

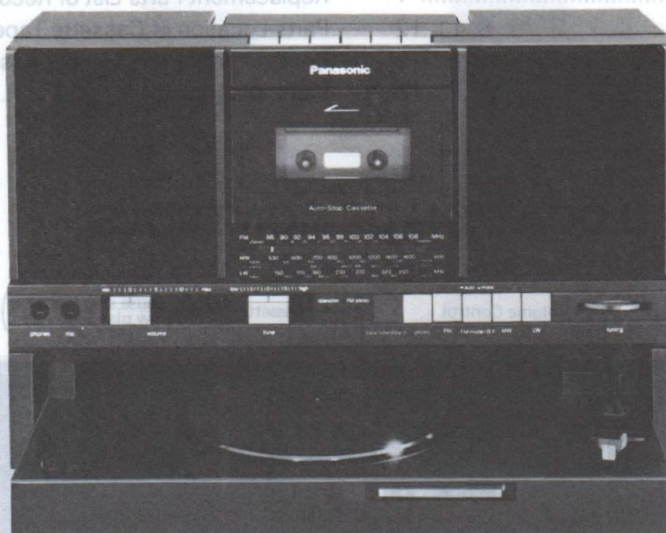
Service Manual

**LW/MW/FM STEREO RADIO WITH
CASSETTE TAPE DECK AND
RECORD PLAYER**

**Portable Stereo
SG-J500L (K), (W)**

[EW], [EK], [EA]

[EK]: United Kingdom
[EA]: Austria, Holland, Belgium
[EW]: Switzerland



Specifications

AMPLIFIER SECTION

Power Output	AC:	MPO 4W × 2, THD 10%, 6Ω RMS 1.9W × 2 THD 10%, 6Ω
	DC:	RMS 3W × 2, THD 10% 6Ω
	AC:	MPO 8W (4W × 2, THD 10%, 6Ω) RMS 1.9W × 2 (THD 10%, 6Ω)
		Both channels driven
	DC:	RMS 10W (5W × 2, max. 6Ω)

UK only

FM TUNER SECTION

Frequency Range	87.5 MHz ~ 108 MHz
Intermediate Frequency (IF)	10.7 MHz
Sensitivity	2.8 μV (at 1 kHz, 40 kHz) (DIN) at 75Ω
Stereo Separation	34 dB (at 1 kHz, 60 dB, 40 kHz)

AM TUNER SECTION

Frequency Range	MW: 525 kHz ~ 1605 kHz (571 m ~ 187 m)
	LW: 150 kHz ~ 350 kHz (2,000 m ~ 857 m)
Intermediate Frequency (IF)	468 kHz (UK only) 450 kHz (Except UK)
Sensitivity	MW: 220 μV/m (1 MHz) LW: 500 μV/m (240 kHz)

TAPE DECK SECTION

Deck System	Auto stop
Track System	4-Track, 2-Channel
Head Type	Hard Permalloy (Rec/Play) Double Gap Ferrite (Erase)
Recording System	AC Bias (50 kHz)

Erasing System	AC Erase (50 kHz)
Tape Speed	4.8 cm/sec.
Frequency Response	50 Hz ~ 12 kHz
Signal/Noise Ratio	50 dB (DIN)
Wow & Flutter	0.2% (WRMS)

PHONO SECTION

Turntable System	Belt drive
Turntable Platter	16 cm
Turntable Speed	33-1/3 rpm and 45 rpm
Phono-Motor	Electro-Governor DC Motor
Cartridge	Ceramic cartridge (EPC-13STH)
Stylus	Sapphire tip (EPS-41ST)
Stylus Pressure Range	5.9g

SPEAKER SYSTEM

Speaker	12 cm Dynamic Speaker
Input Impedance	6Ω

GENERAL

Power Consumption	15W
Power Supply	AC 110V/120V/220V/240V, 50/60 Hz Battery: 12V (8 × UM-1, "D" size battery) Car battery: optional car adaptor
Dimensions (W × H × D)	395 mm × 273 mm × 209 mm
Weight	5 kg (without batteries) 5.8 kg (with batteries)

* Specifications are subject to change without notice for further improvement.

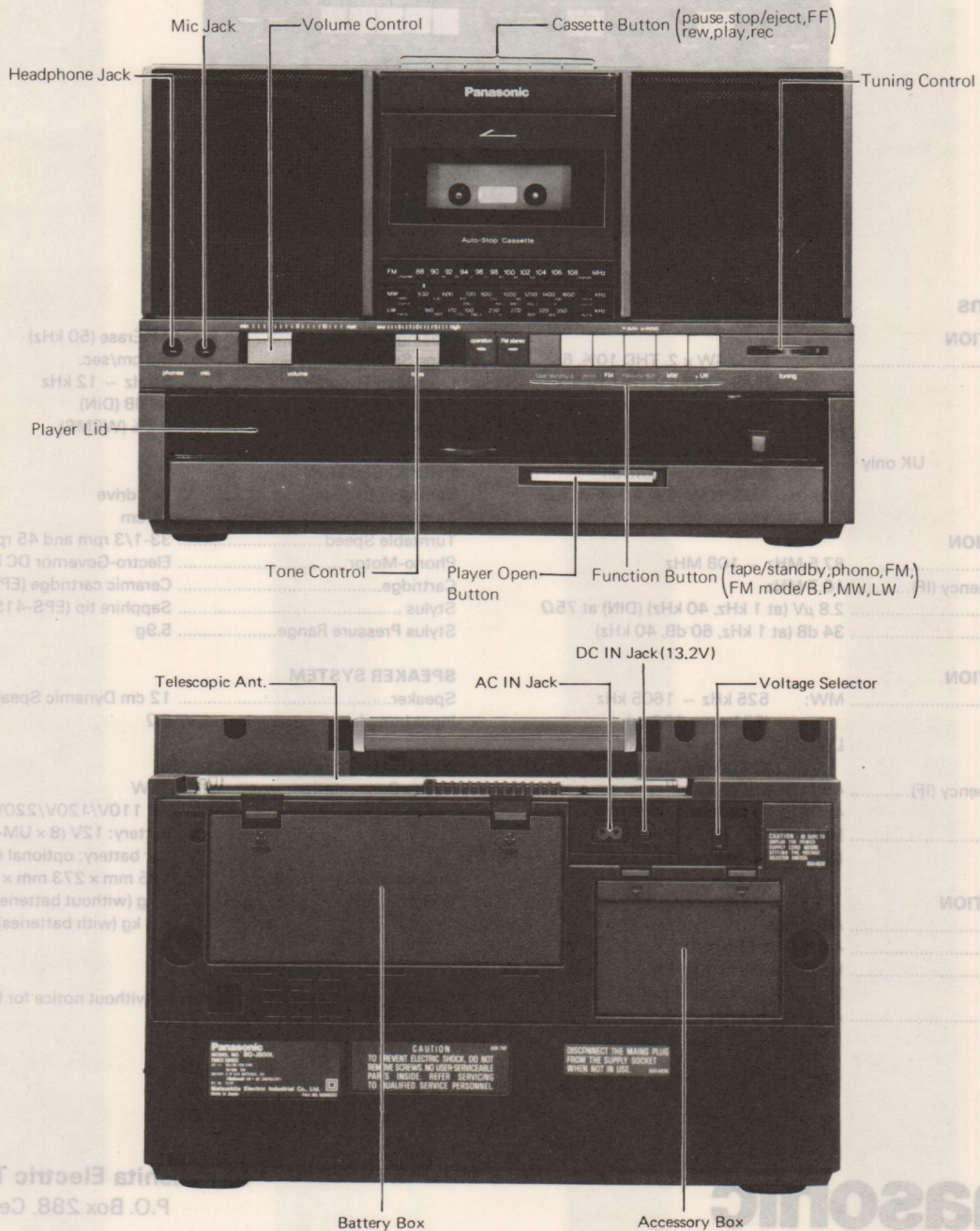
Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

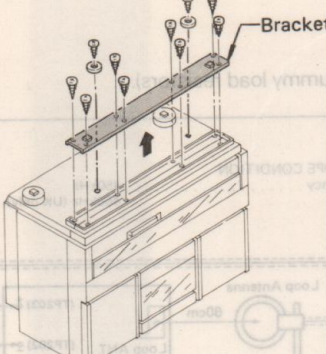
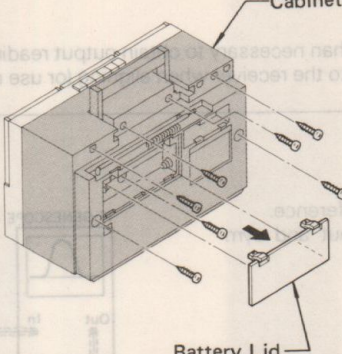
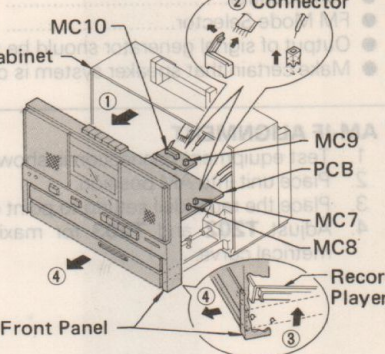
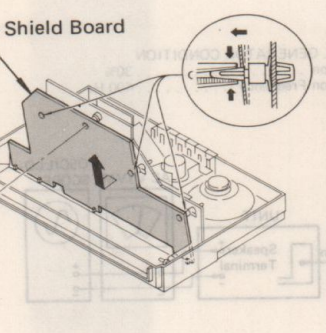
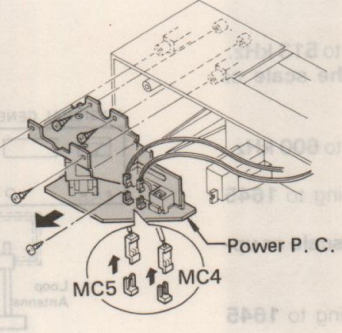
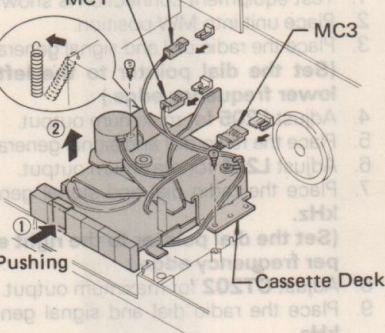
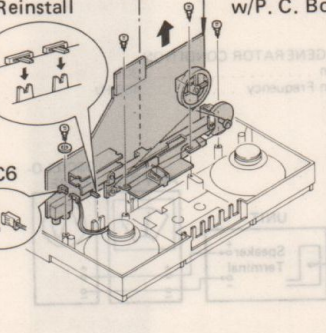
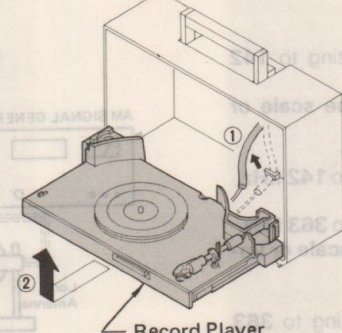
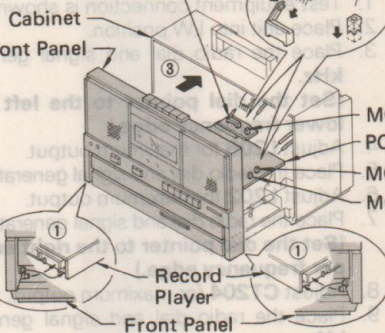
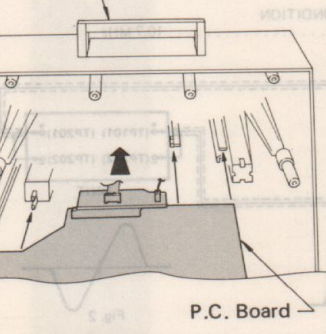
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LOCATION OF CONTROLS



DISASSEMBLY INSTRUCTIONS

1 Remove the Power Cord, Battery and Bracket  Bracket	2 Remove the Cabinet  Cabinet Battery Lid	3 Remove the Front Panel  MC10 Cabinet MC9 PCB MC7 MC8 Record Player Front Panel Connector
4 Remove the Shield Board  Shield Board	5 Remove the Power P. C. Board  Power P. C. Board MC5 MC4	6 Remove the Cassette Deck  MC2 MC1 MC3 Pushing Cassette Deck
7 Remove the Chassis Ass'y  Reinstall Chassis Ass'y w/P. C. Board MC6	8 Remove the Record Player  Record Player	9 Reinstall the Front Panel-1  MC10 Cabinet Front Panel MC9 PCB MC7 MC8 Record Player Front Panel Connector
10 Reinstall the Front Panel-2  Cabinet P.C. Board	To Replace the Parts on P. C. Board Main P. C. Board Refer to 1 ~ 4 Power P. C. Board Refer to 1 ~ 3, 5 To Remove the Cassette Deck Refer to 1 ~ 3, 6 To Remove the Chassis Ass'y Refer to 1 ~ 3, 4, 6, 7 To Remove the Player Refer to 1 ~ 3, 8 To Reinstall the Front Panel Refer to 9, 10, 2, 1	

MEASUREMENTS AND ADJUSTMENT

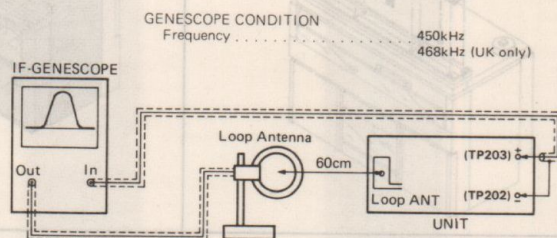
Radio

Control Positions

- Volume Control..... Audible level of speaker sound (AM-RF, FM-RF); Minimum (AM-IF, FM-IF).
- Tone Control..... Maximum
- FM Mode Selector..... FM AUTO
- Output of signal generator should be no higher than necessary to obtain output reading.
- Make certain that speaker system is connected to the receiver when aligning (or use relevant dummy load resistors).

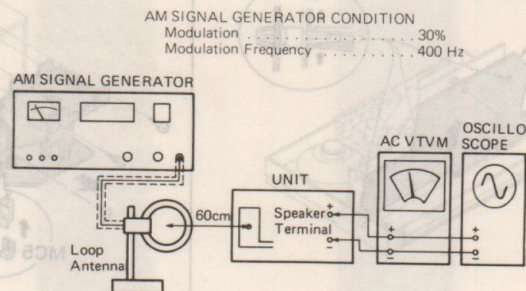
AM-IF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into AM position.
3. Place the radio dial setting to point of noninterference.
4. Adjust **T202** and **T203** for maximum output and symmetrical curve.



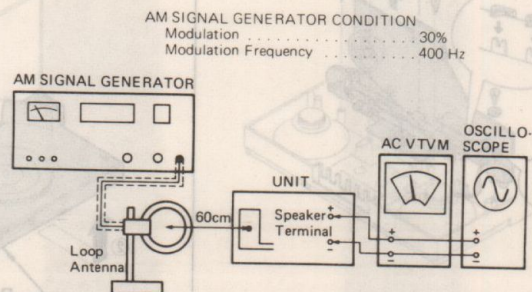
MW-RF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into MW position.
3. Place the radio dial and signal generator setting to **513 kHz**.
(Set the dial pointer to the left end of the scale or lower frequency edge.)
4. Adjust **L205** for maximum output.
5. Place the radio dial and signal generator setting to **600 kHz**.
6. Adjust **L201** for maximum output.
7. Place the radio dial and signal generator setting to **1645 kHz**.
(Set the dial pointer to the right end of the scale or upper frequency edge.)
8. Adjust **CT202** for maximum output.
9. Place the radio dial and signal generator setting to **1645 kHz**.
10. Adjust **CT201** for maximum output.
11. Repeat steps 3. ~ 10.



LW-RF ALIGNMENT

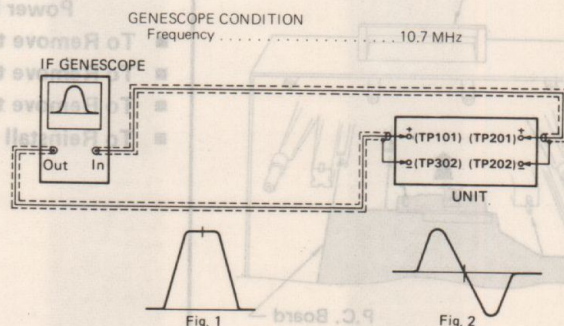
1. Test equipment connection is shown in figure.
2. Place unit into LW position.
3. Place the radio dial and signal generator setting to **142 kHz**.
(Set the dial pointer to the left end of the scale or lower frequency edge.)
4. Adjust **L206** for maximum output.
5. Place the radio dial and signal generator setting to **142 kHz**.
6. Adjust **L202** for maximum output.
7. Place the radio dial and signal generator setting to **363 kHz**.
(Set the dial pointer to the right end of the scale or upper frequency edge.)
8. Adjust **CT204** for maximum output.
9. Place the radio dial and signal generator setting to **363 kHz**.
10. Adjust **CT203** for maximum output.
11. Repeat steps 3. ~ 10.

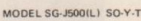


FM-IF ALIGNMENT

1. Test equipment connection is shown in figure.
2. Place unit into FM position.
3. Place the radio dial setting to point of noninterference.
4. Adjust **T101** for maximum amplitude and symmetrical curve. (Refer to Fig. 1)
5. Adjust **T201** for maximum amplitude and proper linearity between about ± 100 kHz markers. (Refer to Fig. 2)

Note: Before aligning, turn the core of **T201** fully counter-clockwise.





Tape

HEAD AZIMUTH ALIGNMENT

1. Test equipment connection is shown in figure.
2. Playback test tape QZZCAC. (10 kHz, -20 dB)
3. Adjust screw Ⓐ for maximum indication for equal output

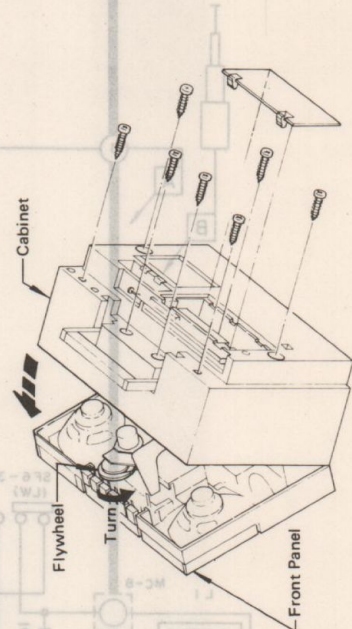
1. Test equipment connection is shown in figure.
2. Playback test tape QZZCAC. (10 kHz, -20 dB)
3. Adjust screw **A** for maximum indication for equal output on both channels.
4. After alignment, lock the head adjust screw **A** with lacquer.

1. Test equipment connection is shown in figure.
2. Place unit into TAPE position.
3. Place cassette deck into recording mode.
4. Adjust **VR803** for **10.5V $\pm$ 0.5V** on VTVM.

1. Test equipment connection is shown in figure.
2. Place unit into TAPE position.
3. Place cassette deck into recording mode.
4. Adjust **VR803** for **10.5V $\pm$ 0.5V** on VTVM.

When the cassette tape is caught around the capstan shaft:

Remove 7 screw on the cabinet, and open the front panel, then turn the flywheel counterclockwise.



	Resistor Type	Wattage	Tolerance
ERD:	Carbon Film	1: 1W	F: $\pm 1\%$
EEG:	Solid	2: 2W	J: $\pm 5\%$
EXX:	Metal Film	12: 1/2W	K: $\pm 10\%$
ENG:	Metal Oxide Film	18: 1/8W	
ERO:	High Stability Metal Film	25: 1/4W	
ERF:	Flameproof Wire-Wound Bath-Tube		
ERO:	Fuse Type Metal Film	50: 1/2W	
RRD:	Chip	2F: 1/4W	

2. Parts No. listed in this Parts List are Service Parts.

Numbering System of Resistor			
Type	Wattage	Tolerance	Value
Three letters	One or Two Letters	Two or Three Letters	Three or Four Letters
Example: E R D	2.5	T J	1 0 1

NOTE:
1. Important safety notices:

NOTE:
1. Important safety notices:

Three Letters

Three Letters

Ref. No.	Part No.	Description (Unit: g)
R805	ERD25FJ1393	3.9k
R808	ERD25FJ487	4.7k
R809	ERD25FJ332	3.3k
R815	ERD25FJ152	1.5k
R816	ERD25FJ472	4.7k
R817	ERD25FJ361	5.6k
R818	ERD25FJ561	5.6k
R819	ERD25FJ323	2.2k
R820	ERD25FJ472	4.7k
R821	ERD25FJ472	4.7k
R822	ERD25FJ68	6.8k
R901	ERD25FJ331	3.3k
R902	ERD25FJ471	4.7k
R904	ERD25FJ487P	4.7k
R904	ERD25FJ487P	4.7k

Radio

FM-RF ALIGNMENT

1. Test equipment connection is shown in figure.

- ### FM-RF ALIGNMENT
1. Test equipment connection is shown in figure.
 2. Place unit into FM position.
 3. Place the radio dial and signal generator setting to **87.3**

MHz.

4. Adjust I101 and I102 for maximum output (Set the dial pointer to the left end of the scale or lower frequency edge.)

- Adjust **LFO1** and **LFO2** for maximum output.
- Place the radio dial and signal generator setting to **108.6**

MHz.
(Set the dial pointer to the right end of the scale or up-

per frequency edge.)

6. Adjust **C1101** and **C1102** for maximum output.
7. Repeat steps 3 ~ 6.

Note: As three output reading will be present, adjustments must be made at center frequency.

1. Test equipment connection is shown in figure.

1. Test equipment connection is shown in figure.
2. Place unit into FM AUTO position.

3. Place the radio dial and signal generator setting to **98 MHz**

4. Adjust **VR301** for **19 kHz $\pm$ 50 Hz** on frequency counter

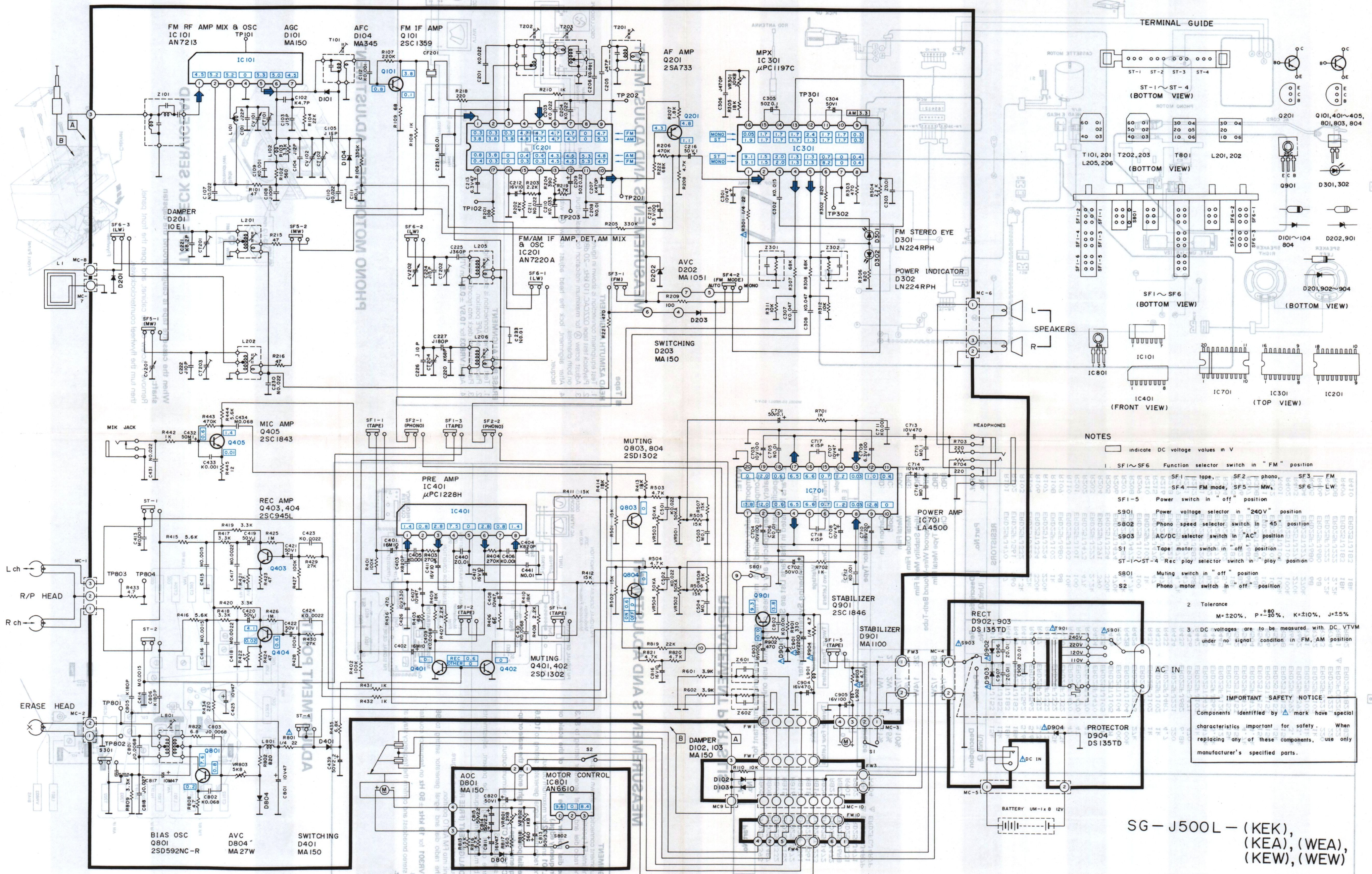
5 Tune a stereo broadcast and confirm the frequency stays at reading.

19 kHz.

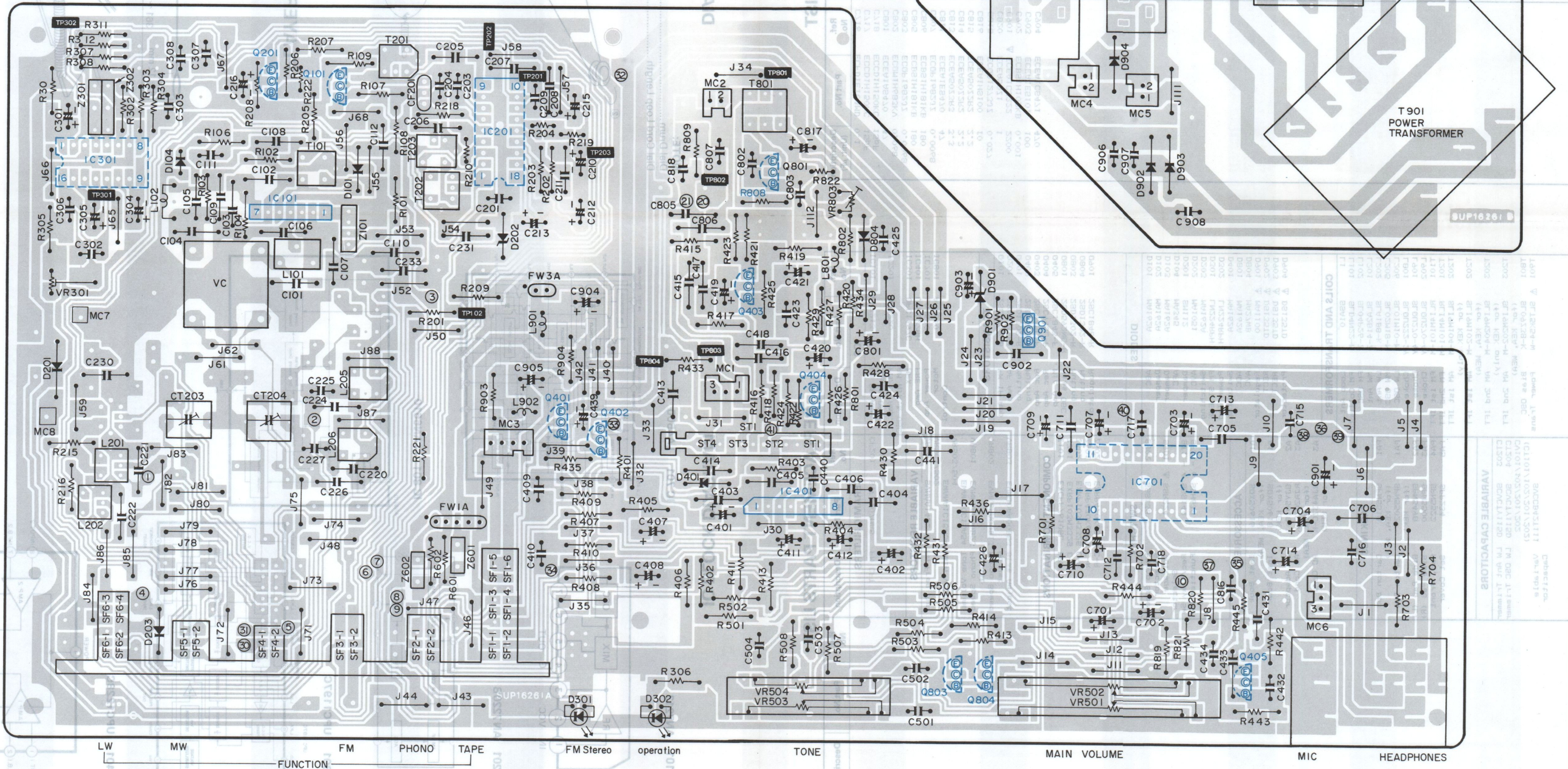
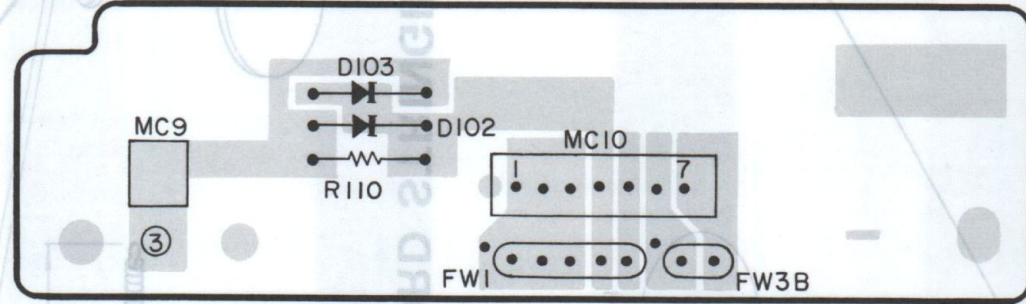
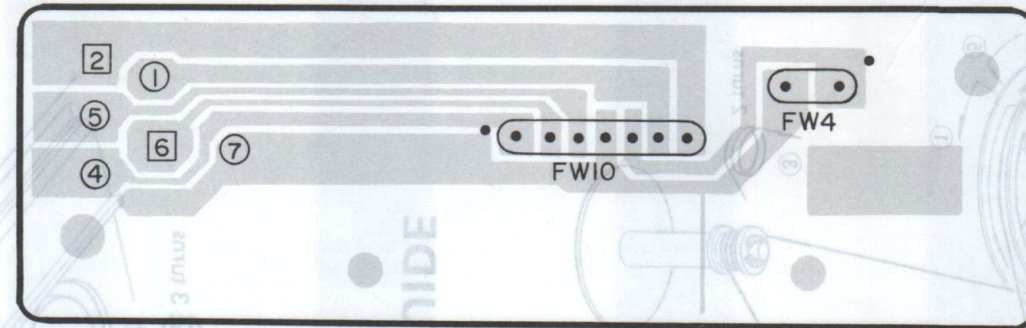
The diagram illustrates the receiver section of a radio receiver. It shows the signal path from the antenna (ANT) through various stages, including CT102, L102, CT101, L101, T101, T201, T202, and T203, leading to the final output stages. The diagram includes components like CT102, L102, CT101, L101, T101, T201, T202, and T203, and shows the flow of signals between them. The diagram also includes a section for the final output stages, showing the connection to the antenna (ANT) and the output signal (OSC).

SCHEMATIC DIAGRAM

WIRING CONNECTION



CIRCUIT BOARD



REPLACEMENT PARTS LIST

Impedance System of Capacitors

Capacitor Type

Part No.

Description

Part No.

Description

Part No.

Description

Part No.

Description

Part No.

Description

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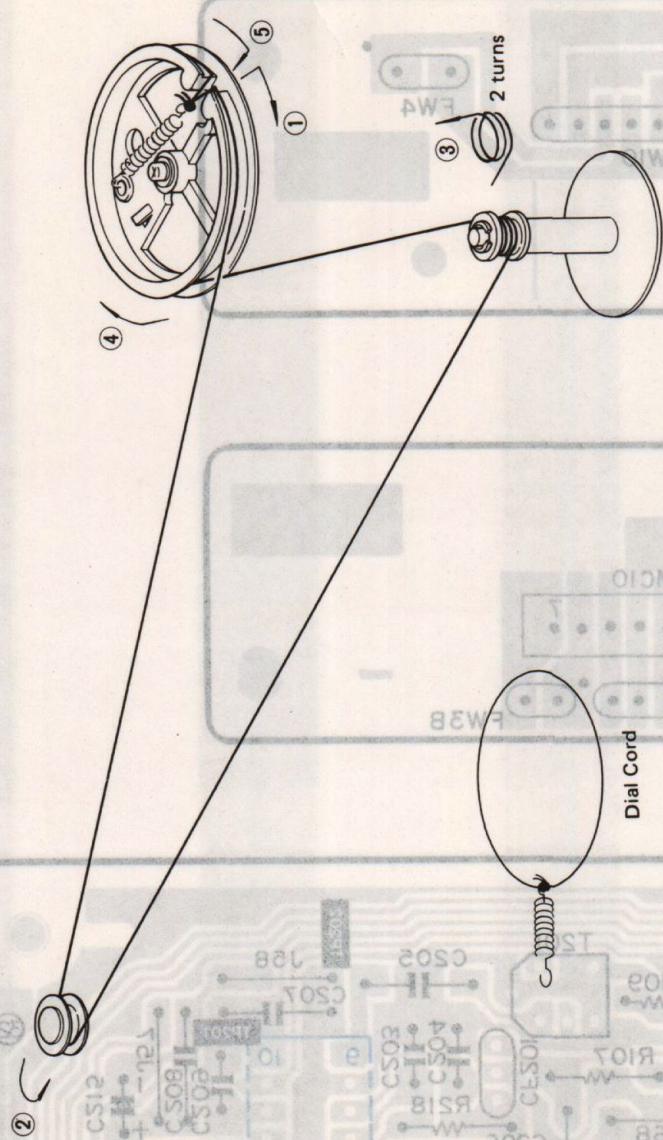
Description

Part No.

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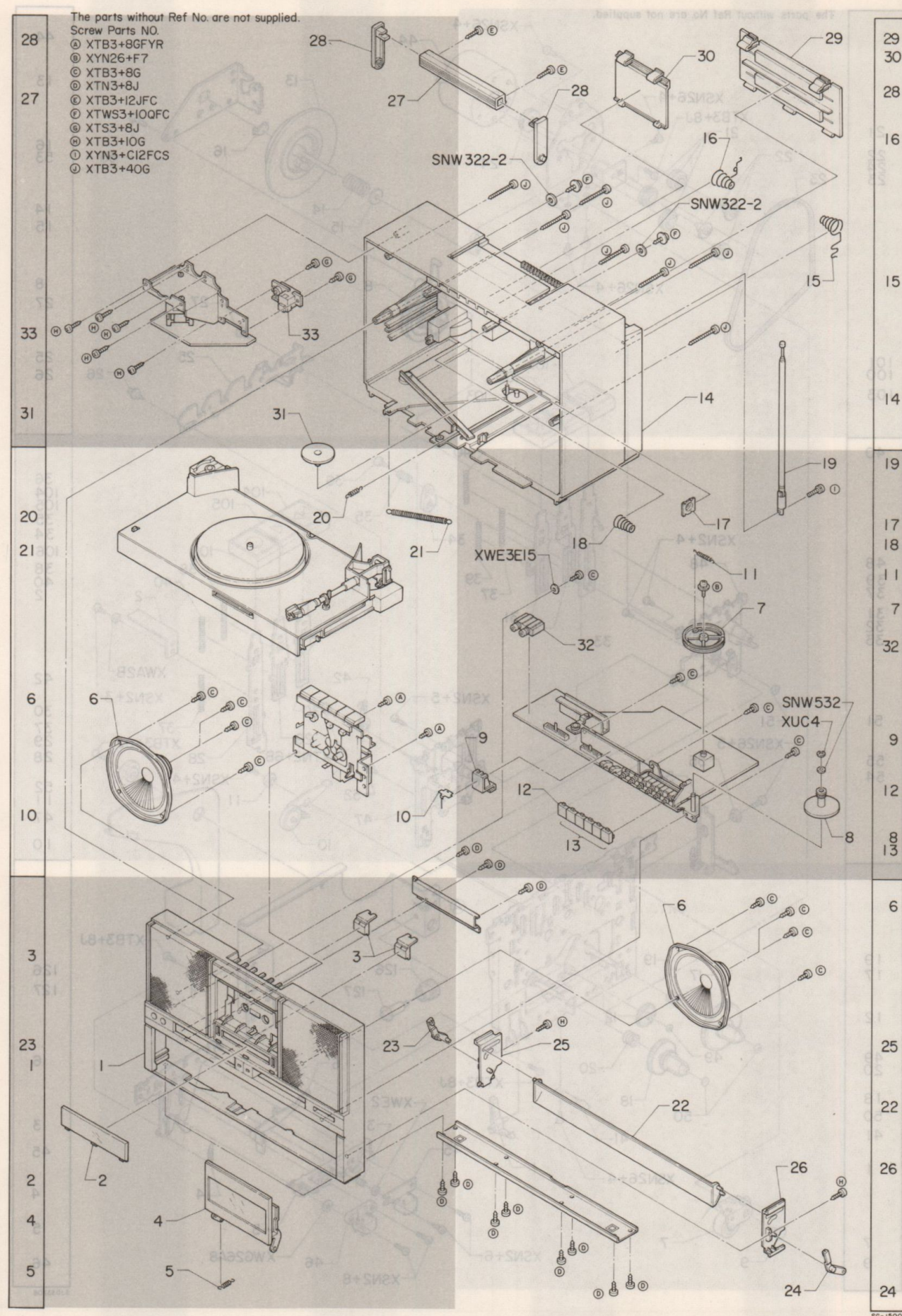


DIAL CORD STRINGING GUIDE

NOTE:

Ref.	Part No.	Description	Re- N-
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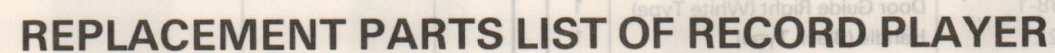
PARTS LOCATION OF CABINET AND CHASSIS



REPLACEMENT PARTS LIST OF CABINET AND CHASSIS

Items of Assembly Parts.			
Ref. No.	Part No.	Description	Per Set (pcs.)
1	SGWGJ500L-KE	Front Panel Ass'y (Black Type)	1
1	SGWGJ500L-WE	Front Panel Ass'y (White Type)	1
2	SGE1678	Dial Scale (Black Type)	1
2	SGE1678-1	Dial Scale (White Type)	1
2	SGE1678-4	Dial Scale (U.K. only)	1
3	SBNGJ500L	Volume Knob Ass'y	2
4	SGEGJ500L-KE	Cassette Lid Ass'y (Black Type)	1
4	SGEGJ500L-WE	Cassette Lid Ass'y (White Type)	1
5	SUS464	Deck Eject Spring	1
6	EAS12P126GH	Speaker (U.K. only)	2
6	EAS12P126GG	Speaker (Except U.K.)	2
7	SDD57	Dial Drum	1
8	SBN1136	Tuning Knob	1
9	SDA108	Pointer Bracket	1
10	SDP5120	Dial Pointer	1
11	RDS4170A	Dial Spring	1
12	SBCGJ500	Power Button Ass'y	1
13	SBCGJ500-1	Function Button Ass'y	5
14	SKMGJ500L-KE	Cabinet Ass'y (Black Type)	1
14	SKMGJ500LKE1	Cabinet Ass'y (U.K. Only)	1
14	SKMGJ500L-WE	Cabinet Ass'y (White Type)	1
15	RJC950ZA	Battery Spring A	1
16	RJC931ZC	Battery Spring B	1
17	SJC118-2	Battery Terminal	1
18	SJC514	Battery Spring C	1
19	XEARR225EA-Y	Telescopic Antenna	1
20	SUS472	Player Drum Spring	1
21	SUS466	Player Eject Spring	1
22	SKE432	Player Door	1
23	SBE292	Door Arm Left (Black Type)	1
23	SBE292-1	Door Arm Left (White Type)	1
24	SBE294	Door Arm Right (Black Type)	1
24	SBE294-1	Door Arm Right (White Type)	1
25	SKE436	Door Guide Left (Black Type)	1
25	SKE436-1	Door Guide Left (White Type)	1
26	SKE438	Door Guide Right (Black Type)	1
26	SKE438-1	Door Guide Right (White Type)	1
27	SKH122	Handle (Black Type)	1
27	SKH122-1	Handle (White Type)	1
28	SKH124	Handle Bracket	2
29	SKKGJ500-K	Battery Lid Ass'y (Black Type)	1
29	SKKGJ500-W	Battery Lid Ass'y (White Type)	1
30	SKK110-3	Accessory Box Lid (Black Type)	1
30	SKK110-4	Accessory Box Lid (White Type)	1
31	SJYGGJ500MEX	Flywheel Ass'y	1
32	SJJ108	Headphone/Mic Jack	1
33	RJJ1F2ZA-H	AC/DC IN Jack	1

Ref. No.	Part No.	Description	Per Set (pcs.)
1	SGWGJ500L-KE	Front Panel Ass'y	1
	or	Front Panel	(1)
1	SGWGJ500L-WE	Reflector Plate	(1)
		Metal Grille	(2)
3	SBNGJ500L	Volume Knob Ass'y	2
		Volume Knob	(2)
		Cushion	(2)
4	SGEGJ500L-KE	Cassette Lid Ass'y	1
	or	Cassette Lid	(1)
4	SGEGJ500L-WE	Transparent Cover	(1)
		Spring	(2)
12	SBCGJ500	Power Button Ass'y	1
		Power Button	(1)
		Bracket	(1)
13	SBCGJ500-1	Function Button Ass'y	1
		Function Button	(1)
		Bracket	(1)
14	SKMGJ500L-KE	Cabinet Ass'y	1
	or	Cover	(1)
14	SKMGJ500L-WE	Sheet	(1)
		Felt	(4)
14	SKMGJ500L-KE1	Cushion	(1)
		Name Plate	(1)
		Caution Label	(1)
29	SKKGJ500-K	Battery Lid Ass'y	1
	or	Battery Lid	(1)
29	SKKGJ500-W	Cushion	(2)
31	SJYGGJ500MEX	Flywheel Ass'y	1
		Flywheel	(1)
		Flywheel Gear	(1)



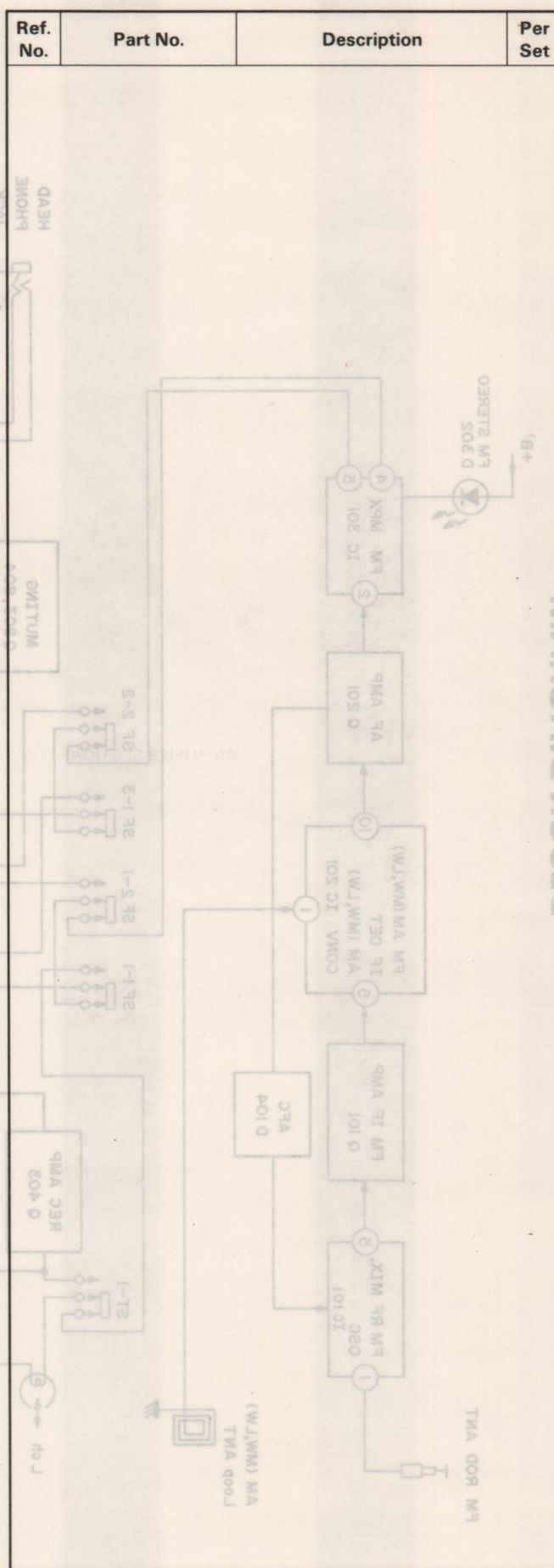
Ref. No.	Part No.	Description	Per Set
13	SJY90080	Turntable Belt	1
14	SBN1132	Slide Knob (Black Type)	1
14	SBN1132-1	Slide Knob (White Type)	1
15	SUV288	P.W.B. Cover	1
16	SJY5216	Button (Black Type)	1
16	SJY5216-1	Button (White Type)	1
17	SUS470	Button Spring	1
18	SJY4072	Turntable Mat	1
19	SJY90444	Tone Arm Shaft Bracket	1
20	SJY90446	Shaft Bracket Rubber	1
21	SJY90440	Fulley Gear	1

PARTS LOCATION OF CASSETTE TAPE DECK

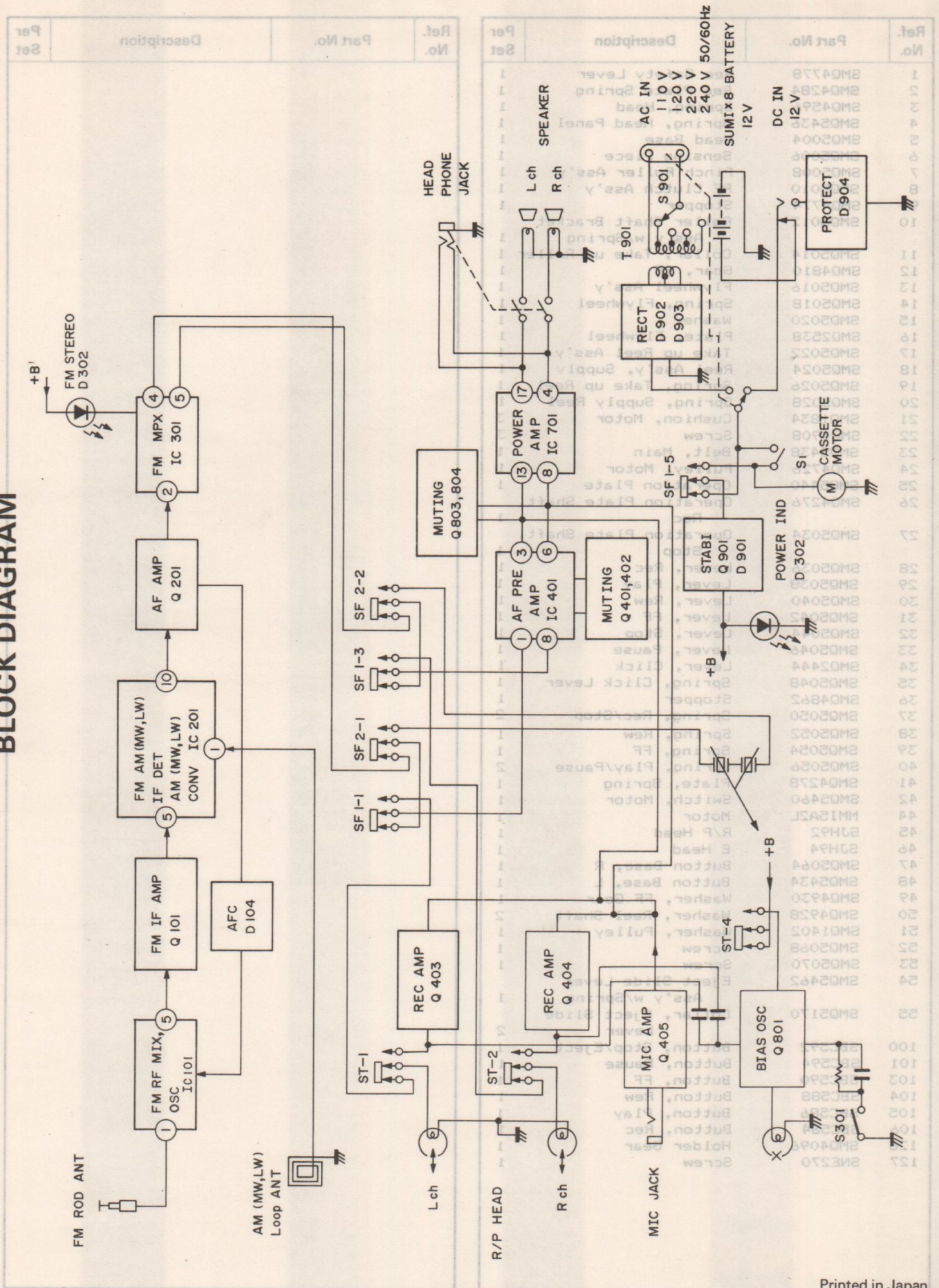


REPLACEMENT PARTS LIST OF CASSETTE TAPE DECK

Ref. No.	Part No.	Description	Per Set
1	SMQ4778	Rec Safety Lever	1
2	SMQ4284	Rec Plate Spring	1
3	SMQ4596	Spring, Head	1
4	SMQ5436	Spring, Head Panel	1
5	SMQ5004	Head Base	1
6	SMQ5006	Sensing Piece	1
7	SMQ5008	Pinch Roller Ass'y	1
8	SMQ5010	RF Clutch Ass'y	1
9	SMQ4774	Stopper	1
10	SMQ5012	Roller Shaft Bracket Ass'y w/Spring	1
11	SMQ5014	Collar, Take up Roller	1
12	SMQ4810	Gear, FF	1
13	SMQ5016	Flywheel Ass'y	1
14	SMQ5018	Spring, Flywheel	1
15	SMQ5020	Washer	1
16	SMQ2538	Plate, Flywheel	1
17	SMQ5022	Take up Reel Ass'y	1
18	SMQ5024	Reel Ass'y, Supply	1
19	SMQ5026	Spring, Take up Reel	1
20	SMQ5028	Spring, Supply Reel	1
21	SMQ1834	Cushion, Motor	3
22	SMQ1908	Screw	3
23	SMQ5438	Belt, Main	1
24	SMQ4726	Pulley, Motor	1
25	SMQ5440	Operation Plate	1
26	SMQ4276	Operation Plate Shaft, Rec	1
27	SMQ5034	Operation Plate Shaft, Stop	1
28	SMQ5036	Lever, Rec	1
29	SMQ5038	Lever, Play	1
30	SMQ5040	Lever, Rew	1
31	SMQ5042	Lever, FF	1
32	SMQ5044	Lever, Stop	1
33	SMQ5046	Lever, Pause	1
34	SMQ2444	Lever, Click	1
35	SMQ5048	Spring, Click Lever	1
36	SMQ4862	Stopper	1
37	SMQ5050	Spring, Rec/Stop	2
38	SMQ5052	Spring, Rew	1
39	SMQ5054	Spring, FF	1
40	SMQ5056	Spring, Play/Pause	2
41	SMQ4278	Plate, Spring	1
42	SMQ5460	Switch, Motor	1
44	MMI5A2L	Motor	1
45	SJH92	R/P Head	1
46	SJH94	E Head	1
47	SMQ5064	Button Base, R	1
48	SMQ5434	Button Base, L	1
49	SMQ4930	Washer, FF Gear	1
50	SMQ4928	Washer, Reel Shaft	2
51	SMQ1402	Washer, Pulley	1
52	SMQ5068	Screw	1
53	SMQ5070	Screw	1
54	SMQ5462	Eject Slide Lever Ass'y w/Spring	1
55	SMQ5170	Collar, Eject Slide Lever	2
100	SBC592	Button, Stop/Eject	1
101	SBC594	Button, Pause	1
103	SBC590	Button, FF	1
104	SBC588	Button, Rew	1
105	SBC586	Button, Play	1
106	SBC584	Button, Rec	1
126	SMQ4096	Holder Gear	1
127	SNE270	Screw	1



BLOCK DIAGRAM



SG-J500L BLOCK DIAGRAM