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SHARP SERVICE MANUAL

OUTSTANDING RECEPTION THE WORLD OVER

ATSM682082RCS

GF-4646
GF-4646A



(PHOTO: GF-4646)

GF-4646
GF-4646A

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

For the mechanical adjustment, refer to the RD-620/A Service Manual already issued.

SPECIFICATIONS

GENERAL

Power source: (GF-4646)	AC 120V 60Hz DC 9V ("D" type x 6)
(GF-4646A)	AC 240V 50/60 Hz DC 9V (UM/SUM-1 type x 6)
Speakers:	10 cm (4") woofer x 2 Ceramic type tweeter x 2
Output power: (GF-4646)	MPO; 3.9W (1.95W + 1.95W) (AC operation)
Output power: (GF-4646A)	PMPO; 10W (5W + 5W) (AC operation) MPO; 7.2W (3.6 + 3.6W) (AC operation) RMS; 4.6W (2.3 + 2.3W) (DC operation, 10% distortion)
Semiconductors:	5 ICs 4 transistors 11 diodes 2 LEDs
Dimensions: Width;	426mm (16-3/4")
Depth;	96mm (3-3/4")
Height;	212mm (8-3/8")
Weight:	2.8 kg (6.1 lbs.) without batteries

TAPE RECORDER

Tape:	Compact cassette tape
Frequency response:	50Hz ~ 10,000Hz
Signal/noise ratio:	45dB
Input sensitivity and impedance:	
External mic.;	600 ohms
Loaded impedance:	
Headphones;	8 ohms ~ 25 ohms

RADIO

Frequency range:	FM; 87.6 MHz ~ 108 MHz AM; 525 kHz ~ 1,605 kHz
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Specifications for this model are subject to change without prior notice.

SHARP CORPORATION
SHARP ELECTRONICS CORPORATION

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT,
PLEASE REFER TO THE OPERATION MANUAL.

NAMES OF PARTS

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Built-in Microphone (L-ch) 2. Power/Battery indicator 3. FM Stereo Indicator 4. Band Selector 5. Function Selector 6. Volume Control 7. Tone Control 8. Balance Control 9. Tuning Control 10. Telescopic Rod Antenna 11. Built-in Microphone (R-ch) 12. Headphones Jack | <ol style="list-style-type: none"> 13. AC Power Supply Socket 14. Cassette Holder 15. Record Button 16. Rewind Button 17. Playback Button 18. Fast-forward Button 19. Stop Button 20. Eject Button 21. Beat Cancel Switch 22. External Microphone Jacks 23. Battery Compartment Lid |
|---|--|

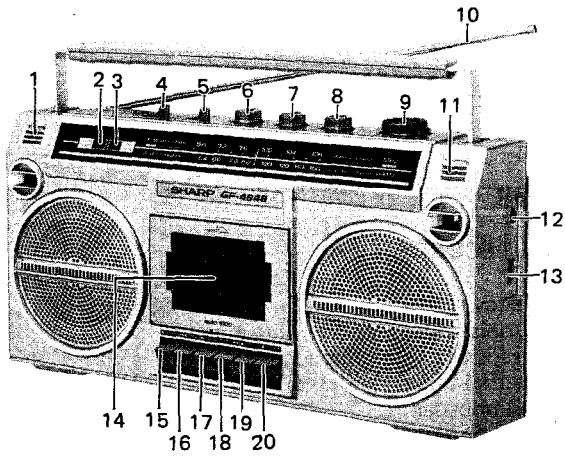


Figure 2-1

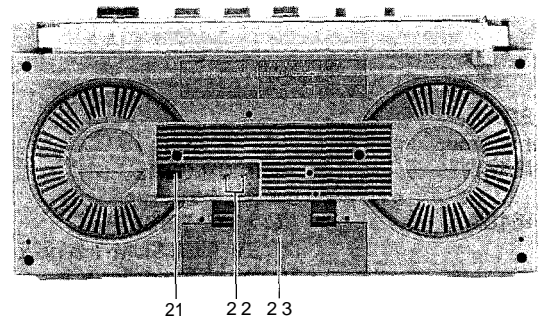


Figure 2-2

AC POWER SUPPLY CORD

QACCL0050AF00 (GF-4646A)	QACCD0051AFOO (GF-4646)

DISASSEMBLY

Caution:

Prior to the disassembly, be sure to remove the AC power supply cord, cassette tape and batteries from the unit.

■ FRONT CABINET REMOVAL

(Refer to Figures 3-1 and 3-2)

1. Remove the six screws (A) and the six knobs (B).
2. Push the eject button to open the cassette holder.
3. Pull the front cabinet frontward by holding its upper part and disconnect the three tips (C).

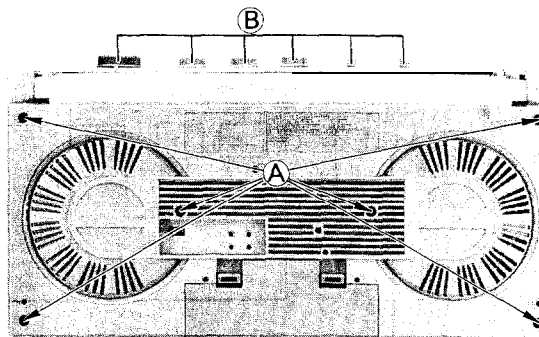


Figure 3-1

■ MECHANISM BLOCK REMOVAL

(Refer to Figure 3-2)

1. Remove the three screws (D).
2. Disconnect the two sockets (E).
3. Unsolder the two tips (F), then the mechanism block can be removed.

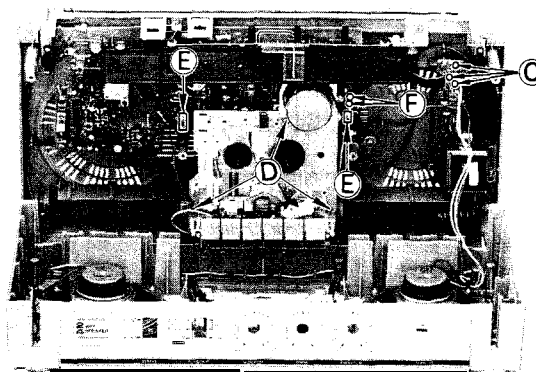


Figure 3-2

■ MAIN P.W.B. REMOVAL

(Refer to Figure 3-3)

1. Remove the eleven screws (G).
2. Remove the LED P.W.B. from the two stoppers (H), then the main P.W.B. can be removed from the back cabinet.

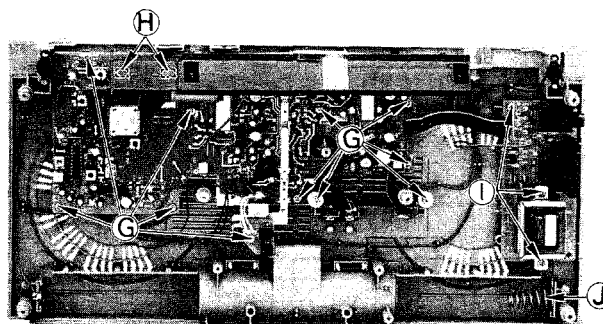


Figure 3-3

■ POWER P.W.B. REMOVAL

(Refer to Figure 3-3)

1. Remove the three screws (I).
2. Remove the battery spring (J), then the power P.W.B. can be removed from the back cabinet.

DIAL CORD STRINGING

- 1) Turn the drum fully clockwise and stretch its cord cover the parts in the numerical order-as shown in Figure 3-4.
- 2) Turn the tuning control shaft fully counterclockwise, and fix it with the pointer aligned with the zero (0) point on the frame. See Figure 3-5.

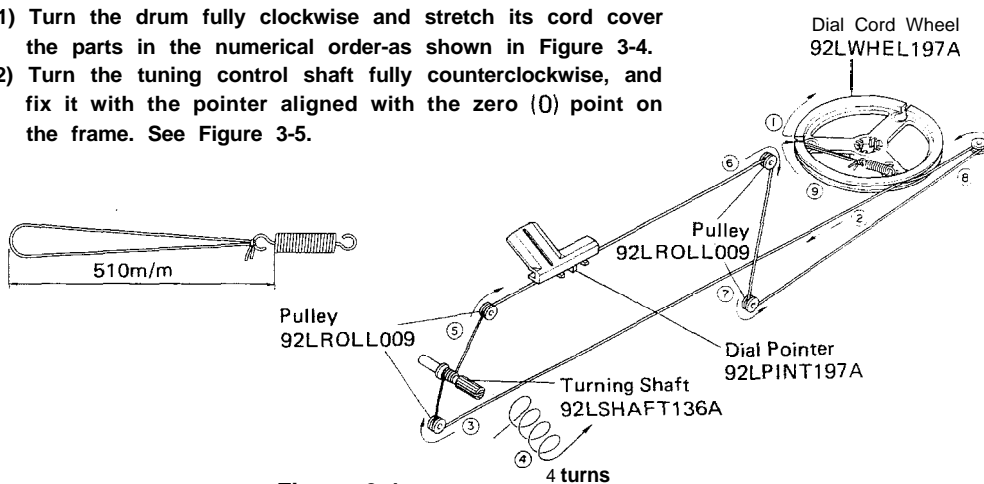


Figure 3-4

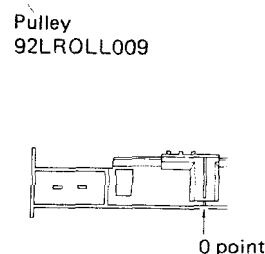


Figure 3-5

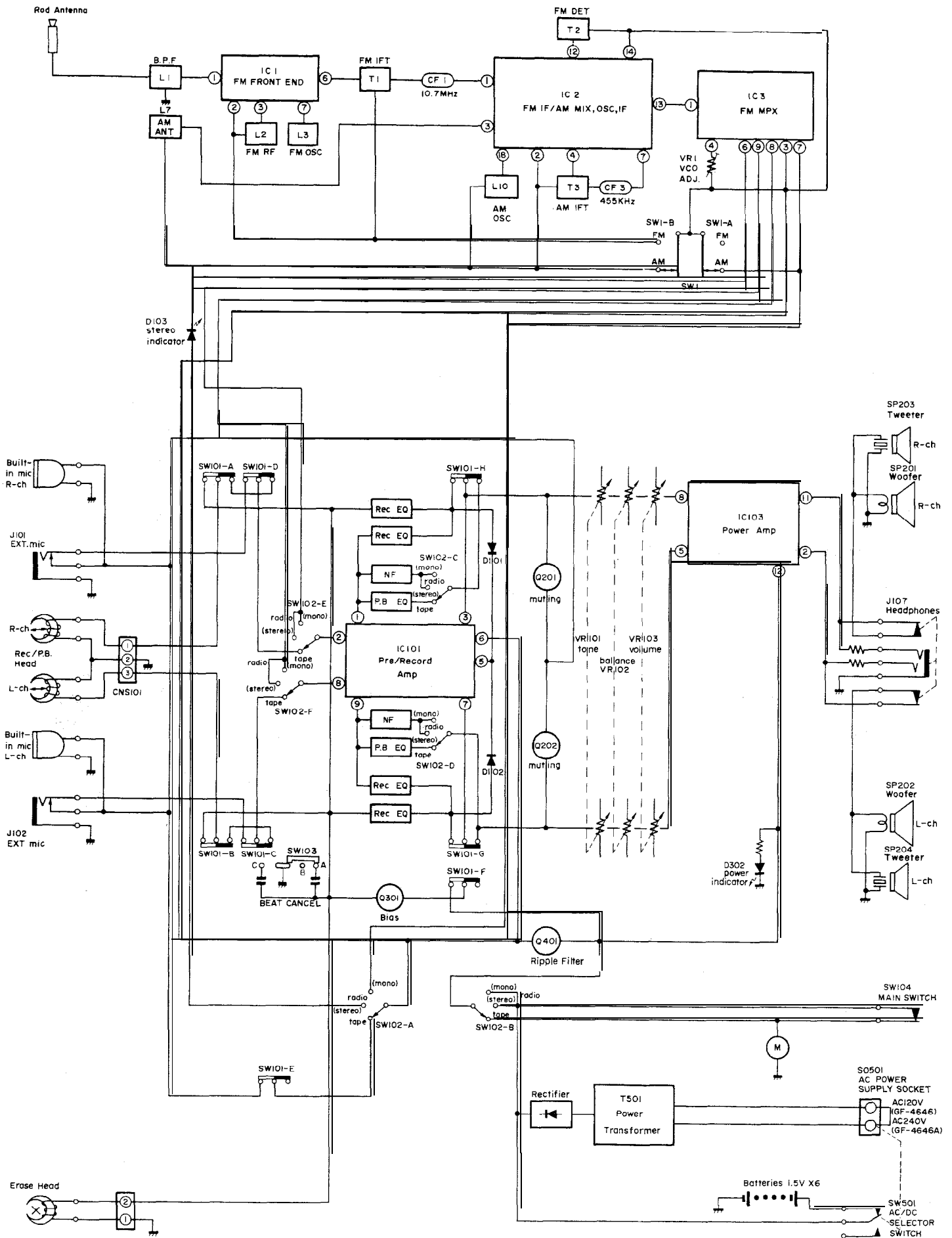


Figure 4 BLOCK DIAGRAM

MECHANICAL ADJUSTMENT

Except for the following item, refer to the RD-620/A Service Manual already issued.

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

As shown in Figure 5-1, make connection of instrument, and adjust the head azimuth adjusting screw so that the output signals from both channels will have maximum waveform with the same phase in right and left.

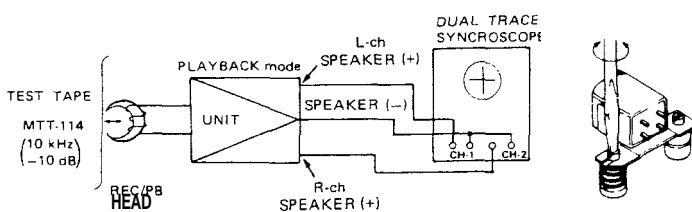


Figure 5-1

GENERAL ALIGNMENT INSTRUCTION

Should it become necessary at any time to check the alignment of this receiver, proceed as follows;

1. Set the volume control (VR103) to maximum.
2. Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.
3. Use a non-metallic alignment tool.
4. Repeat adjustments to insure good results.
5. Set the Function Selector Switch (SW102) to "radio" position.

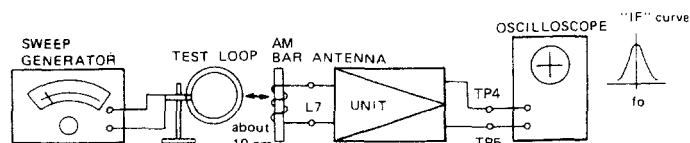


Figure 5-2

AM IF/RF ALIGNMENT

- Set the signal generator to produce a signal of 400Hz, 30% AM modulated.
- For adjustments in steps 4, see Note A.

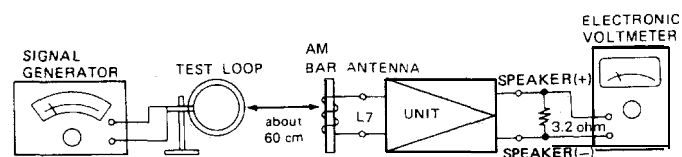


Figure 5-3

STEP	BAND	TEST STAGE	FREQUENCY	DIAL SETTING	ADJUSTMENT	REMARKS
IF (As shown in Figure 5-2, make connection of instruments.)						
1	AM	IF	455 kHz	High end of dial	T3	Adjust for best "IF" curve
RF (As shown in Figure 5-3, make connection of instruments.)						
2	AM	Band coverage	510 kHz	Low end of dial	L10	Adjust for maximum output
3	AM		1650 kHz	High end of dial	TC8	
4	AM	Tracking	600 kHz	600 kHz	L7	
5	AM		1400 kHz	1400 kHz	TC5	
6	Repeat steps 2,3,4 and 5 until no further improvement can be made.					

Note A Check the alignment of the receiver antenna coil by bringing a piece of ferrite (such as a coil slug) near the antenna loop stick, then a piece of brass. If ferrite increases output, loop requires more inductance. If brass increases output, loop requires less inductance. Change loop inductance by sliding the bobbin toward the center of ferrite core to increase inductance, or away to decrease inductance.

FM IF/RF ALIGNMNT

- Set the signal generator to produce a signal of 400Hz, 30%, FM modulated.

STEP	BAND	TEST STA-GE	FRE-QUEN-CY	DIAL SET-TING	AD-JUST-MENT	REMARKS
IF (As shown in Figure 6-1, make connection of instruments.)						
1	FM	IF	10.7 MHz	High end of dial	T1 T2	Adjust for best "S" curve
RF (As shown in Figure 6-2, make connection of instruments.)						
2	FM	Band cover-age	87.1 MHz	Low end of dial	L3	Adjust for maximum output
3	FM		109.0 MHz	High end of dial	TC2	
4	FM		88 MHz	88 MHz		
5	FM	ing	108 MHz	108 MHz	TC1	
6	Repeat steps 2,3,4 and 5 until no further improvement can be made.					

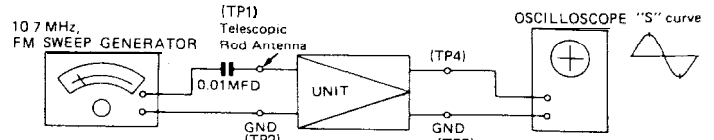


Figure 6-1

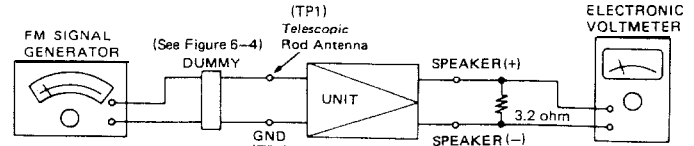


Figure 6-2

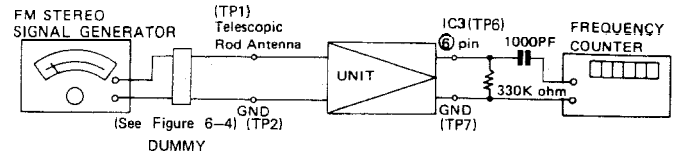


Figure 6-3

FM STEREO ALIGNMNT

- Set the Band Selector Switch (SW1) to "FM" position and Function Switch (SW102) to "stereo" position.
- As shown in Figures 6-3 and 6-4, make connection of instrument.

FREQUENCY	DIAL POINTER	ADJUST-MENT	REMARKS
98MHz (54dB un modulated)	98MHz	VR1	Adjust for 38 ± 0.15 kHz

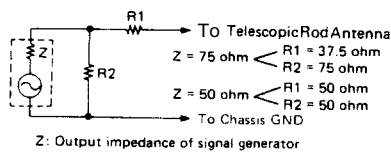


Figure 6-4 FM DUMMY

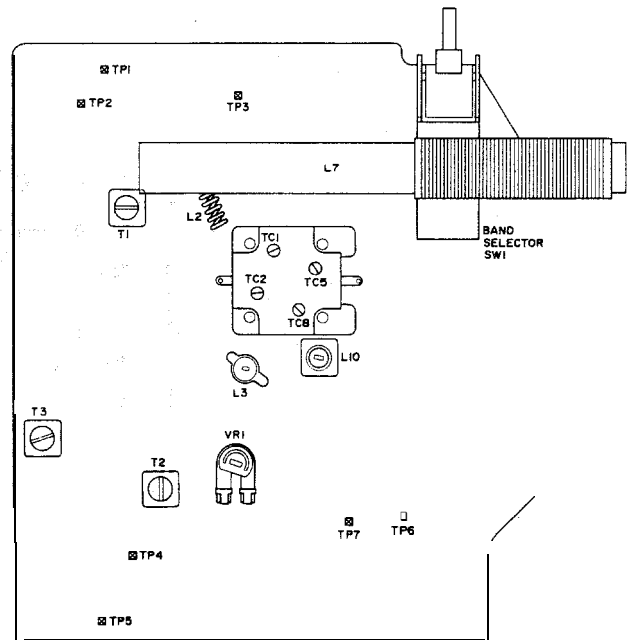


Figure 6-5 ALIGNMENT POINTS

NOTES ON SCHEMATIC DIAGRAM

1. Resistor:

- Unless otherwise specified all resistance in ohms, K=1000 ohms

2. Capacitor:

- Unless otherwise specified all capacitance in microfarads, P= Picofarads

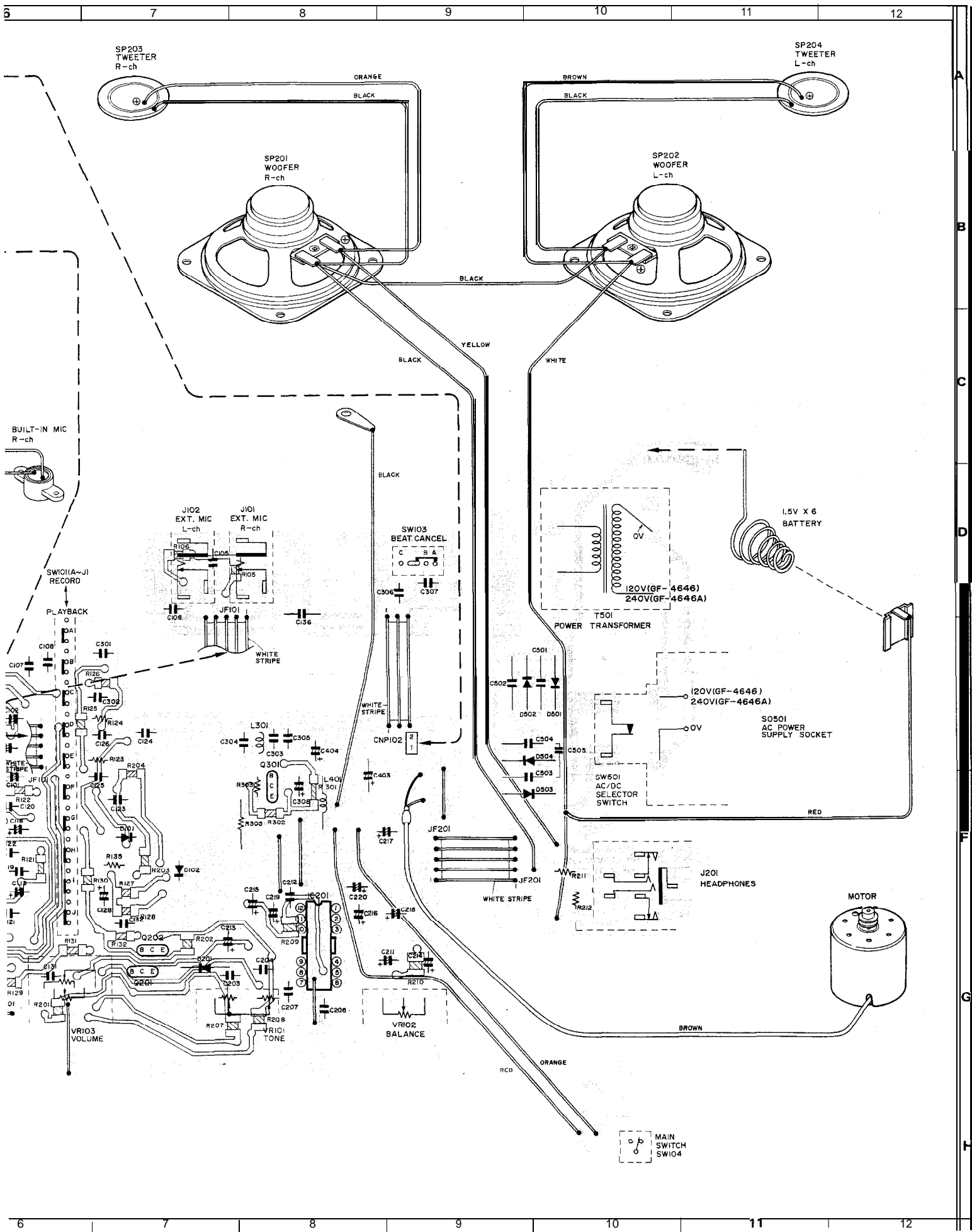
- (CH), (RH): Temperature compensation

3. Voltage reading are measured with Digital Multimeter under no signal condition in tape position.

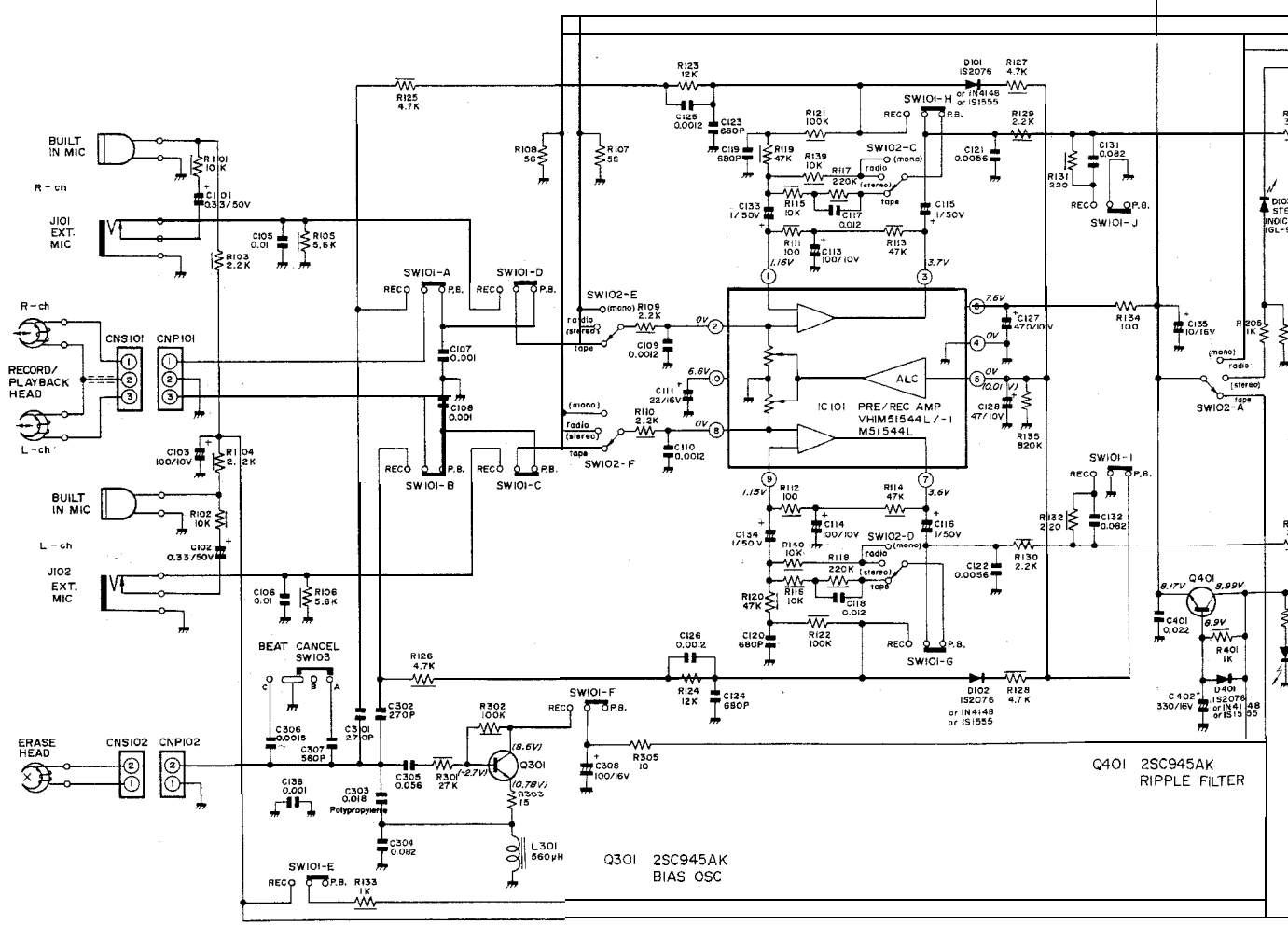
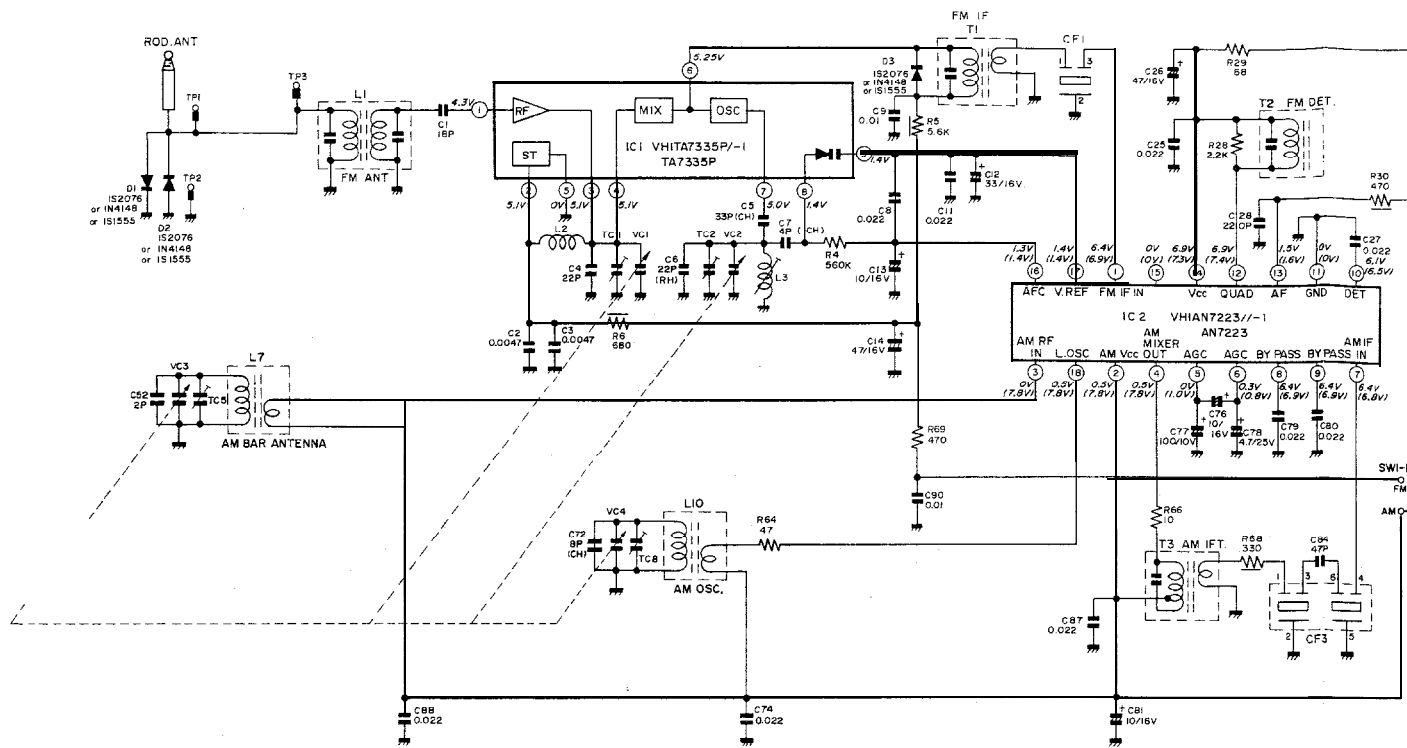
(): AM mode
: FM mode

4. —W—: Printed resistor

- Parts marked with "△" () are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

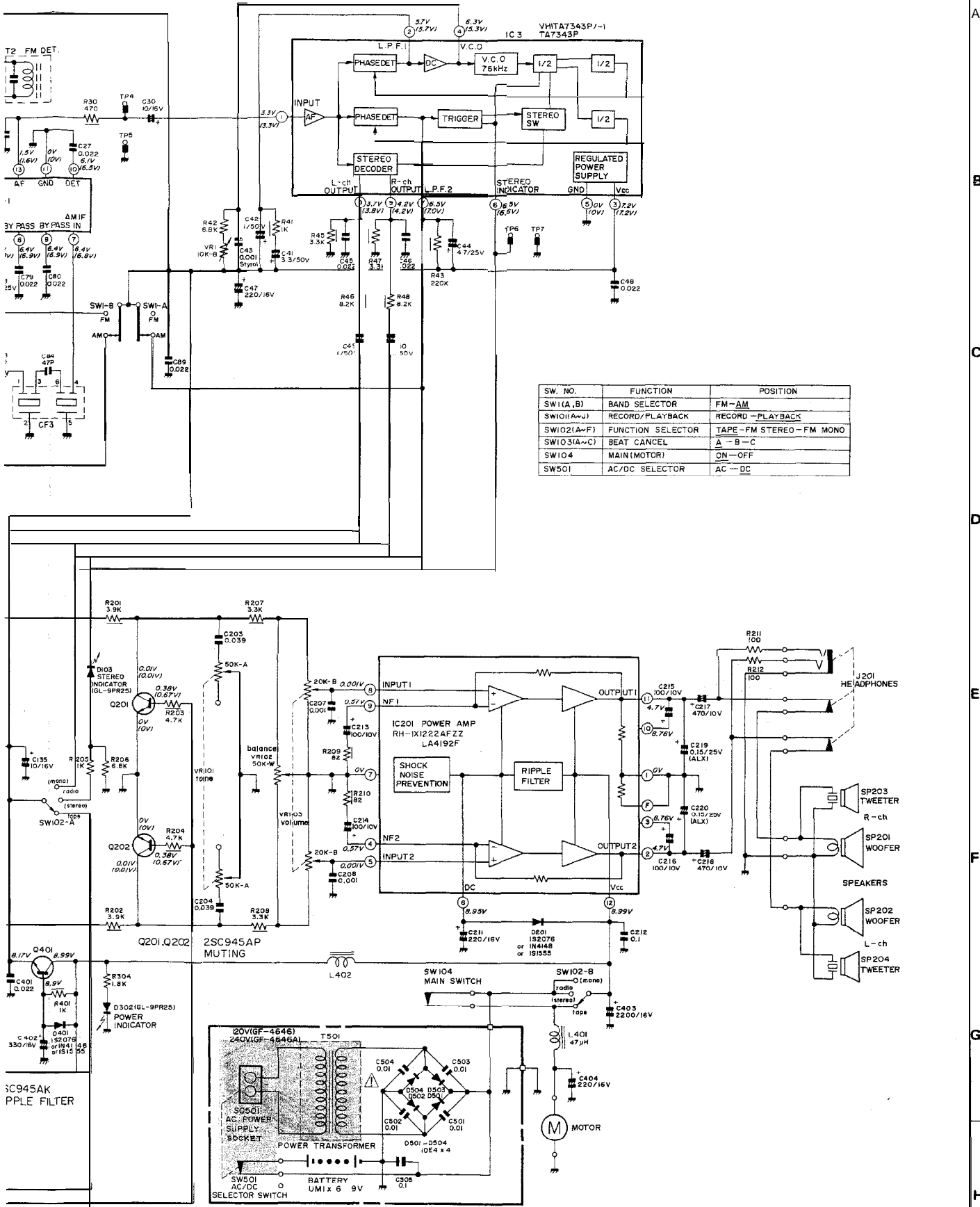


WIRING SIDE OF P.W. BOARD



(Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.)

Figure 9 SCHEMATIC DIABI



SW. NO.	FUNCTION	POSITION
SW1(A, B)	BAND SELECTOR	FM-AM
SW10(A-J)	RECORD/PLAYBACK	RECORD-PLAYBACK
SW102(A-F)	FUNCTION SELECTOR	TAPE-FM STEREO-FM MONO
SW103(A-C)	BEAT CANCEL	A-B-C
SW104	MAIN (MOTOR)	ON-OFF
SW501	AC/DC SELECTOR	AC-DC

ATIC DIABRAM

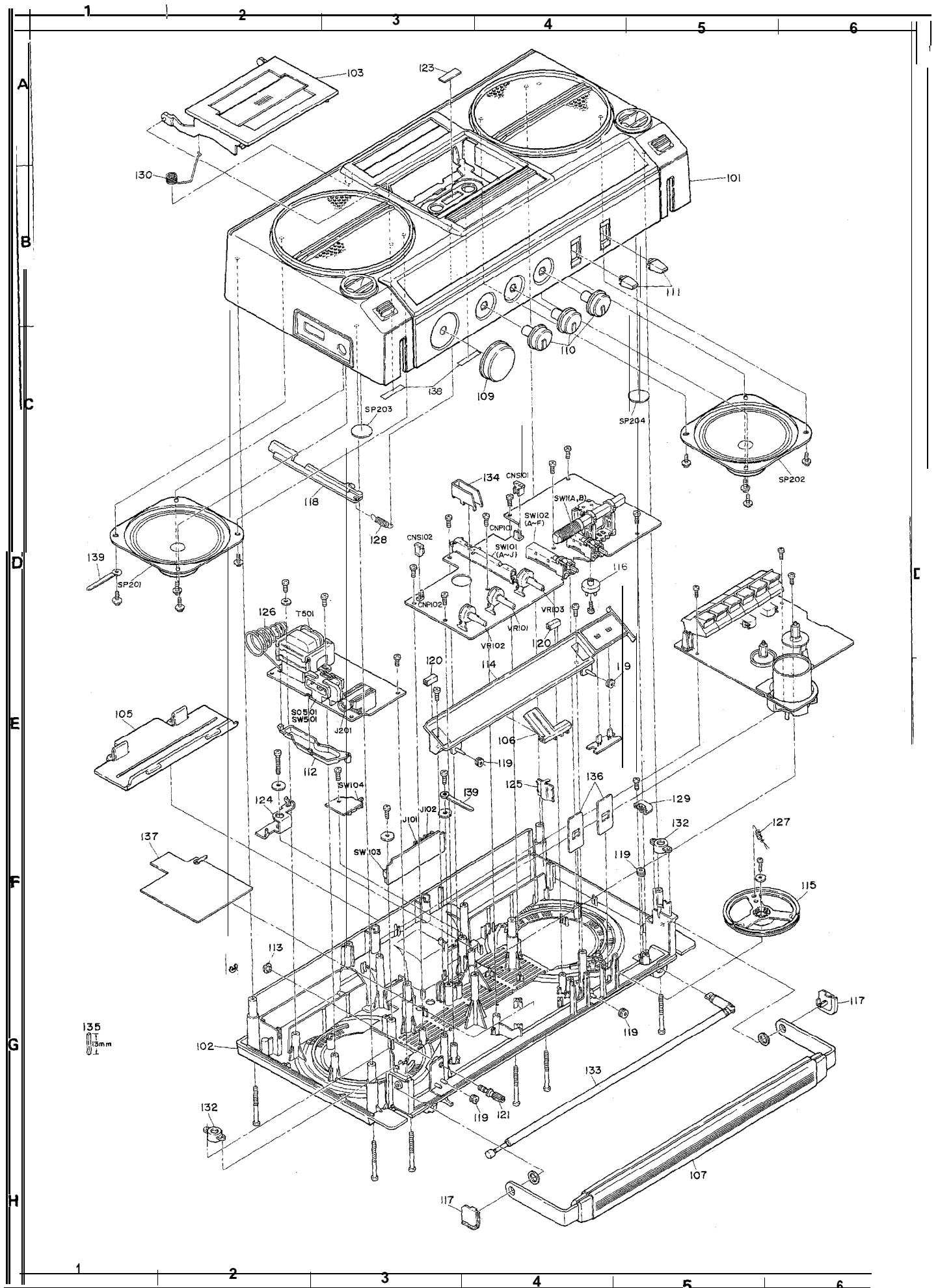


Figure 11 CABINET EXPLODED VIEW

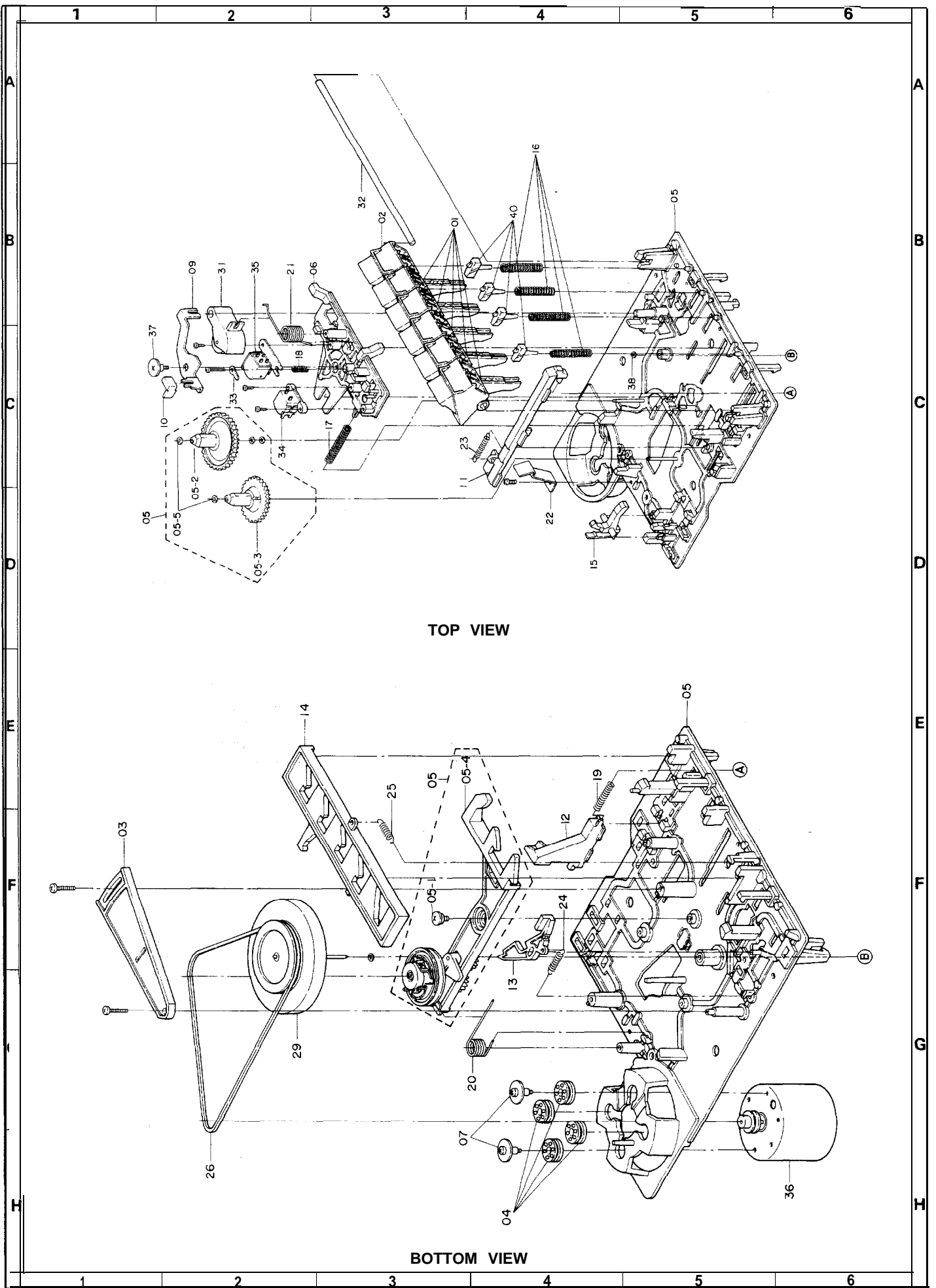


Figure 12 MECHANISM EXPLODED VIEW

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

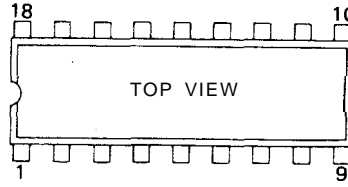
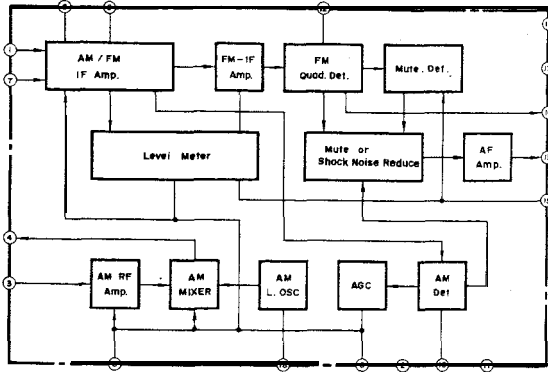
- | | |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO. |
| 3. PART NO. | 4. DESCRIPTION |

NOTES: Parts marked with "△" are important for maintaining the safety of the set, Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

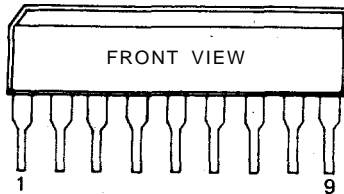
REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE	
INTEGRATED CIRCUITS				FILTERS				
IC1	VHITA7335P/-1	FM Front End (TA7335P)	AG	CF1	RFILF0080AFZZ	Ceramic, FM IF, 10.7MHz	AD	
IC2	VHIAN7223//1	FM IF/AM (Mixer, Oscillator, IF)(AN7223)	AK	CF3	RFILA0074AFZZ	Ceramic, AM IF, 455kHz	AG	
IC3	VHITA7343P/-1	FM Multiplex (TA7343P)	AG	CONTROLS				
IC101	VHIM51544L/-1	Pre/Record Amp. (M51544L)	AG	VC1, 2, } VC3, 4, } TC1, 2, } TC5, 8 }	RVC-R0085AFZZ	Variable Capacitors	AN	
IC201	VHILA41 92//1	Power Amp. (LA4192)	AK			Tuning with Trimmers		
TRANSISTORS								TC1; FM RF Trimmer
						TC2; FM Oscillation Trimmer		
Q201	VS2SC945AP/-1	Muting (2SC945AP)	} AB	VR1	RVR-M0216AFZZ	10K ohm (B), V.C.O. Adjust	AB	
Q202	VS2SC945AP/-1	Muting (2SC945AP)		VR101	92LVR-197A	50K ohm (A), Tone Control		
Q301	VS2SC945AK/-1	Bias Oscillator (2SC945AK)		VR102	92LVR-197B	50K ohm (W), Balance Control		
Q401	VS2SC945AK/-1	Ripple Filter (2SC945AK)		VR103	92LVR-197C	20K ohm (B), Volume Control		
DIODES				ELECTROLYTIC CAPACITORS				
D1, 2	92L1N4148FV	Static Protector (1N4148)	} AB	(Unless otherwise specified capacitors are ±20% type.)				
D3	92L1N4148FV	FM Overload (1N4148)		C12	RC-EZV336AF1C	33MFD, 16V	} AB	
D101, 102	92L1N4148FV	ALC (1N4148)		C13	RC-EZV106AF1C	10MFD, 16V		
D103	RH-PX1029AFZZ	LED, Stereo Indicator (GL-9PR25)		AC	C14	RC-EZV476AF1C		47MFD, 16V
D201	92L1N4148FV	Stabilizer for AC Mode (1N4148)	AB	C26	RC-EZV476AF1C	47MFD, 16V		
D302	RH-PX1029AFZZ	LED, Power Indicator (GL-9PR25)	AC	C30	RC-EZV106AF1C	10MFD, 16V		
D401	92L1N4148FV	Noise Suppressor (1N4148)	A 8	C41	RC-EZV335AF1H	3.3MFD, 50V		
D501, 502, } D503, 504 }	VHD10E-4///-1	Rectifier (10E4)	AB	C42	RC-EZV105AF1H	1MFD, 50V		
COILS				c44	RC-EZV475AF1E	4.7MFD, 25V		
L1	RCILA0455AFZZ	FM Antenna	AC	c47	RC-EZV227AF1C	220MFD, 16V		
L2	RCILR0364AFZZ	FM RF	AA	C49, 50	RC-EZV105AF1H	1MFD, 50V		
L3	RCILB0628AFZZ	FM Oscillator	AC	C76	RC-EZV106AF1C	10MFD, 16V		
L7	92LCOI LA-200A	AM Bar Antenna		c77	RC-EZV107AF1A	100MFD, 10V		
L10	RCILB0626AFZZ	AM Oscillator		C78	RC-EZV475AF1E	4.7MFD, 25V		
L301	VP-CH561K0000	Bias Oscillator, 560μH	AC	C81	RC-EZV106AF1C	10MFD, 16V		
L401	VP-CH470K0000	Noise Suppressor, 47μH	AB	C101, 102	VCEALA1HW334M	0.33M FD, 50V		
L402	92LCOILC-197B	Noise Suppressor		C103	RC-EZV107AF1A	100MFD, 10V		
TRANSFORMERS				C111	RC-EZV226AF1C	22MFD, 16V		
T1	RCILIO157AFZZ	FM IF		CI 13, 114	RC-EZV107AF1A	100MFD, 10V		
T2	RCILIO312AFZZ	FM Detector	} AC	C115, 116	RC-EZV105AF1H	1MFD, 50V		
T3	RCILIO310AFZZ	AM IF		C127	RC-EZV477AF1A	470MFD, 10V		
△T501	{ 92LPT-201 A 92LPT-199A	Power (GF-4646) Power (GF-4646A)		C128	RC-EZV476AF1A	47MFD, 10V		
				C133, 134	RC-EZV105AF1H	1MFD, 50V		
				C135	RC-EZV106AF1C	10MFD, 16V		
				C211	RC-EZV227AF1C	220MFD, 16V		
				C213, 214, } C215, 216 }	RC-EZV107AF1A	100MFD, 10V		
				C217, 218	RC-EZV477AF1A	470MFD, 10V		
				C219, 220	RC-AZ1001AFZZ	0.15MFD, 25V		

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
C308	RC-EZV107AF1C	100MFD, 16V	A 8	C301, 302	VCKZPU1HB271K	270PF, 50V, ±10%, Ceramic	
C402	RC-EZV337AF1C	330MFD, 16V	AC	C303	VCQPKV2AA183J	0.018MFD, 100V, ±5%, Polypropylene	AB
C403	VCEAAU1CW228Y	2200MFD, 16V, +50 - 20 %	AF	C304	VCTYPU1EX823K	0.082MFD, 25V, ±10%, Semiconductor	AB
C404	RC-EZV227AF1C	220MFD, 16V	A 8	C305	VCTYPU1EX563K	0.056MFD, 25V, ±10%, Semiconductor	AB
CAPACITORS				C306	VCTYPU1EX152K	0.0015MFD, 25V, ±10%, Semiconductor	AA
C1	VCCSPU1HL180J	18PF, 50V, ±5%, Ceramic	A A	C307	VCKZPU1HB561K	560PF, 50V, ±10%, Ceramic	AA
C2, 3	VCKZPU1HB472K	0.0047MFD, 50V, ±10%, Ceramic		C401	VCTYPU1EX223M	0.022MFD, 25V, ±20%, Semiconductor	AB
C4	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic		C501, 502, } C503, 504 }	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C5	VCCCPU1HH330J	33PF (CH), 50V, ±5%, Ceramic	AB	C505	VCKZPU1HF104Z	0.1MFD, 50V, +80 -20% Ceramic	
C6	VCCRP1HH220J	22PF (RH), 50V, ±5%, Ceramic		RESISTORS			
C7	VCCCPU1HH4R0C	4 P F (CH), 50V, ±0.25PF, Ceramic	A A	(All resistors are 1/4W, ±5%, Carbon type.)			
C8	VCKZPU1HF223Z	0.022MFD, 50V, +80-20%, Ceramic		R4	VRD-SU2EE564J	560K ohm	
C9	VCTYPU1EX103M	0.01MFD, 25V, ±20%, Semiconductor		R28	VRD-SU2EE222J	2.2K ohm	
C11	VCTYPU1EX223M	0.022MFD, 25V, ±20%, Semiconductor	AB	R29	VRD-SU2EE680J	68 ohm	
C25	VCTYPU1EX223M	0.022MFD, 25V, ±20%, Semiconductor	A 8	R42	VRD-SU2EE682J	6.8K ohm	
C27	VCKZPU1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	A A	R64	VRD-SU2EE470J	47 ohm	
C28	VCCSPU1HL221 J	220PF, 50V, ±5%, Ceramic	A A	R66	VRD-SU2EE100J	10 ohm	
c43	VCQSMV1HL102J	0.001MFD, 50V, ±5%, Styrol	AB	R69	VRD-SU2EE471J	470 ohm	
C45, 46, } C48 }	VCTYPU1EX223M	0.022MFD, 25V, ±20%, Semiconductor	AB	R107, 108	VRD-SU2EE560J	56 ohm	
C52	VCCSPU1HL2R0C	2PF, 50V, 0.25PF, Ceramic		R123, 124	VRD-SU2EE123J	12K ohm	
C72	VCCCPU1HH8R0C	8PF (CH), 50V, 0.25PF, Ceramic		R134	VRD-ST2EE101J	100 ohm	
c74	VCTYPU1EX223M	0.022MFD, 25V, ±20%, Semiconductor	AB	R135	VRD-SU2EE824J	820K ohm	
C79, 80	VCTYPU1EX223M	0.022MFD, 25V, ±20%, Semiconductor	AB	R205	VRD-ST2EE102J	1K ohm	
C84	VCCSPU1HL470J	47PF, 50V, ±5%, Ceramic	A A	R206	VRD-ST2EE682J	6.8K ohm	
C87, 88	VCKZPU1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	A A	R211, 212	VRD-SU2EE101J	100 ohm	
C89	VCKZPU1HB223M	0.022MFD, 50V, ±20%, Ceramic	AB	R303	VRD-SU2EE150J	15 ohm	
C90	VCKZPU1HF103Z	0.01 MFD, 50V, +80-20%, Ceramic		R304	VRD-ST2EE182J	1.8K ohm	
C105, 106	VCTYPU1EX103K	0.01MFD, 25V, ±10%, Semiconductor		R305	VRD-ST2EE100J	10 ohm	
C107, 108	VCTYPU1EX102K	0.001MFD, 25V, ±10%, Semiconductor		MECHANISM PARTS			
C109, 110	VCTYPU1EX122K	0.0012MFD, 25V, ±10%, Semiconductor		01	92LM-BUTON185A	Button, Function	
C117, 118	VCTYPU1EX123K	0.012MFD, 25V, ±10%, Semiconductor	A A	02	92LM-BUTON185B	Button, Eject	
C119, 120	VCKZPU1HB681K	680PF, 50V, ±10%, Ceramic		03	92LM-SUPT152A	Bracket, Flywheel	AC
C121, 122	VCTYPU1EX562K	0.0056MFD, 25V, ±10%, Semiconductor		04	92LCUSN 113A	Cushion Rubber, Motor	
C123, 124	VCKZPU1HB681K	680PF, 50V, ±10%, Ceramic		05	92LM-C-ASY152A	Mechanism Chassis Assembly	
C125, 126	VCTYPU1EX122K	0.0012MFD, 25V, ±10%, Semiconductor		05-1	LX-BZ0321 AFFD	Screw, Slip Roller Assembly Retaining	AA
C131, 132	VCTYPU1EX823K	0.082MFD, 25V, ±10%, Semiconductor	AB	05-2	NDAIR0125AFSA	Turntable, Take-up	} AC
C136	VCKZPU1HF102Z	0.001MFD, 50V, +80-20%, Ceramic	A A	05-3	NDAIR0162AFZZ	Turntable, Supply	
C203, 204	VCTYPU1EX393K	0.039MFD, 25V, ±10%, Semiconductor	A A	05-4	NROLW0016AFZZ	Slip Roller Assembly	AK
C207, 208	VCTYPU1EX102K	0.001MFD, 25V, ±10%, Semiconductor	A A	05-5	LX-WZ9064AFZZ	Washer, 1.2mm Dia. x 3.3mm Dia. x 0.5mm	AA
c212	VCTYPU1EX104M	0.1MFD, 25V, ±20%, Semiconductor	AB	06	92LM-S-CHS152A	Sub-chassis	
				07	92LS2R6S025A	Screw, Motor Retaining	
				09	92LM-LEV152F	Lever, Tape Contact	} AB
				10	92LMC-SPAC025B	Contact, Tape	
				11	92LM-LEV152A	Lever, Record Action	AC
				12	92LM-LEV185A	Lever, Switch Action	
				13	92LM-LEV152C	Lever, Auto Stop	AB
				14	92LM-LEV152D	Lock Plate, Function Key	AD
				15	92LM-LEV152E	Lever, Erase Prevention	AB
				16	92LM-CSPR152D	Spring, Function Key	AA
				17	92LM-CSPR152E	Spring, Sub-chassis Returning	AA
				18	92LM-CSPR152F	Spring, Head Azimuth	AB
				19	92LM-CSPR185A	Spring, Switch Action Lever	
				20	92LM-CSPR152I	Spring, Slip Roller	AA
				21	92LM-CSPR152H	Spring, Pressure Roller	AB

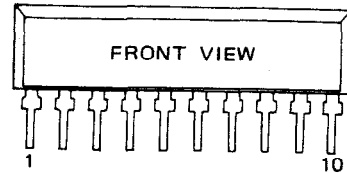
**IC2: VHIAN7223// -1
(AN7223)**



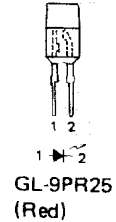
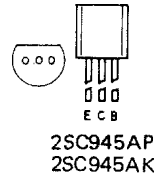
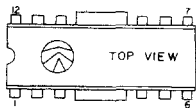
**IC1: VHITA7335P/-1 (TA7335P)
IC3: VHITA7343P/-1 (TA7343P)**



IC101: VHIM51544L/-1 (M51544L)



IC201: VHILA4192// -1 (LA4192)



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C: COLLECTOR
B: BASE

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2: CATHODE

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