509 opens 5. Defective power transformer, PT01 6. Imperfect contact of voltage selector, PU01
1-2. Each lamp lighted		
1) +52V not supplied to collector of TR13 (TR14) on F-1509		7. Quick acting fuse, F01 (F02) on F-1509 opens 8. F04, (F05) fuse on F-1509 opens 9. Defective D06 on F-1509
2) +12V not supplied emitter of TR17 on F-1509		10. Defective TR17 on F-1509 11. Defective TR18 on F-1509 12. Defective D05 on F-1509
3) +40V not supplied emitter of TR19 on F-1509		13. Defective TR19 on F-1509

5-2. Troubleshooting on Audio Section

1. Quick acting fuse opens

1-1. After replacement, the fuse opens again		14. Defective TR13 or TR15 (TR14 or TR16) on F-1509 15. Defective TR09 or TR11 (TR10 or TR12) on F-1509 16. Defective D01 (D02) on F-1509 17. Defective VOLUME VR09 (VR10) on F-1509
1-2. After replacement, fuse opens		
1) DC bias current adjustable		18. Set the bias current to +20mA by VR09 (VR10) on F-1509 (See Page 5)
2) DC bias current not adjustable		19. Defective VR09 (VR10), TR07 (TR08) on F-1509

2. AUX inoperative

2-1. Both channels inoperative		20. Defective power supply circuit section
2-2. One channel inoperative		21. Defective TR07 (TR08) on F-1509 22. Defective TR05 (TR06) on F-1509 23. Defective TR01, TR03 (TR02, TR04) on F-1509 24. Imperfect contact of accessory switch and volume 25. Imperfect contact of input terminal section

3. PHONO inoperative

3-1. Both channels inoperative		26. Defective power supply circuit section
--------------------------------	--	--

Symptom**Check Point****Cause & What to Do**

- 3-2. One channel inoperative
- 1) Reverse the output cords of L and R-ch from turntable
 - 1-1) Inoperative channel reverses
 - 27. Imperfect contact of the output cord
 - 28. Defective turntable
 - 1-2) Inoperative channel not reverses
 - 29. Defective IC01 (IC02) on F-1509
 - 30. Imperfect contact of SELECTOR switch, S1

5-3. Troubleshooting on Tuner Section**1. Both FM and AM inoperative (AUDIO section operative)**

- 1-1. Both channels inoperative
- 1) +12V not supplied to terminal 20, 21 on F-1509
 - 1. Imperfect contact of SELECTOR switch, S1c
 - 2. Defective power supply section
- 1-2. One channel of AM and FM inoperative ————— 3. Defective TR09 (TR10) on F-1509

2. FM Section**2-1. FM inoperative only**

- 1) Tune FM signal or FM broadcasting station
 - 1-1) Signal meter inoperative
 - 4. Defective FET01 on F-1506
 - 5. Defective TR01~TR05 on F-1506
 - 6. Defective CF01, CF02 on F-1506
 - 7. Defective L01~L04 on F-1506
 - 8. Defective T01 on F-1506
 - 1-2) Signal meter operative
 - 9. Defective IC01 on F-1506
 - 10. Defective T02, T03 on F-1506
 - 11. Defective D01, D02 on F-1606
- 2-2. Signal meter inoperative (FM broadcasting sound can be heard)
 - 12. Defective TR06 on F-1506
 - 13. Defective T04 on F-1506
 - 14. Defective D03, D04 on F-1506
 - 15. Defective signal meter, M01
- 2-3. FM muting inoperative ————— 16. Defective TR07, TR08 on F-1506
- 2-4. No channel separation on FM stereo broadcasting
 - *Confirm that SELECTOR switch is set to FM AUTO
 - 1) Indicator lamp not lighted
 - 17. Defective switch, S6
 - 18. Defective IC03 on F-1506
 - 19. Defective L07 on F-1506
 - 20. Defective LED01 on F-1506
 - 2) Indicator lamp lighted
 - 21. L07, out of adjustment on F-1506
 - 22. VR02, out of adjustment on F-1506

3. AM Section**3-1. AM inoperative**

- 1) Interstation noise does not increase by touching the terminal 23 on F-1506
 - 23. Defective IC02 on F-1506
 - 24. Defective T05 on F-1506
 - 25. Defective T06 on F-1506
 - 26. Defective TR11 on F-1506
 - 2) Interstation noise increases by touching the terminal 23 on F-1506
 - 27. Defective bar antenna
 - 28. Variable capacitor shorted
- 3-2. Signal meter inoperative ————— 29. Defective IC02 on F-1506
- 30. Defective signal meter, M01

6. PARTS LOCATIONS AND PARTS LISTS

6-1. F-1506 Tuner Circuit Board (Stock No. 7520830 Complete Circuit Board F-1506)

Parts List

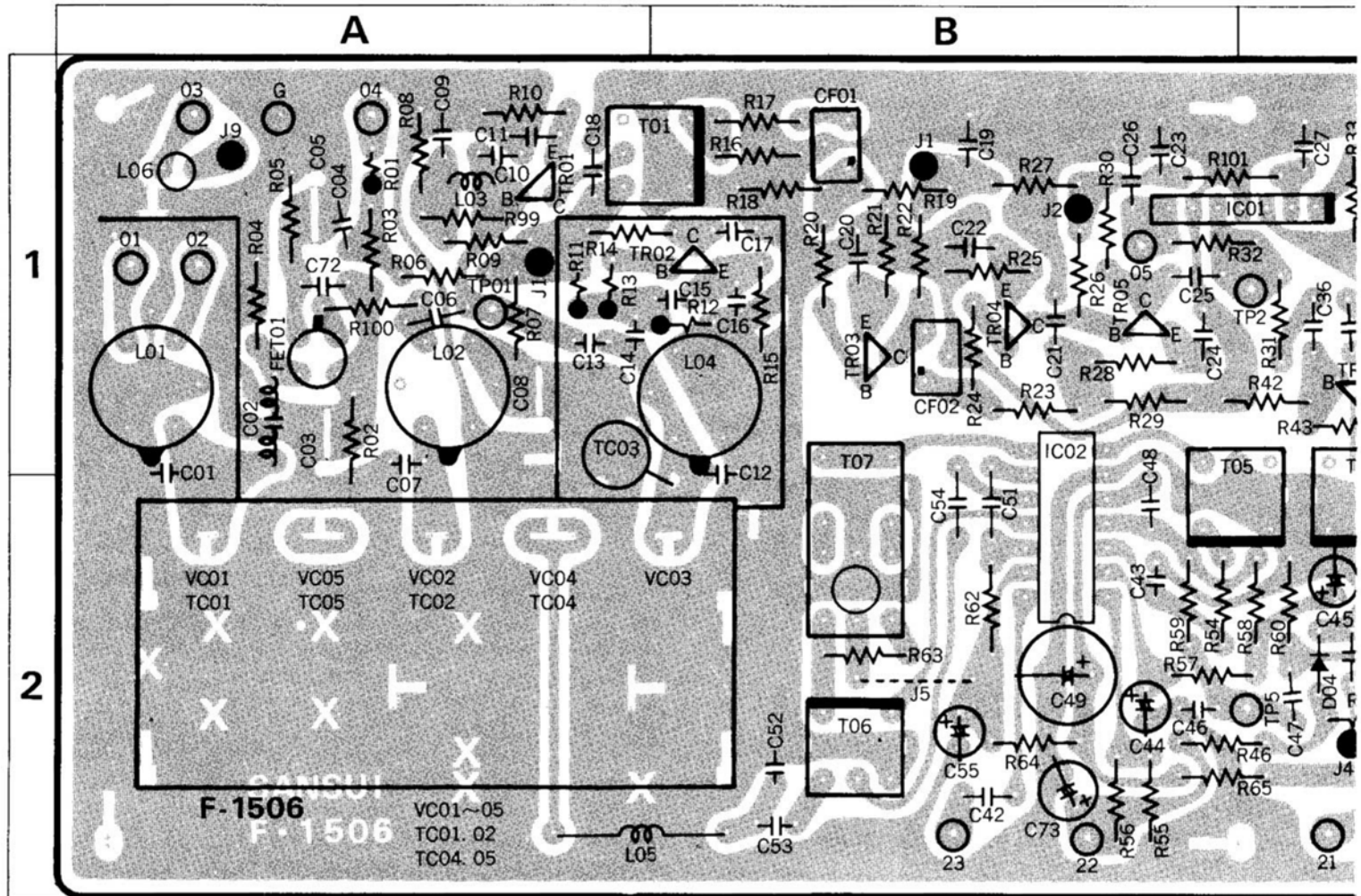
Parts No.	Stock No.	Description	Position
TR01	0305801	2SC1047B (G)	1 A
TR02	0305790, 1	2SC930 (C, D)	1 B
TR03	0306112, 3	2SC738 (C, D)	1 B
TR04	0306112, 3	2SC738 (C, D)	1 B
TR05	0306112, 3	2SC738 (C, D)	1 B
TR06	0306112, 3	2SC738 (C, D)	1 C
TR07	0305731, 2	2SC711 (E, F)	2 C
TR08	0305731, 2	2SC711 (E, F)	2 C
TR09	0306090, 1	2SC1312 (F, G)	2 D
TR10	0306090, 1	2SC1312 (F, G)	2 D
TR11	0305731, 2	2SC711 (E, F)	1 C
IC01	0360120	μ PC555H	1 B, C
IC02	0360150	HA1151	1, 2 B
IC03	0360080	HA1120	1 D
FET01	0370120, 1	3SK41 (L, K) FET	1 A
D01	0311060	1N60P	Diode 1 C 2 C 2 C
D02	0311060	1N60P	
D03	0311160	1S2473D	
D04	0340090	DS430	
T01	4235930	FM IF Coil	1 A, B
T02	4235750	FM Discriminator Coil	1 C
T03	4235760		1 C
T04	4235940		1, 2 C
T05	4230620	AM IF Coil	1, 2 B C
T06	4220550	AM OSC Coil	2 B
T07	0910180	Ceramic Filter	1, 2 B
L01	4200560	FM ANT Coil	1 A
L02	4210300	FM RF Coil	1 A
L03	4010120	Peaking Coil	1 A
L04	4220530	FM OSC Coil	1 A, B
L05	4290011	Peaking Coil	2 A, B
L06	4900100	Inductor Coil	1 A
L07	4240720	19kHz MPX Coil	
LC01	4240710	MPX Coil Block	2 D
CF01	0910150	Ceramic Filter	1 B
CF02	0910150		1 B
LPF01	0910220	Low Pass Filter	
VC	1220170	Variable Capacitor	1, 2 B
TC03	1230090	Trimmer Capacitor	1 A
VR02	1035070	1k Ω (B) FM STEREO Separation VR	1 D
C01	0669369	8.2pF	1 A
C02	0650102	1000pF	1 A
C03	0659015	2200pF	1 A
C04	0657223	22000pF	1 A
C05	0659015	2200pF	1 A
C06	{0669002 0669205}	{3.9pF 3.9pF}	1 A
C07	0669370	10pF	1 A
C08	0659015	2200pF	1 A
C09	0650102	1000pF	1 A

Parts No.	Stock No.	Description	Position
C10	{0661220 0669221}	{22pF 22pF}	1 A
C11	0657223	22000pF	1 A
C12	0669370	10pF	1 A, B
C13	0669200	1pF	1 A
C14	0669370	10pF	1 A
C15	0669370	10pF	1 B
C16	0669370	10pF	1 B
C17	0657223	22000pF	1 B
C18	0657223	22000pF	1 A
C19	0650102	1000pF	1 B
C20~28	0657223	1000pF	1 B, 1 C
C29, 30	0660101	100pF	1 C
C31	0512100	10 μ F 16V E.C.	1 C
C33, 34	0660101	100pF	1 C
C36~39	0657223	22000pF	1 C, 2 C
C40	0519103	0.47 μ F 50V E.C.	2 C
C42	0657223	22000pF 50V C.C.	2 C
C43	0601106	0.001 μ F 50V M.C.	2 B
C44	0515109	1 μ F	50V E.C. 2 C
C45	0515339	3.3 μ F	
C46	0601107	0.01 μ F	2 B
C47	0601477	0.047 μ F 50V M.C.	2 C
C48	0601107	0.01 μ F	2 B
C49	0512101	100 μ F 16V E.C.	2 B
C50	0601106	0.001 μ F 50V M.C.	1 C
C51	0657223	22000pF	2 B
C52	0669215	15pF	2 B
C53	0620361	360pF 50V P.C.	2 B
C54	0601107	0.01 μ F 50V M.C.	2 B
C55	0512100	10 μ F 16V E.C.	2 B
C56	0513479	4.7 μ F 25V E.C.	1 D
C57	0515109	1 μ F	1 D
C58	0515109	1 μ F	1, 2 D
C59	0600826	0.0082 μ F	2 D
C60	0600826	0.0082 μ F	2 D
C61	0512101	100 μ F 16V E.C.	1, 2 D
C62	0601108	0.1 μ F	2 D
C63	0601108	0.1 μ F	2 D
C70	0519101	1 μ F	2 D
C71	0519101	1 μ F	2 D
C72	0650102	1000pF 50V C.C.	1 A
C73	0510470	47 μ F 6.3V E.C.	2 B
C74	0601477	0.047 μ F 50V M.C.	2 C
C75	0513479	4.7 μ F 25V E.C.	1 D
C76	0600157	0.015 μ F	2 D
C77	0600157	0.015 μ F	2 D
C78	0513479	4.7 μ F 25V E.C.	1 D
C79	0629001	6800pF 50V P.C.	1 D
C81	0510101	100 μ F 6.3V E.C.	2 C

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

F-1506 Conductor Side



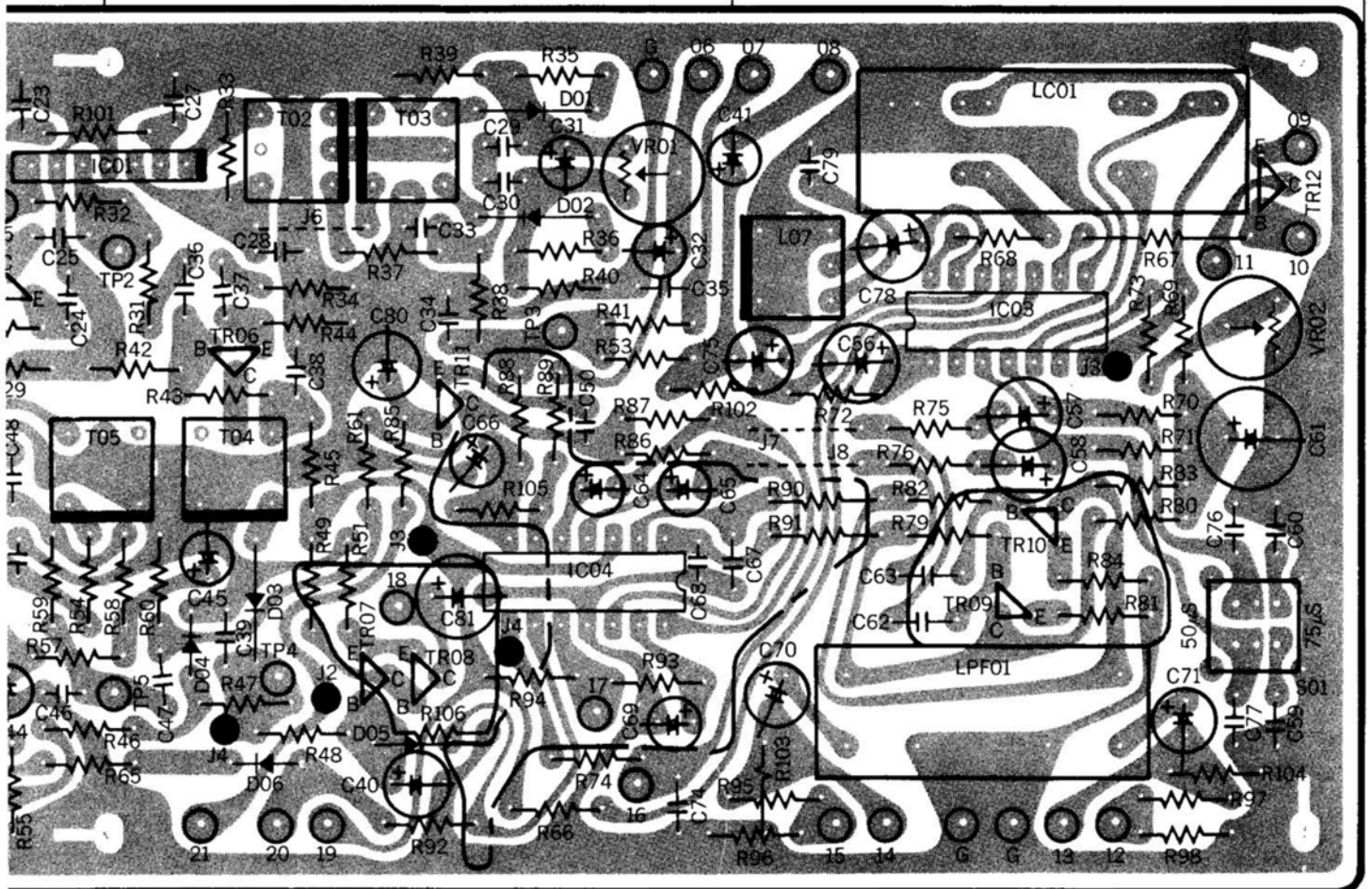
Parts List

Parts No.	Stock No.	Description	Position
R01	0113394	390kΩ	1 A
R02	0113103	10kΩ	1 A
R03	0113104	100kΩ	1 A
R04	0113101	100Ω (3SK41 (L))	1 A
R05	0113151	150Ω (3SK41 (K))	1 A
R06	0113105	1MΩ	1 A
R07	0113220	22Ω	1 A
R08	0113562	5.6kΩ	1 A
R09	0113123	12kΩ	1 A
R10	0113332	3.3kΩ	1 A
R11	0116822	8.2kΩ	1 A
R12	0116222	2.2kΩ	1 B
R13	0116220	22Ω	1 A
R14	0113222	2.2kΩ	1 A, B
R15	0113102	1kΩ	1 B
R16	0113471	470Ω	1 B
R17	0113221	220Ω	1 B
R18	0113392	3.9kΩ	1 B
R19	0113152	1.5kΩ	1 B
R20	0113101	100Ω	1 B
R21	0113182	1.8kΩ	1 B
R22	0113471	470Ω	1 B
R23	0113681	680Ω	1 B
R24	0113101	100Ω	1 B
R25	0113271	270Ω	1 B
R26	0113152	1.5kΩ	1 B
R27	0113220	22Ω	1 B

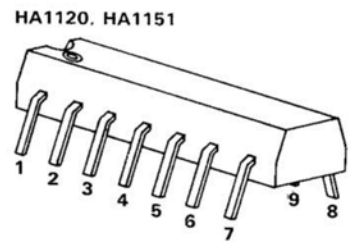
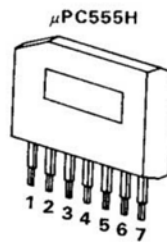
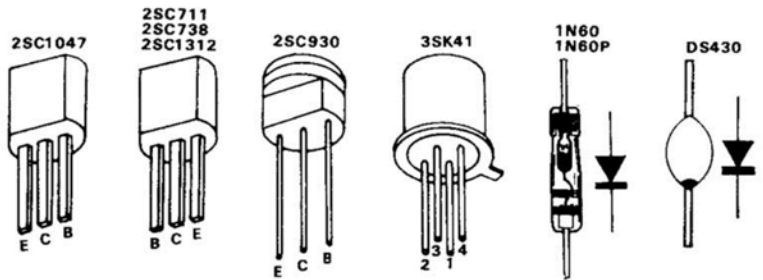
Parts No.	Stock No.	Description	Position
R28	0113271	270Ω	1 B
R29	0113391	390Ω	1 B
R30	0113681	680Ω	1 B
R31	0113332	3.3kΩ	1 C
R32	0113222	2.2kΩ	1 B, C
R33	0113682	6.8kΩ	1 C
R34	0113331	330Ω	1 C
R35	0113102	1kΩ	1 C
R36	0113102	1kΩ	1 C
R37	0113101	100Ω	1 C
R38	0113471	470Ω	1 C
R39	0113103	10kΩ	1 C
R40	0113103	10kΩ	1 C
R42	0113103	10kΩ	1 C
R43	0113183	18kΩ	1 C
R44	0113102	1kΩ	1 C
R45	0113101	100Ω	1, 2 C
R46	0113182	1.8kΩ	2 B, C
R47	0113682	6.8kΩ	2 C
R48	0113104	100kΩ	2 C
R49	0113104	100kΩ	2 C
R51	0113220	22Ω	2 C
R53	0113471	470Ω	1 C
R54	0113101	100Ω	2 B
R55	0113122	1.2kΩ	2 B
R56	0113152	1.5kΩ	2 B
R57	0113103	10kΩ	2 B, C

C

D



Parts No.	Stock No.	Description	Position
R58	0113103	10kΩ	2C
R59	0113182	1.8kΩ	2B
R60	0113473	47kΩ	2C
R61	0113153	15kΩ	1, 2C
R62	0113392	3.9kΩ	2B
R63	0113224	220kΩ	2B
R64	0113151	150Ω	2B
R65	0113101	100Ω	2B, C
R66	0113334	330kΩ	2C
R67	0171471	470Ω	1D
R68	0113151	150Ω	1D
R69	0113101	100Ω	1D
R70	0113332	3.3kΩ	1D
R71	0113332	3.3kΩ	2D
R72	0113472	4.7kΩ	1D
R73	0113151	150Ω	1D
R74	0113104	100kΩ	2C
R75	0113223	22kΩ	1D
R76	0113223	22kΩ	2D
R77	0113101	100Ω	
R78	0113101	100Ω	
R79	0113684	680kΩ	2D
R80	0113332	3.3kΩ	2D
R81	0113181	180Ω	2D
R82	0113684	680kΩ	2D
R83	0113332	3.3kΩ	2D
R84	0113181	180Ω	2D



Parts No.	Stock No.	Description	Position
R85	0113472	4.7kΩ	1, 2C
R86	0113563	56kΩ	2C
R87	0113563	56kΩ	1C
R99	0113101	100Ω	1A
R100	0113470	47Ω	1A
R101	0113220	22Ω	1B, C
R102	0113123	12kΩ	1C, D
R103	0113332	3.3kΩ	2D
R104	0113123	120kΩ	2C
R701	0113122	1.2kΩ	
S01	1110270	DE-EMPHASIS Switch	

6-2. F-1509 Pre. Main Amp & Power Supply Circuit Board

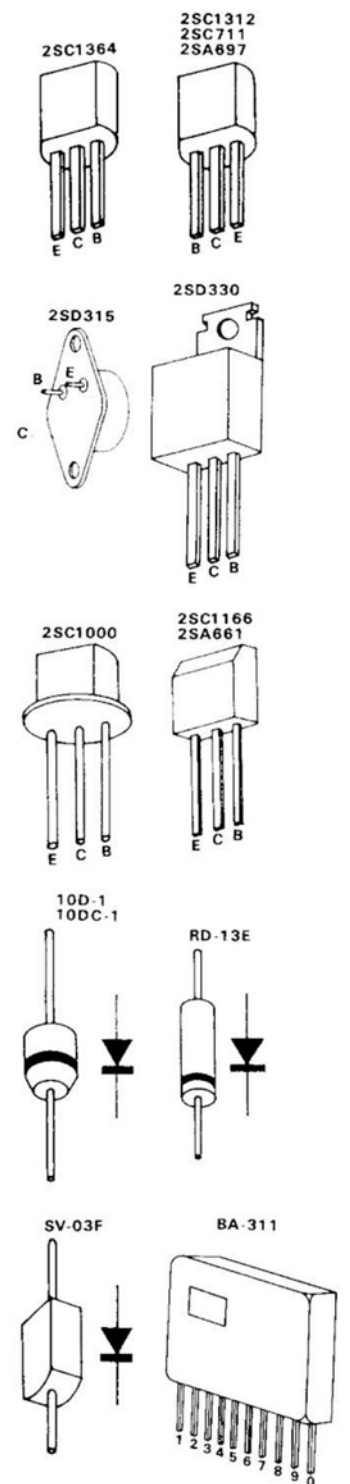
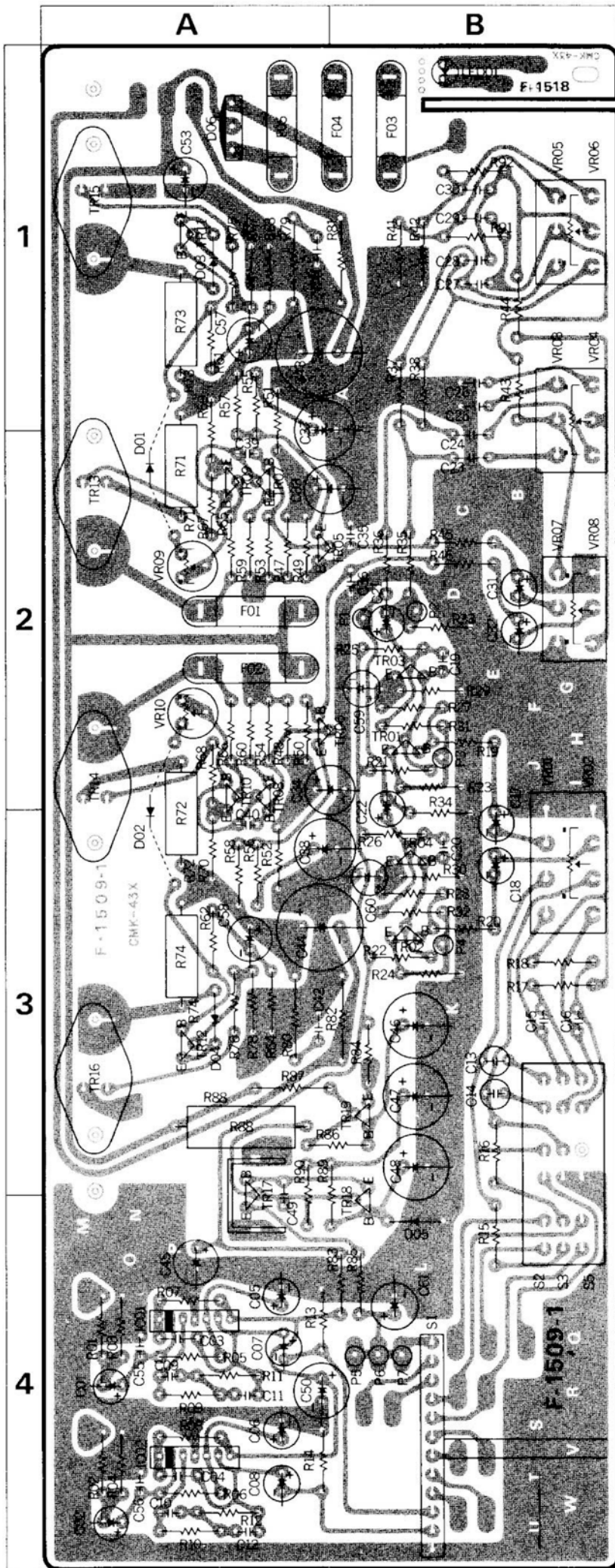
(Stock No. 7592090 Complete Circuit Board F-1509)

Parts List

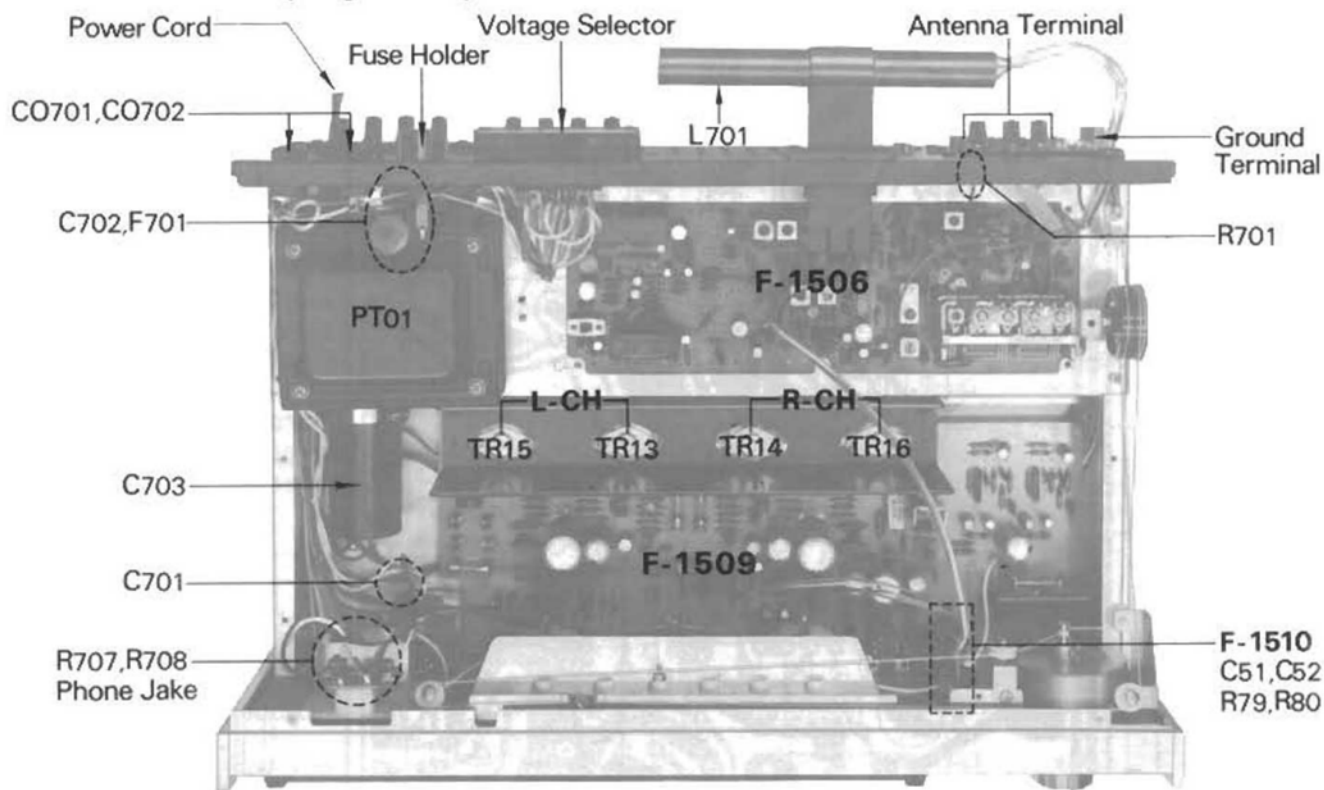
Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position	
TR01, 02	0306091	2SC1312 (G)	Transistor	R07, 08	0107474	470K Ω	4 A	
TR03, 04	0305731, 2	2SC711 (E, F)		2 B . 3 B	R09, 10	0107123	12K Ω	4 A
TR05, 06	0305880	2SC1000		2 A	R11, 12	0107124	120K Ω	4 A
TR07, 08	0300310, 1	2SA697 (C, D)		2 A	R13, 14	0107104	100K Ω	4 A
TR09, 10	0306221, 2	2SC1166 (O, Y)		2 A	R15, 16	0107123	12K Ω	4 B . 3 B
TR11, 12	0300641, 2	2SA661 (O, Y)		1 A . 3 A	R17, 18	0107223	22K Ω	3 B
TR13, 14	0308331, 2	2SD315 (D, E)		1,2A, 2,3A	R19, 20	0107222	22K Ω	2 B . 3 B
TR15, 16	0308331, 2	2SD315 (D, E)		1 A . 3 A	R21, 22	0107224	220K Ω	2 B . 3 B
TR17	0308362, 3	2SD330 (D, E)		3, 4 A	R23, 24	0107332	3.3K Ω	2 B . 3 B
TR18	0306131, 2	2SC1364 (6, 7)	3, 4 B	R25, 26	0107822	8.2K Ω	2 B . 3 B	
TR19	0306131, 2	2SC1364 (6, 7)	3 B	R27, 28	0107274	270K Ω	2 B . 3 B	
IC01, 02	0360180	BA-311 IC	4 A	R29, 30	0107561	560 Ω	2 B . 3 B	
D01, 02	0340110	SV-03F	Diode	R31, 32	0107181	180K Ω	2 B . 3 B	
D03, 04	0310340	10D-1		1,2A, 2,3A	R33, 34	0107683	68K Ω	2 B . 3 B
D05	0316320	RD-13E-C		1 A . 3 A	R35, 36	0107822	8.2K Ω	2 B
D06	0310680	10DC-1		4 B	R37, 38	0107183	18K Ω	1 B
VR01, 02	1011020	250K Ω (B) \times 2	Variable Resistor	R41, 42	0107272	2.7K Ω	1 B	
VR03, 04	1011030, 1	100K Ω (A) \times 2		1, 2 B	R43, 44	0107822	8.2K Ω	1 B
VR05, 06	1011030, 1	100K Ω (A) \times 2		1 B	R45, 46	0107222	2.2K Ω	2 B
VR07, 08	1011040, 1	250K Ω (MN) \times 2		2 B	R47, 48	0107683	68K Ω	2 A
VR09, 10	1035040	330 Ω (B) Semi-Variable Resistor	2 A	R49, 50	0107333	33K Ω	2 A	
C01, 02	0519105	2.2 μ F 50V E.C.	Capacitor	R51, 52	0107104	100K Ω	1, 2A, 3A	
C03, 04	0660101	100pF 50V C.C.		2, 3 B	R53, 54	0107122	1.2K Ω	2 A
C05, 06	0511330	33 μ F 10V E.C.		1 B	R55, 56	0107121	120 Ω	1, 2A, 3A
C07, 08	0515109	1 μ F 50V E.C.		2 A	R57, 58	0107472	4.7K Ω	1, 2A, 3A
C09, 10	0600566	0.0056 μ F 50V M.C.		2 A	R59, 60	0107330	33 Ω	2 A
C11, 12	0600227	0.022 μ F 50V M.C.		1 A . 3 A	R61, 62	0107272	2.7K Ω	1 A . 3 A
C13, 14	0610471	470pF 50V P.C.		1 A . 3 A	R63, 64	0107102	1K Ω	1 A . 3 A
C15, 16	0600227	0.022 μ F 50V M.C.		2 A	R65, 66	0107689	6.8 Ω	2 A
C17, 18	0519101	1 μ F 50V E.C.		2 A	R67, 68	0107479	4.7 Ω	2 A
C19, 20	0660220	22pF 50V C.C.		1, 2A, 3A	R69, 70	0107221	220 Ω	1, 2A, 3A
C21, 22	0515109	1 μ F 50V E.C.	2 B	R71, 72	0132478	0.47 Ω	1,2A, 2,3A	
C23, 24	0600126	0.0012 μ F 50V M.C.	3 B	R73, 74	0132478	0.47 Ω	1 A . 3 A	
C25, 26	0600107	0.01 μ F 50V M.C.	3 B	R75, 76	0107479	47 Ω	1 A . 3 A	
C27, 28	0600127	0.012 μ F 50V M.C.	2 B . 3 B	R77, 78	0107221	220 Ω	1 A . 3 A	
C29, 30	0600108	0.1 μ F 50V M.C.	2 B, 2, 3 B	R79, 80	0171100	10 Ω 1 W M.R.	1 A . 3 A	
C31, 32	0519101	1 μ F 50V E.C.	2 B	R81, 82	0103471	470 Ω 1/2 W C.R.	1 B . 3 B	
C33, 34	0515100	10 μ F 50V E.C.	1 B	R83	0107102	1K Ω	4 B	
C35, 36	0660151	150pF 50V C.C.	1 B	R84	0107121	120 Ω	3 B	
C37, 38	0515101	100 μ F 50V C.C.	1 B	R85	0107100	10 Ω	4 B	
C39, 40	0660121	100pF 50V C.C.	1 B	R86	0107102	1K Ω	3, 4 A B	
C41, 42	0601477	0.047 μ F 50V M.C.	2 B	R87	0103821	820 Ω 1/2 W C.R.	3 A	
C43, 44	0514102	1.000 μ F 35V E.C.	2 A, B	R88	0183331	330 Ω 3 W Ce.R.	3 A	
C45	0515100	10 μ F 50V E.C.	1,2AB, 3A,B	R89	0107182	1.8K Ω	3, 4 A B	
C46	0515101	100 μ E 50V E.C.	2 A . 3 A	R90	0107182	1.8K Ω	3, 4 A B	
C47	0514221	220 μ F 35V E.C.	2 A . 3 A	F01, 02	0433670	2.5A 150V Quick Acting Fuse	2 A	
C48	0512221	220 μ F 16V E.C.	1A,B, 3A,B	PL701-704	0420040	300mA 7V Fuse Type Lamp		
C49	0657223	0.022 μ F 50V C.C.	4 A	S1	1101570	F-1-3-4 Rotary Switch	4 B	
C50	0515221	220 μ F 50V E.C.	3 B					
C53	0546479	4.7 μ F 63V E.C.	3 B					
C61	0512101	100 μ F 16V E.C.	3 B					
C703	0559504	2200 μ F 63V E.C.	3 B					
R01, 02	0107222	2.2K Ω	3, 4 A					
R03, 04	0107104	100K Ω	4 A					
R05, 06	0107104	100K Ω	4 A					

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



6-3. Other Parts (Top Side)

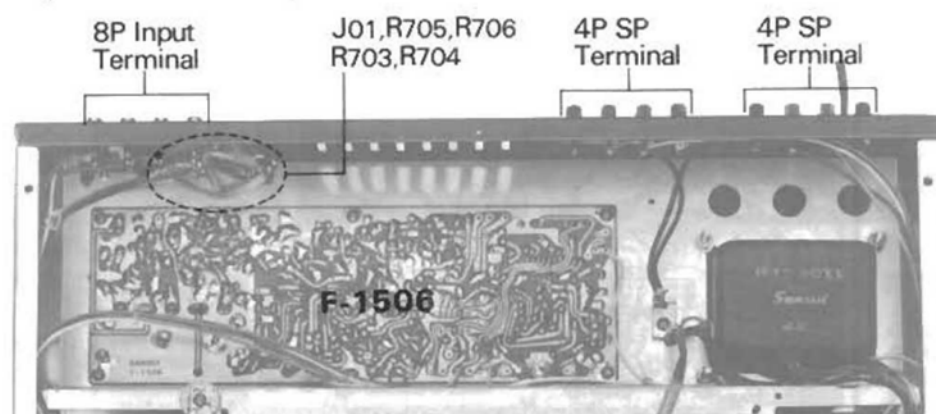


Parts List on Top Side

Parts No.	Stock No.	Description
	F-1510	Switch Circuit Board Ass'y
C51	0610391	390pF } 50V P.C.
C52	0610391	390pF }
R79	0107221	220Ω } 1/4W C.R.
R80	0107221	220Ω }
TR13	0308331, 2	2SD315 (E, D) } Transistor
TR14	0308331, 2	2SD315 (E, D) }
TR15	0308331, 2	2SD315 (E, D) }
TR16	0308331, 2	2SD315 (E, D) }
C701	0659801	0.01μF } 1.4KV C.C.
C702	0659802	0.0047μF }
C703	0559504	2200μF 63V E.C.
R701	0113122	1.2KΩ 1/4W S.R.
R707	0103331	330Ω 1/2W C.R.

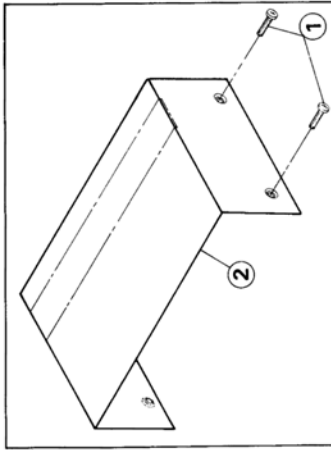
Parts No.	StockNo	Description
R708	0103331	330Ω 1/2W C.R.
L701	4200650	Bar Antenna (ARS-29)
F701	{ 2300060 0431232 0431240	Fuse Holder 1.5A (220~240V) 2A (100~117V)
CO701	2450050	AC Outlet
CO702	2450050	AC Outlet
PT01	4002090	Power Transformer
	2210190	Antenna Terminal
	2230050	Ground Terminal
	2430200	Phone Jack
	3800020	Power Cord
	2410090	Voltage Selector, Plug
	2410080	Voltage Selector, Socket

6-4. Other Parts (Bottom Side)



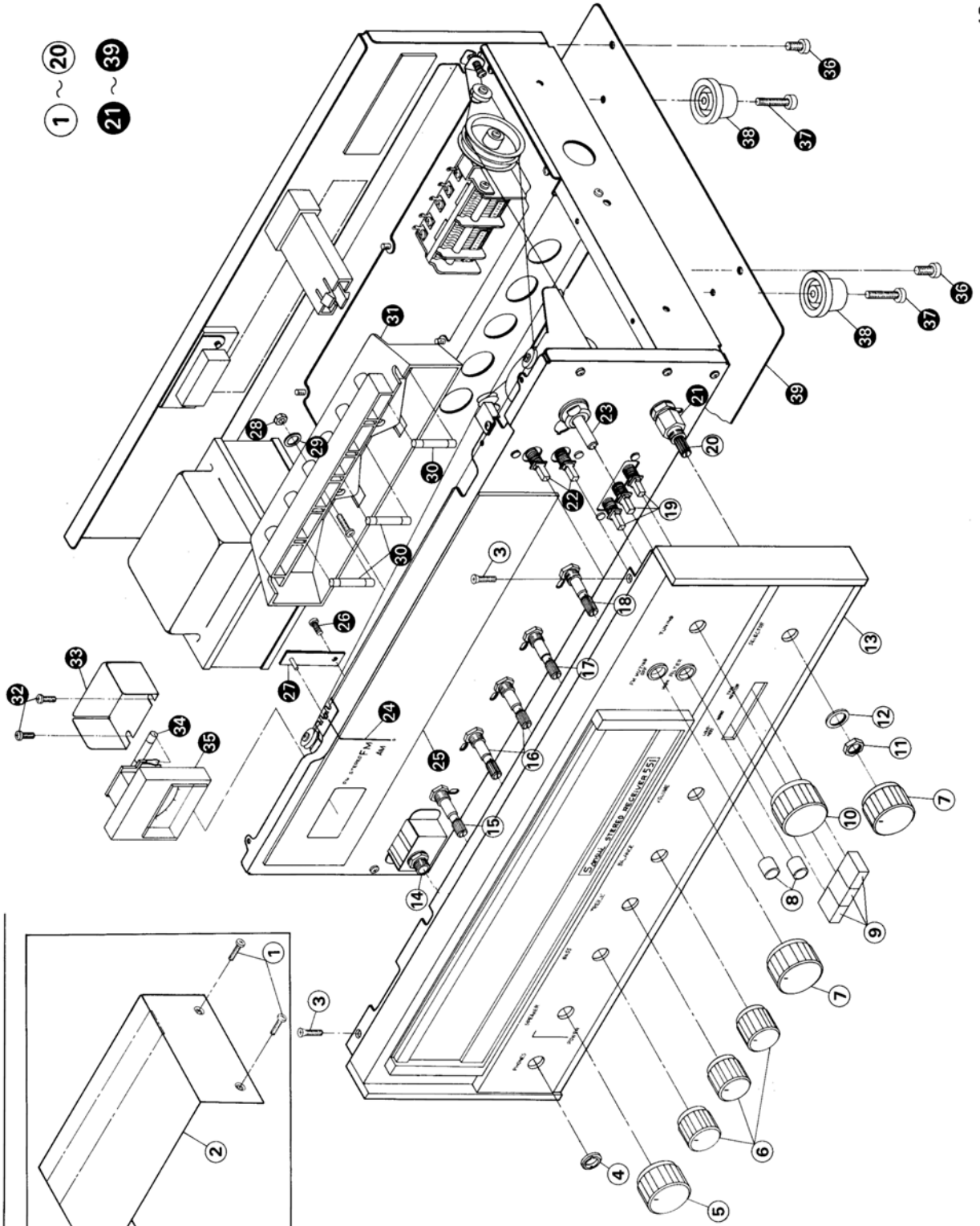
6-5. Other Parts (Front Side)

Parts No.	Stock No.	Description
1	5101161	Binding Head Screw, M4×6
2	5006320	Bonnet
3	5102843	Flat Countersunk Head Screw, M3×6
4	5176052	Nut, headphone jack
5	5317730	M-3 Type Knob, POWER, SPEAKER and SELECTOR
6	5317740	S-3 Type Knob, tone control
7	5317720	L-1 Type Knob, VOLUME
8	5326430	Push Button
9	5326420	BURTON, LOUDNESS, MONO and TAPE MONITOR
10	5317820	T-6 Type Knob, TUNING
11	5110781	Hex. Nut, M9
12	5120184	Plain Washer, 9φ
13	7006970	Front Panel
14	5047760	Smoked Plate
15	2430200	Headphone Jack
16	1101581	Rotary Switch Y-1-2-5, POWER and SPEAKER
17	1011030	100KΩ(A)×2 BASS and TREBLE volume
18	1011040	250KΩ(B)×2 (MN) BALANCE volume
19	1011020	250KΩ(B)×2 VOLUME
20	1130870	Push Switch
21	1101570	Rotary Switch F-1-3-4, SELECTOR
22	5236490	Spacer Nut, M9
23	1130880	Push Switch
24	7036400	Tuning Ass'y
25	5416361	Dial Pointer Ass'y
26	5407690	Dial Scale
27	5109122	Binding Head Screw, M3×8
28	2591920	LED Circuit Board F-1518
29	0319010	LED (FM Stereo Indicator)
30	5110241	Hex. Nut, M3
31	5120141	Plain Washer, 3φ
32	0420040	Fuse Type Lamp (7V, 300mA)
33	5058150	Indicator Box



Parts No.	Stock No.	Description
32	5109122	Binding Head Tapping Screw, M3×8
33	5269700	Meter Holder
34	0420040	Fuse Type Lamp (7V, 300mA)
35	{ 7726060 4300610, 1	Meter Lamp Unit B Signal Meter

Parts No.	Stock No.	Description
36	5109222	Binding Head Tapping Screw, M3×8
37	5101164	Binding Head Screw, M4×12
38	5516911	Foot
39	5058200	Bottom Plate

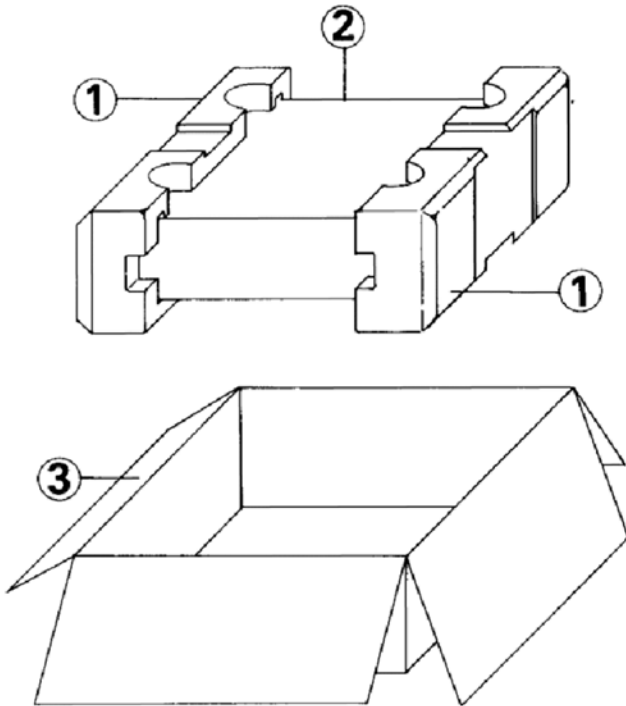


Parts List on Bottom Side

Parts No.	Stock No.	Description
R703	0107394	390KΩ
R704	0107394	390KΩ
R705	0107104	100KΩ
R706	0107104	100KΩ
J01	2430040	DIN Connector
	2210200	4P Speaker Terminal
	2200340	8P Input Terminal

8. PACKING LIST

Parts No.	Stock No.	Description
1	9027780	Stylofoam Packing
2	9116152	Vinyl Cover
3	9007990	Carton Case



9. ACCESSORY PARTS LIST

3820091	FM Antenna
0433670	2.5A Quick Acting Fuse
9208170	Operating Instructions
9228170	Operating Instruction Sheet



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