

JVC

SERVICE MANUAL

MODEL

RC-250L/LB

FM-MW-LW

3-BAND RADIO

CASSETTE RECORDER



No. 1409
April 1980

Contents

	Page
Specifications	2
Main Parts Location	3
Disassembly & Replacement	4
Tuner Alignment	5, 6
Adjustment of Cassette Mechanism	6, 7
Block Diagram	8
Wiring Connection	9
Schematic Diagram of RC-250L/LB	10
Switch Circuit Board Ass'y	11
Main Circuit Board Ass'y	12, 13
Exploded View of Cassette Mechanism	14
List of Cassette Mechanism	15
Exploded View of Main Circuit Board Ass'y	16
Exploded View of Rear Cabinet	16
Exploded View of Front Cabinet (1)	17
Exploded View of Front Cabinet (2)	18, 19
Final Packing Ass'y (RC-250L)	20
Accessories (RC-250L)	20
Final Packing Ass'y (RC-250LB)	21
Accessories (RC-250LB)	21

Specification

DIMENSIONS: 29.8 cm(W) x 18 cm(H) x 8.2 cm(D)
11-3/4" (W) x 7-1/8" (H) x 3-1/4" (D)

TUNER SECTION

Frequency Ranges : FM 88 ~ 108 MHz
MW 540 ~ 1600 kHz
LW 150 ~ 350 KHz

Antennas : FM; Rod antenna
MW/LW; Ferrite core antenna

RECORDER SECTION

Tape Speed : 4.8 cm/s (1-7/8 ips)
Track System : 2-track monaural
Recording System : DC bias
Erasing System : DC erasing
Fast Forward Time : Within 110 sec (C-60 cassette)
Rewind Time : Within 110 sec (C-60 cassette)
Wow & Flutter : 0.15% (WRMS)

WEIGHT: Approx. 2.2 kg/4.8 lbs (with batteries)
1.9 kg/4.2 lbs (without batteries)

AMPLIFIER SECTION

Speakers : 9 cm (3½"), 3.2 Ω
Power Output : Max. 1.3 W

POWER SOURCE

DC : 6 V, 4 R20-cells or equivalent
AC : 240/220/110 V, 50/60 Hz

POWER CONSUMPTION : 4 W

List of Cassette Mechanism

Ref. No.	Parts No.	Parts Name	Description	Q'ty
1	*15100187ZT	Chassis Ass'y		1
2	*15100108T	Pack Spring		1
3	20PZ26040T	Tap. Screw		1
4	*15100201T	Record Safety Lever		1
5	*15100203T	Spring		1
6			Blank No.	
7	*15100301T	Head Panel		1
8	*15100303T	Head Base		1
9	*15100304T	Detect Plate		1
10	4531301T	Detect Cap		1
11			Blank No.	
12	VGH0211-002	Record/Play Head		1
13	400401T	Head Spring Plate		1
14	SPSX2007Z	PM Screw		2
15	VGH0212-201	Erase Head		1
16	SBSB2006Z	Tap. Screw		1
17	SPSP2008Z	Screw		1
18	*15100305T	Collar		1
19	238Z26050T	Tap. Screw	Head Panel	1
20	*15100311T	RC-Spring B		1
21			Blank No.	
22	*15100491ZT	Pinch Roller Ass'y		1
23	*15100403T	Pinch Roller Arm Sleeve		1
24	*15100404T	Pinch Roller Spring		1
25	REE2000	E-Ring		1
26	*15100914T	Stop Slide Lever		1
27			Blank No.	
28	*15100922T	Spring		1
29	*15100985ZT	FF Slide Lever Ass'y		1
30	*15100923T	Spring		1
31	*15100986ZT	Rewind Slide Lever Ass'y		1
32	*15100925T	Spring		1
33	*15100987ZT	Play Slide Lever Ass'y		1
34	*15100936T	Spring		1
35	*15100988ZT	Record Slide Lever Ass'y		1
36	*15100920T	Spring		1
37	*VXP3047-001	Push Button	PLAY	1
38	*VXP3048-001	"	RECORD	1
39	*VXP3049-001	"	FF, REWIND, STOP	3
40	*15100989ZT	Lock Plate Ass'y		1
41	*15100932T	Sub Lock Plate		1
42	*15100938T	Spring		1
43	*15100928T	"		1
44	REE2300	E-Ring		2
45	*15100934T	Spring	Lock Plate	1
46	*15100803T	Leaf Switch		1
47	*60PZ20050T	Tap. Screw		1
48	*15100581ZT	Reel Disk Bracket Ass'y		1
49	*15100582ZT	FT Roller Arm Ass'y		1
50	120008028T	Idler Gear		1
51	2570703T	Take-up Roller		1
52	12001503T	Washer		2
53	15100511T	Spring	FT Roller Arm	1
54			Blank No.	
55	*15100509T	Main Plate		1

Ref. No.	Parts No.	Parts Name	Description	Q'ty
56	*15100510T	Spring	Main Plate	1
57	*15100592ZT	Take-up Reel Ass'y		1
58	*15100514T	Spring		1
59	*15100593ZT	Supply Reel Ass'y		1
60	*15100512T	Spring	Back Tension	1
61	REE1200	E-Ring		2
62	20PZ26040T	Tap. Screw		2
63	*15100691ZT	R.F. Clutch Ass'y		1
64	*15100606T	R.F. Clutch Arm Plate		1
65			Blank No.	1
66	*15100702ZT	Flywheel Ass'y		1
67	4081120T	Nylon Washer		1
68	12000904T	Main Belt		1
69	WNS3000Z	Washer		1
70	*15100703T	Thrust Spring		1
71	*15100791ZT	Flywheel Bracket Ass'y		1
72	SSSP2608Z	Screw		1
73	*15101011T	Motor Bracket		1
74	*15101096ZT	Motor Ass'y		1
75	5880910T	Rubber Cushion	Motor: MMI-6A6MK	3
76	12001201T	Collar Screw (S)		3
77	20PZ26040T	Tap. Screw		2
78			Blank No.	1
79	*1510112T	Eject Bracket		1
80	*1510113T	Eject Slide Lever		1
81	*15100927T	Spring		1
82	*1510114T	Eject Kick Lever		1
83	1805028T	Spring		1
84	4080411T	Collar		1
85	10PZ26080T	Tams Screw		1
86	*1510115T	Collar		1
87	20PZ26100T	Tap. Screw		1
88	*15100310T	Spring Plate	for Head Panel	1
89	*238Z26030T	Tap. Screw		1
90	*15100930T	Spring Plate A	for Button Lever	1
91	*15100931T	"	"	1
92	*15100804T	Tap. Screw		1
93	*2250303T	Washer		2

Exploded View of Rear Cabinet

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Description	Q'ty
1~3	*ZCRC250□-CBR	Rear Cabinet Ass'y	See "Note".	1
1	*VJC1092-003	Rear Cabinet	Glued	1
2	*VYN5059-□□□□	Name Plate	See "Note".	1
3	*VYSH106-034	Spacer	Glued	1
4	*VJH4006-00C	Handle Ass'y		1
5	*VYH4443-001	Spacer		2
6	QZR4215-001U	Rod Antenna		1
7	VYH4189-001	Holder (B)		1
8	SBSF3008Z	Screw		2
9	*ZCR250-BCA	Battery Cover Ass'y		1

Note:

	Rear Cabinet Ass'y	Name Plate
RC-250L	*ZCR250L-CBR	*VYN5059-004C
RC-250LB	*ZCR250LB-CBR	*VYN5059-003CBS



Fig. 20

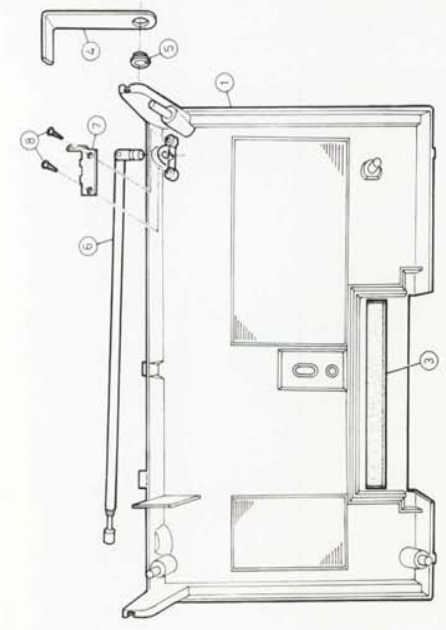


Fig. 21

Fast Forward & Rewind Torque

1. Fast Forward Torque

In the fast forward mode, check that the F.F. torque is within 60 to 130 g-cm by applying the torque gauge to the take-up reel.

2. Rewind Torque

In the rewind mode, check that the rewind torque is within 60 to 130 g-cm by applying the torque gauge to the supply reel.

Thrust of Flywheel

The clearance between the top of flywheel spindle and the flywheel bracket should be within 0.1 to 0.3 mm.

If the clearance is out of limits, adjust the adjusting screw for normal value.

Note: After adjustment, fix the screw with lock adhesive.

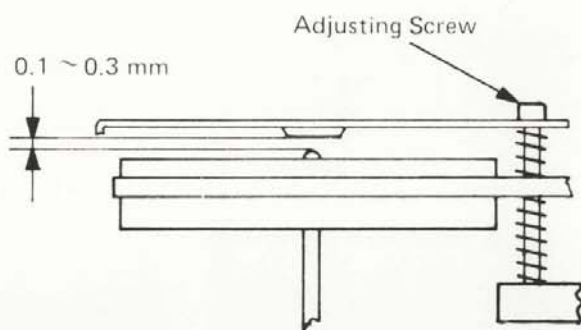


Fig. 9

Location of Heads

The play/record and erase heads should be positioned as shown below in the playback mode.

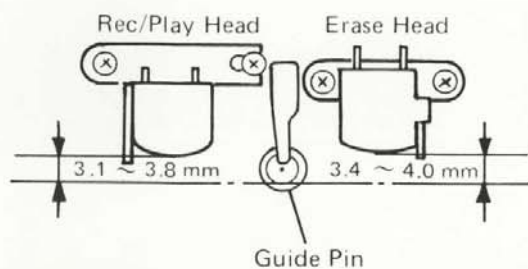


Fig. 10

Pressure of Pinch Roller

1. Setting the mechanism vertically in the playback mode, the pinch roller should stop turning at the pressure of 380~450 g when the pinch roller arm has been pulled upwards by tension gauge as shown in Fig. 11.
2. If the pressure is out of limit, change the pinch roller spring.

Note: If the pressure is excessively high, it may cause the noise from the pinch roller bearing and defective in wow and flutter. If the pressure is defectively low, it may cause defective in auto stop motion and in wow and flutter.

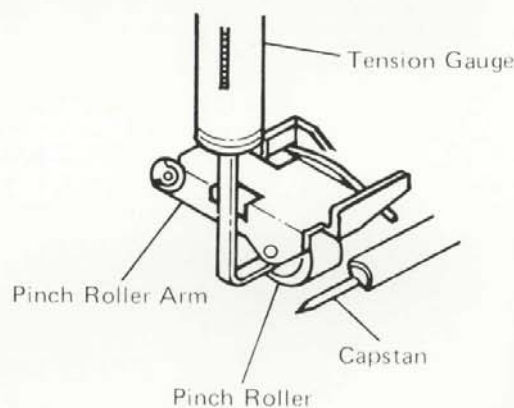


Fig. 11

TAPE SPEED

1. The tape speed should be within 2940 Hz (-2%) to 3090 Hz (+3%) by reference tape.
2. If the speed is out of limit, adjust it by inserting the small screw-driver into the adjusting hole of motor.
 - a. If the speed is less than -2% turn the driver clockwise.
 - b. If the speed is over +3%, turn the driver counter-clockwise.

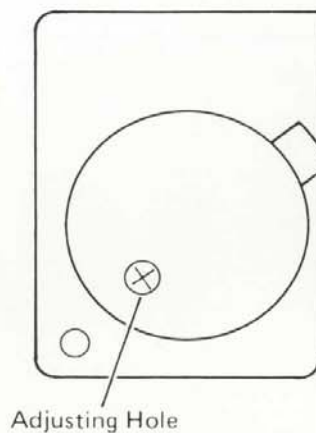


Fig. 12

Block Diagram

Playback & Radio Reception Mode

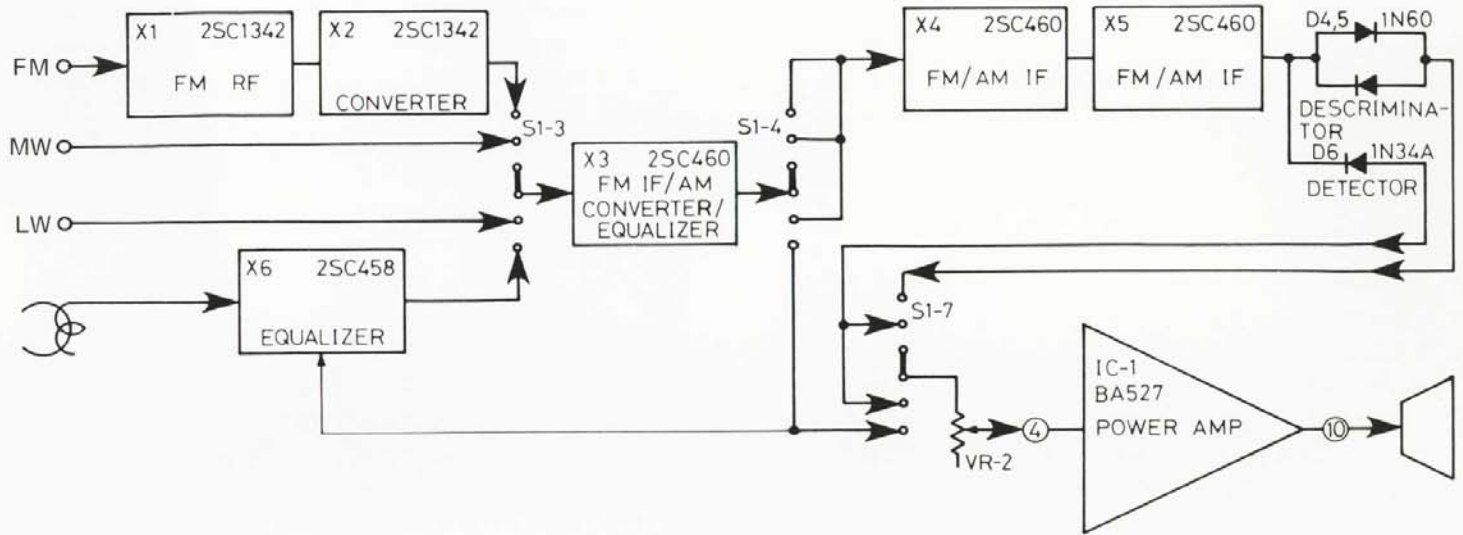


Fig. 13

Recording Mode

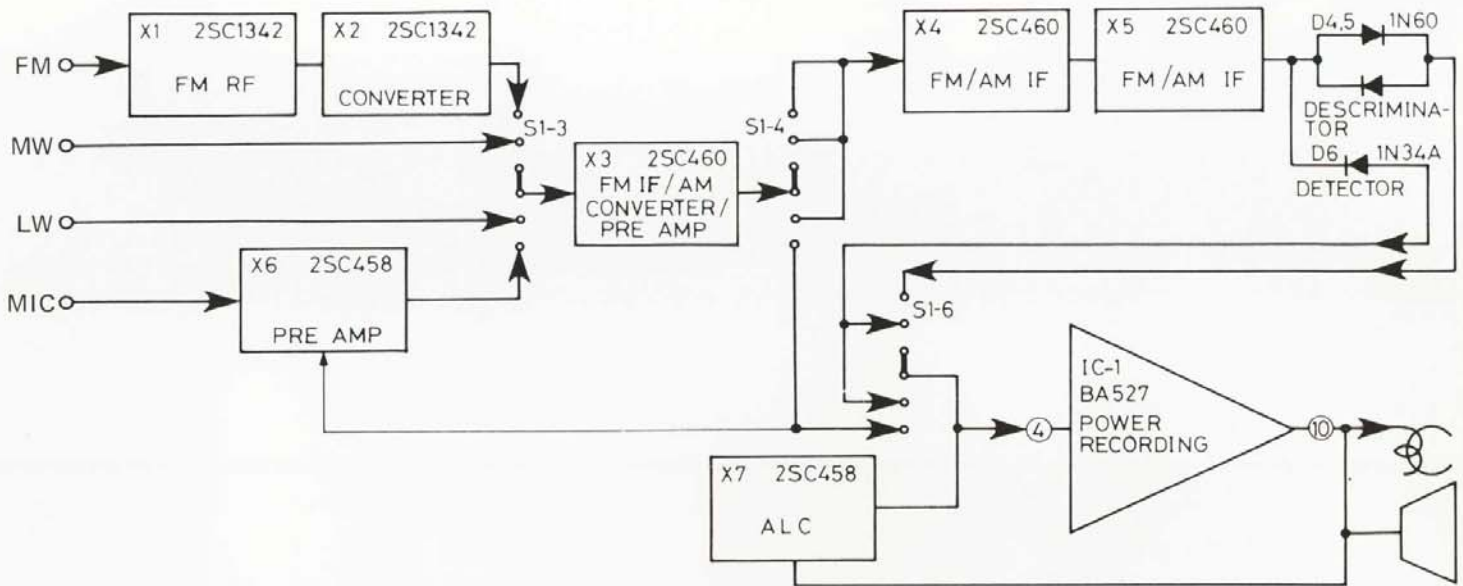


Fig. 14

Exploded View of Main Circuit Board Ass'y

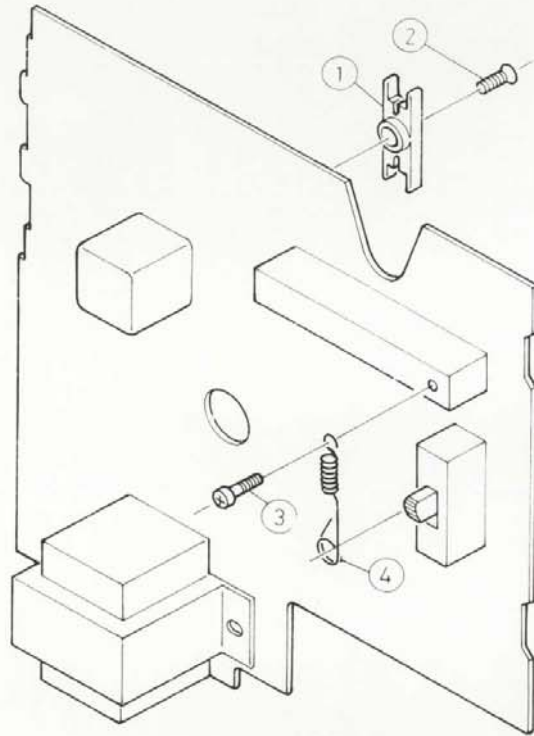


Fig. 17

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Description	Q'ty
	Circuit Board Ass'y			
1	VYH4358-001	Arm		1
2	SSSP2606Z	Screw		1
3	VYH4017-001	Stud		1
4	VKW4197-002	Spring	Rec. Switch	1

Main Circuit Board Ass'y

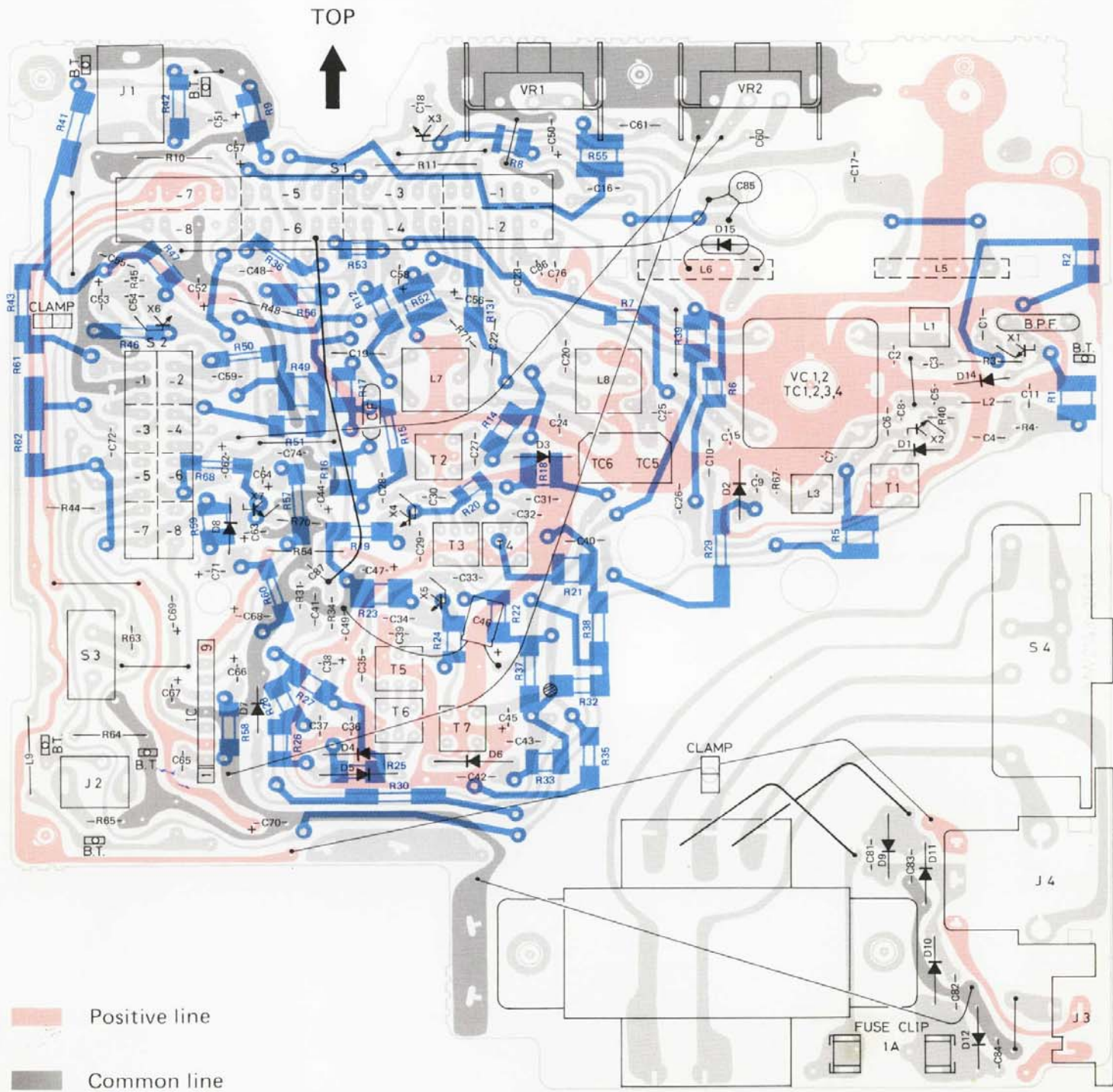
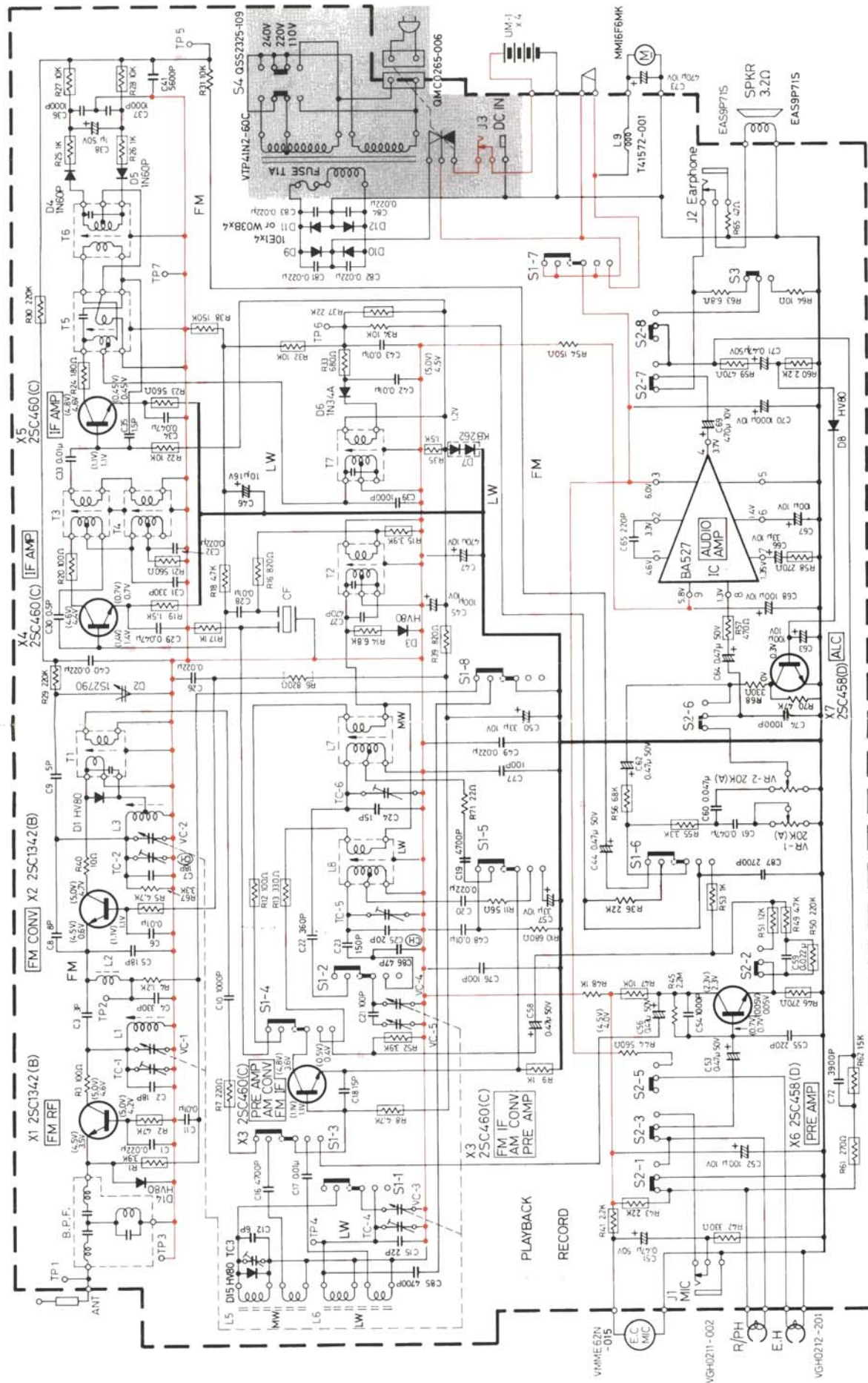


Fig. 18

Note: The circuit board assembly will not be available as spare part.

Schematic Diagram of RC-250L/LB



NOTES

1	SW. NO.	PARTS NO.	FUNCTION	POSITION
	S1-1~8	Q558401-01	TAPE - LW - MW - FM	FM
	S2-1~8	Q558201-013	RECORD - PLAY	PLAY
	S3	O551701-011	MONITOR ON-OFF	ON
	S4	Q552325-109	AC VOLT SELECT	220V

2 VOLTAGES ARE MEASURED WITH NO SIGNAL USING VTVM AT FM-PLAY () VALUES AT MW-RECORD.
 3 SYMBOL MARKS CIRCLED ON PRINTED CARBON RESISTORS.

☆ Shaded parts show safety assurance parts.

S1
 FM o
 MW o
 LW o
 TAPE o

S2
 Play o
 Rec o

Fig. 16

Wiring Connection

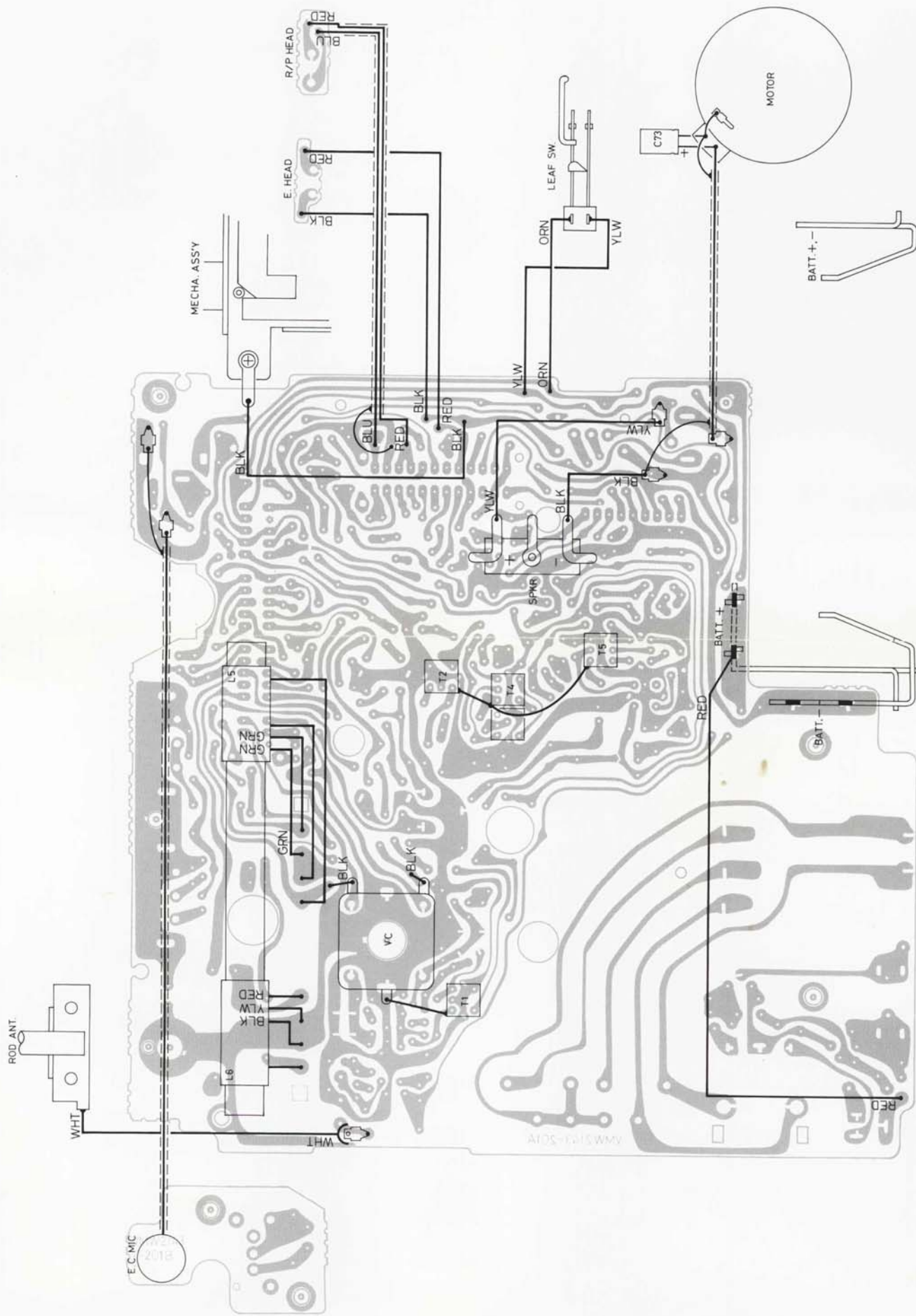


Fig. 15

Main Parts Location



Fig. 1

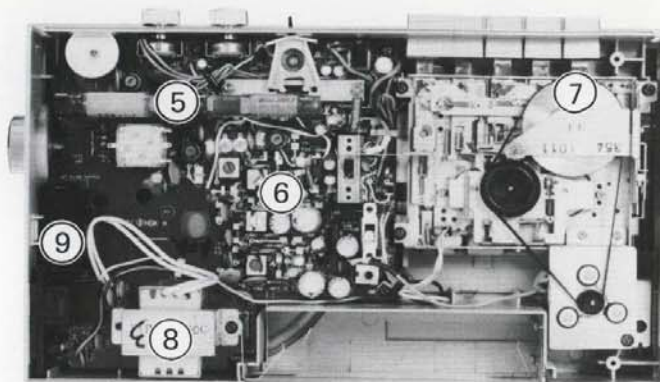


Fig. 2

Ref. No.	Parts No.	Parts Name	Description	Q'ty
1	*VXL4100-001	Knob	TONE	1
2	*VXL4100-001	"	VOLUME	1
3	*VXL4098-00B	Knob Ass'y	Tuning	1
4	*VJT3048-00A	Cassette Door Ass'y		1
5	VQB012B-304	Bar Antenna Ass'y	L5, 6	1
6	Circuit Board Ass'y			
7	Cassette Mechanism Ass'y			
8	△ *VTP41N2-60C or VTP41N2-60CBS	Power Transformer	for RC-250L	1
		"	for RC-250LB	1
9	△ *QSS2325-109 or QSS2325-109BS	Slide Switch	S5-1, -2 for RC-250L	1
		"	for RC-250LB	1

- Note:**
1. Asterisked parts (*) show "NEW PARTS". Other parts are all "CURRENT PARTS"; therefore, check your inventory and order situation before placing new order to avoid making extra stock.
 2. The circuit board assemblies and whole assembly of cassette mechanism in this model will not be available as spare parts.
 3. The parts marked △ are the important parts for safety assurance. Use the specified part, when replacing the safety assurance part, never use an equivalent one.

Disassembly & Replacement

Rear Cabinet (Refer to Fig. 3.)

1. Remove 4 screws (1) ~ (4): SBSF3040Z.
2. Disconnect the connecting wire from the rod antenna terminal (white).



Fig. 3

Cassette Mechanism Assembly (Refer to Fig. 5.)

1. Remove 4 screws (11) ~ (14): SBSF3010C.
2. By pressing the STOP/EJECT button open the cassette door to disengage the mechanism.

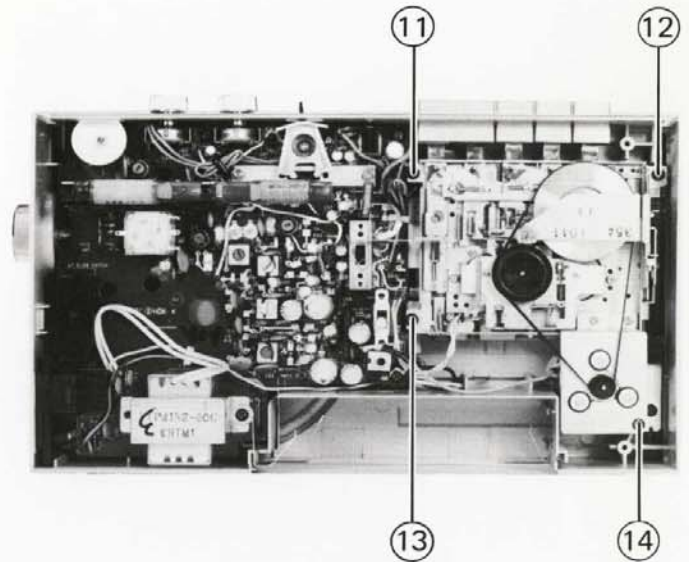


Fig. 5

Circuit Board (Refer to Fig. 4.)

1. Take off the TONE and VOLUME knobs.
2. Remove 5 screws (5): VKZ4131-002 and (6) ~ (9): SBSF-3010C.
3. Loosen the screw (10): SBSF3010Z.

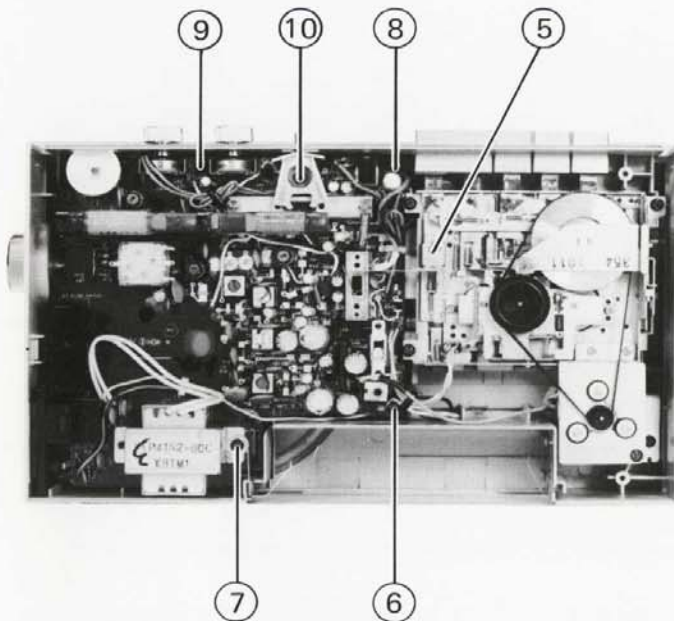


Fig. 4

Tuner Alignment

Output Measuring: Speaker terminal (Impedance = $3.2\ \Omega$), output level 50 mW ($0.4\ \text{V}/3.2\ \Omega$)

AM IF & RF Alignment

Input (SSG): Modulation 400 Hz, Modulated to 30%

Step	Frequency Band	Input Signal		Place to be aligned	Set the V. Capacitor to
		Frequency	Given to		
1	MW (IF)	455 kHz	Loop Antenna	T2, 4, 7	Minimum
2		Repeat the Step 1, and adjust for no further improvement.			
3	LW	145 kHz	Loop Antenna	L8	Maximum
4		360 kHz		TC5	Minimum
5		Repeat the Steps 3 & 4.			
6		160 kHz	Loop Antenna	L5	160 kHz Signal
7		350 kHz		TC4	350 kHz Signal
8		Repeat the Steps 6 & 7, and adjust for no further improvement.			
9	MW	520 kHz	Loop Antenna	L7	Maximum
10		1650 kHz		TC6	Minimum
11		Repeat the Steps 9 & 10.			
12		600 kHz	Loop Antenna	L6	600 kHz Signal
13		1400 kHz		TC3	1400 kHz Signal
14		Repeat the Steps 12 & 13, and adjust for no further improvement.			

FM IF & Discriminator Alignment

1. Connect the sweep generator to the test point TP-2 (Refer to Fig. 7).
2. Connect the oscilloscope to the test point TP-5 (Hot) & TP-7 (Earth) (Refer to Fig. 7).
3. Align the T6 so that the wave mode will be appeared on either side of the flyback line (Refer to Figs. 6-A & B).
4. Align the T1, 3 & 5 so that the maximum sensitivity and symmetrical wave mode will be obtained setting the marker 10.7 MHz on the peak (Refer to Fig. 6-B).
5. Align the T5 & 6 so that the symmetrical "S" curve will be obtained setting the marker 10.7 MHz on the center of the "S" curve (Refer to Fig. 6-C).



Fig. 6-A

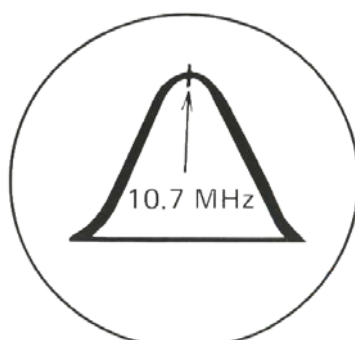


Fig. 6-B

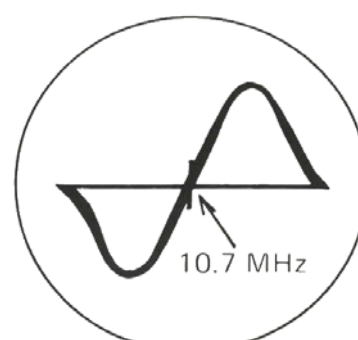


Fig. 6-C

FM RF Alignment

Input (SSG): Use $75\ \Omega$ terminal, modulation 400 Hz, modulated to 22.5 kHz deviation.

Step	Frequency Band	Input Signal		Place to be aligned	Set the V. Capacitor to
		Frequency	Given to		
1	FM	87.5 MHz	Rod Antenna Terminal	L3	Maximum
2		109 MHz		TC-2	Minimum
3		Repeat the Steps 1 & 2.			
4		90 MHz	Rod Antenna Terminal	L1	90 MHz Signal
5		106 MHz		TC-1	106 MHz Signal
6		Repeat the Steps 4 & 5, and adjust for no further improvement.			

Parts Arrangement for Alignment

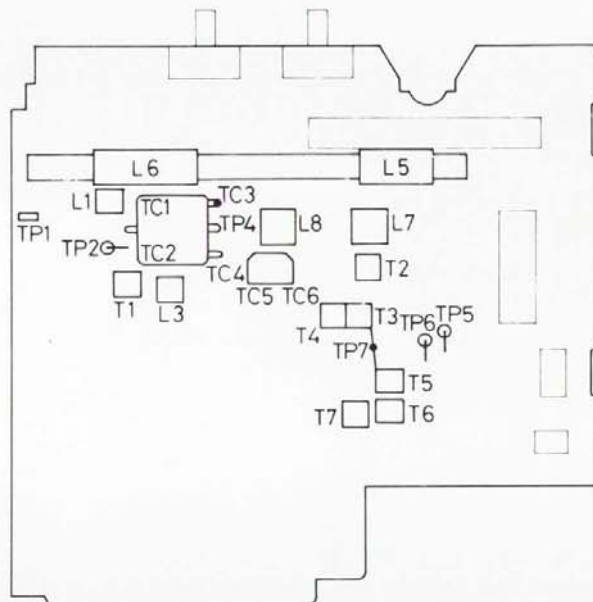


Fig. 7

Adjustment of Cassette Mechanism

Playback Torque

1. The playback torque should be within 45 to 70 g-cm.
2. If the torque is less than 45 g-cm, set the two-flat clutch spring plate of the take-up reel disk to the 4 position. If the torque exceeds 70 g-cm, set the spring plate to the 2 position.

Note: Before adjusting the torque wipe off the surface of rubber parts and rotating parts, if the torque is not sufficient.

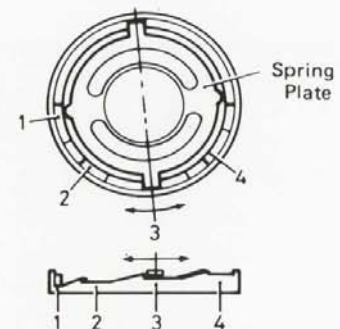


Fig. 8

Exploded View of Front Cabinet (1)

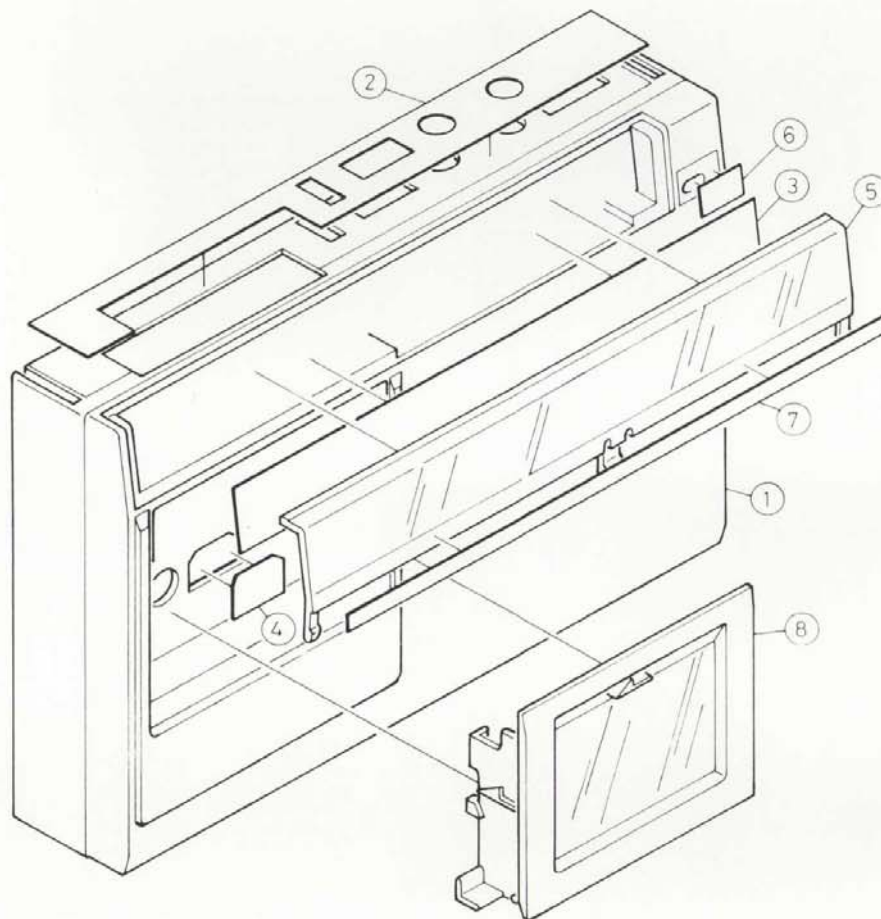


Fig. 22

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Description	Q'ty
1~7	*ZCRC250L-CBF	Front Cabinet Ass'y	RC-250L & -250LB	1
1	*VJC1091-003	Front Cabinet		1
2	*VJD3210-003	Control Plate	Glued	1
3	*VJK3146-003	Dial Scale	"	1
4	V44957-001	Reflection Plate	"	1
5	*VJK3147-001	Dial Lens	Sticker	1
6	*VJD4341-002	Mike Switch Plate	Glued	1
7	*VJD4342-001	Fitting	"	1
8	*VJT3048-00A	Cassette Door Ass'y		1
9	—	—	Blank No.	—

Exploded View of Front Cabinet (2)

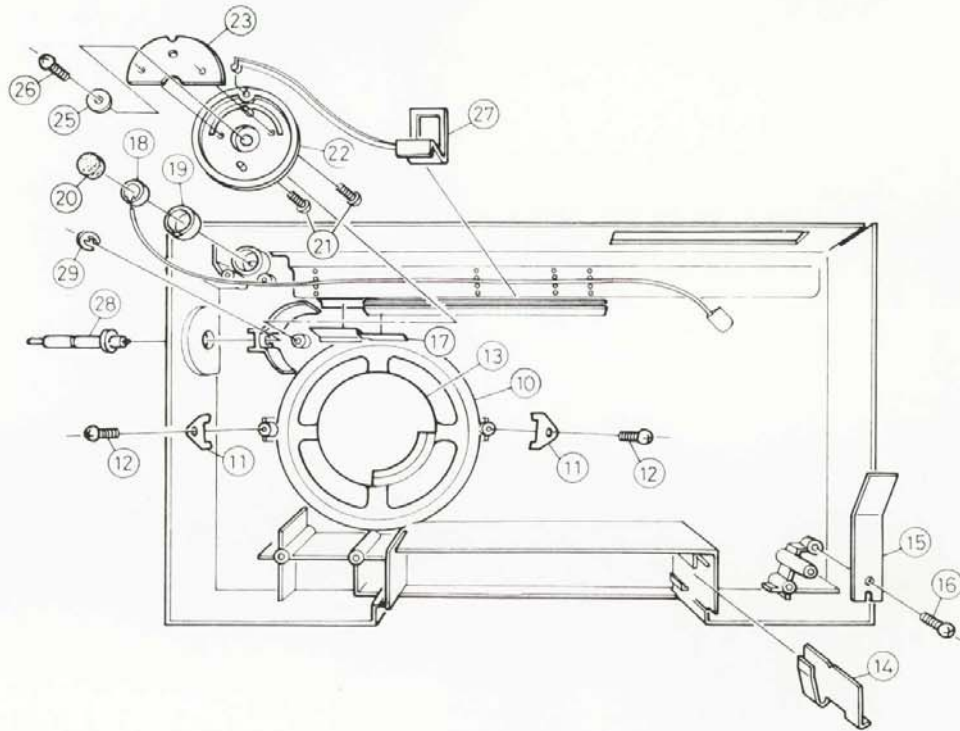


Fig. 23

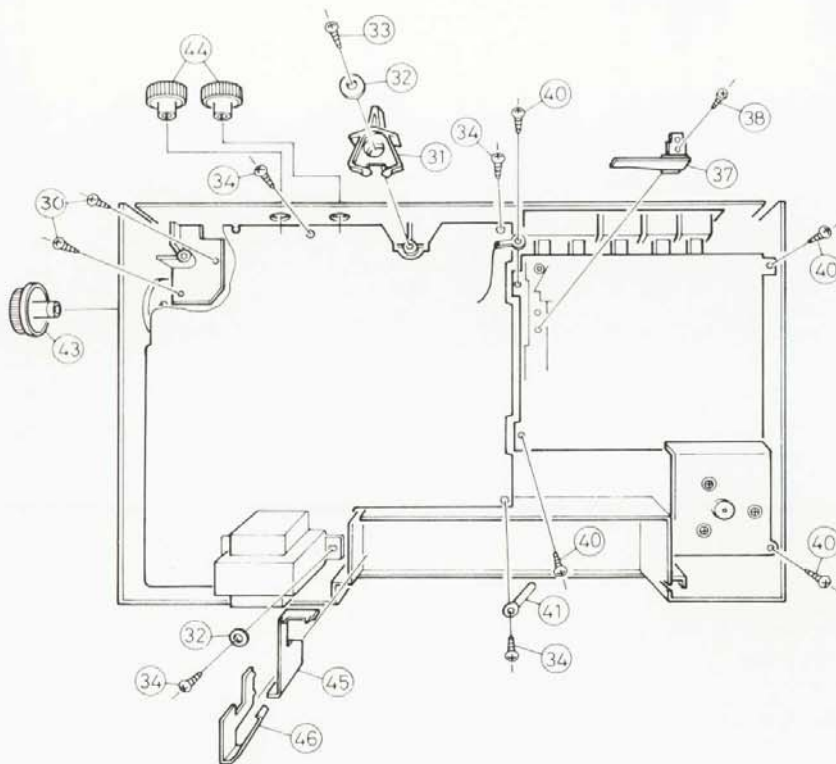


Fig. 24



Fig. 25

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Description.	Q'ty
10	*EAS9P71S or EAS9P71SA	Speaker	9 cm (3.2 Ω)	1
11	*VYH4352-002	Clamp		2
12	SBSF3010Z	Screw		2
13	*VYTP417-001	Spacer		1
14	*VYH4438-001	Battery Contact (A)		1
15	VKY4136-001	Door Spring		1
16	SBSF3010Z	Screw		1
17	*VJD4381-001	Plate		1
18	VMME62N-015	Condenser Microphone		1
19	VYH4348-001	Mike Bushing		1
20	*VYSH208-002	Spacer		1
21	SPSP2604Z	Screw		2
22	*VYH4439-001	Dial Drum		1
23	*VYH4508-001	Plate		1
24	—	—	Blank No.	—
25	Q03091-105	Washer		1
26	SBSF3010Z	Screw		1
27	*VJN4041-001	Needle		1
28	*VYH4440-001	Tuning Shaft		1
29	REE5000X	E-Ring		1
30	SBSF3010Z	Screw		2
31	*VXQ4029-001	Toggle Lever		1
32	Q03091-105	Washer		1
33	SBSF3010Z	Screw		1
34	SBSF3010C	"		4
35	—	—	Blank No.	—
36	—	—	"	—
37	VKL4692-00A	Rec. Bracket Ass'y		1
38	VKZ4131-002	Screw		1
39	OET41AR-477	Electrolytic Capacitor	C 73	1
40	SBSF3010C	Screw		4
41	VKZ4001-007	Wire Holder		1
42	—	—	Blank No.	—
43	*VXL4098-00B	Knob Ass'y	Tuning	1
44	VXL4100-001	Knob	TONE, VOLUME	2
45	VYH4441-002	Battery Contact (B)		1
46	VYH4442-001	Battery Spring		1

Final Packing Ass'y (RC-250L)

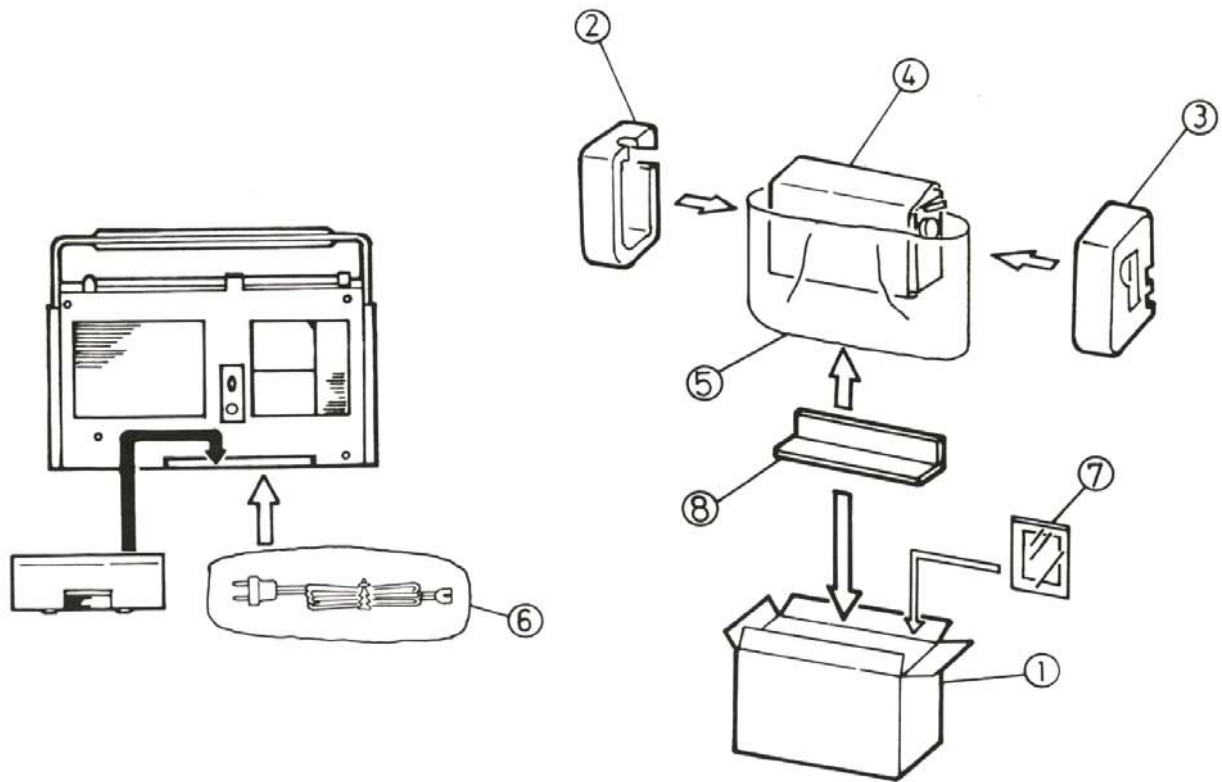


Fig. 26

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Description
1	*VPD5059-J09	Carton Box	Left Right
2	*VPH1193-001	Side Cushion	
3	*VPH1194-001	"	
4	VHPJ079-027	Wrapping Paper	
5	QPGA045-04004	Polyethylen Bag	
6	QPGA012-02505	"	for Power Cord with Plug
7	QPGB017-02404	"	for Instruction Book
8	*VPK4131-001	Spacer	

Accessories (RC-250L)

Asterisked parts (*) show new parts.

Parts No.	Parts Name	Description	Q'ty
△ QMP3950-183	Power Cord	for Erasing	1
*VYA4002-001	Shorting Plug		1
*VNM0774-301	Instruction Book		1

Final Packing Ass'y (RC-250LB)

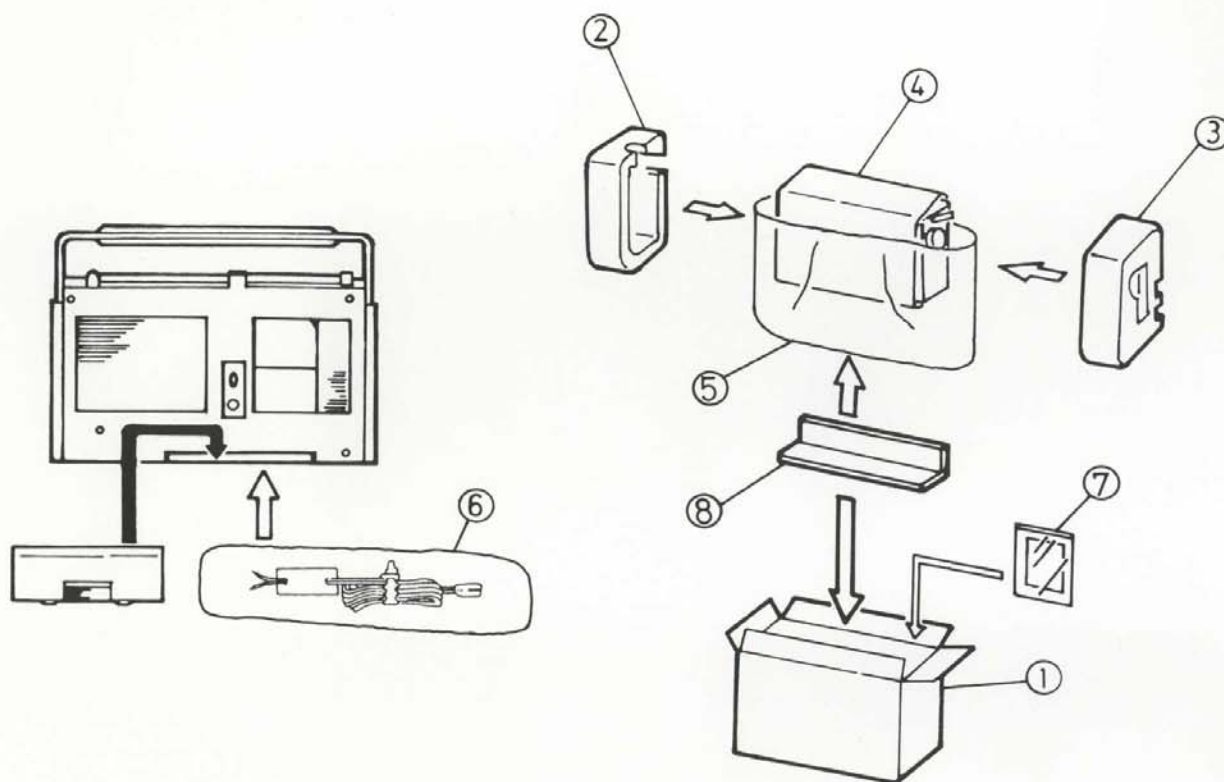


Fig. 27

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Description
1	*VPD5059-J07	Carton Box	
2	*VPH1193-001	Side Cushion	Left
3	*VPH1194-001	"	Right
4	VHPJ079-027	Wrapping Paper	
5	QPGA045-04004	Polyethylen Bag	
6	QPGA012-02505	"	for Power Cord with Plug
7	QPGB017-02404	"	for Instruction Book
8	*VPK4131-001	Spacer	

Accessories (RC-250LB)

Asterisked parts (*) show new parts.

Parts No.	Parts Name	Description	Q'ty
△ QMP9017-009BS	Power Cord	for Erasing	1
*VYA4002-001	Shorting Plug		1
*VNM0774-301	Instruction Book		1
△ QZL1002-003BS	Warning Label		1
BT20013C	Guarantee Certificate		1

JVC

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