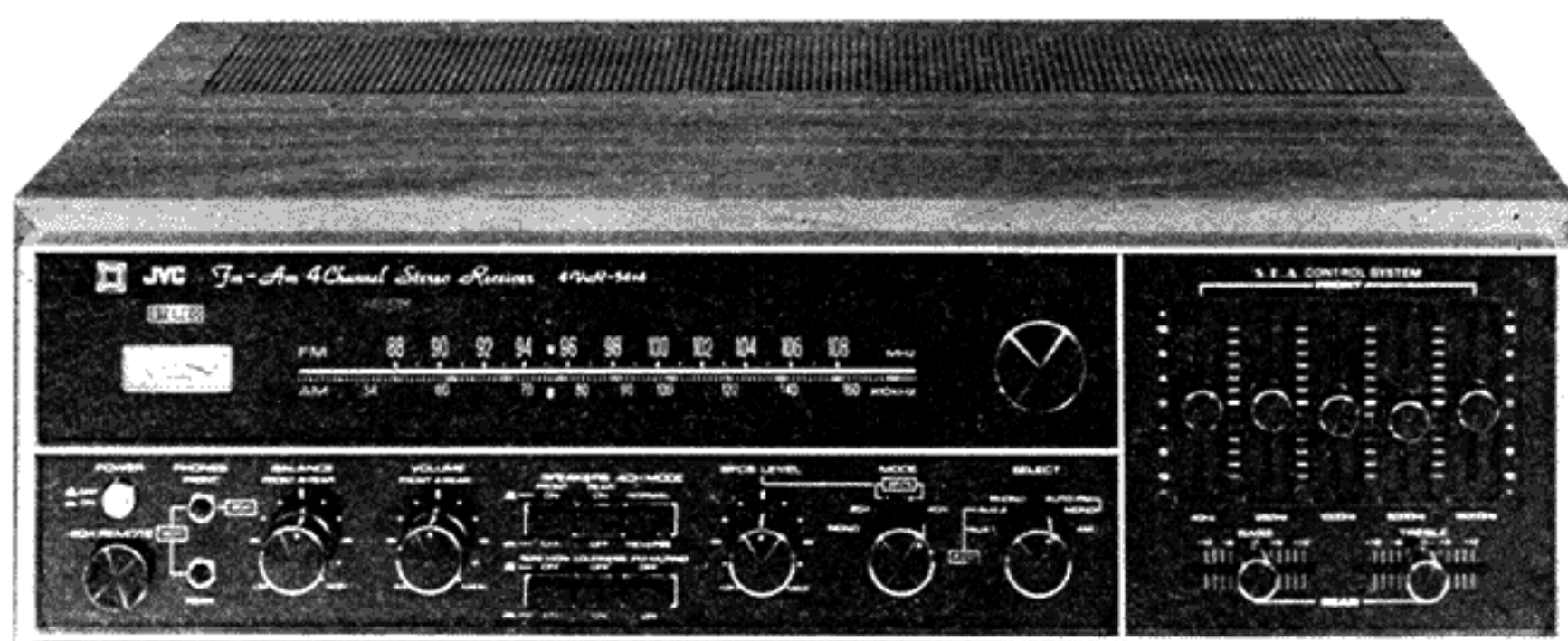


SERVICE MANUAL



MODEL 4VR-5414

FM/AM 4CHANNEL STEREO RECEIVER

DIMENSIONS : H-5 $\frac{7}{8}$ ", W-19 $\frac{3}{8}$ ", D-14 $\frac{3}{8}$ " WEIGHT : 27.8 lbs.

SPECIFICATIONS

POWER AMPLIFIER SECTION

Circuit : Single Ended Push Pull OCL Circuit
Total Dynamic Power (IHF) : 120W (30W×4) at 4Ω
112W (28W×4) at 8Ω
BTL Connection 130W (65W×2) at 8Ω
Continuous (r. m. s.)
Power : 80W (20W×4) at 4Ω
All Ch Driven 60W (15W×4) at 8Ω
Total Harmonic Distortion
(at Rated Out) : 0.5%
Intermodulation Distortion
(at Rated Out) : 0.8%
Power Bandwidth : 20Hz to 30kHz (IHF)
Load Impedance : 4-16Ω
In Case of BTL Connection: 8-16Ω
Damping Factor : 30 at 8Ω

PREAMPLIFIER SECTION

Total Harmonic Distortion : 0.05%
Frequency Response : 10Hz to 50kHz -1 dB
Signal to Noise Ratio : Phono (Mag.) 65dB
Aux-1 70dB
Aux-2 70dB
Tape Play 70dB
Input Sensitivity for
Rated Power : Phono (Mag.) 3mV
Aux (2Ch) 150mV
Aux (4Ch) 150mV
Tape Mon. (Pin-2ch) 150mV
Tape Mon. (DIN-2ch) 150mV

Recording Output :

Tape Mon. (Pin-4ch) 150mV
Tape Rec. (Pin-2ch) 100mV
Tape Rec. (DIN-2ch) 50mV
Tape Rec. (Pin-4ch) 100mV

SEA Center Frequency :

40, 250, 1K, 5K, 15kHz

SEA Control Range :

±12dB

Bass Control :

±10dB at 60Hz

Treble Control :

±10dB at 10kHz

Loudness Control :

+10dB at 50Hz

+6dB at 10kHz

Crosstalk :

50dB at 1kHz

FM TUNER SECTION

Tuning Range :

88MHz to 108MHz

Usable Sensitivity :

2.0μV (IHF)

Total Harmonic Distortion

(at 400Hz, 100% Mod.) : Mono : 0.5%

Stereo : 1.0%

Signal to Noise Ratio :

65dB

Selectivity :

65dB (IHF)

Capture Ratio :

2.0dB (IHF)

Image Rejection :

60dB

IF Rejection :

90dB

Stereo Separation :

35dB At 1kHz

AM Suppression :

50dB

Stereo Auto Switching

Level : 9μV

Muting Level :

9μV

Frequency Response :

20Hz to 15kHz ±1dB

Antenna Input Impedance : 300Ω Balanced

Inter Station Muting :	Yes	Mode :	Mono, 2ch Stereo, SFCS 4CH, 1, 2 4ch Stereo
Output Voltage (DET OUT)		SEA Slide Controls :	Slide Volume, 5 Elements (front)
(at 400Hz, 100% Mod.) :	300mV	Speaker Selector :	Push Switch, SPK off, Front, Rear
Output Impedance :	5K Ω	Balance Control :	Front + Rear
IF Stage :	1 IC, 3 Mechanical Filter	Signal Meter :	Yes
Front End :	1 FET, 3 Gang tuning condenser	Tone Control :	Rear (Bass & Treble)
AM TUNER SECTION		Jacks	
Tuning Range :	535kHz to 1605kHz	Head Phone Jack :	2 Phone Jacks
Usable Sensitivity :	30 μ V	Remote Control Jack :	Yes
Signal to Noise Ratio :	50dB	REAR PANEL TERMINALS & CONTROLS	
Selectivity :	20dB	FM Antenna Terminal :	300 Ω balanced
Image Rejection :	45dB	AM Antenna Terminal :	Yes
IF Rejection :	50dB	Speaker Terminals :	One touch terminals for Hook-up
Antenna :	Built-in Ferrite Core Antenna	FM Det Out :	Yes
FRONT PANEL ATTACHMENTS		AC Outlet :	2 Outlets (Switched, Unswitched)
Power Switch :	Push Switch	Muting-Adjusting Volume :	Yes
Function Selector :	AUX-1, AUX-2, PHONO, FM AUTO, FM MONO, AM	DIN Jack :	Yes
FM Muting :	Push Switch	Input Terminals (2CH) :	Phono
Loudness :	"	(4CH) :	AUX-1, AUX-2, TAPE MON
Tape Monitor :	Push Switch (4CH Tape Mon)	BTL SW	BTL/Normal Slide Switch
Volume Control :	Front Rear	Output Terminals :	4CH Tape REC Out
SFCS Level Control :			

REMOVAL OF CHASSIS

- Loosen 6 screws ④ from the bottom of the Wooden Case.
- Pull out the chassis in the arrow direction it up silightly with both hands.

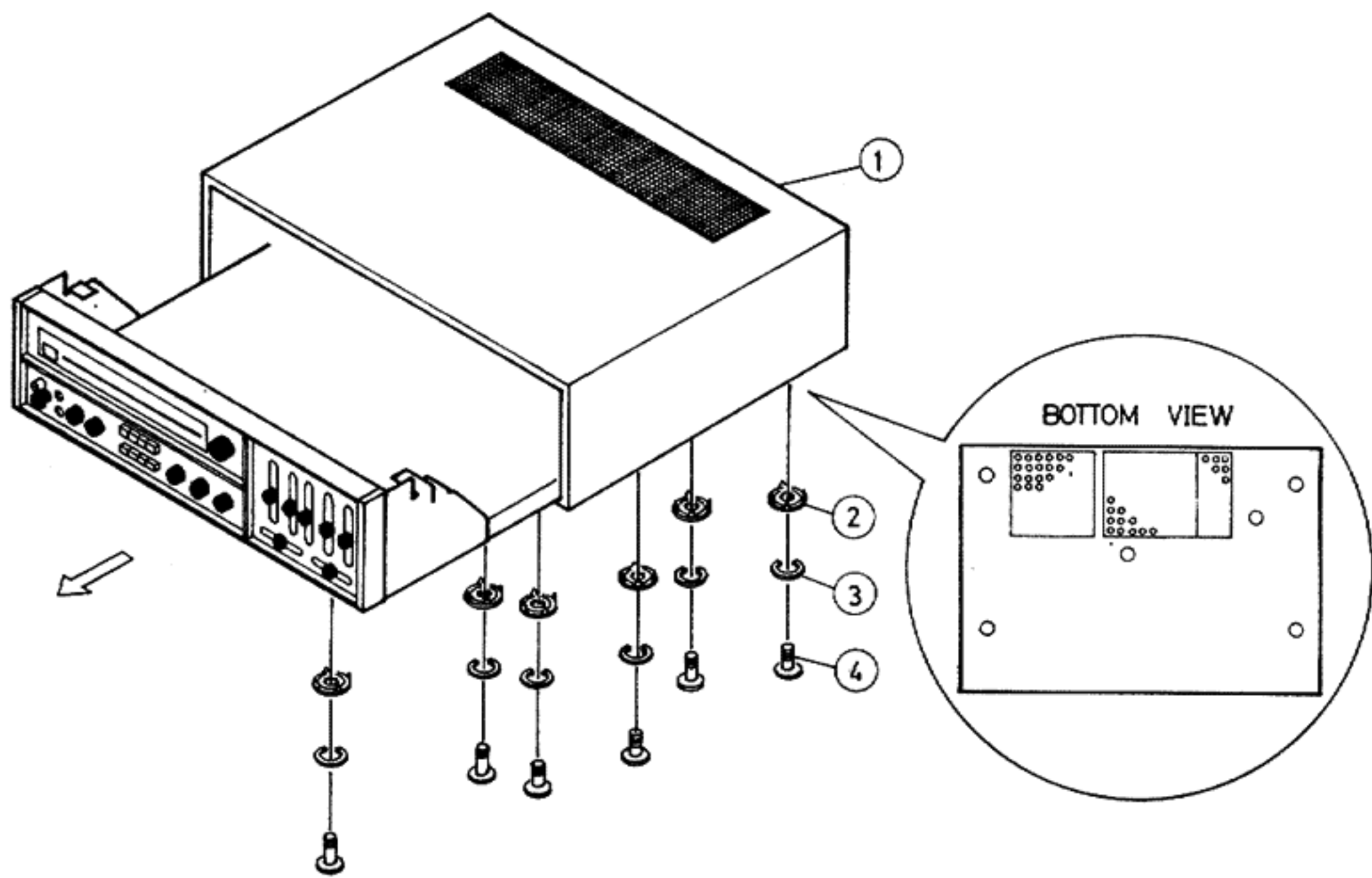


Fig. 1

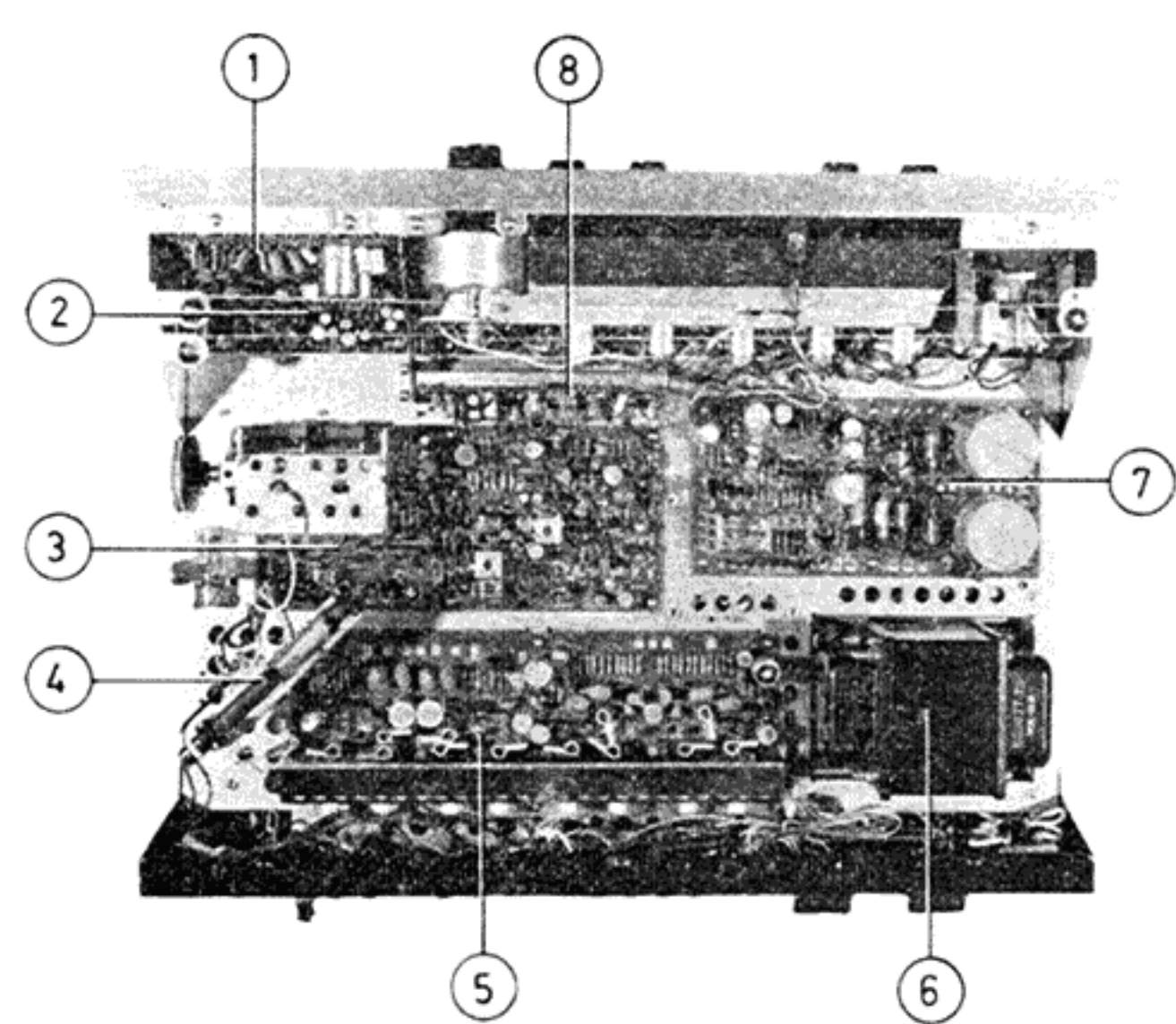
- | | | |
|------|------------|----------------|
| ① | DL-ED92251 | Wooden Case |
| ② | E7857-1 | Munting Washer |
| ③, ④ | LPSP4025ZS | Ass'y Screw |

FINAL PACKING ASS'Y

Parts Name	Parts No.
Envelope	E32332-006
Carton Case	4VR-5414-PK
Packing Materials	4VR-5414-NZ

MAIN PARTS ARRANGEMENT

TOP VIEW



POWER TRANS VOLTAGE

120V	ORANGE	RED	18V (2.5A)
100V	RED	BLACK	0V
0V	BROWN	RED	18V
		GREEN	20V (0.15A)
120V	BLUE	WHITE	0V
100V	GREEN	GREEN	20V
0V	YELLOW	BLUE	6.8V (1.5A)
		BLUE	0V

POWER TRANSFORMER
(E03077-7S)

Fig. 2

BOTTOM VIEW

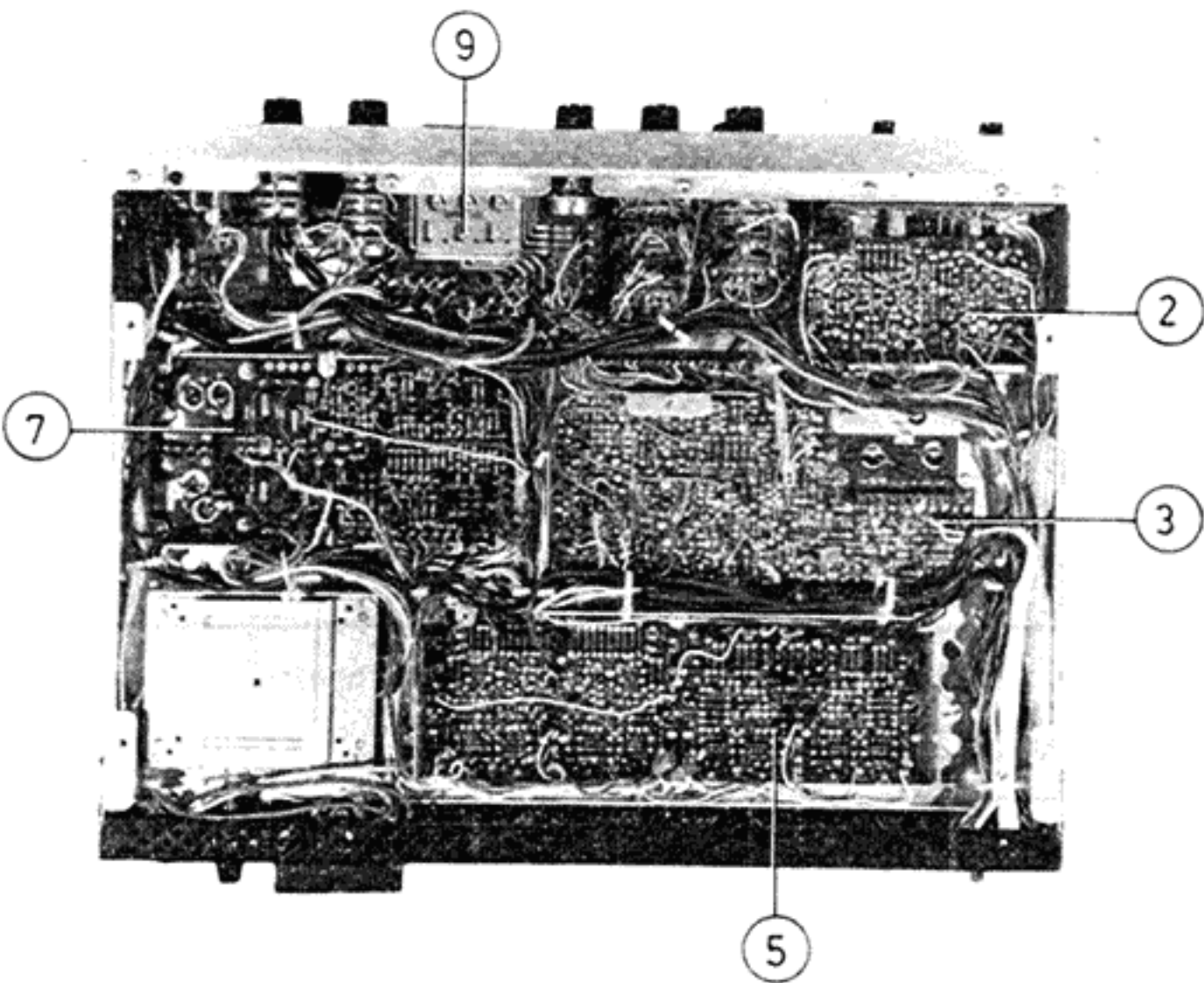


Fig. 3

Dwg. No.	Parts No.	Parts Name
1	TAC-219	S. E. A. & Tone Circuit Board Ass'y
2	TAC-220	S. E. A. & Tone Amplifier Circuit Board Ass'y
3	TFM-203GUA	FM/AM Tuner Circuit Board Ass'y
4	E03145-006	Bar Amplifier Coil Ass'y
5	TAD-108	Power Amplifier Circuit Board Ass'y
6	E03077-7S	Power Transformer
7	TAP-157	Power Supply Circuit Board Ass'y
8	TAC-221	EQ & SFCS Circuit Board Ass'y
9	TAC-218	Push Switch Circuit Board Ass'y

HOW TO FIT THE DIAL CORD

- 1. Set the variable capacitor on maximum capacity.
- 2. Besure dial drum is firmly fixed to shaft.
- 3. Fit the dial cord in accordance with arrow marks.
- 4. Wind the cord around tuning shaft 3 turns and dial drum 2 turns.
- 5. Place the pointer to pointer rail and fix to the dial cord.

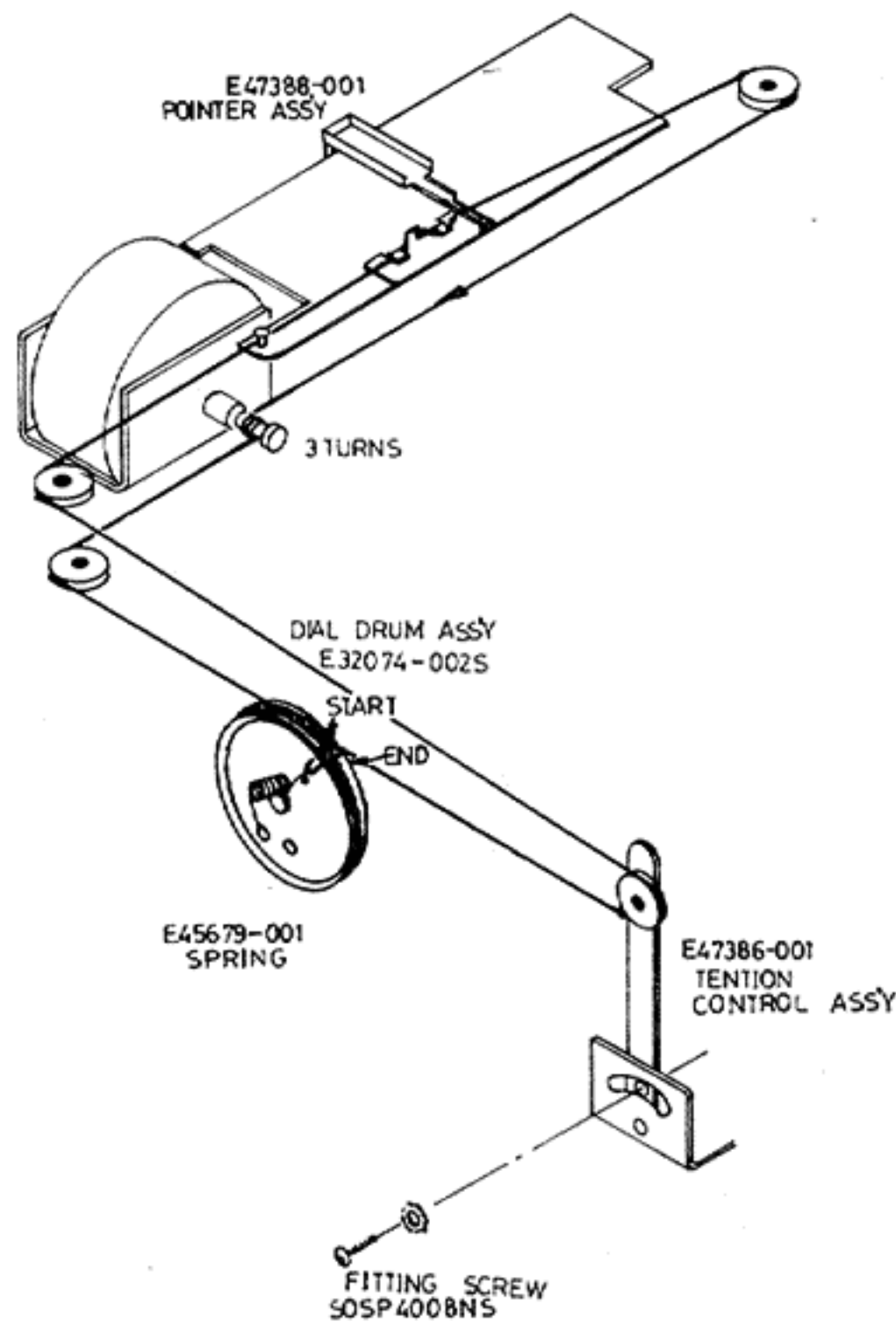


Fig. 4

ALIGNMENT INSTRUCTION

Maintain line voltage at YOUR LINE voltage. Use only enough generator output to obtain a suitable indication.
Allow 15 minutes warm up for receiver and equipment.

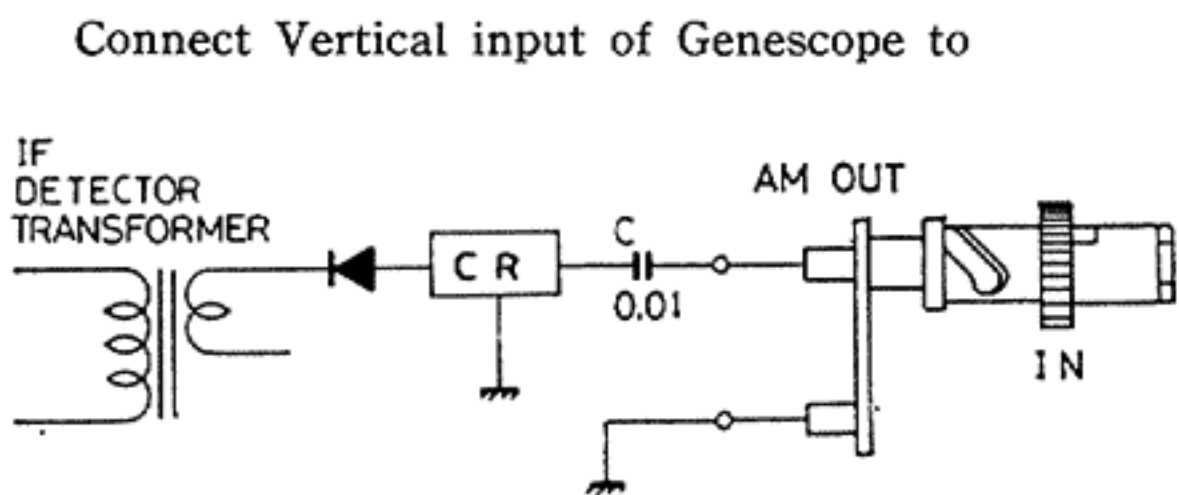
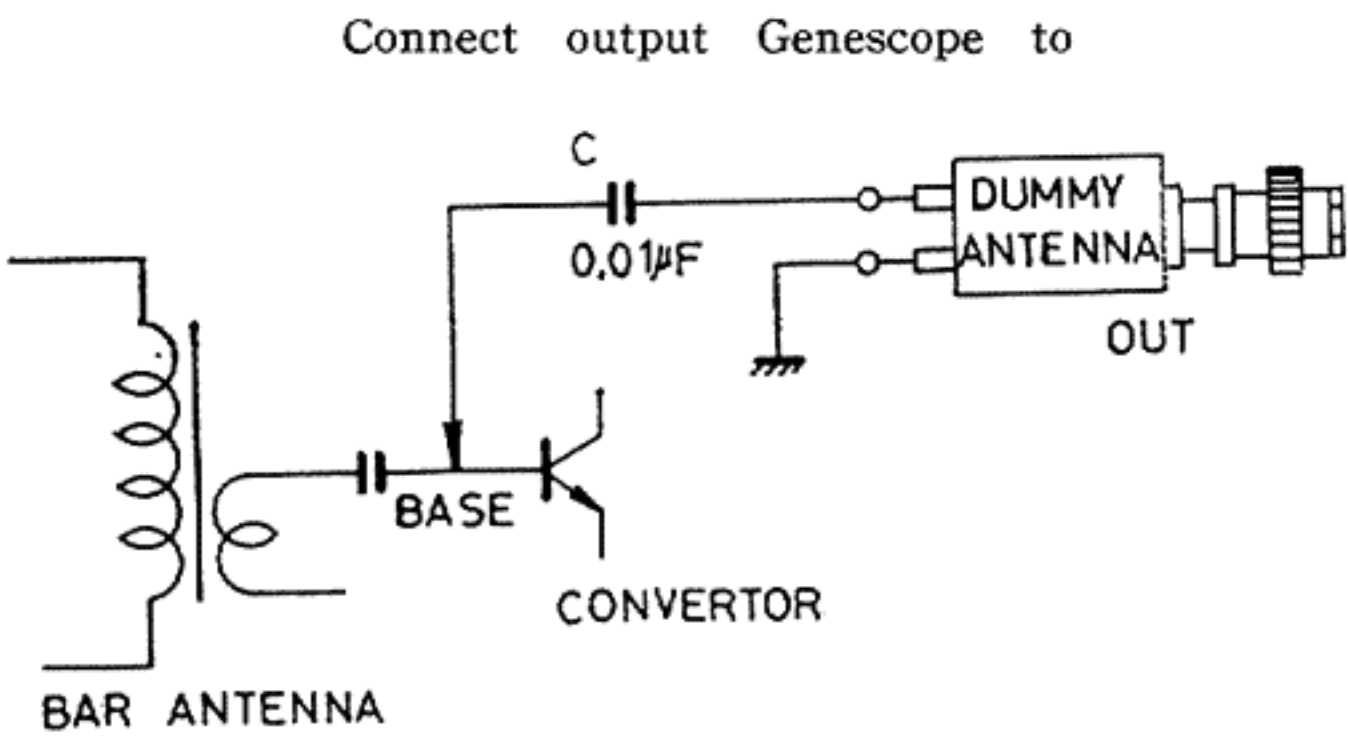
AM ALIGNMENT — Selector in AM Position —

- 1. AM IF Stage I
 - Test equipment
 - Signal generator : Turn in 455kHz and connect output of S. S. G. to loop antenna (See Fig. 9)
 - VTVM : Set to AC low range and connect to speaker terminals on rear panel.
Set volume control at maximum.
Set the tuning gang to minimum position.
 - Alignment : Adjust generator output so that the VTVM reading becomes 2V approximately.
adjust T202, 203 and 204 for maximum gain.
 - AM IF Stage II
 - Test equipment
 - Oscilloscope : Connect vertical input of scope to AM out on TFM-203GUA Tuner Circuit Board Ass'y
 - Sweep Generator : Adjust generator level and sweep to observe IF response curve. Set generator output as low as possible.
 - Marker : Couple marker output (455kHz, 450kHz, 460kHz) lightly to Sweeper out.
 - Adjustment : Repeat alignment T202, 203 and 204 until maximum gain and symmetry are obtained.
(See chart below)

AM IF Stage III Using Genescope

Test equipment

Genescope : Connect output of Genescope to Base of Converter and Vertical input of Genescope to AM out. (See chart below)



Adjustment :

Genescope		Adjust	Waveform
Output Level	Input Level		
Vary with amplitude from maximum output to 55dB approximately.	0.3V/6 cm	Repeat alignment T202, T203 and T204 maximum gain and symmetry are obtained.	

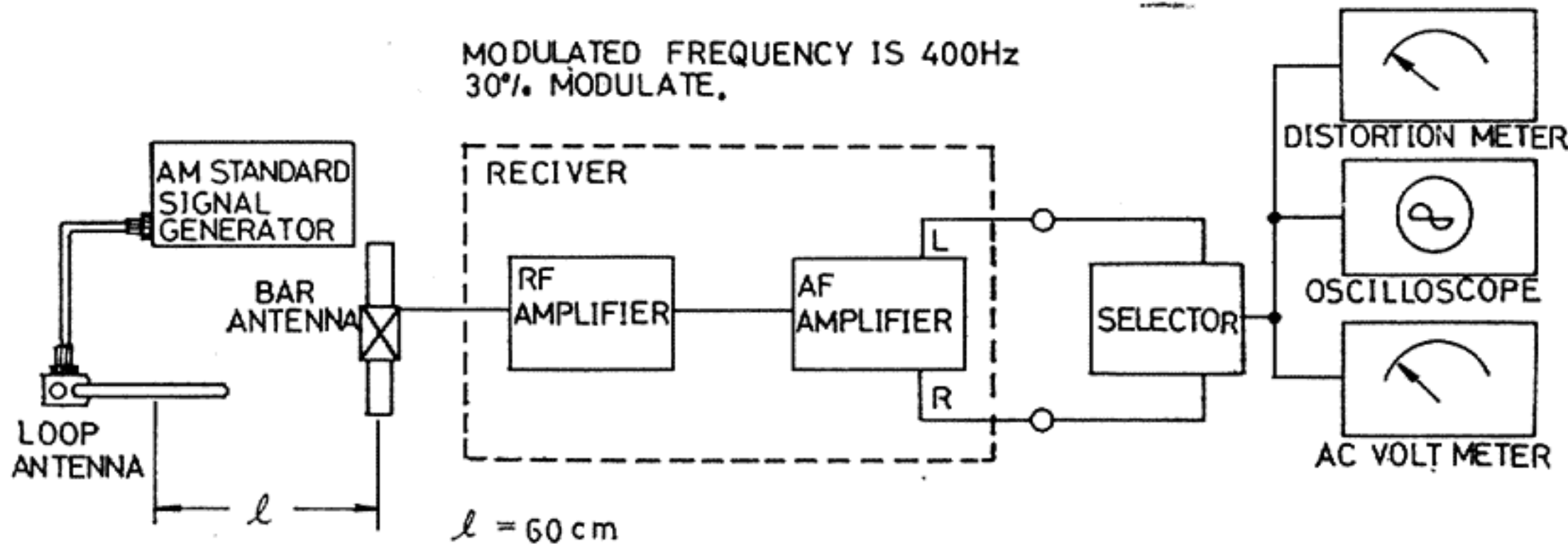
Fig. 7

2. RF Stage

Test equipment

Signal generator : To apply generator output, use loop antenna as shown below.

VTVM : Connection (See chart below).



Alignment :

Step	Generator	Adjust	Description
	MW	MW	
1	600kHz	T201 (OSC. Coil)	Repeat the step 1~3 for Tuning Dial Scale Corectly.
2	1400kHz	TCO (Trimmer)	
3	1000kHz	Check Dial Scale	
4	600kHz	Slide Bar Antenna Coil	Adjust for maximum output by moving Coil of Btr Ant. along ferrite core. Adjust for maximum output.
5	1400kHz	VCA (Trimmer)	
Repeat above steps as necessary to obtain maximum sensitivity.			

FM ALIGNMENT

1. IF Stage I

Test equipment

- Sweeper : Connect to test point on FM Tuner Ass'y
- Marker : Couple 10.7MHz output lightly to sweeper output.
- Oscilloscope : For vertical input connections, See Fig. 10, 11.

FM IF Stage-II

Test equipment

- Genecope : Connect output of Genecope to Base of top Transistor on IF Stages and Vertical input of Genecope to FM Detect out (See Fig. 10, 11).

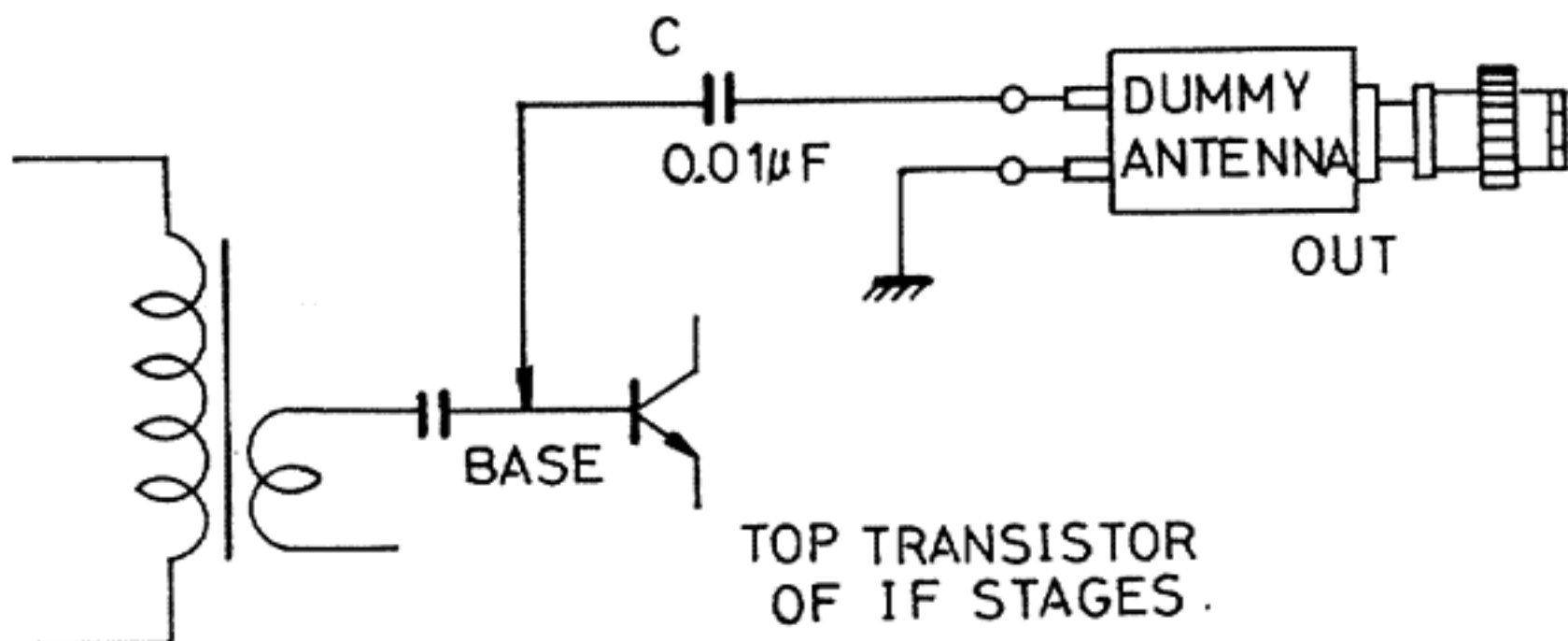


Fig. 9

Alignment :

Step	Connect Oscilloscope	Adjust	Waveform on Oscilloscope	Description
1	Make use of detector	IF T101		Repeat alignment IF until maximum gain and symmetry are obtained. IF : See Fig. 11
2	DETECTOR TRANSFORMER FM OUT	T102		Adjust generator level and sweep to observe detector "S" curve. And adjust cores of T102 for maximum gain and straightness of crossover line.
3	Repeat the step 1 and 2 until maximum gain and symmetry are obtained.			

Fig. 10

2. RF Stage

Test equipment

- Signal generator :
- Connect 300ohm balanced output of standard signal generator to FM antenna terminal.
Modulation 400Hz 100%.
- VTVM :
- Set AC low range and connect to speaker tenninal on the rear panel.
Adjust Generator output so that the VTVM reading becomes 2V approximately.

Alignment :

Step	Generator	Adjust	Description
1	88.0MHz	LO	Repeat the STEP 1~3 for Tuning Dial Srale Correctly
2	108.0MHz	TCO	
3	98.0MHz	Check Dial Scale	
4	88.0MHz	LA, LR	Repeat the STEP 4~5 for maximum amplitude.
5	108.0MHz	TCA, TCR	
6	Repeat above steps as necessary to obtain maximum sensitivity.		

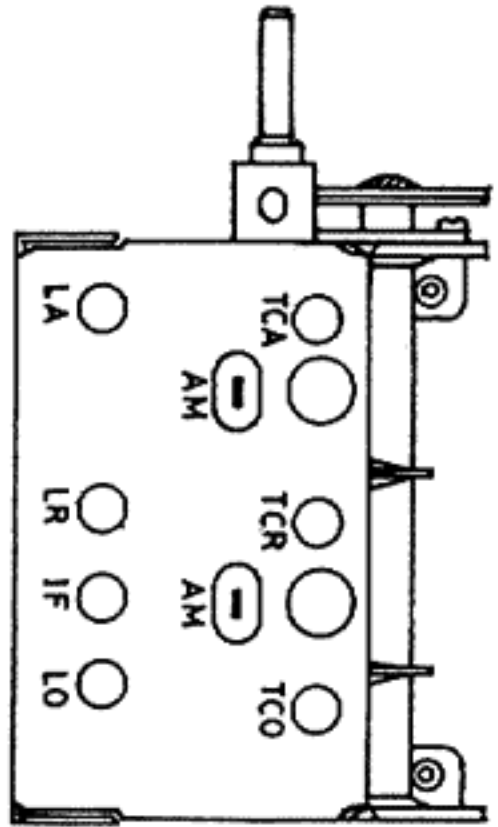


Fig. 11

ADJUSTMENT OF M. P. X. CIRCUIT

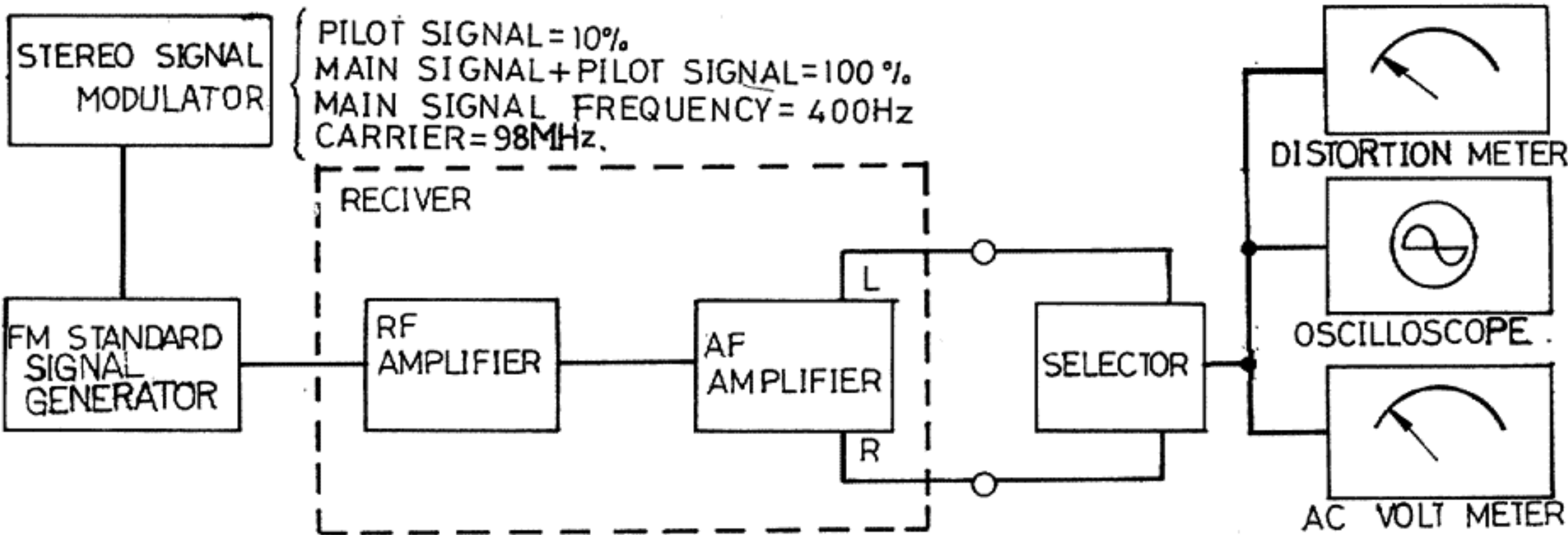


Fig. 12

1. A Set output carrier level of S. S. G. to 60dB, carrier frequency is 98MHz.
B Set the modulation of S. S. G. carrier to 7.5kHz deviation by only PILOT signal of FM stereo modulator.
C Then set the modulation of S. S. G. carrier to 75kHz deviation (100%) by adjust the output level of FM stereo modulator that are the sum of PILOT and MAIN sinal. Modulated freuency of MAIN signal is 400Hz.
2. A Set the output signal of FM stereo modulator as PILOT signal 19kHz only.
B Connect V. T. V. M. Oscilloscope & Distortion meter to Base of Transistor X303.
C Then adjust T301 for maximum amplitude of wave form 38kHz on Oscilloscope is obtained.
3. A Set output signal of FM stereo modulator to the sum of PILOT and SUB signal.
B Connect V. T. V. M., Oscilloscope & Distortion meter to L out on TFM-203GUA.
C Then adjust T302 for maximum output volume of M. P. X. circuit is obtained.
- NOTE : • When set the output signal of FM stereo modulator as L only, V. T. V, M., oscilloscoe & distortion meter should be reading at L out only. (I→R only.)
• Adjust 19kHz coul T301 and 38kHz coul T302 so that minimum distortion are obtained preferably.
4. A Connect V. T. V. M., Oscilloscope & Destortion meter to speaker termind thru. the SELFCTOR (See Fig. 12)
B Set output signal of FM stereo modulator to the sum of PILOT and MAIN signal.
C Then adjust R305 so that separate R-ch and L-ch output signal completey.

ADJUSTMENT OF T103, TUNING METER AND MUTING SWITCH

NOTE : FM IF : alignment should be performed before starting this procedure.

T103

- Genescope : Connect output of Genescope to Test point and Vertical input of it to cross T103 secondary Winding.
- Alignment : Repeat alignment core of T103 until maximum gain and symmetry (See Fig. 11).

TUNING METER

- S. S. G. : Connect 100dB output of S. S. G. to 300 ohm balanced antenna terminal.
- Alignment : Adjust R115 10KΩ Variable Resistor for tuningmeter reading of "9".

MUTING—T103 alignment should be performed before starting this procedure.—

—Turn the Variable Resistor of Muting Adjust on rear panel to minimum position. —

- A. A. G. : Connect 25dB output of S. S. G. to 300Ω balanced antenna terminal.
- Alignment : Adjust this Variable Resistor for muting "on".

CHECK POWER AMPLIFIER CENTER VOLTAGE AND IDLING CURRENT

NOTE : Allow set to warm up at least 10 minutes before starting the following procedure.

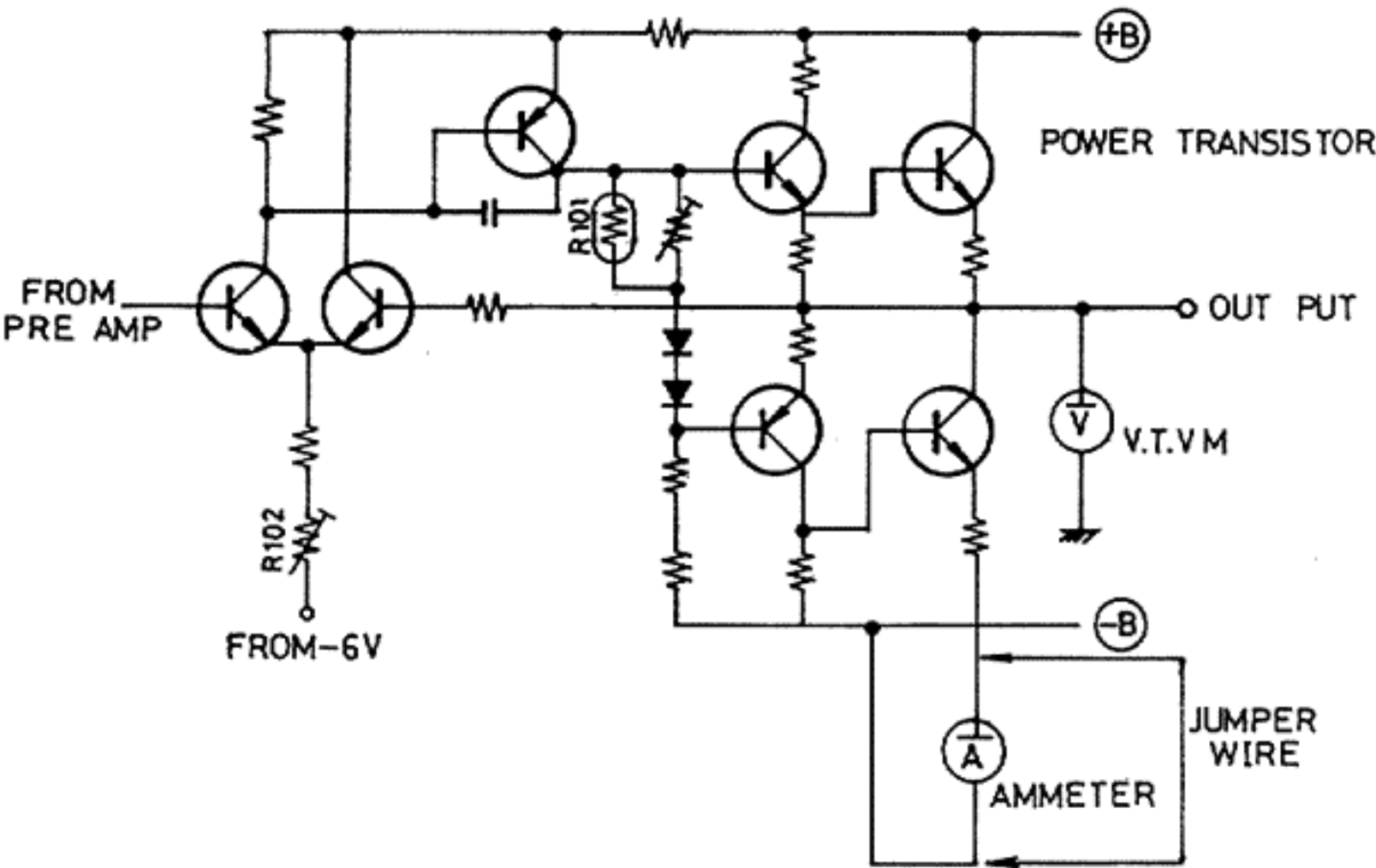


Fig. 13

Connection of measurement instrument as shown Fig. 13. — This circuit is standard circuit of main amplifier. —

- Turn VOLUME control to minimum.

Insert ammeter with jumper wire between Re to chassis as shown Fig. 13.

NOTE : Only use jumper wire just power switch on because avoid surge current for ammeter.

TUNER POWER SWITCH ON

- A. VTVM should read 0V. If VTVM read not 0V, adjust R102 for VTVM reading of 0V $\pm$ 100mV.
- B. Ammeter should 10mA~20mA. If ammeter reading of volume are not 10mA~20mA, adjust R101 for ammeter reading of 10mA~20mA.

NOTE : Power amplifier center voltage test should be performed before starting measurement of idling current.

PROTECTOR ADJUSTMENT

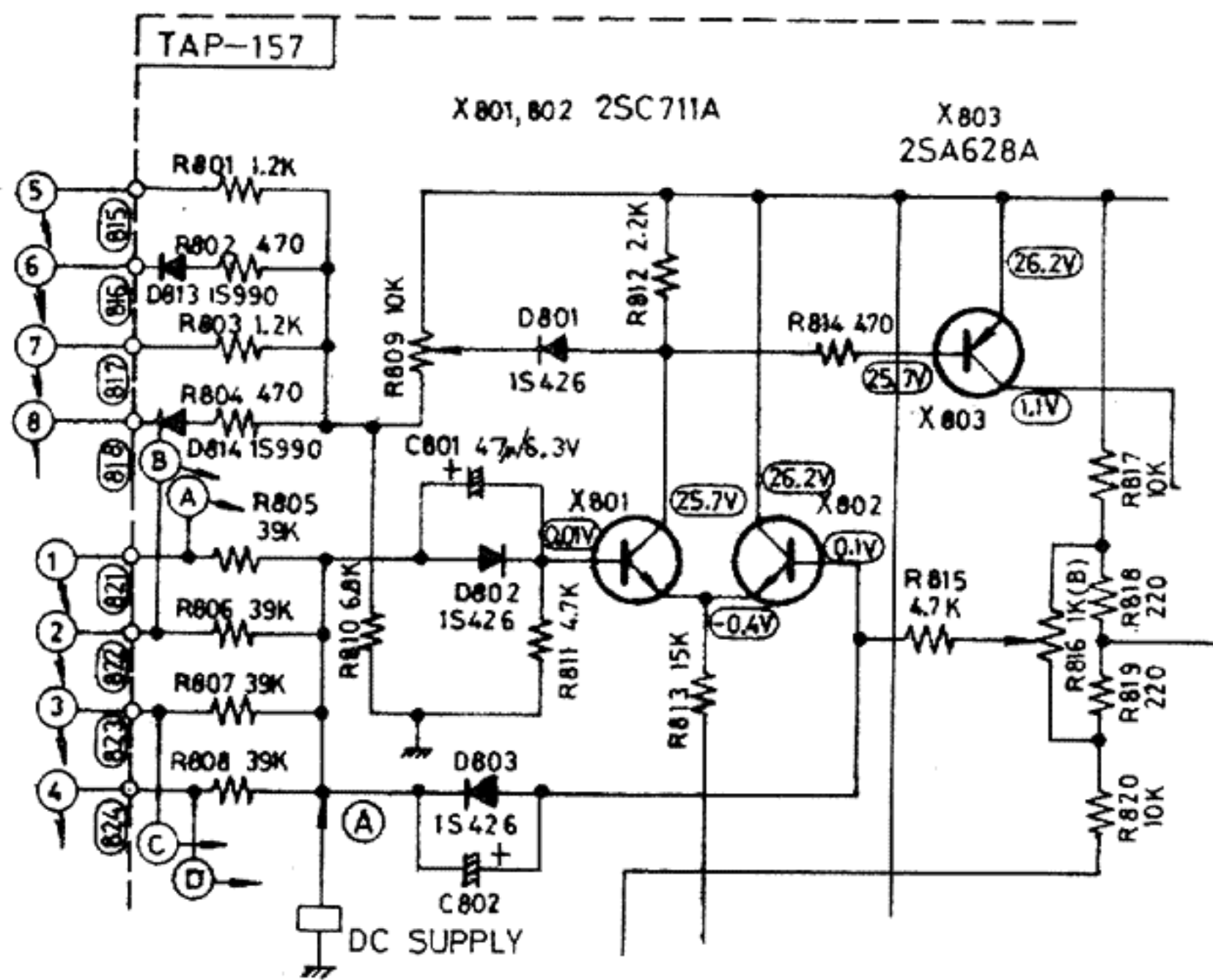


Fig. 14

- ① Please adjust R 816 in order to activate the protector circuit by applying D. C. O, 25 volts to Point A.
- ② The protector circuit dose not operate at 4Ω load and 11 volts (30W) when all channels are driven.
Please adjust the R 809 in order to actil activate the protector circuit by grounding the speaker terminals when the load is 8Ω and the output is 2 volts.

MEASURMENT INSTRUMENT

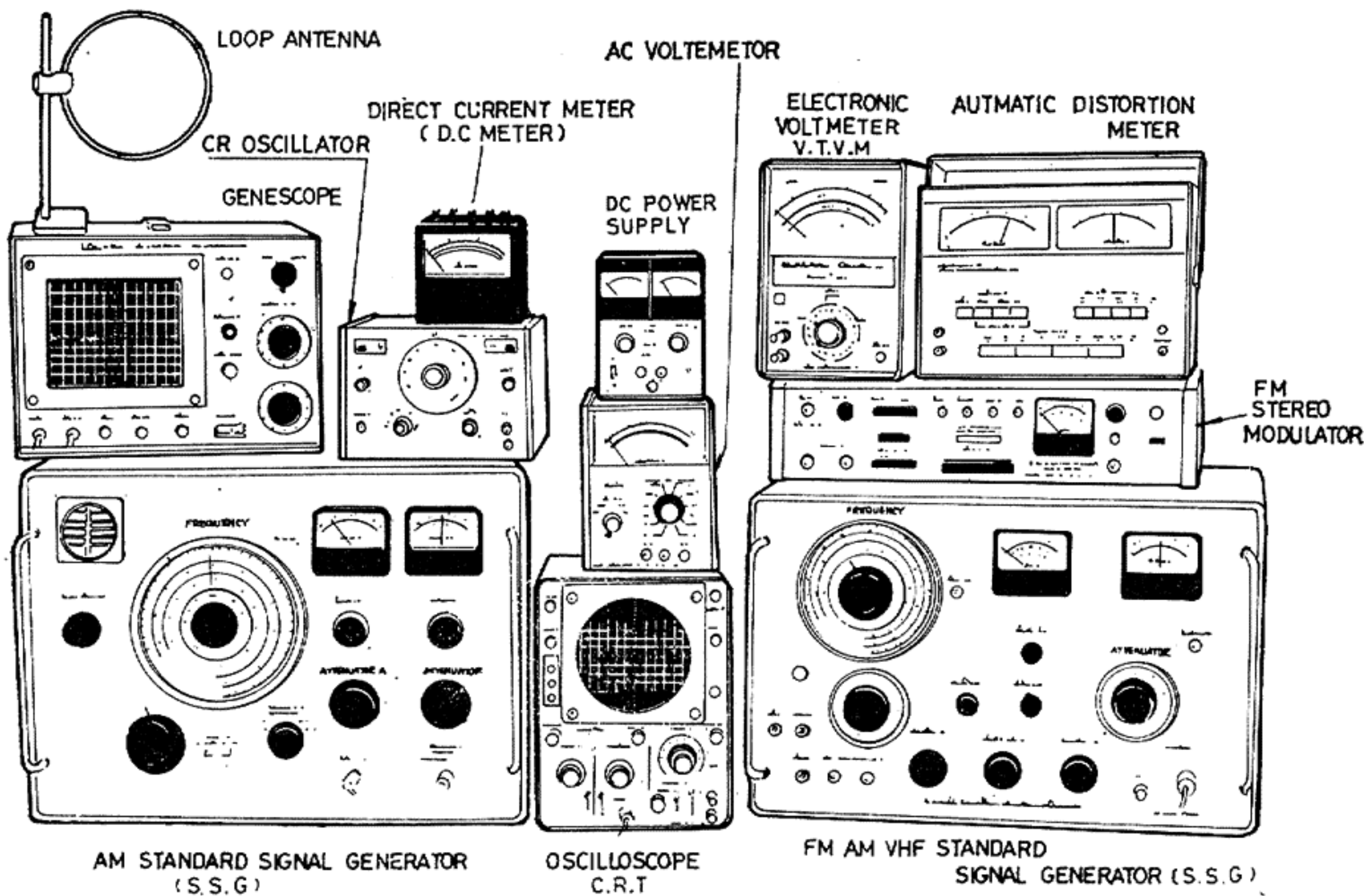


Fig. 15

THE LIST OF FRONT PANEL PARTS FOR REPLACEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	E1670-001	Front Panel Ass'y	
2	E47395-001	Push Bottan Knob	For Power Switch
3	E46642-002	Balance Remote Cap Ass'y	
4	E46824-001	Duble Knob	For Volume, Balance
5	E46826-001	"	"
6	E47689-001	Push Switch Knob	For 3 Key Switch
7	E46605-001S	Tuning Knob	
8	E46607-001	Knob	For Select, Mode
9	E46604-002	Slide Knob	For S.E.A. VR.
10	E47389-001	"	For Tone VR.
11	SHSA3008C	Tapping Screw	
12, 13, 14	Q03963-001	Jack Ass'y	Head Phone Jack
15, 16, 17	QVE1A3W-5F5	Volume	Balance Volume
18, 19, 20	QVJ2A3B-5F5	"	Mastor Volume
21, 22, 23	QVC2A2C-0F5	"	SFCS. Level Volume
24, 25, 26	QSR31C5-201	Rotary Switch	Mode Switch (12C-5P)
27	SHSA3008C	Tapping Screw	
28, 29, 30	E03470-001	Rotary Switch	Select Switch (8C-6P)
31	SHSA3008M	Tapping Screw	
32	E46587-001	Plate	
33	E32910-001	Dial Scale	
34	SSSP3006NS	Screw	
35			
36	E47200-001	Mini Screen	Red
37	SBSB3008M	Tapping Screw	
38	E1618-001	Front Bracket Ass'y	
39	SPSP3006MS	Screw	
40	"	"	
41	SHSA3008M	Tapping Screw	
42	SBSB3008N	"	
43	E47199-001S	Lamp Holder	
44	E43603-004	Rubber Bushing	
45	Q04962-005	Mini Lamp	6V 35mA
46	E44865-001S	Screw	
47	E47197-001	Rower Switch Bracket	
48	QSU1130-001	Push Switch	Power Switch
49	SBSB3008M	Tapping Screw	
50	E32709-002	Shield Plate	
51	E47787-001	Remote Bracket	
52	E47789-001	Remote Spacer	
53	QMC0889-001	8P Socket	Balance Remote Socket
54	SBSB3006M	Tapping Screw	
55	E03174-003	Indicator	Tuning Meter
56	E44941-002	Meter Holder	
57	SBSB3005N	Tapping Screw	
58	Q30110-00B	Lamp Socket	Q02967-9 Pilot Lamp
59	E03471-001	Channel Indicator	
60	E47388-001	Needle Ass'y	
61	E47651-001S	Stud	

EXPLODED VIEW OF FRONT PANEL PATRS

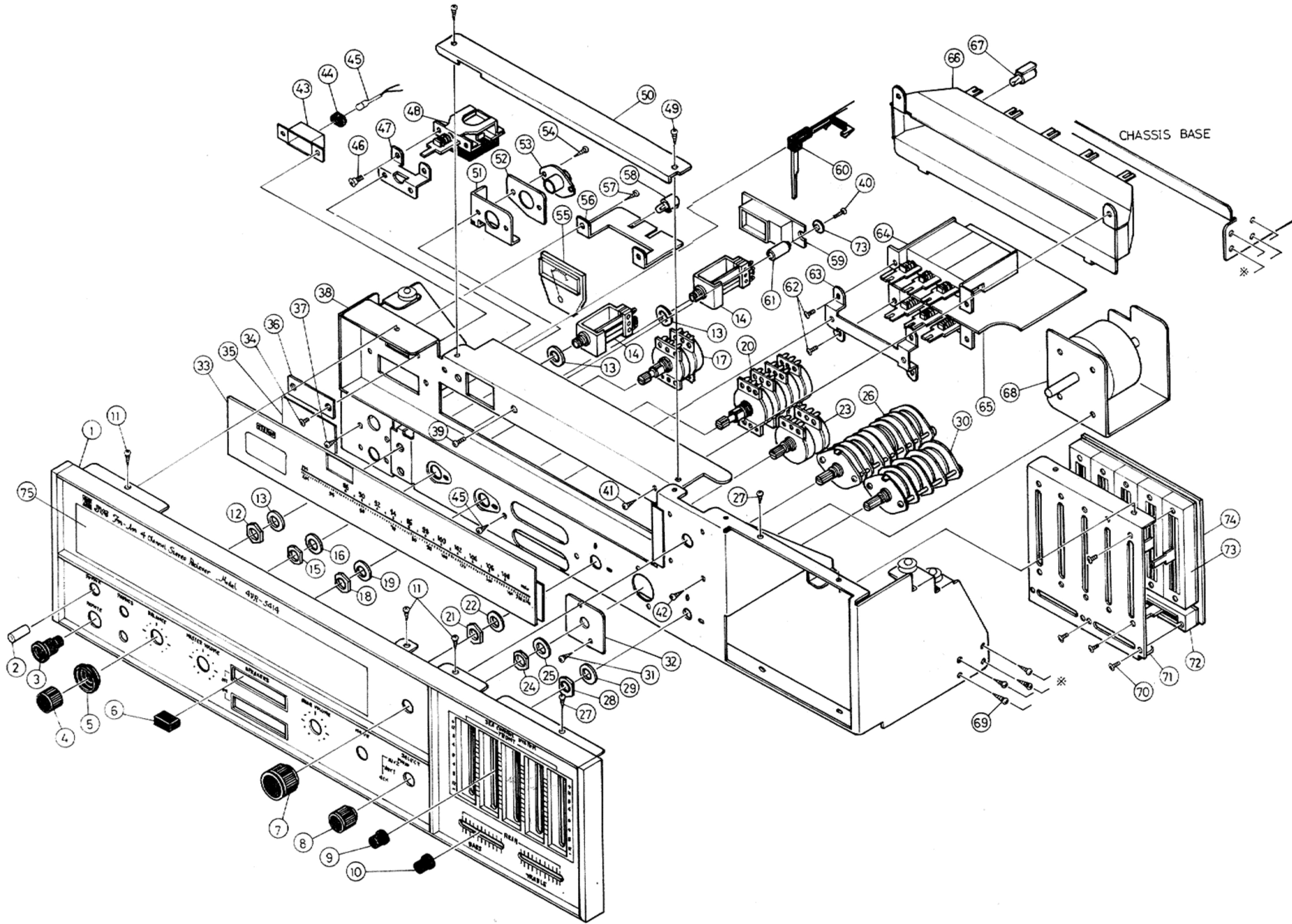


Fig. 16

THE LIST OF FRONT PANEL PARTS FOR REPLACEMENT

Dwg. No.	Parts No.	Parts Name	Description
62	SSSP3006NS	Screw	Speaker Switch
63	E47250-001	Switch Bracket	
64	QSP6230-041	Push Switch	
65	TAC-218	Push Switch Circuit Board Ass'y	
66	E32702-002	Reflector	Q04967-9 Pilot Lamp
67	Q30110-00B	Lamp Socket	
68	E32704-003S	Tuning Shaft Ass'y	

Dwg. No.	Parts No.	Parts Name	Description
69	SBSB3008N	Tapping Screw	Tone VR. 100K (B) S.E.A. VR.
70	SSSP2605NS	Screw	
71	E32909-001	S.E.A. Bracket	
72	QVT1C2B-115	Slide Volume	
73	E03397-001S	"	
74	TAC-219	S.E.A. & Tone Circuit Board Ass'y	
75	E32912-001	Window Screw	

EXPLODED VIEW OF REAR PANEL PARTS

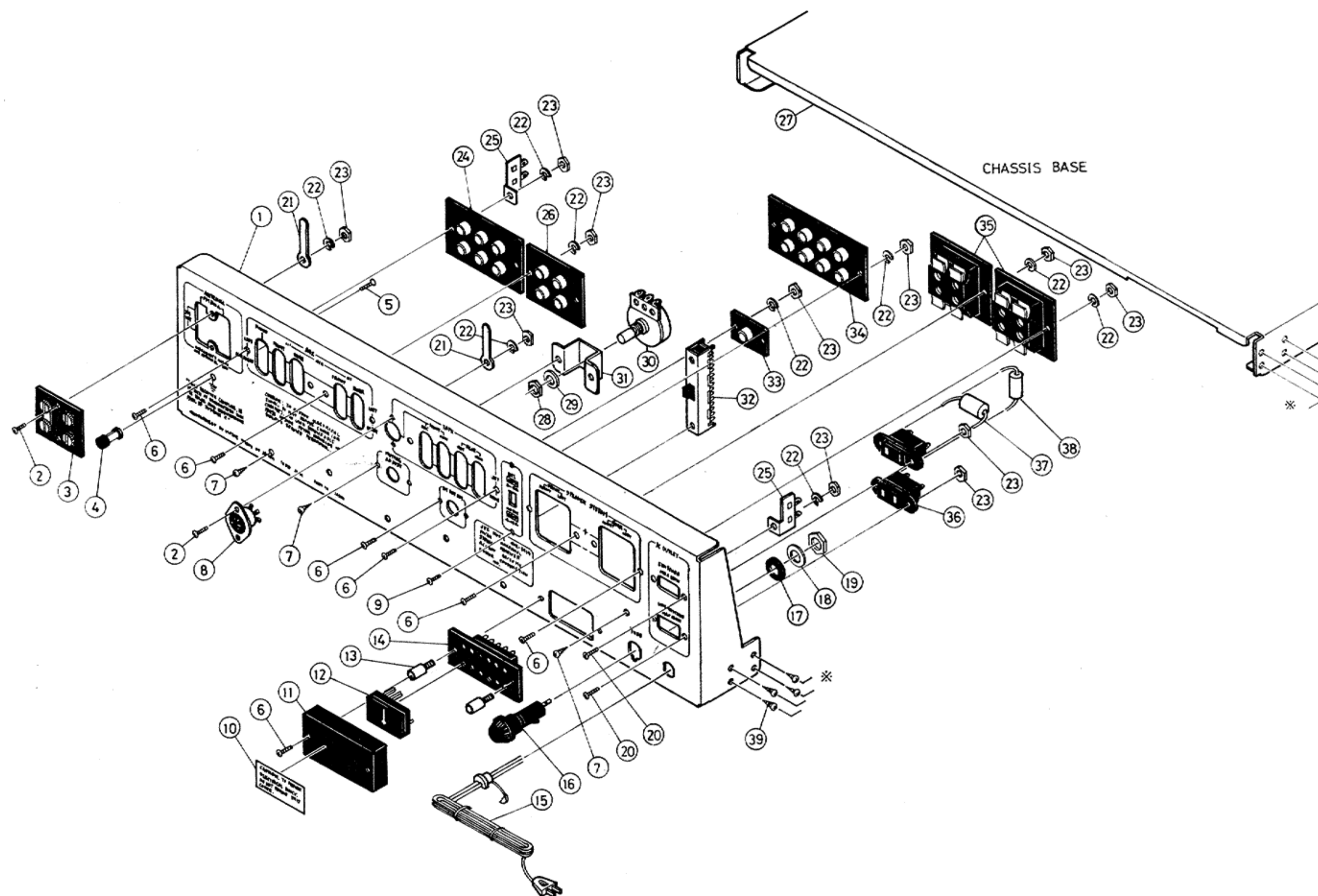


Fig. 17

THE LIST OF REAR PANEL PARTS FOR REPLACEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	E20975-001	Rear Panel	FM Antenna For Ground
2	SPSP3012MS	Screw	
3	QMB0426-303	Terminal Board Ass'y	
4	E04096	Push Terminal	
5	SPSP3005	Screw	
6	SPSP3010MS	"	
7	SBSB3008M	Tapping Screw	
8	Q03967-S	Din Socket	
9	SPSP2605M	Screw	
10	E46789-001	Caution Label	
11	E46603-002	Cover	
12	E04085	Voltage Select Plug	
13	E44182-008S	Stud	
14	E04084	Voltage Select Socket	
15	Q03056-14	Power Cord Ass'y	
16, 17, 18, 19	Q30210-001	Fuse Socket Ass'y	UL UL
20	SPKP3010S	Screw	

Dwg. No.	Parts No.	Parts Name	Description
21	E50670-004	Wire Clamp	For Muting 50K (B)
22	WLS3000	Lock Washer	
23	NNZ3000ZS	Nut	
24	E03043-60	Pin Jack Ass'y	
25	Q03001-21	Lug Strip Ass'y	
26	E03043-40	Pin Jack Ass'y	
27	E1616-001S	Chassis Base Ass'y	
28, 29, 30	E03415-001	Volume Resistor	
31	E46602-001	Volume Bracket	
32	QSS8248-002	Slide Switch	
33	E03043-10	Pin Jack Ass'y	
34	E03043-80	"	
35	QMB0426-303	Terminal Ass'y	
36	Q30120-001	AC Socket	
37	Q03203-103M	O. F. T. Capacitor	UL
38	Q03212-103M	"	

WIRE CONNECTION OF VOLUME, BALANCE

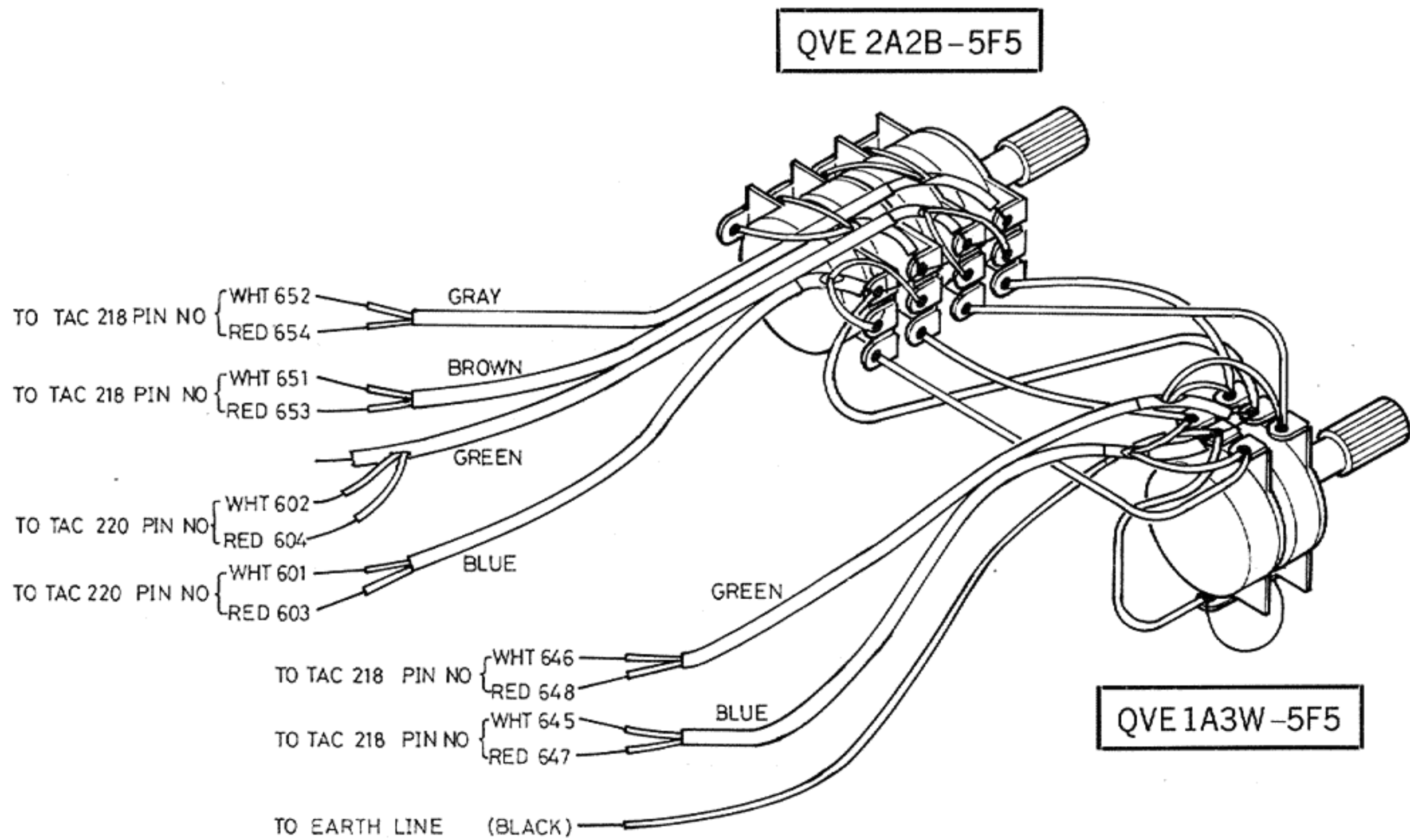


Fig. 18

WIRE CONNECTION OF SFCS VOLUME (QVC 2A 2C-0F5)

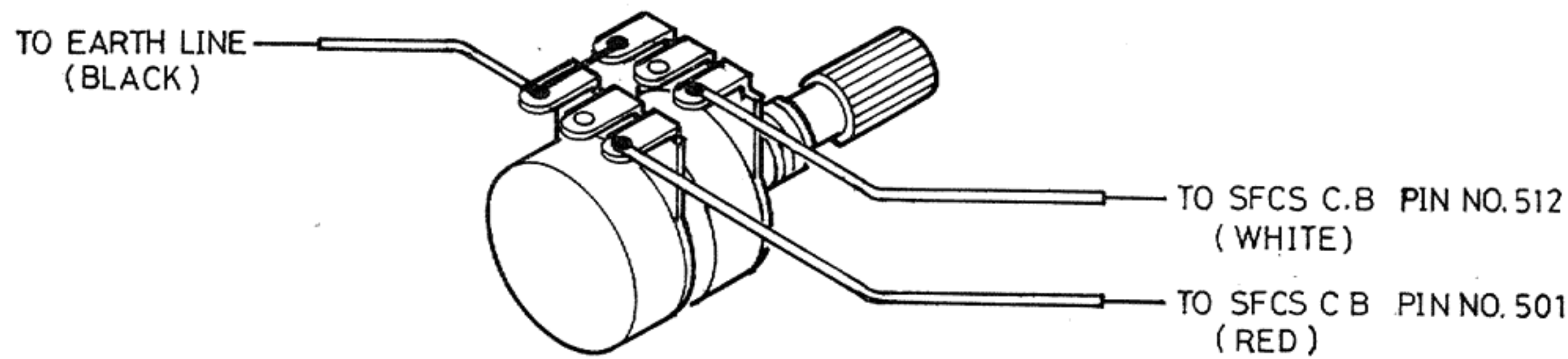


Fig. 19

WIRE CONNECTION OF SELECT SWITCH (E03470-001)

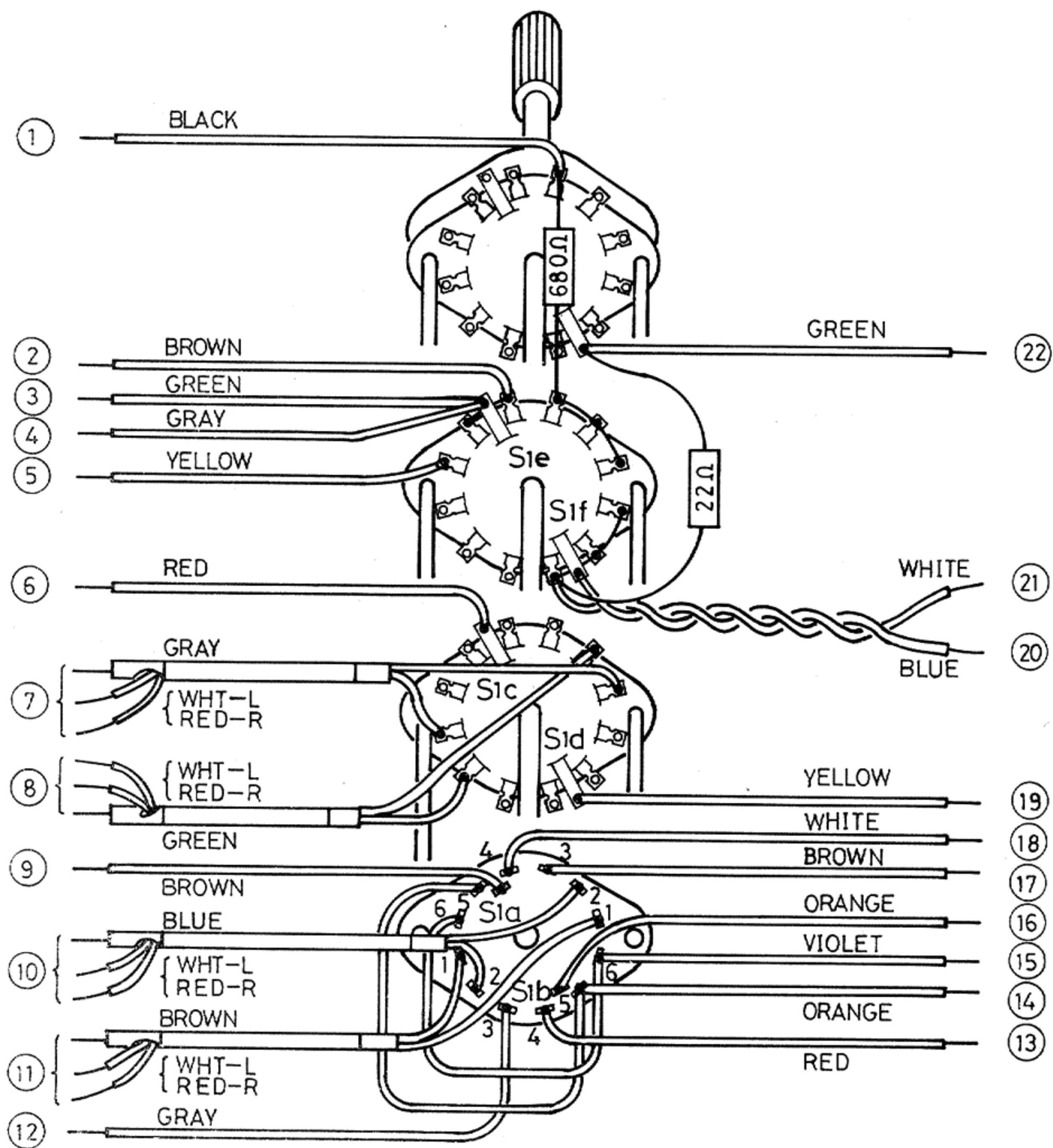


Fig. 20

WIRE CONNECTION

Dwg. No.	Connection	Dwg. No.	Connection
1	To Ground	12	To Tab 518 ON TAC-221
2	To Tab 103 ON TFM-203GUA	13	To Tab 304 ON TFM-203GUA
3	To Tab 104 ON TFM-203GUA	14	To Tab 305 ON TFM-203GUA
4	To Tab 810 ON TAP-157	15	To Tab 204 ON TFM-203GUA
5	To Tab 203 ON TFM-203GUA	16	To Tab 633 ON TAC-218
6	To Tab 623 ON TAC-218	17	To Tab 517 ON TAC-221
7	To Aux Input (Rear)	18	To Tab 303 ON TFM-203GUA
8	To Aux 2 Input (Rear)	19	To Tab 634 ON TAC-218
9	To Tab 631 ON TAC-221	20	To Tab 812 ON TAP-157
10	To Aux 2 Input (Front)	21	To Power Transformer (6.3V)
11	To Aux 1 Input (Front)	22	To Mode Switch (S2K-C)

WIRE CONNECTION OF MODE SWITCH (OSR31C5-201)

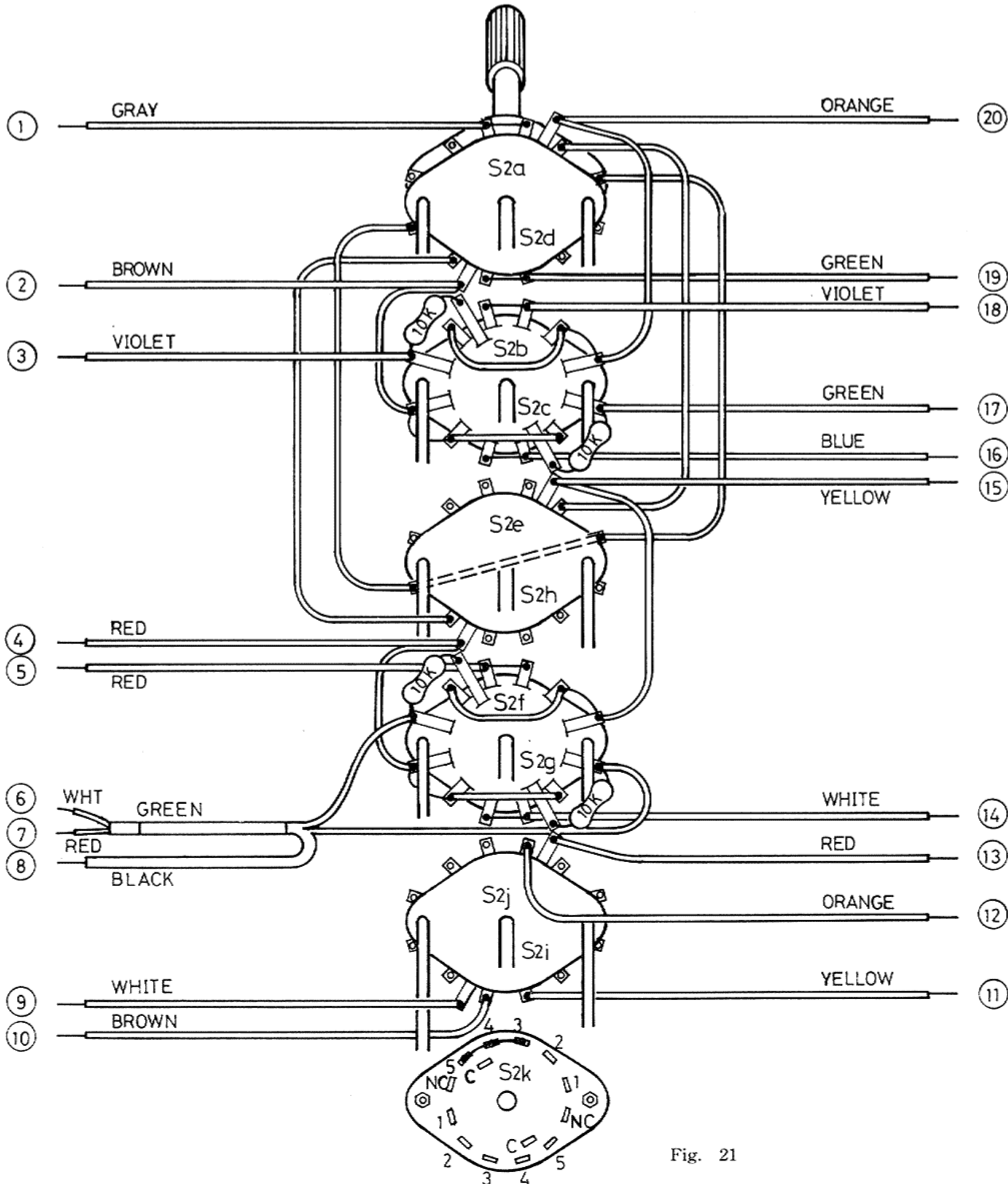


Fig. 21

WIRE CONNECTION

Dwg. No.	Connection	Dwg. No.	Connection
1	To Tab 511 ON TAC-221	11	To Tab 504 ON TAC-221
2	To Tab 643 ON TAC-218	12	To Tab 505 ON TAC-221
3	To Tab 645 ON TAC-218	13	To Tab 503 ON TAC-221
4	To Tab 644 ON TAC-218	14	To SFCS. VR. Centor (R-CHAN)
5	To SFCS. VR. Centor (L-CHAN)	15	To Tab 642 ON TAC-218
6	To Tab 646 ON TAC-218	16	To Tab 506 ON TAC-221
7	To Tab 648 ON TAC-218	17	To Tab 647 ON TAC-218
8	To Ground	18	To Tab 508 ON TAC-221
9	To Tab 508 ON TAC-221	19	To Tab 502 ON TAC-221
10	To Tab 509 ON TAC-221	20	To Tab 641 ON TAC-218

WIRE CONNECTION OF SPEAKER SWITCH (QSP6230-041)

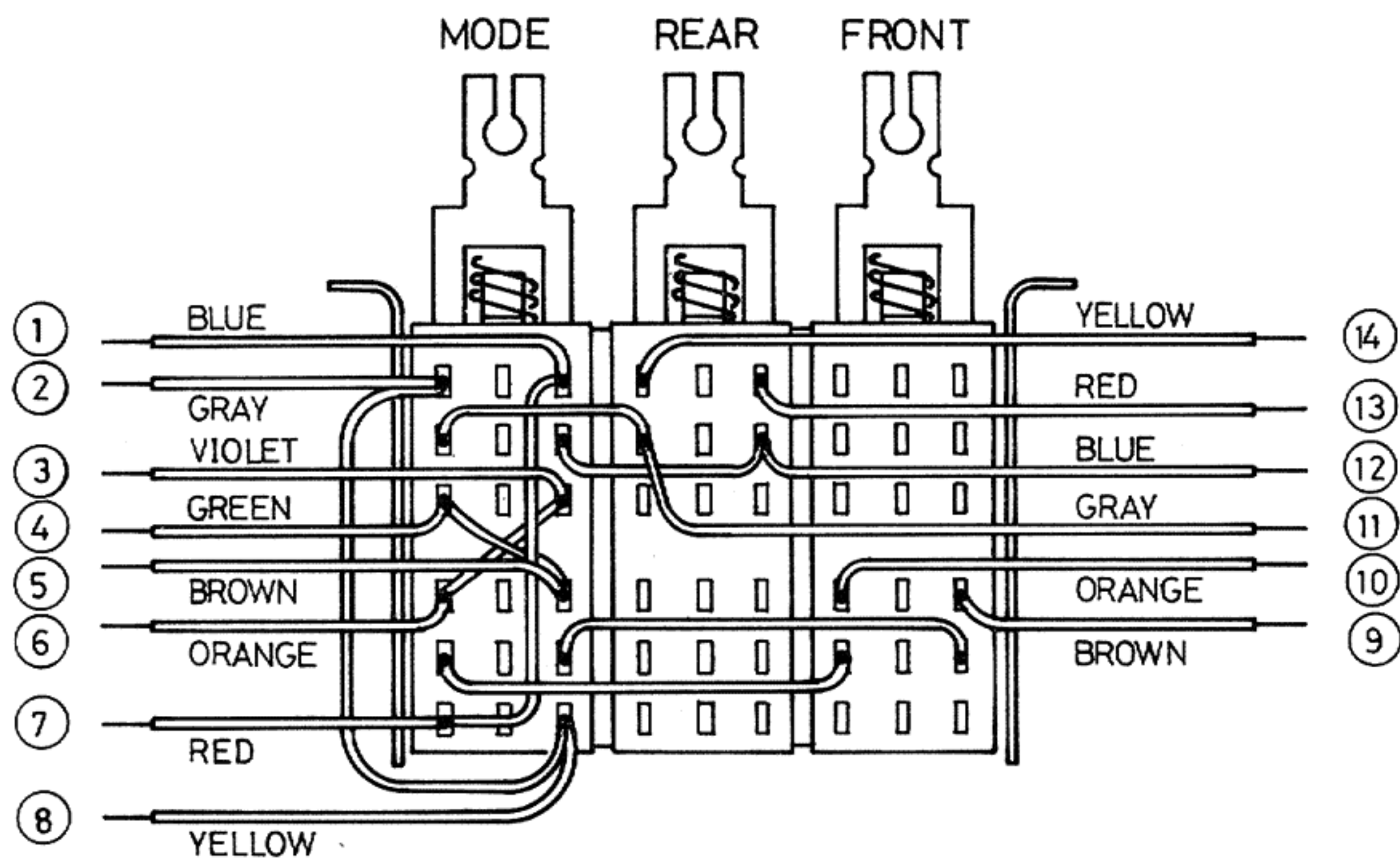


Fig. 22

WIRE CONNECTION

Dwg. No.	Connection	Dwg. No.	Connection
1	To Tab 826 ON TAP-157	8	To Head Phones Jack (REAR-R)
2	To Tab 828 ON TAP-157	9	To Speaker Terminal (FRONT-L)
3	To Tab 827 ON TAP-157	10	To Speaker Terminal (FRONT-R)
4	To Tab 825 ON TAP-157	11	} To BTL Switch
5	To Head Phones Jack (FRONT-L)	12	
6	To Head Phones Jack (FRONT-R)	13	To Speaker Terminal (REAR-L)
7	To Head Phones Jack (REAR-L)	14	To Speaker Terminal (REAR-R)

TFM-203GUA WIRE CONNECTION

Tab No.	Tab Name	Connection
101	FM Antenna	From FM Antenna Terminal ON Rear Panel
102	"	"
103	FM+B (12V)	From ④ of Select Switch S1e
104	IF × B (12V)	From ⑤ of Select Switch S1e
105	FM IF Muting	To Tab 639 ON TAC-218
106	Muting Volume	To Muting Volume
107	"	"
108	"	"
109	Tuning Meter	To Tuning Meter (+)
111	Bull's Eye (RED)	To Red Lamp of Bullis Eye
112	FM Muting Out	To Tab 640 ON TAC-218
113	Bull's Eye (ORENGE)	To Orange Lamp of Bullis Eye
114	FM Det Out	To FM Det Out Terminal ON Rear Panel
115	Ground	To Ground
201	AM Antenna	From AM Antenna Terminal ON Rear Panel
202	Ground	To Ground
203	AM+B (12V)	From ⑥ of Select Switch S1e
204	AM Out	To ⑥ of Select Switch S1a
302	FM Stereo Rader	To FM Stereo Rader Lamp
303	FM L Ch Out	To ④ of Select Switch S1a
304	FM R Ch Out	To ④ of Select Switch S1b
305	FM Mono Out	To ⑤ of Select Switch S1a

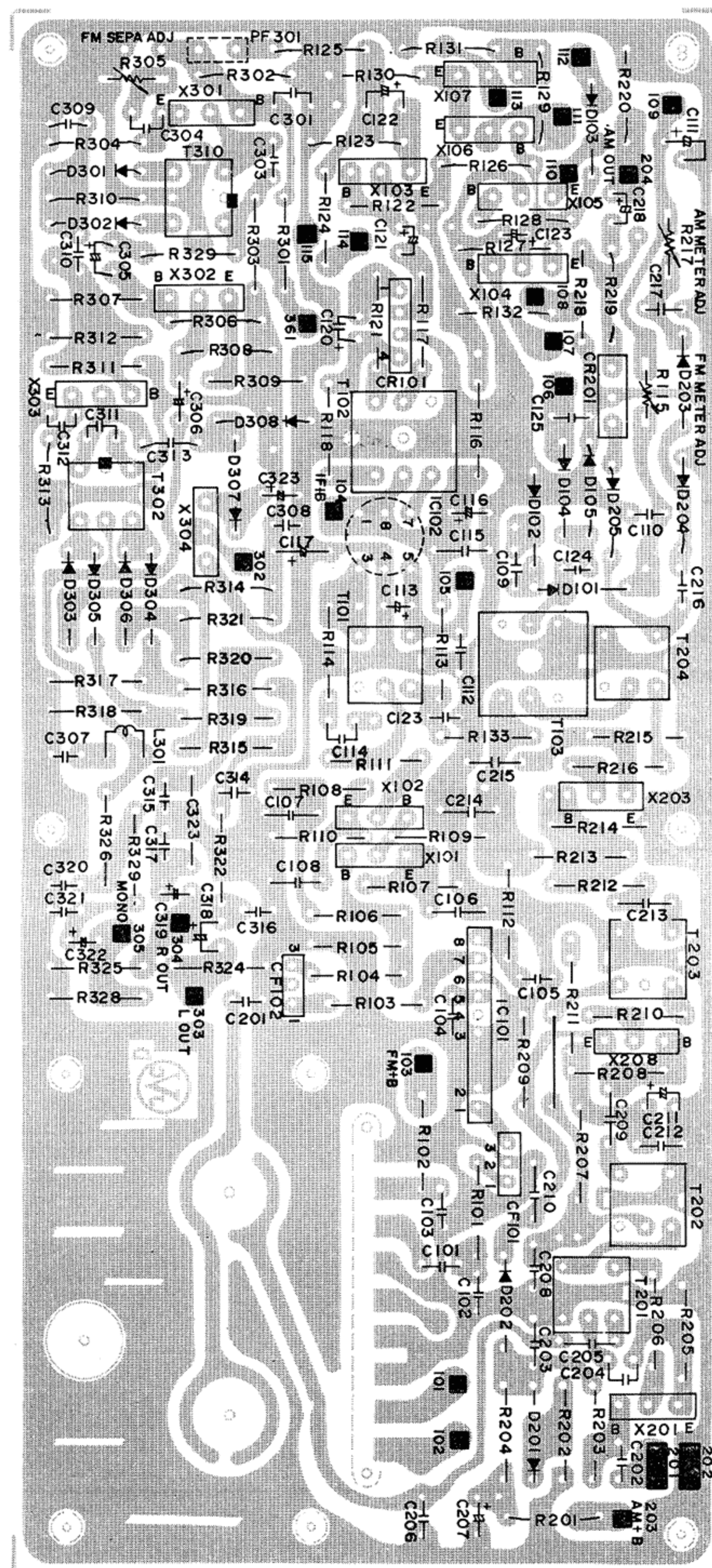


Fig. 23

Dwg. No.	Parts No.	Parts Name	Description
1	TFM-203GUA	Circuit Board Ass'y	
2	E03324-001S	FM Front End Ass'y	
3	E03145-006	Bar Antenna Coil Ass'y	
4	NJ703N	IC (JRC)	Ic102
5	E03450-001	// (RED)	Ic101
6	2SC710B	Silicon Transistor	X101, 102, 202, 203
7	2SC711E	"	X103, 104, 301, ~303
8	2SA628F	"	X105
9	2SC458LC	"	X106, 107, 304
10	2SC929E	"	X201
11	1N60	Ge Diode	D101~105, 203~205
12	1N60P	"	D301, 302, 307, 308
13	1S426GFM	"	D303~306
14	1S990	Silicon Diode	D201, 202
15	E03357-001	Ceramic Filter	Cf101, 102
16	E03404-002	Sca Filter	Lpe301
17	E03078-28	IF Trans	T101
18	E03134-014	AM IF Coil	T102 (Det)
19	// -015	"	T103 (Mut)
20	E03062-26	"	T202 (1st)
21	// -30	"	T203 (2nd)
22	// -23	"	T204 (Det)
23	E03079-17	AM OSC Coil	T201
24	E03117-012	MPX Coil	T301, 302
25	E03407-002	Trap Coil	L301
26	E0752-11	C. R. Block	CR101
27	// -9	"	CR201
28	Q04845-3	Variable Resistor	R305 Sepa (Ou) (5Kb)
29	Q04846-5	"	R217, 115 (10Kb)
30	Q03244-122	Mylar Capacitor	C316, 317
31	// -472	"	C307, 310, 320, 321
32	// -562	"	C314, 315
33	// -103	"	C204
34	// -153	"	C304
35	// -473	"	C312
36	Q04051-10	Ceramic Capacitor	C109, 201, 206
37	// -22	"	C114
38	// -56	"	C124
39	// -120	"	C101
40	// -220	"	C309, 313
41	// -330	"	C102, 216
42	// -470	"	C301, 205
43	Q46962-022(A)	"	C103, 104, 105, 110, 112, 125, 123, 202, 203, 213, 217
44	E03375-045	"	C106, 107, 108, 115, 117, 208, 209, 210, 212, 214, 215
45	Q03269-272	Polystyrol Capacitor	C311
46	// -103	"	C303
47	Q03104-100	Electrolytic Capacitor (100μ/6.3V)	C111
48	Q03108-10	" (10μ/16V)	C305, 308, 211
49	// -50	" (47μ/16V)	C116
50	Q03110-3	" (33μ/25V)	C123
51	// -4.7	" (4.7μ/25V)	C113, 120, 121, 122, 207
52	Q03108-30	" (33μ/16V)	C306
53	Q03112-1	" (1μ/50V)	C318, 319, 322, 323, 218

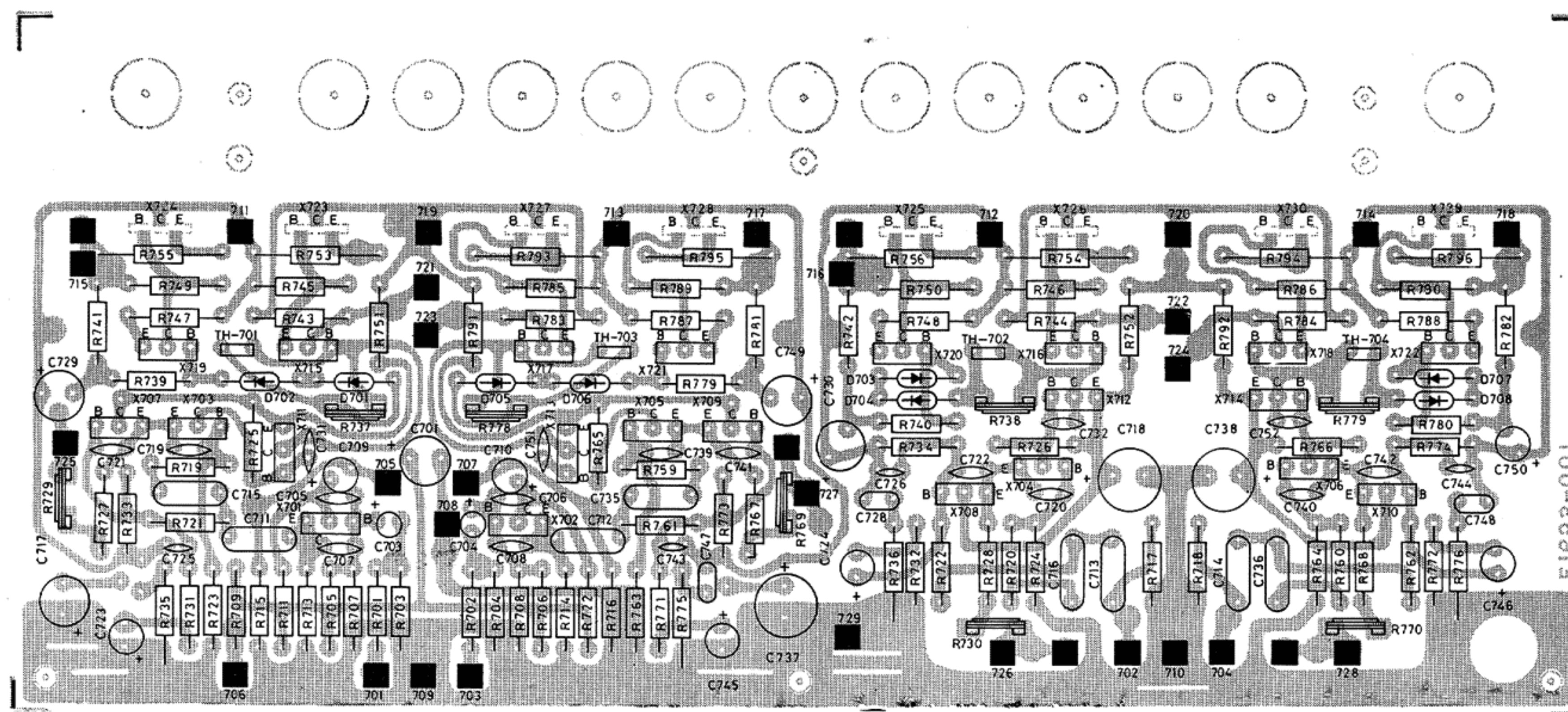


Fig. 24

WIRE CONNECTION

Tab No.	Tab Name	Connection
701	Front (L) Input	From ① of Balance Remote Socket
702	Rear (L) Input	From ② of BTL Switch S5a
703	Front (R) Input	From ③ of Balance Remote Socket
704	Rear (R) Input	From ④ of BTL Switch S5b
705	BTL Output (L)	From ⑤ of BTL Switch S5a
706	BTL Circuit + B	From Tab 811 on TAP-157
707	BTL Output (R)	From ⑥ of BTL Switch S5b
708		
709	Ground	To Ground
710	Ground	"
711	Front (L) Output	To Tab 821 on TAP-157
712	Rear (L) Output	To Tab 822 on TAP-157
713	Front (R) Output	To Tab 823 on TAP-157
714	Rear (R) Output	To Tab 824 on TAP-157
715	Front (L)-B	From Tab 717 on TAD-108
716	Rear (L)-B	From Tab 718 on TAD-108
717	Front (R)-B	From Tab 805 on TAP-157
718	Rear (R)-B	"
719	Front (L, R) + B	From Tab 804 on TAP-157
720	Rear (L, R) + B	"
721	Front (L) Protector Out	From Tab 815 on TAP-157
722	Rear (L) Protector Out	" 816 "
723	Front (R) Protector Out	" 817 "
724	Rear (R) Protector Out	" 818 "
725	-B (-6V)	From Tab 806 on TAP-157
726	"	From Tab 725 on TAD-108
727	"	" 726 "
728	"	From Tab
729	Ground	To Ground

THE LIST OF MAIN PARTS FOR REPLECEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	TAD-108	Circuit Board Ass'y	
2	E33045-001	Heat Sinc	
3	2SC789Y	Silicon Transistor	X723~730
4	2SC458ALGC	Silicon Transistor	X701, 702
5	2SC458LGC	"	X703~710
6	2SC853L or M	"	X715~718
7	2SA545M	"	X711~714, 719~722
8	1S990	Varistor	D701~708
9	E04026-4	Thermistor	TH701~704 (SDT-20)
10	E03347-002	M. F. Resistor	R753~756, 793~796
11	Q04842-4	Variable Resistor (500) B	R737, 738, 777, 778
12	Q04846-5	" (10KB)	R729, 730, 769, 778
13	Q03246-473	Mylar Capacitor	C727, 728, 747, 748
14	" -224	"	C711, 716, 735, 736
15	Q04051-15	Ceramic Capacitor	C731, 732, 751, 752
16	" -27	"	C725, 726, 743, 744
17	" -470	"	C707, 708
18	Q44353-470	Ceramic Capacitor	C719~722, 739~742
19	Q03104-100	Electrolytic Capacitor (100μ/6.3)	C723, 724, 745, 746
20	Q03110-47	" (47μ/25)	C701
21	" -100	" (100μ/25)	C729, 730, 749, 750
22	Q03138-200	" (220μ/35)	C717, 718, 737, 738
23	Q03112-5	" (4.7μ/50)	C703, 704
24	E03137-1	Tantal Electrolytic Capacitor	C709, 710

TAC-218 PUSH SWITCH CIRCUIT BOARD ASS'Y

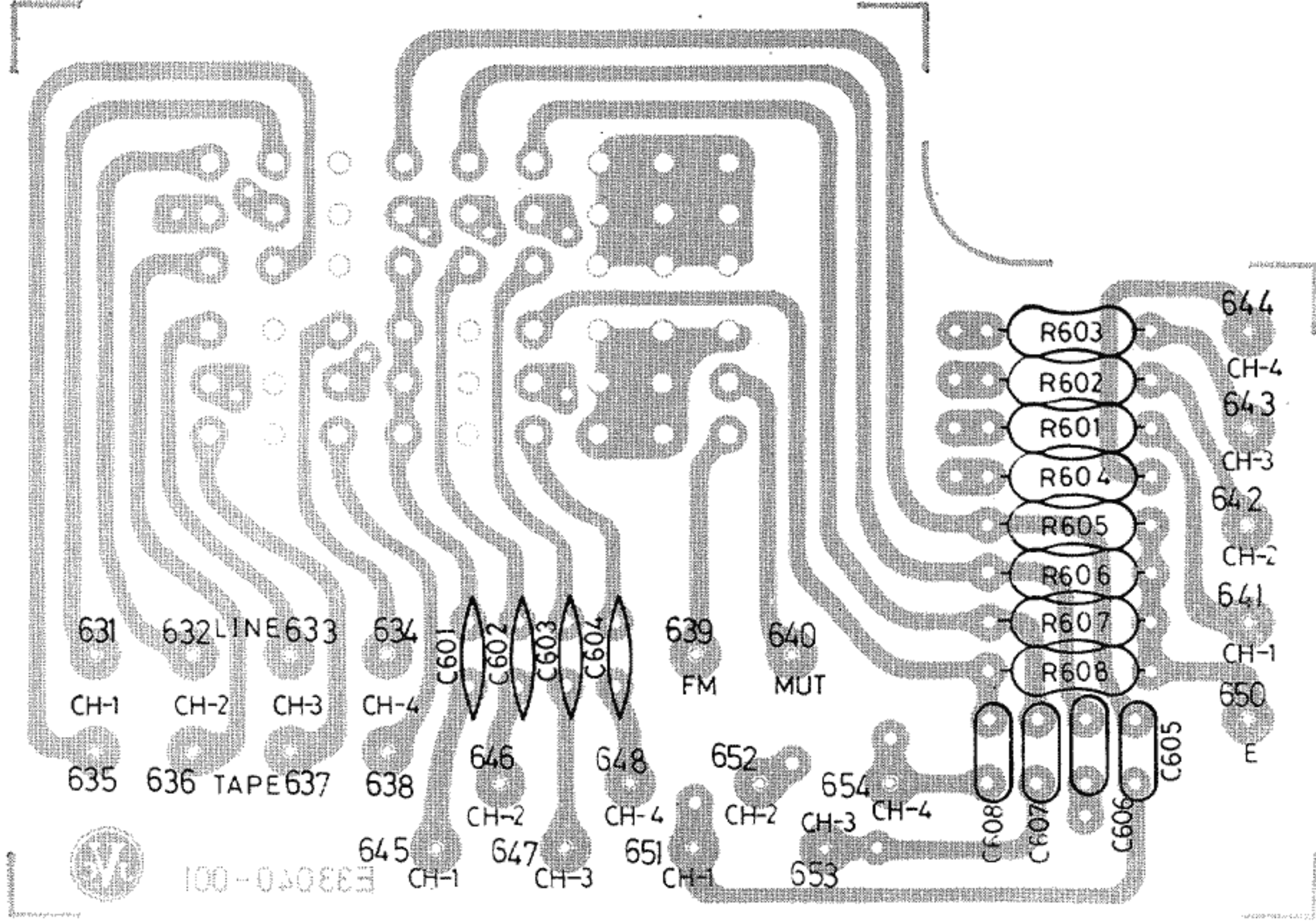


Fig. 25

WIRE CONNECTION

Tab No.	Tab Name	Connection
631	Front (L) In Put	From © of Select Switch S1a To Rec Out on Rear Panel (Front L Ch.)
632	Rear (L) In Put	From © of Select Switch S1c To Rec Out on Rear Panel (Rear L Ch.)
633	Front (R) In Put	From © of Select Switch S1b To Rec Out on Rear Panel (Front R Ch.)
634	Rear (R) In Put	From © of Select Switch S1d To Rec Out on Rear Panel (Rear R Ch.)
635	Tape In (F-L)	To Tape Mon on Rear Panel (Front L Channel)
636	" (R-L)	" (Rear L Channel)
637	" (F-R)	" (Front R Channel)
638	" (R-R)	" (Rear R Channel)
639	Muting SW	To Tab 105 on TFM-203GUA
640	Muting SW	From Tab 112 on TFM-203GUA
641	Front (L) Output	To © of Mode Switch S2a
642	Rear (L) Output	" S2e
643	Front (R) Output	" S2d
644	Rear (R) Output	" S2h
645	Loudness IN (F-L)	From Rear Volume R21a L Channel
646	" (R-R)	" R21b L Channel
647	" (F-R)	" R21a R Channel
648	" (R-R)	" R21b R Channel
649	NC	—
650	Ground	To Ground
651	Loudness Out (F-L)	To Centor of Volume R22a
652	" (R-L)	" R22c
653	" (F-R)	" R22b
654	" (R-R)	" R22d

THE LIST OF MAIN PARTS FOR REPLECEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	TAC-218	Circuit Board Ass'y	
2	QSP6230-011	Push Switch	3 Keys
3	E47643-001	Switch Spacer	50×36×1t
4	Q04051-30	Ceramic Capacitor	C601, 602, 603, 604
5	Q03244-103	Mylar Capacitor	C605, 606, 607, 608
6	E47250-001	Switch Bracket	

WIRE CONNECTION

Tab No.	Tab Name	Connection
801	AC IN (18V, 2.5A)	From Secondary 18V Line of Power Transformer
802	"	"
803	Ground	To Ground
804	+B (26V)	To Tab 719, 720 on TAD-108
805	-B (26V)	To Tab 715, 716 on TAD-108
806	-B (6V)	To Tab 728 on TAD-108
807	AC IN (20V, 0.15A)	From Secondary 20V Line of Power Transformer
808	AC IN (20V, 0.15A)	"
809	Ground	To Ground
810	Tuner +B (12V)	To © of Select Switch S1e
811	+B (21V)	To Tab 706 on TAD-108
812	AC IN (6.8V)	To ④ of Select Switch S1b
813	+B (6V)	To FM Stereo Rader Lamp
814	+B (6V)	To Needls Lamp
815	Protector IN	From Tab 721 on TAD-108
816	"	From Tab 722 on TAD-108
817	"	From Tab 723 on TAD-108
818	"	From Tab 724 on TAD-108
819	—	—
820	—	—
821	Input	From Tab 711 on TAD-108
822	"	From Tab 713 on TAD-108
823	"	From Tab 713 on TAD-108
824	"	From Tab 714 on TAD-108
825	Output	To Push Switch S8a
826	"	To Push Switch S8b
827	"	To Push Switch S8c
828	"	To Push Switch S8d

THE LIST OF MAIN PARTS FOR REPLECEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	TAP-157	Circuit Board Ass'y	
2	QEY3508-021	Electrolytic Capacitor	3300 μ /35V CS04, 805
3	DS-2P	Silicon Diode	D804~807
4	Q03206-103	O. F. T. Capacitor	C806, 807
5	E03155-002	Silicon Diode (-)	D809
6	Q03108-200	Electrolytic Capacitor (200 μ /16V)	C812
7	E03155-001	Silicon Diode (+)	D808
8	2SC509	Silicon Transistor	X806, 807
9	E0771-6	Diode	D812 IS338U
10	Q03138-470	Electrolytic Capacitor (470 μ /35V)	C808
11	Q03108-100	" (100 μ /16V)	C809
12	Q03110-100	" (100 μ /25V)	C810
13	1S332	Zener Diode	IS332 D810
14	2SC711AE	Silicon Transistor	X801, 802, 804
15	1S332	"	X803
16	2SC711AE	"	X805
17	1S426	Ge Diode	D801~803
18	MY4-0	Relay	
19	Q04843-2	Variable Resistor	1K (B) R816
20	Q04846-3	"	10K (B) R809
21	04092-100	"	1W R824
22	Q03110-100	Electrolytic Capacitor (100 μ /25V)	C803
23	Q02104-50	" (47 μ /6.3V)	C801, 802
24	Q03108-500	Electrolytic Capacitor (470 μ /16V)	C813

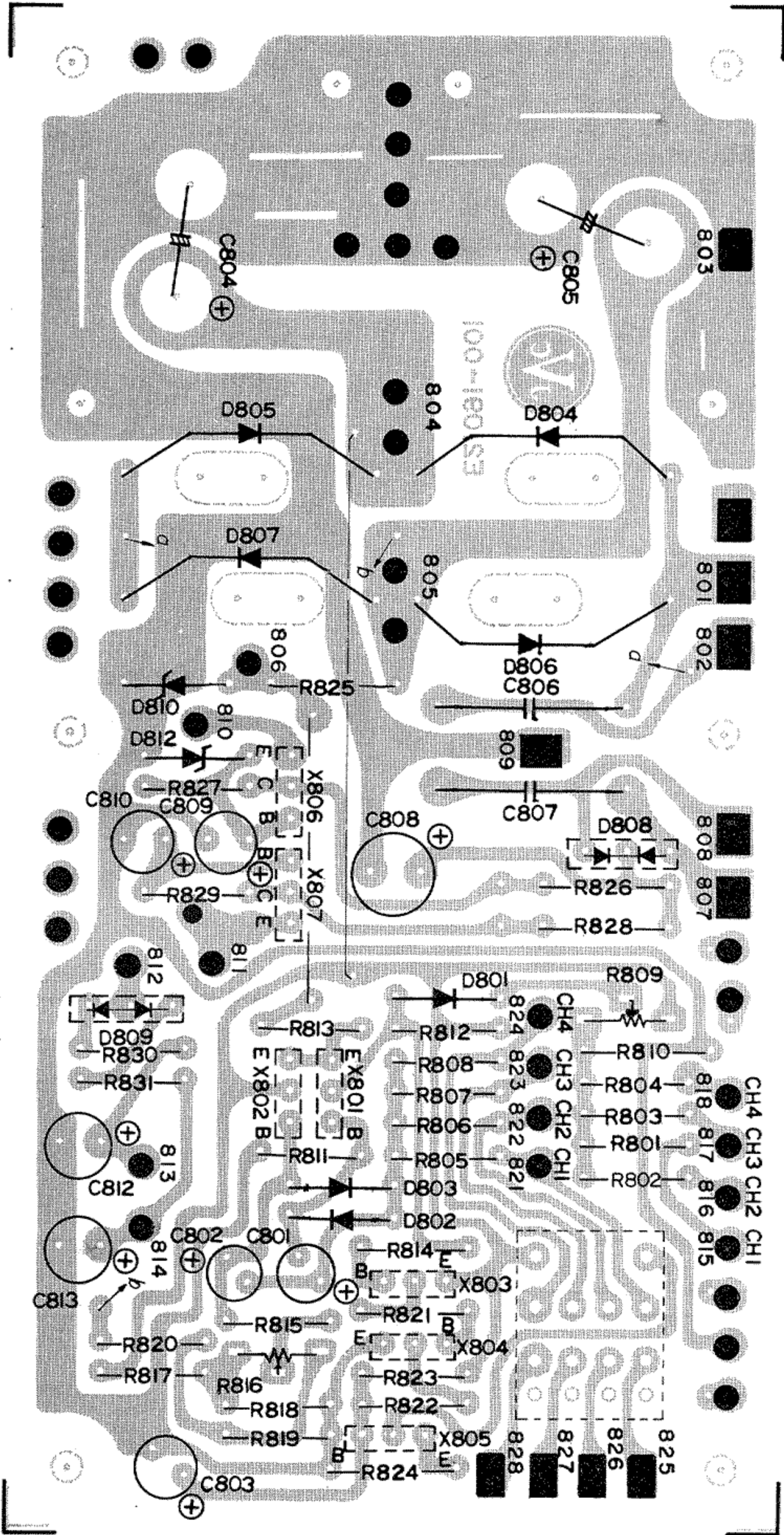


Fig. 26

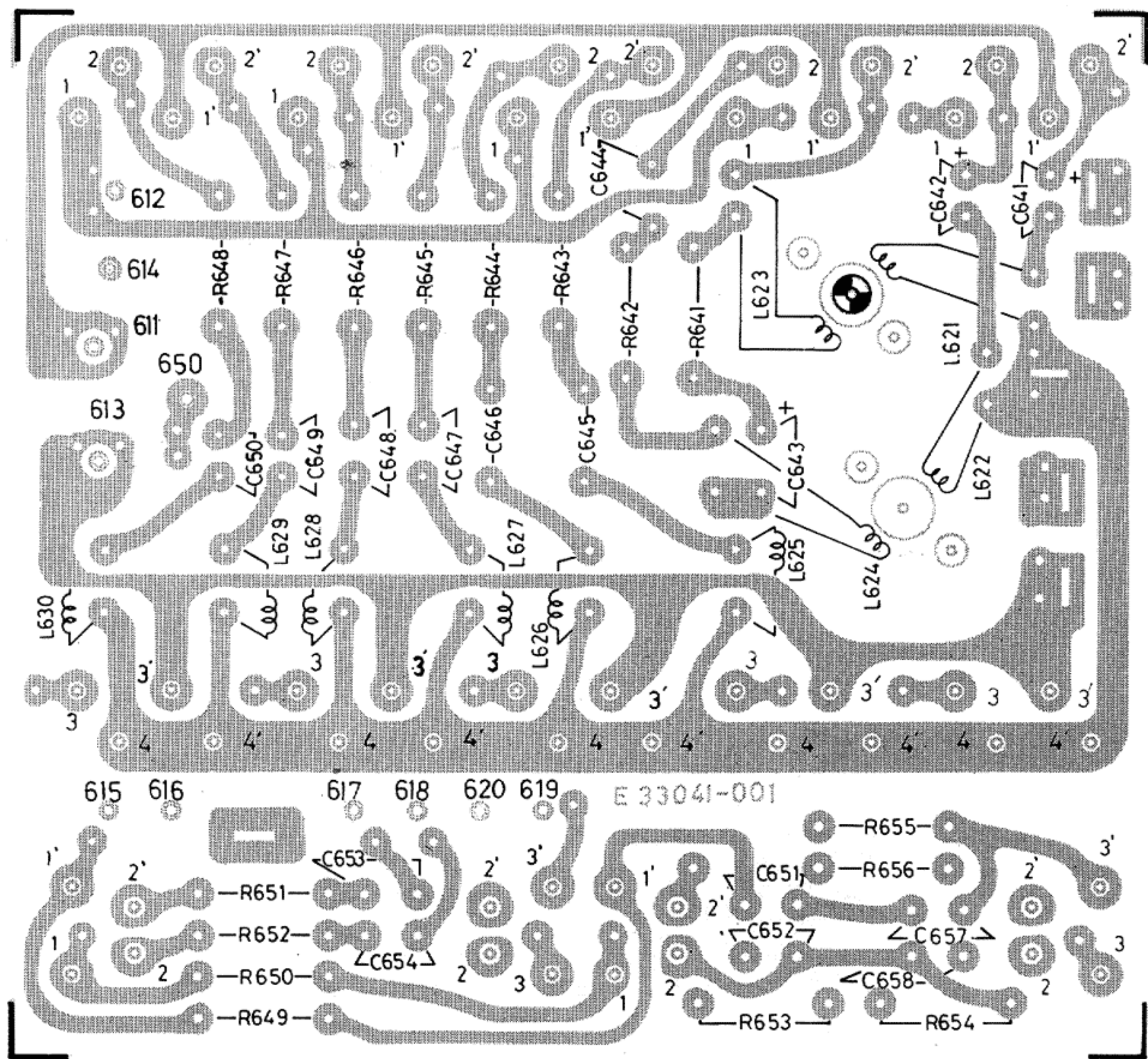


Fig. 27

WIRE CONNECTION

Tab No.	Tab Name	Connection
611	Front L NF	From Tab 609 on TAC-220
612	Front R NF	// 610 //
613	Front L Output	// 605 //
614	Front R Output	// 607 //
615	Tone L Input	// 606 //
616	Tone R Input	// 608 //
617	Tone L Output	To Tab 621 //
618	Tone R Output	// 622 //
619	Tone L NF	From Tab 623 //
620	Tone R NF	// 624 //

THE LIST OF MAIN PARTS FOR REPLECEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	TAC-219	Circuit Board Ass'y	
2	E03108-11	Choke Coil	L621, 622, 623, 624 (1.4H)(0.6H)
3	E0747-12	Ferri Inductor	L627, 628 (22mH)
4	// -9	//	L627, 630 (10mH)
5	// -11	//	L625, 626 (100mH)
6	E03131-10	Tantal Capacitor	C641, 642
7	// -68	//	C643, 644
8	Q03244-224	Mylar Capacitor	C645, 646
9	// -473	//	C647, 648
10	// -273	//	C657, 658
11	// -223	//	C651, 652
12	// -152	//	C653, 654
13	// -103	//	C649, 650

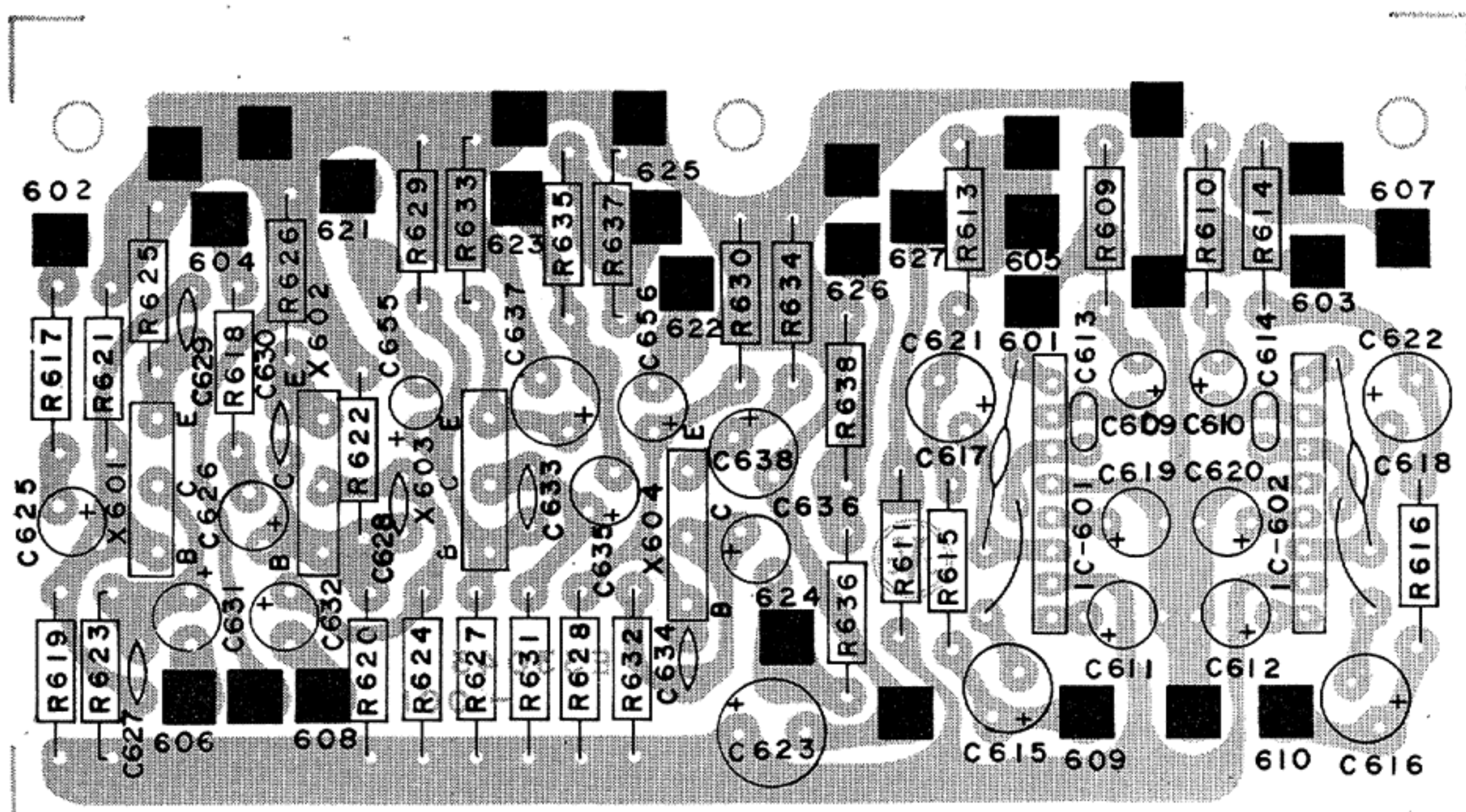


Fig. 28

WIRE CONNECTION

Tab No.	Tab Name	Connection
601	Front L Input	From ② of Mastor Volume R22a
602	Rear L Input	" R22c
603	Front R Input	" R22b
604	Rear R Input	" R22d
605	Front L Output	To Tab 613 on TAC-219 & To ⑦ of B. R. Socket
606	Tone L Output	To Tab 615 on TAC-219
607	Front R Output	To Tab 614 on TAC-219 & To ⑤ of B. R. Socket
608	Tone R Output	To Tab 616 on TAC-219
609	Front L NF	" 611 "
610	Front R NF	" 612 "
621	Tone L Input	From Tab 617 "
622	Tone R Input	" 618 "
623	Tone NF Out(L)	" 619 "
624	Tone NF Out(R)	" 620 "
625	Rear L Output	To ④ of Balance Remote Socket
626	Rear R Output	To ⑧ "
627	+B 20V	From Tab 811 on TAP-157

THE LIST OF MAIN PARTS FOR REPLACEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	TAC-220	Circuit Board Ass'y	
2	FA6012	IC	IC 601, 602
3	2SC458LGC	Transistor	X601, 602603, 604
4	Q03112-1	Electrolytic Capacitor (1 μ /50V)	C609, 610
5	Q03110-10	" (10 μ /25V)	C611, 612, 625, 631, 632, 635, 636, 655, 656
6	" -30	" (33 μ /25V)	C621, 622
7	" -200	" (220/25V)	C623
8	Q03108-30	" (33 μ /16V)	C615, 616
9	Q03104-30	" (33 μ /6.3V)	C619, 620
10	" -100	" (100 μ /6.3V)	C637, 638
11	Q46962-102	Ceramic Capacitor	C613, 614, 627, 630
12	Q04305-56	"	C617, 618, 627, 628, 633, 634

TAC-221 EQ & SFCS AMP CIRCUIT BOARD ASS'Y

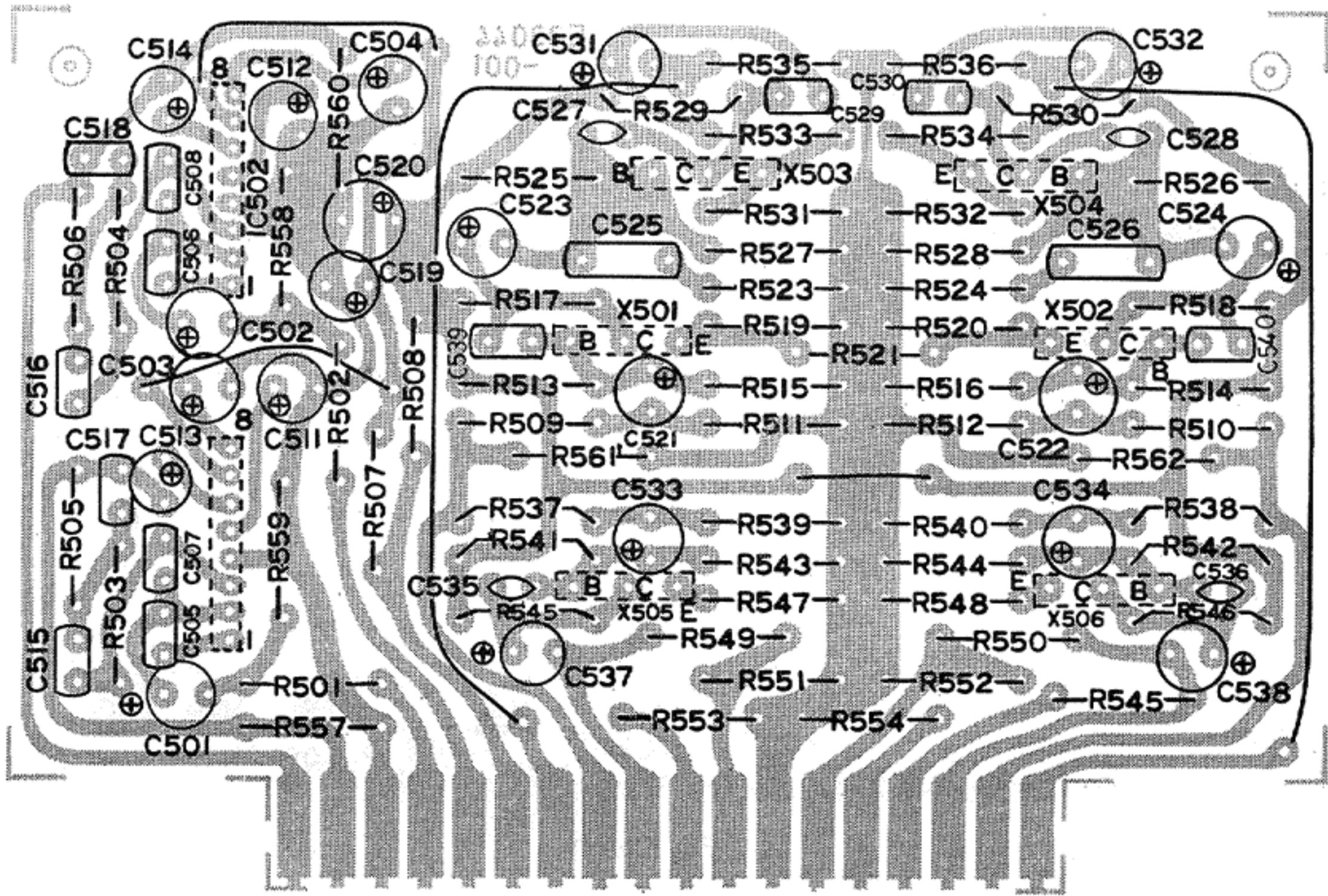


Fig. 29

WIRE CONNECTION

Tab No.	Tab Name	Connection
501	SFCS Rear R Output	To ① of SFCS Level Volume R206
502	SFCS R Input	From ③ & ④ of Mode Switch S2d
503	SFCS Switch Out (R)	To ③ of Mode Switch S2y
504	8.2K Out	To ④ of Mode Switch S2i
505	R Channel 15K Out	To ③ of Mode Switch S2y
506	SFCS Front R Output	To ③ & ④ of Mode Switch S2b
507	Ground	To Ground
508	SFCS Front L Output	To ③ & ④ of Mode Switch S2c
509	L Channel 15K Out	To ③ of Mode Switch S2i
510	SFCS Switch Out (L)	To ③ of Mode Switch S2i
511	SFCS L Input	From ③ & ④ of Mode Switch S2a
512	SFCS Rear L Output	To ① of SFCS. Level Volume R20a
513	+B 20V	From Tab 811 On TAP-157
514	EQ R Input	From Phono Terminal On Rear Panel
515	EQ L Input	//
516	Ground	To Ground
517	EQ L Output	To ③ of Select Switch S1a
518	EQ R Output	To ③ of // S1b

THE LIST OF MAIN PARTS FOR REPLACEMENT

Dwg. No.	Parts No.	Parts Name	Description
1	TAC-221	Circuit Bdard Ass'y	
2	FA6001	IC	IC501, 502
3	2SC458LGC	Silicon Transistor	X501~506
4	Q03244-152	Mylar Capacitor	C515, 516
5	// -472	//	C517, 518
6	// -103	//	C507, 508
7	// -143	//	C530
8	// -683	//	C529
9	// -104	//	C525, 526
10	Q04051-56	Ceramic Capacitor	C527, 528, 535, 536, 539, 540
11	// 100	//	C505, 506
12	Q03104-50	Electrolytic Capacitor (47μ/6.3)	C511, 512
13	Q03110-3	// (3.3μ/25)	C523, 524
14	// -10	// (10μ25)	C503, 504, 519, 520
15	Q03112-1	// (1μ/50)	C513, 514, 521, 522, 533, 534
16	// -3	// (3.3μ/50)	C501, 502
17	E03137-0.68	Tantalum Electrolytic Capacitor (0.68μ/25)	C531, 532, 537, 538

NOTE : A sort of Resistor's Parts Number shown below.

Parts No.	Sort of Resistor
Q04800- 04091-	Carbon Resistor $\frac{1}{4}W$ Composition Resistor $\frac{1}{2}W$

When you order Resistor, write required Resistor value in addition to the right-hand of hyphen.

For example : Q04800-1K = Carbon Resistor 1K Ω $\frac{1}{4}W$
 Q04800-4.7K = Carbon Resistor 4.7K Ω $\frac{1}{4}W$
 04091-5.6K = Composition Resistor 5.6K Ω $\frac{1}{2}W$

MAKER'S NAME OF USED TRANSISTOR, IC AND DIODE

2SA929	} Sanyo	DS2P	} Fuji	2SC710	} Mitsubishi
1S426GFM		SIB02-03C		2SC711	
		SIB02-03CR		2SA628	
2SC853	} NEC	FA6001	} Hitachi	1S990	} JRC
2SA545		FA6012		1S338U	
		2SC458		NJ703N	
		1N60			
		2SC789	Toshiba	1S332	

CHECK POINT AFTER REPAIR

Please make sure the following respect when repair is completes.

1. Each broadcasting frequency accords with dial scale accurately.
2. No abnormal oscillations occur in FM & AM reception.
3. Modulation hum is practically not appreciable.
4. Normal gain and output are obtained.
5. Both high and low range of audio frequency are not decreaed exceptionally.
6. S. E. A. Controls operate normally.

Parts No.	Parts Name	QTY	Discription
E64103-001	Polishing Cloth	1	For All Countries
E30580-306A	Instruction Book	1	} For U. S. A
E30539-318B	Schematic Diagram	1	
E64213-002	Waranty Card	1	
Q04741-3	Fuse	3	
E64302-002	Service Station List	1	For U. S. A & U. S. Militaly Parsonal
E32980-002	Waranty Card	1	For U. S. Militaly Parsonal
E30580-320A	Instruction Book	1	} For All Countries Except U. S. A
E30539-328A	Schematic Diagram	1	
04112-3.3	Fuse	1	
04112-1.8	Fuse	1	

Repuirement to Customers

- © To ensure prompt supply of service parts, inscribe parts number, parts name and model name correctly when you order.

The List of **JVC NIVICO** Service Manual

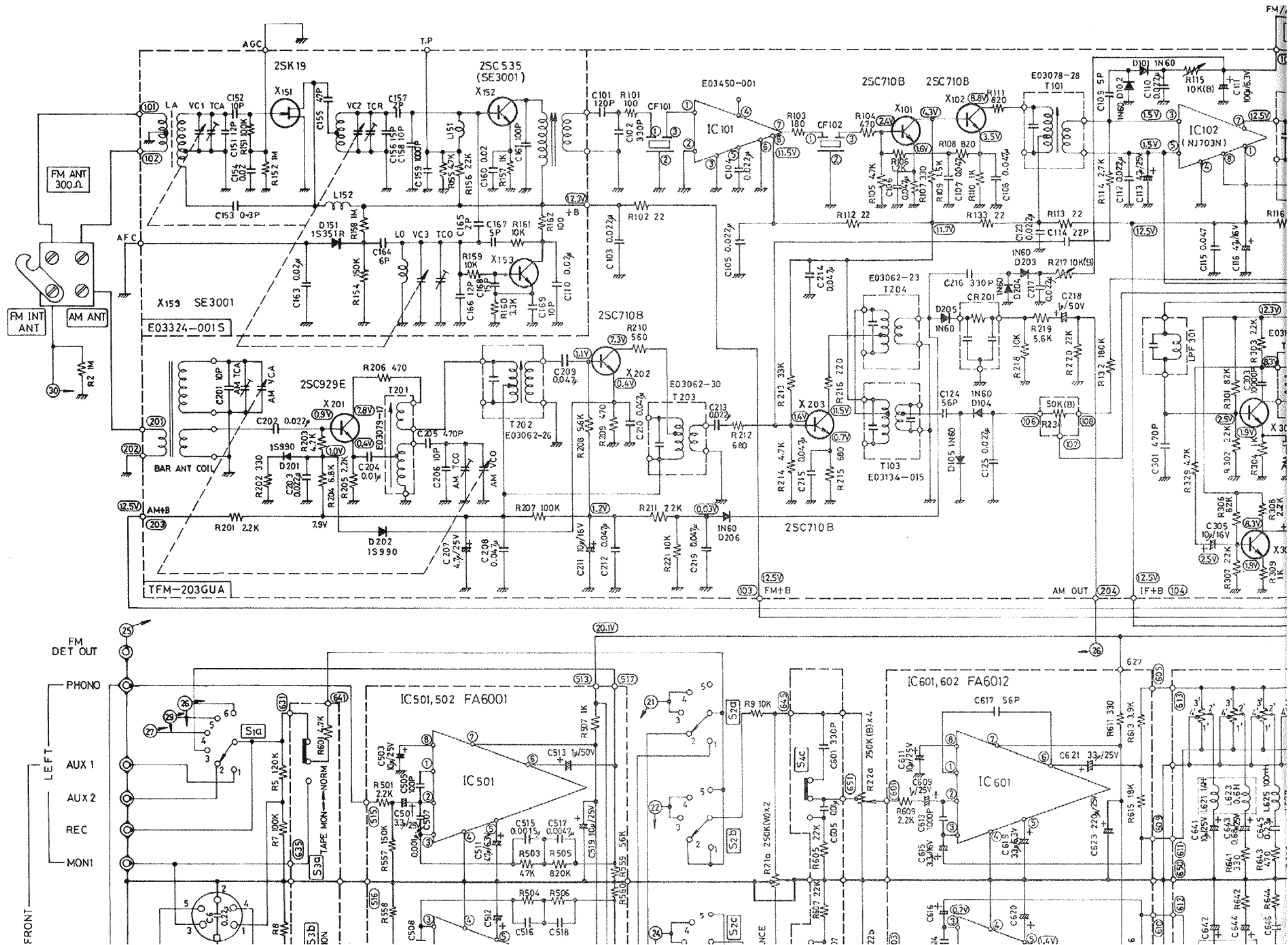
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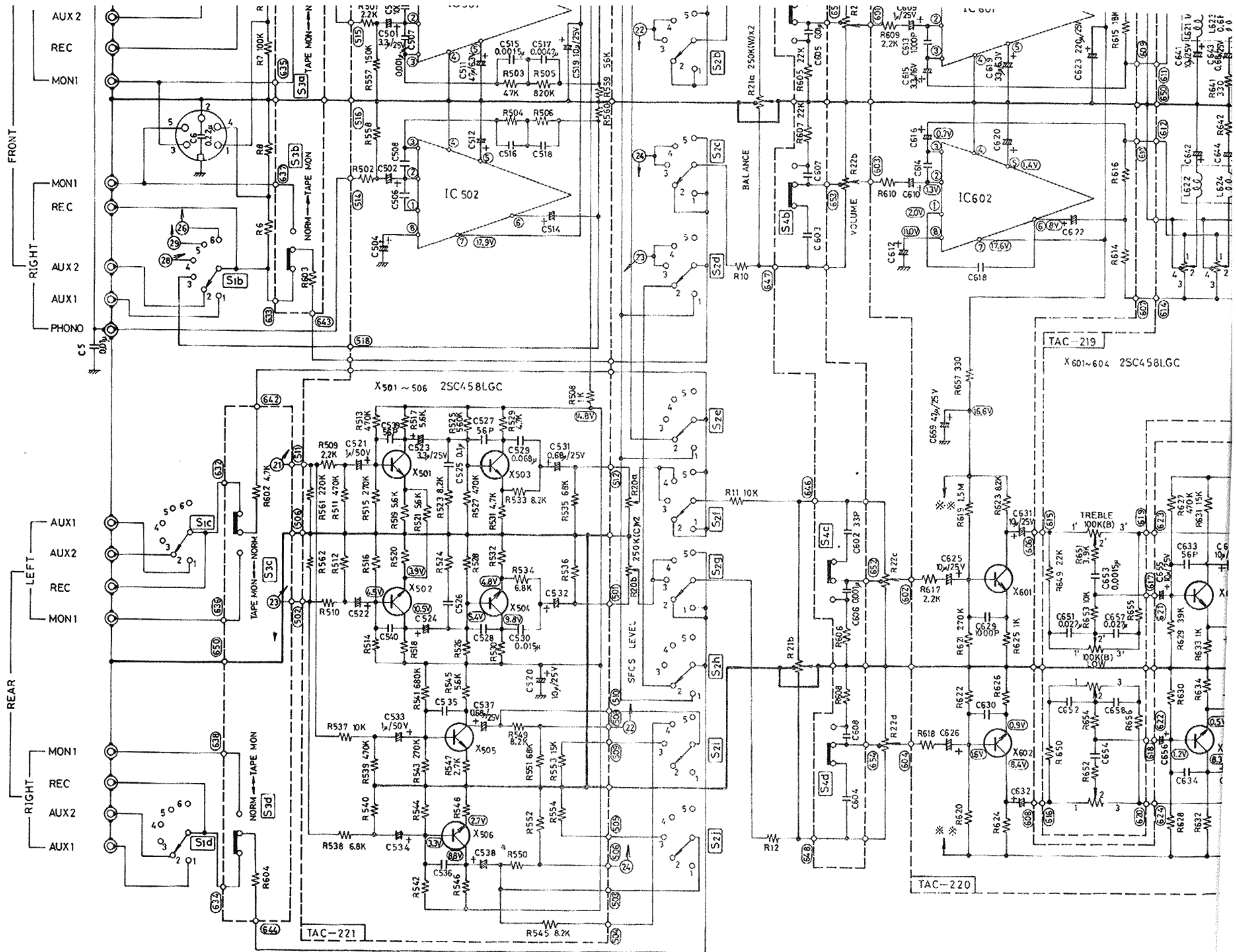
No.	Model	No.	Model	No.	Model	No.	Model	No.	Model
2081	4TR-3U	2091	ARC-30A, 30B	2101	N760ME, N99U	2111(B)	STC-707C (R#-2)	2121	5007
2082	N-55T	2092	4TR-55	2102	SRP-472E	2112	SST-61	2122	L-21M
2083	SRE-103E	2093	{N670, N770 4TR-99u, etc	2103	SRP-469E	2113	{FRS-103EH.V (R#-2)	2123	ARC-10 Series
2084	N590F, 4TR-590F	2094	STP-7LA	2104	ARC-10L	2114	STP-808C	2124(B)	5003 (Revised)
2085	ARC-40A	2095	TRE-26C	2105	{BLA-204, 208 BLA-304, 30E	2115	SSL-95E	2125	L-311C
2086	TRE-12F	2096	STP-7F	2106	AST-140E	2116	MSL-16T	2126	5204
2087	SRP-467E	2097	N-880 (R#-2)	2107	ARC-12C, E	2117	AST-215E	2127	{4210, 4220, 4230 & (R#-2)
2088	SRP-468E	2098	N-163	2108	CSL-1E	2118	SRC-700U	2128	5305
2089	ECA-101E	2099	4TR-6U	2109	MSL-8E	2119	AST-102E	2129	TRE-12T
2090	STC-19	2100	MSL-15E	2110	SST-31	2120	No. 200E Series	2130	5304

No.	Model	No.	Model	No.	Model	No.	Model	No.	Model
2131	STP-808A	2141	5320, 5340	2151(B)	5040 (R#-2)	2161	4333U	2171	5202
2132	ARC-41, 42	2142	L-311D	2152	{SSL-46E SSL-46EA	2162	MPX-18B	2172	5220
2133	TRE-666C	2143	6102, 6103, 6104	2153	MSL-300ES	2163	MCA-104E	2173	ARC-15A
2134(B)	4TR-990DX (a)	2144	ARC-10	2154	4330	2164	SEA-100E/5100	2174	4344, 4344U
2135	5001	2145	{5011/PST-1000E 5012/MST-1000E	2155	N-404, N-404Y	2165	5240B	2175(B)	4450, 4450U
2136	SRP-B30E/5230	2146	5201	2156(B)	MSL-501E	2166	4330U	2176	CSL-130SE
2137	N-65F	2147	MSL-300E	2157	N202, 303	2167	MCA-105E/5107	2177	5020/5020U
2138	4TR-511D, L511D	2148	5310	2158	4211	2168	5030/5030U	2178	MTR-10ME
2139(B)	SRP-B40E/5240	2149	MSL-110S	2159(B)	4333U, 4333	2169	SRC-900	2179	5010L
2140	5203	2150	5205	2160	5010	2170	5200	2180	4TR-1000

No.	Model	No.	Model	No.	Model	No.	Model	No.	Model
2181(B)	4400, 4400U	2191	MCM-105E/5111	2201	MSL-201L	2211	BLA-500E	2221	4431U
2182	ARC-50	2192	5395	2202	MSL-201S	2212	MCT-V7E	2222	4310U
2183	MCT-105E/5108	2193	MSL-201E	2203	4431	2213	5306	2223	{N303FYE, N203FY
2184	SCR-500	2194	MCA-V7E	2204	4310	2214	N203/Run No. 2	2224	MCA-104Z
2185	4330M	2195	SRC-800	2205	N-303YE	2215	5250U	2225	{MSL-501E MSL-201E
2186	N-404F Series	2196	5301/GB-2E	2206	5500	2216	5444/5444U	2226	MCP-105E
2187	5325, 5335	2197	5390	2207	5540	2217	5910	2227	MCA-V9E
2188	MSL-501L	2198	5321	2208	MTR-15ME	2218	MCT-V5E	2228	MCA-V5E
2189	MSA-404E	2199	5341/5341K	2209	5550/5550U	2219	5100	2229	ECA-102
2190	N-202FMY	2200	5331/5331K	2210	5351/5351K	2220	{5020/5020U 5030/5030U 5040/5040U	2230	5345

No.	Model	No.	Model	No.	Model	No.	Model	No.	Model
2231	CD4-1E	2241	4344U (R#-2)	2251	VR-5501	2231	VS-5307		
2232	SRP-473E	2242	MS-4431, 4311U	2252	VN-5101	2262	VR-5511		
2233	N-404FMY #3	2243	MF-4440	2253	VS-5308	2263	4DD-10		
2234	SEA-V7E	2244	MF-4451	2254	VS-5332	2264	5911		
2235	MSL-502ES	2245	QSL-F777E	2255	VS-5352	2265			
2236	VS-5391	2246	MF-4430	2256	VS-5342	2266			
2237	VS-5396	2247	4MM-4600	2257	VS-5322	2267			
2238	5520/5520U	2248	VR-5501L	2258	VR-5541	2268			
2239	VR-5521L	2249	VR-5521	2259	VR-5551	2269			
2240	4ME-4800	2250	4VR-5445	2260	4VR-5414	2270			





This schematic diagram is for the MODEL except for U.S.A.
 The difference for U.S.A. version is as follows
 R1 2.7M Ω
 Fuse 3A voltage selector circuit : fixed for 120V

Schematic Diagram

