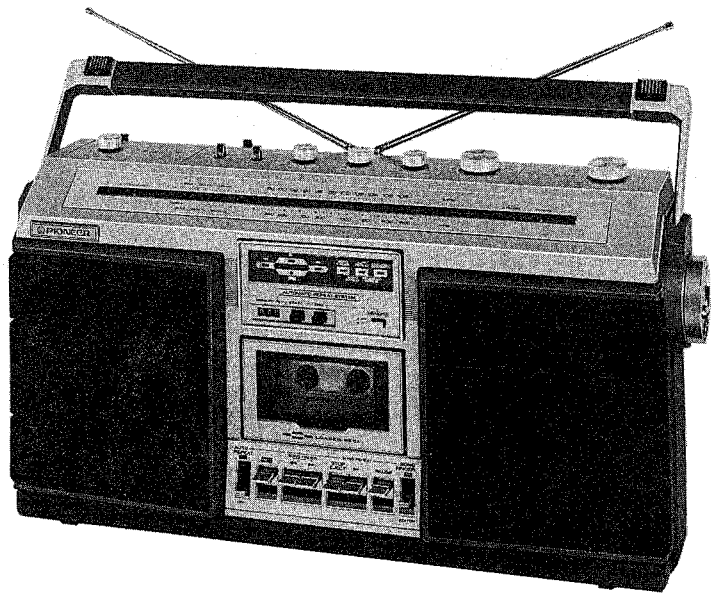
SK-51 KU

AM/FM STEREO RADIO
CASSETTE RECORDER

SERVICE MANUAL



CONTENTS

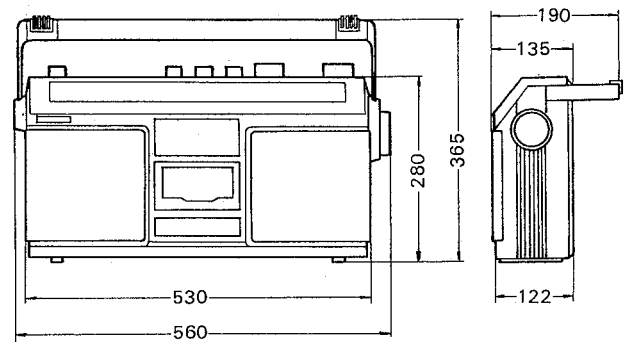
PIONEER®

1. SPECIFICATIONS

Max. output power	3W + 3W/FTC (3.2Ω, 100 ~ 15,000 Hz, 10% THD.)
Speaker	16 cm (6-1/4 in.) Woofer, 4.2 cm (1-5/8 in.) Tweeter (2 way system)
Wow and flutter	0.08% (WRMS) With anti-rolling system
Frequency response	50 ~ 12,000 Hz
Input	AUX L/R, EXT MIC L/R (with terminal for remote control use), MIX MIC (with terminal for remote control use), EXT FM ANT
Output	LINE OUT L/R, EXT SP L/R, headphone
Subfunction	One side repeat, song repeat, programmable repeat, tape counter memory, song finder, editor, one touch recording, loudness switch
Indicator	Play (Green LED), FF (Red LED), REW (Red LED), REC (Red LED), song finder (Red LED), auto repeat (Green LED), memory (Red LED), FM Stereo (Red LED), tuning (Green LED), battery check (Red LED)
Frequency range	FM: 88 ~ 108 MHz AM: 525 ~ 1,605 kHz
Power source	120V AC 60 Hz, 13.5V DC (Nine 1.5V "D" batteries), EXT 12V DC
Power consumption	16W

Dimensions (W × H × D)	530 × 280 × 135 mm (20-7/8 × 11 × 5-3/8 in.)
Weight	6.5 kg (14.3 lbs) without batteries

Note:
Specifications and the design are subject to possible modification without notice due to improvements.



(mm)

2. BLOCK DIAGRAM SK-51

● Tuner Section

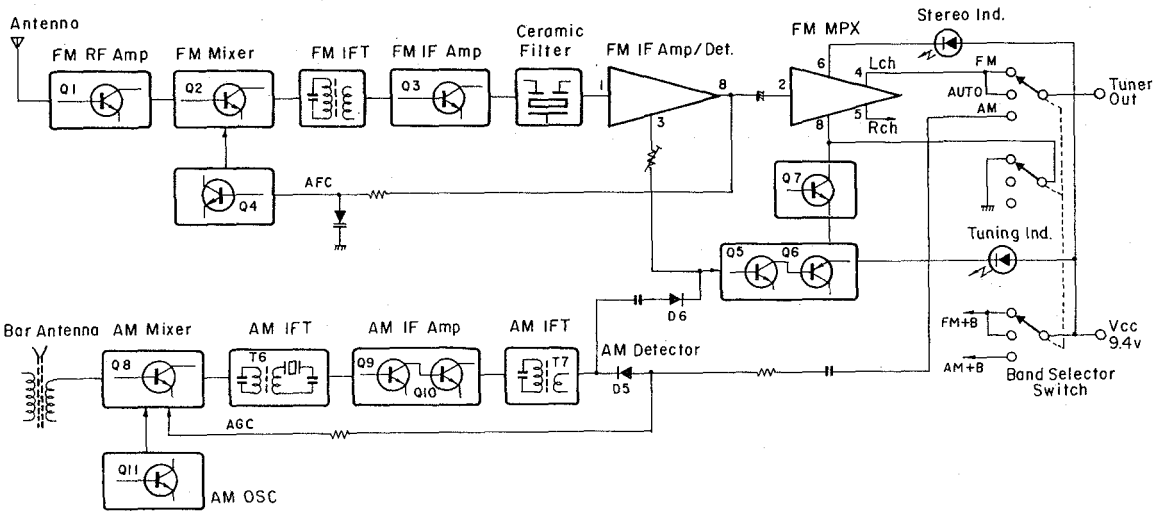


Fig. 1

● Playback Mode

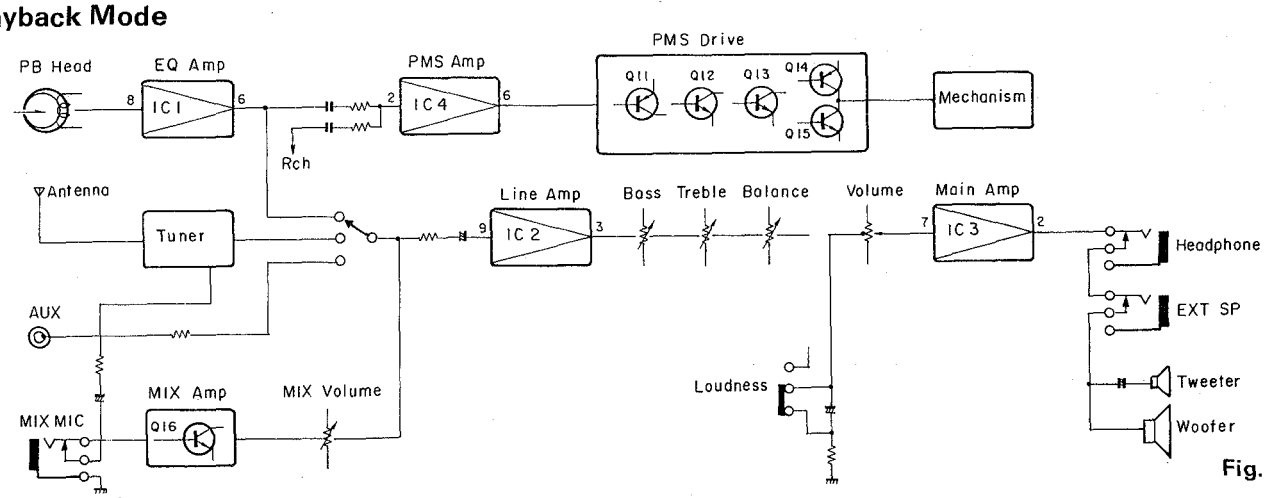


Fig. 2

● Record Mode

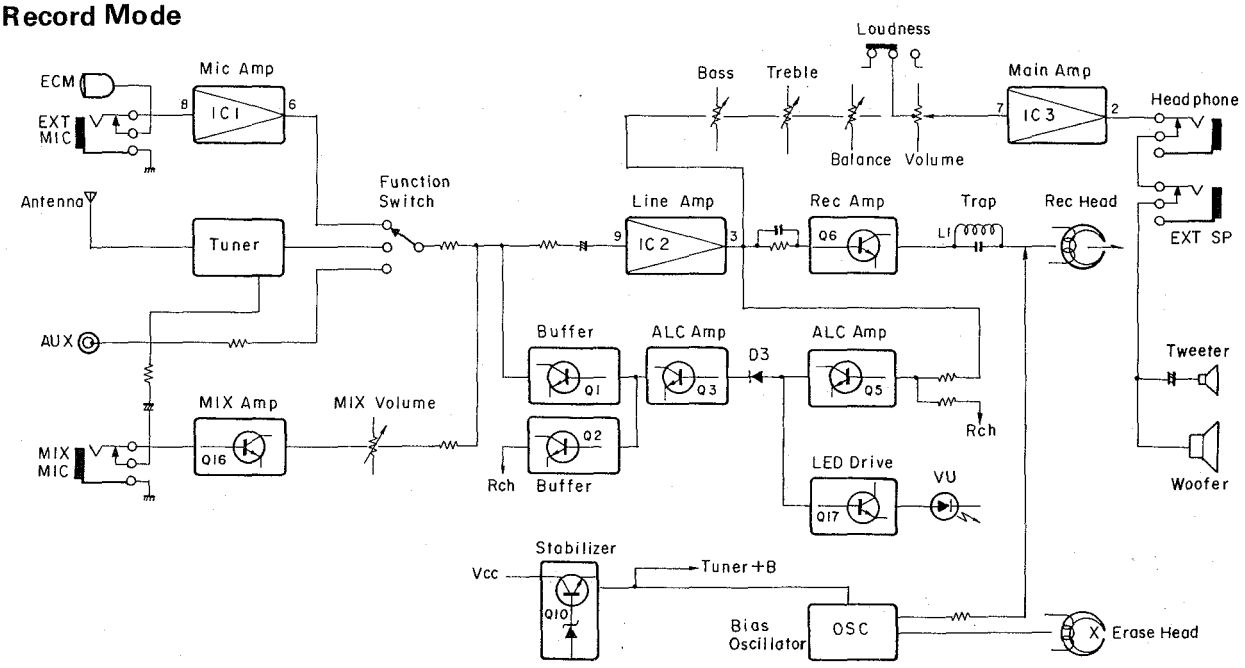


Fig. 3

3. DISASSEMBLY

● Removing the Rear Case

1. Remove the batteries and check that the AC cord is not connected.
2. Unscrew the nine screws which hold the rear case. The bottom of the rear case may be slid, and so to remove it, push down from above. (Fig. 4)

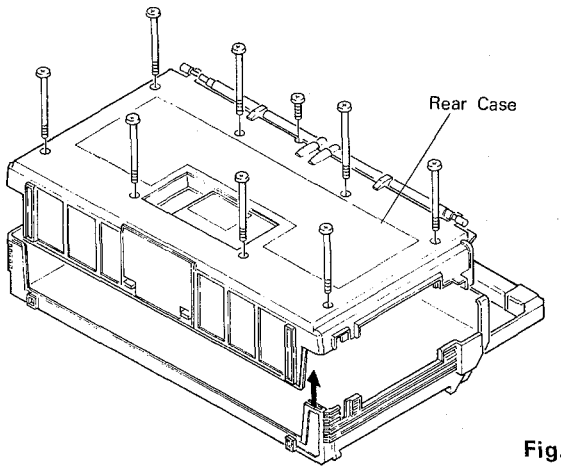


Fig. 4

● How to Remove Cassette Holder

1. Press the Stop/Eject knob to open the cassette holder.
2. Apply force in the direction of the arrow. (Fig. 5) And then remove the cassette holder.
3. To install the cassette holder, insert it and apply force in the direction of the arrow. It will then be locked firmly in position. (Fig. 6)

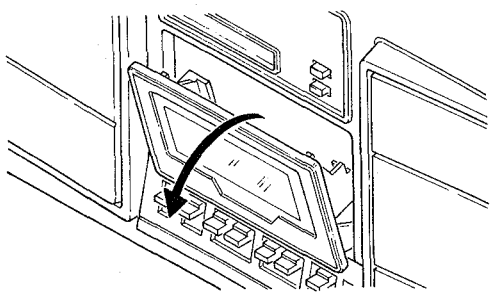


Fig. 5

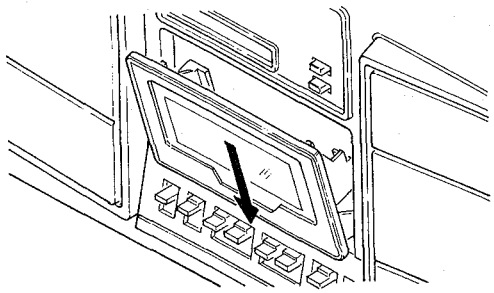


Fig. 6

● Chassis Assembly Removal

1. Remove the knobs from the top panel.
2. Remove the tuning knob by using a screwdriver from the back of the set.
3. Remove the lever knob of Chassis Assembly by pushing it till the interior side of the panel.

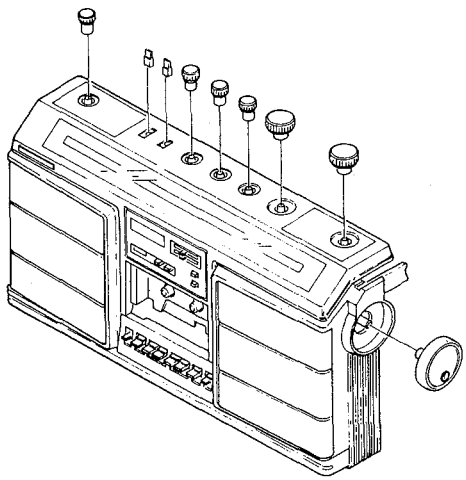


Fig. 7

● Removing the Amp Unit

1. The amp unit can be removed when the eight screws holding the chassis and the three nuts holding the volume control are removed.

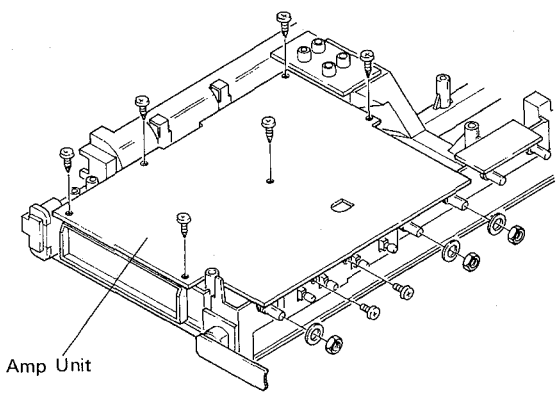


Fig. 8

● Removing the Tuner Unit

1. Remove the screws anchoring the variable condenser and the pulley.
2. Remove the nut holding the switch.
3. Unscrew the five screws holding the tuner unit and the board can then be removed.
   When reassembling the circuit board, first adjust for the cutout in the center of the pulley and the projection on the variable condenser to be aligned and then reassemble. If these screws are too loose, this may cause the meter pointer to deviate.

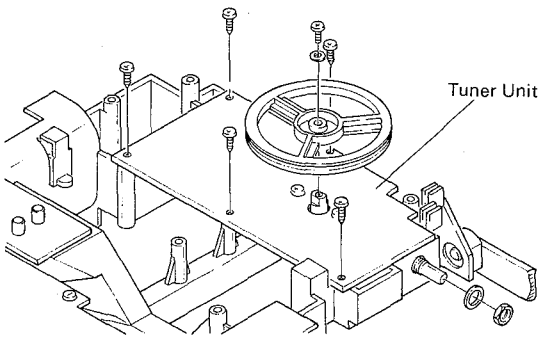


Fig. 9

● Removing the Cassette Mechanism

1. Unscrew the four screws holding the cassette mechanism, pull it right up and then remove.

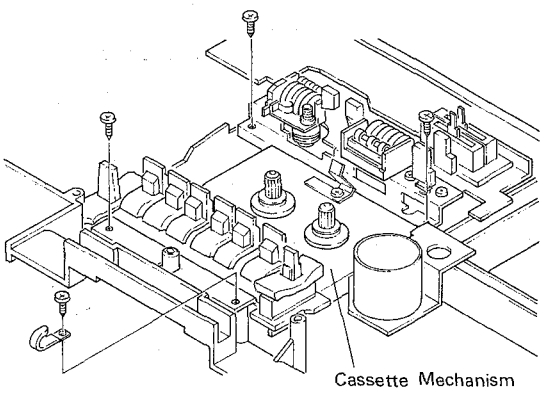


Fig. 10

4. DIAL STRINGING

1. Position the dial thread with reference to the figure. (Proceed in numerical order.)
2. When the thread has been positioned or when the variable condenser of the tuner circuit board or the pulley has been replaced, the cutout of the pulley and the projection of the variable condenser may be thrown out of alignment. In cases like this, first align the parts properly and then tighten the mounting screw. If the screw is too loose, the meter pointer may deviate.

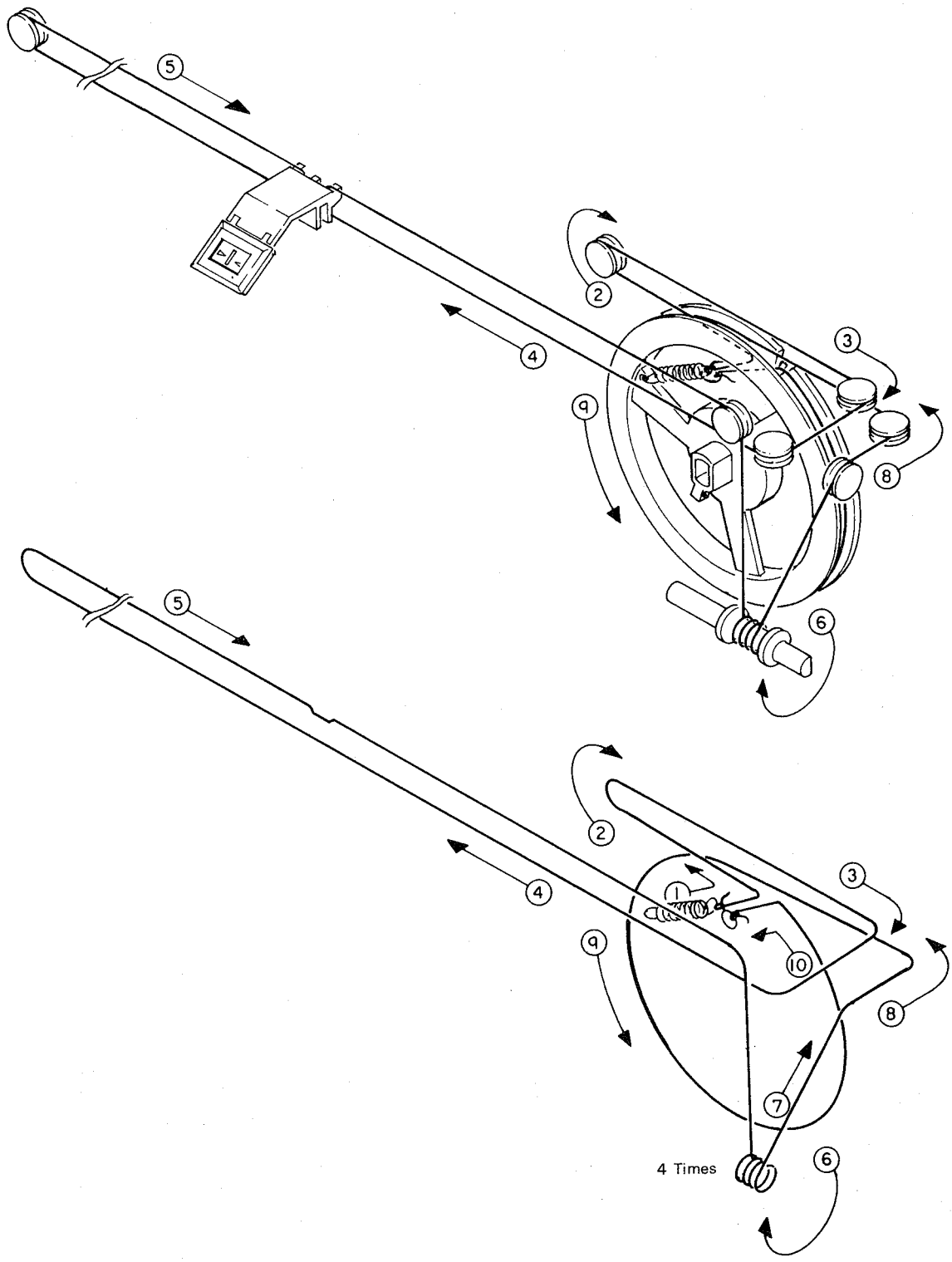


Fig. 11

5. ADJUSTMENT SK-51

5.1 REC BIAS ADJUSTMENT

● Connection Diagram

Switch position

Function switch ..... AUX

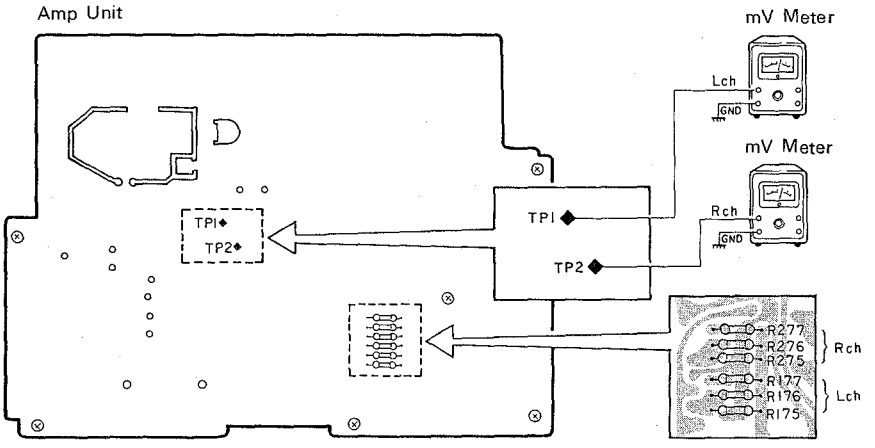


Fig. 12

● To Adjust

1. Set the unit to the recording mode. The mV meter pointer is set to deflect to 3.8 mV ±1 dB but if the actual deflection is lower, connect R176, 177 (Lch) and R276, 277 (Rch) in parallel.
   If the mV meter reads higher, disconnect R175 and R275.

5.2 BIAS TRAP ADJUSTMENT

● Connection Diagram

Switch positions

Function switch ..... AUX

BFC switch ..... 1 ⇄ 2

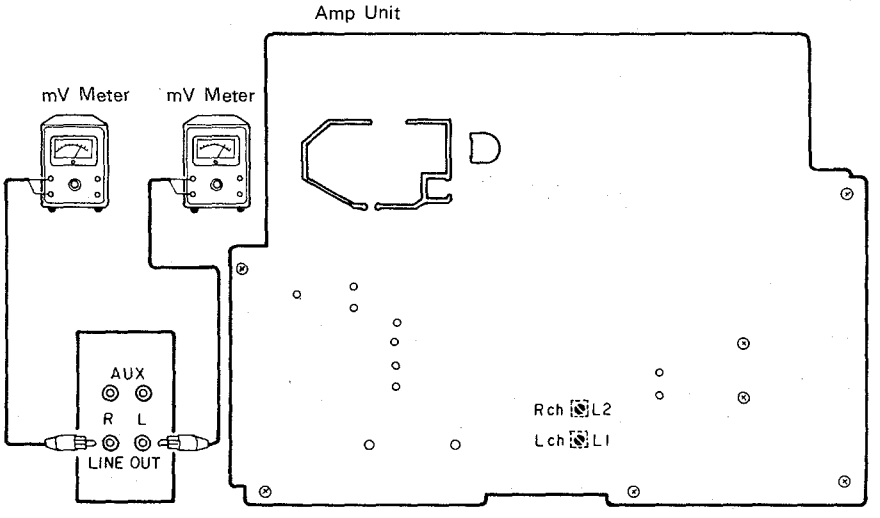


Fig. 13

● To Adjust

1. Select the recording mode. Set the BFC switch to Position 1, turn L1 (Lch) and L2 (Rch), and adjust until the mV meter reads minimum.
2. Set the BFC switch to Position 2, and adjust in the same way as mentioned in Step (1).
3. Repeat Steps (1) and (2) a few times until the mV meter reads the same whichever position, 1 or 2, the mV meter is at.

5.3 AM IF ADJUSTMENT

● Connection Diagram

Switch positions

Function switch .....RADIO
Band selector switch.....AM

Generator Scope

Sweep center frequency.....455 kHz
Input gain.....0.3 Vp-p/cm

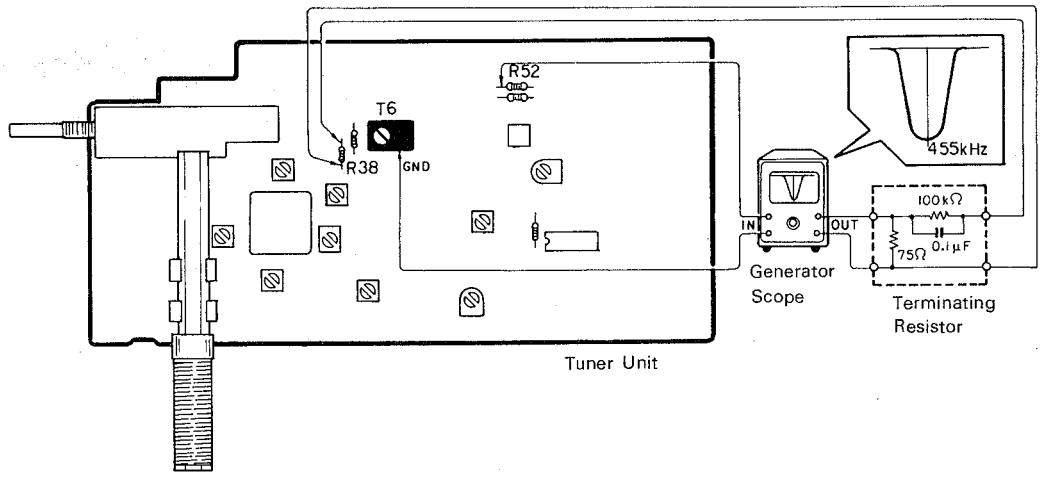


Fig. 14

● To Adjust

1. Set the input of the Generator Scope to the range within which the U curve can be verified and move the T6 until the U curve is adjusted to its maximum amplitude and optimum symmetry.

5.4 AM TRACKING ADJUSTMENT

● Connection Diagram

Switch positions

Function switch .....RADIO
Band selector switch.....AM

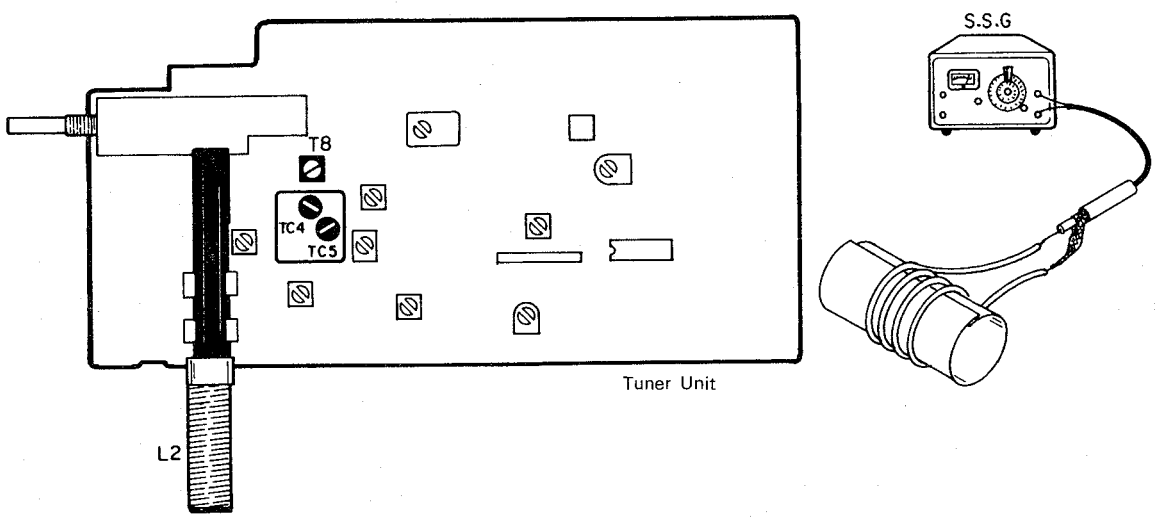


Fig. 15

● To Adjust

Frequency of FM SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 515 kHz (400 Hz, 30% modulation) output 60 dB/m.	Maximum (turn the tuning knob counterclockwise.)	T8	515 kHz can be received.
2. 1,650 kHz (400 Hz, 30% modulation) output 60 dB/m.	Minimum (turn the tuning knob clockwise.)	TC5	1,650 kHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 515 ~ 1,650 kHz are received.			
4. 600 kHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 600 kHz.	L2 (Coil of bar antenna)	Maximum output.
5. 1,400 kHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 1,400 kHz.	TC4	Maximum output.
6. Repeat (4) and (5) alternately and confirm that they are as specified.			

Note: After adjusting L2 (Coil of bar antenna), melt electro wax with soldering iron and fix it in position.

5.5 FM IF ADJUSTMENT

● Connection Diagram

Switch positions

Function switch ..... RADIO
Band selector switch ..... FM

Generator Scope

Sweep center frequency ..... 10.7 MHz
Input gain ..... 0.3 Vp-p/cm
Marker ..... OFF or minimum

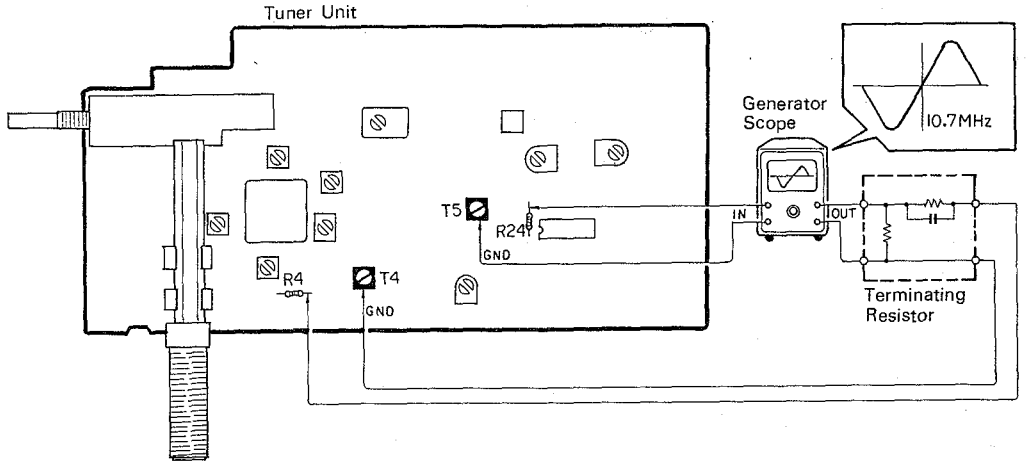


Fig. 16

● To Adjust

1. Apply an output of about 70 dB (μV) from the Generator Scope, adjust T4, T5 and adjust so that the S curve becomes vertically symmetrical and optimum linearity is obtained.

5.6 FM TRACKING ADJUSTMENT

● Connection Diagram

Switch positions

Function switch .....RADIO
Band selector switch..... FM

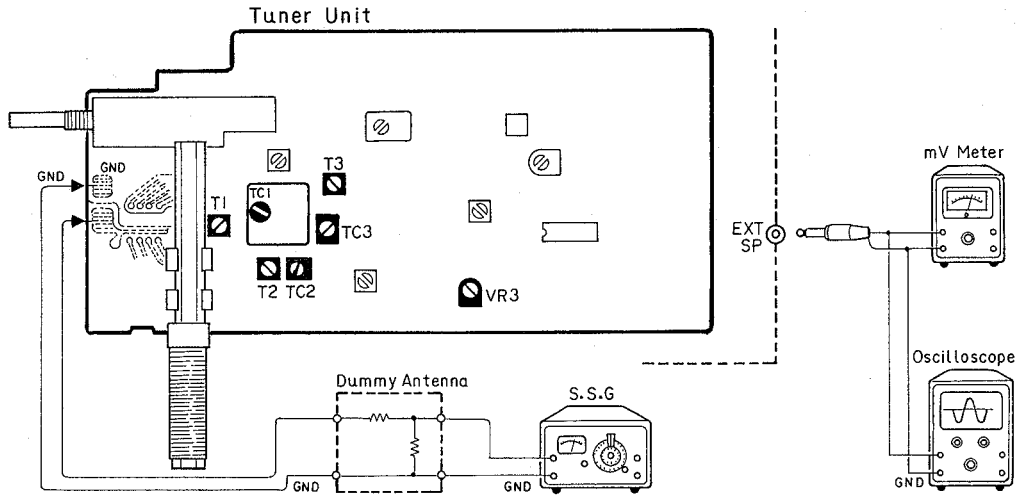


Fig. 17

● To Adjust

Frequency of FM SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 87 MHz (400 Hz, 75 kHz deviation) output 30 dB (μV).	Maximum (turn the tuning knob counterclockwise.)	T3	87 MHz can be received.
2. 109 MHz (400 Hz, 75 kHz deviation) output 30 dB (μV).	Minimum (turn the tuning knob clockwise.)	TC3	109 MHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 87 ~ 109 MHz are received.			
4. 90 MHz (400 Hz, 75 kHz deviation) output 10 ~ 20 dB (μV).	Tuned to 90 MHz.	T1, T2	Maximum output.
5. 106 MHz (400 Hz, 75 kHz deviation) output 10 ~ 20 dB (μV).	Tuned to 106 MHz.	TC1, TC2	Maximum output.
6. Repeat (4) and (5) alternately and adjust until tracking error disappears.			
7. 82 MHz (400 Hz, 75 kHz deviation) output 17 dB (μV).	Tune to 82 MHz.	VR3	Tuning LED must light.

5.7 FM MPX ADJUSTMENT

● Connection Diagram

Switch positions

function switch ..... RADIO
Band selector switch ..... FM AUTO

Stereo modulator

Modulation frequency ..... 1 kHz
Modulation 100%
Pilot ..... 7.5 kHz
Main ..... 67.5 kHz

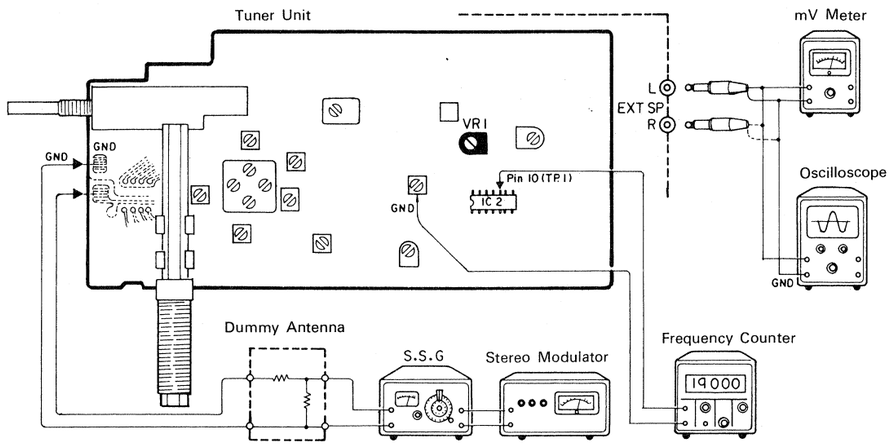
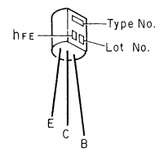


Fig. 18

● To Adjust

1. Apply an 98 MHz 10 dB signal from the FM SSG, and rotate the tunig knob to tune into 98 MHz.
2. Set the FM SSG output to 60 dB and set the modulation to OFF.
3. Adjust VR1 so that the frequency counter indicates 19 kHz ±20 Hz.

● IC's and Transistors



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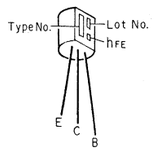

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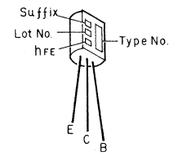
2SC1675



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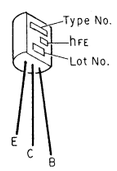

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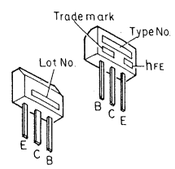

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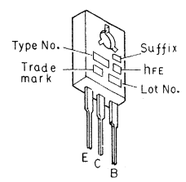

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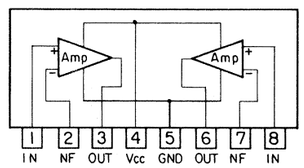
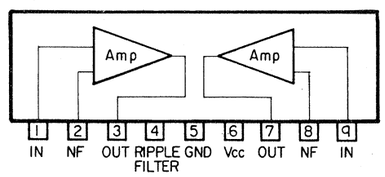
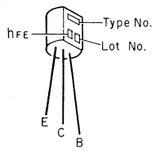


AN7311



● IC's and Transistors



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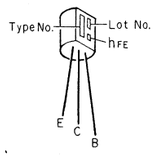

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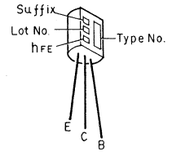

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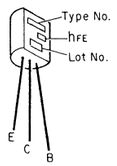

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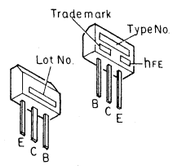

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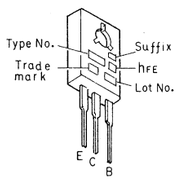

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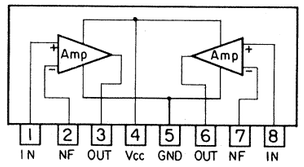

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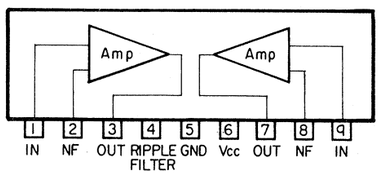

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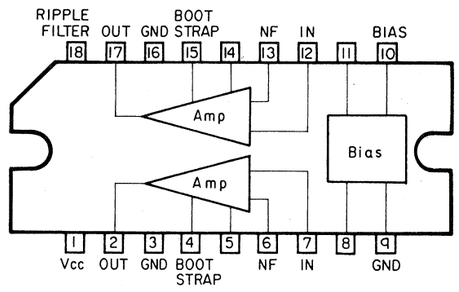

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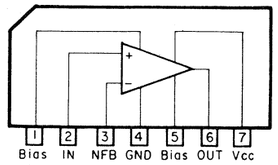

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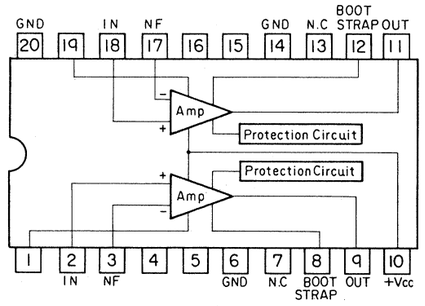

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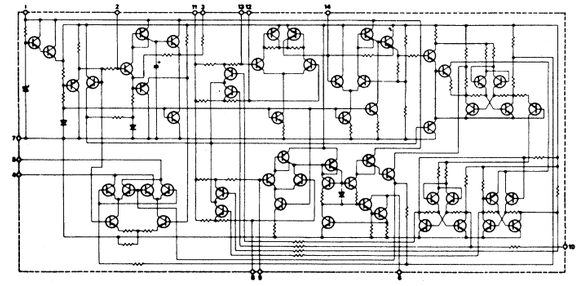
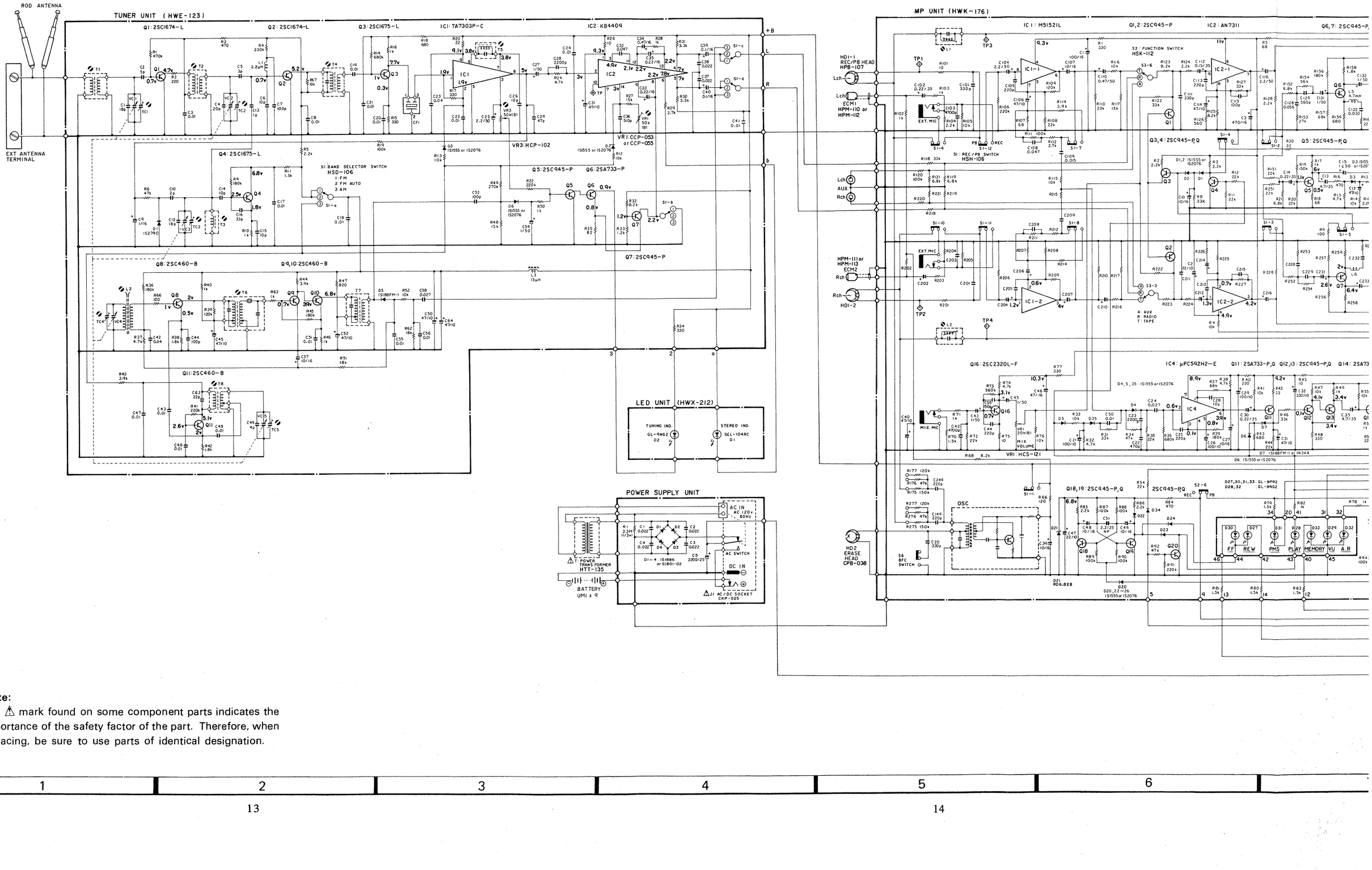
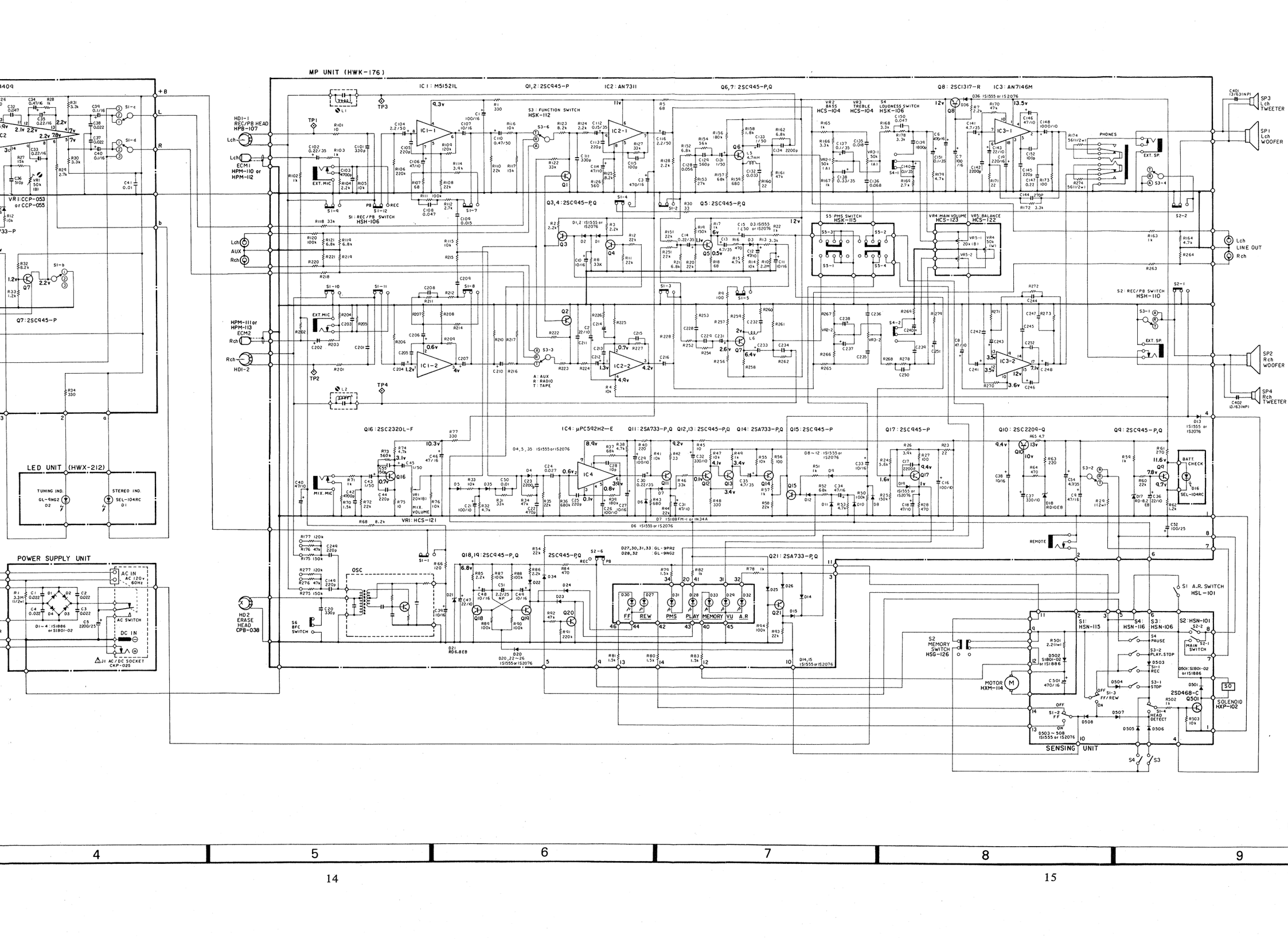


6. SCHEMATIC CIRCUIT DIAGRAM



Note:
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.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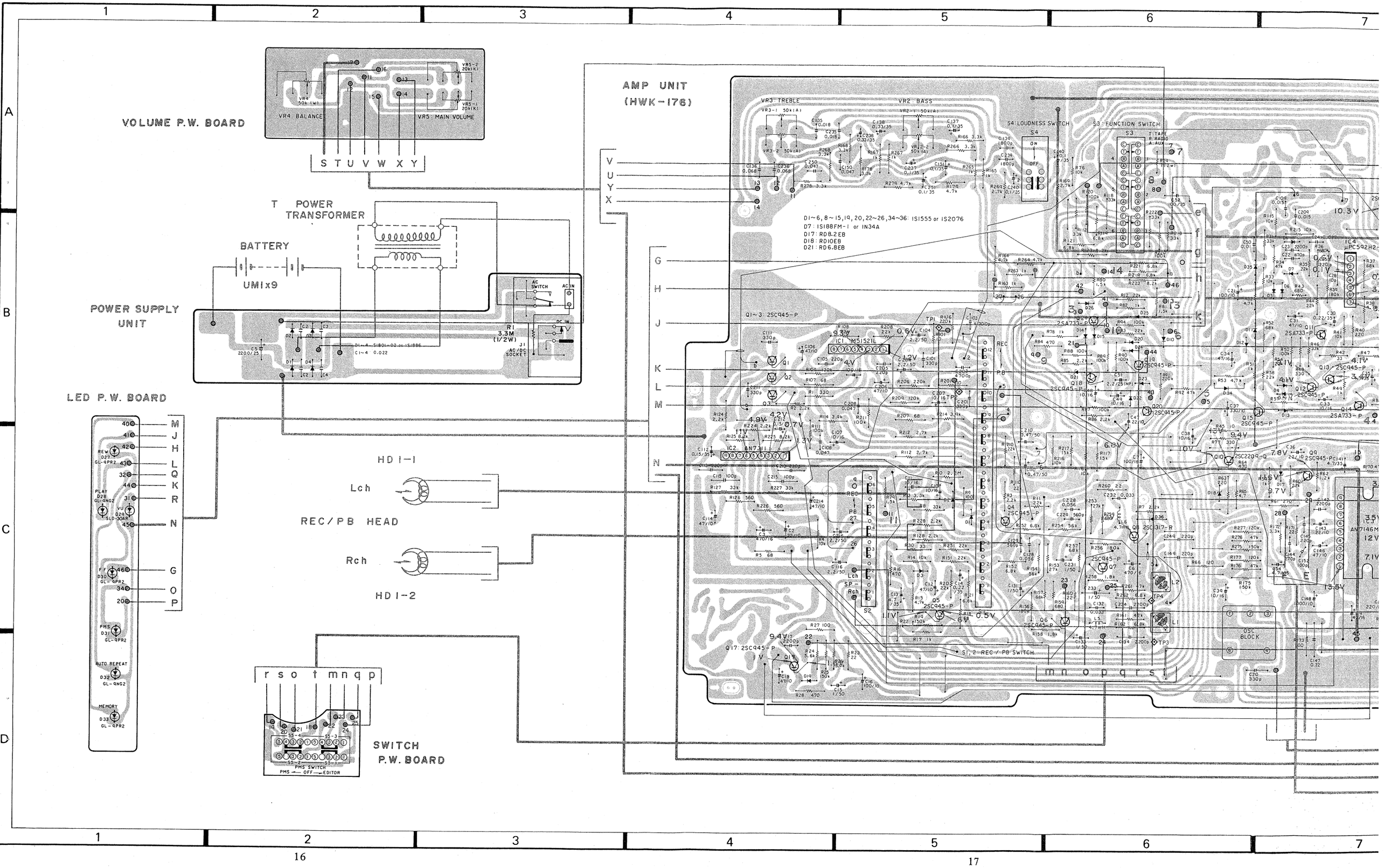
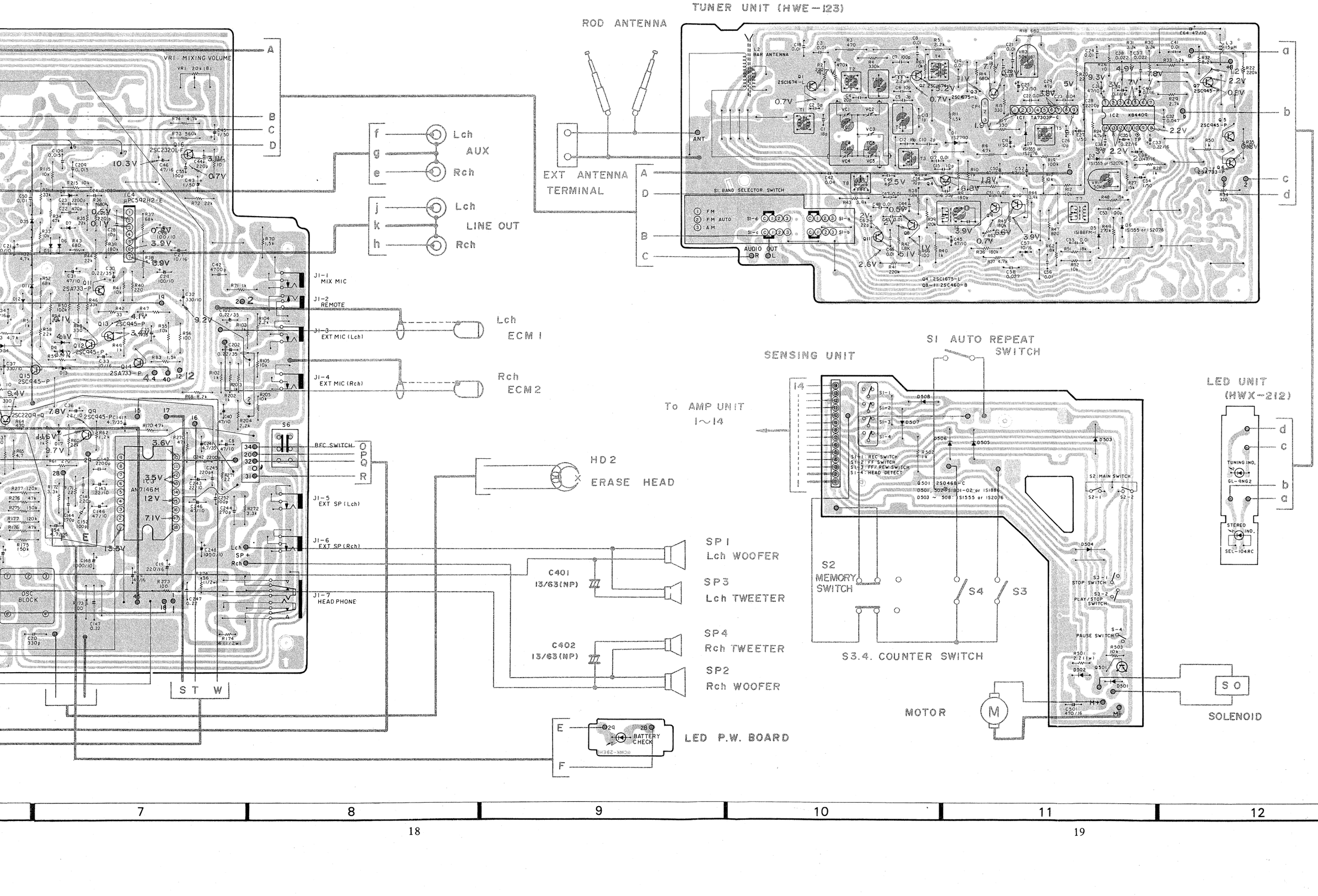
IC1 : M51521L
Q1,2 : 2SC945-P
IC2 : AN7311
Q6,7 : 2SC945-P,Q
Q8 : 2SC1317-R
IC3 : AN7146M
HDI-1 REC/PB HEAD HPB-107
ECM1 HPM-110 or HPM-112
HPM-111 or HPM-113 ECM2
HDI-2
HD2 ERASE HEAD CPB-038
S1 : REC/PB SWITCH HSH-106
S3 : FUNCTION SWITCH HSK-112
A : AUX
R : RADIO
T : TAPE
VR1 : CCP-053 or CCP-055
VR1 : HCS-121
VR2 BASS HCS-104
VR3 TREBLE HCS-104
S4 LOUDNESS SWITCH HSK-106
S5 PMS SWITCH HSK-115
VR4 MAIN VOLUME HCS-123
VR5 BALANCE HCS-122
S2 : REC/PB SWITCH HSH-110
PHONES
EXT. SP
Lch LINE OUT Rch
SP3 Lch TWEETER
SP1 Lch WOOFER
SP2 Rch WOOFER
SP4 Rch TWEETER
LED UNIT (HWX-212)
TUNING IND. GL-9NG2 D2
STEREO IND. SEL-104RC D1
POWER SUPPLY UNIT
AC IN AC 120V 60Hz
AC SWITCH
DC IN
AC/DC SOCKET CKP-025
IC4 : μPC592H2-E
Q11 : 2SA733-P,Q
Q12,13 : 2SC945-P,Q
Q14 : 2SA733-P,Q
Q15 : 2SC945-P
Q16 : 2SC2320L-F
Q17 : 2SC945-P
Q10 : 2SC2209-Q
Q9 : 2SC945-P,Q
MIX. MIC
MIX. VOLUME
OSC
Q18,19 : 2SC945-P,Q
Q21 : 2SA733-P,Q
FF REW PMS PLAY MEMORY VU A.R
REMOTE
S1 A.R. SWITCH HSL-101
S2 MEMORY SWITCH HSG-126
MOTOR HXM-114
SENSING UNIT
BATT. CHECK
MAIN SWITCH
SOLENOID HXP-102
2SD468-C
S1 : HSN-115
S4 : HSN-116
S3 : HSN-106
S2 : HSN-101
S4 PAUSE
S3-2 PLAY.STOP
S3-1 REC
S3-1 STOP
S1-3 FF/REW
S1-2 FF
S1-4 HEAD DETECT

Fig. 19

7. CONNECTION DIAGRAM




TUNER UNIT (HWE-123)
ROD ANTENNA
EXT ANTENNA TERMINAL
ANT
BAR ANTENNA
SI BAND SELECTOR SWITCH
FM
FM AUTO
AM
AUDIO OUT
R
L
IC1 TA7303P-C
IC2 KB4409
Q1 2SC1674-L
Q2 2SC1675-L
Q3 2SC1675-L
Q4 2SC1675-L
Q5 2SC945-P
Q6 2SA733-P
Q7 2SC945-P
Q8~11 2SC460-B
D1 IS2740
D2 IS1555 or IS2076
D3 IS1555 or IS2076
D4 IS1555 or IS2076
D5 IS188FM-1
D6 IS1555 or IS2076
VR1 MIXING VOLUME
VR1 20k(B)
IC4 μPC592H2-E
Q11 2SA733-P
Q12 2SC945-P
Q13 2SC945-P
Q14 2SA733-P
Q15 2SC945-P
Q16 2SC2320L-F
Q17 2SC2209-Q
Q18 2SC945-P(4)
IC5 AN7146M
OSC BLOCK
S6
BFC SWITCH
J1-1 MIX MIC
J1-2 REMOTE
J1-3 EXT MIC (Lch)
J1-4 EXT MIC (Rch)
J1-5 EXT SP (Lch)
J1-6 EXT SP (Rch)
J1-7 HEAD PHONE
Lch AUX
Rch
Lch LINE OUT
Rch
Lch ECM 1
Rch ECM 2
HD2 ERASE HEAD
SP1 Lch WOOFER
SP3 Lch TWEETER
SP4 Rch TWEETER
SP2 Rch WOOFER
C401 13/63(NP)
C402 13/63(NP)
LED P.W. BOARD
BATTERY CHECK
SENSING UNIT
To AMP UNIT 1~14
SI AUTO REPEAT SWITCH
SI-1 REC SWITCH
SI-2 FF SWITCH
SI-3 FF/REW SWITCH
SI-4 HEAD DETECT
D501 2SC460B-C
D501, 502 IS1801-02 or IS1886
D503 ~ 508 IS1555 or IS2076
S2 MAIN SWITCH
S2 MEMORY SWITCH
S3.4. COUNTER SWITCH
S3 STOP SWITCH
PLAY/STOP SWITCH
PAUSE SWITCH
MOTOR
SOLENOID
LED UNIT (HWX-212)
TUNING IND.
GL-4NG2
STEREO IND.
SEL-104RC

8. CABINET EXPLODED VIEW

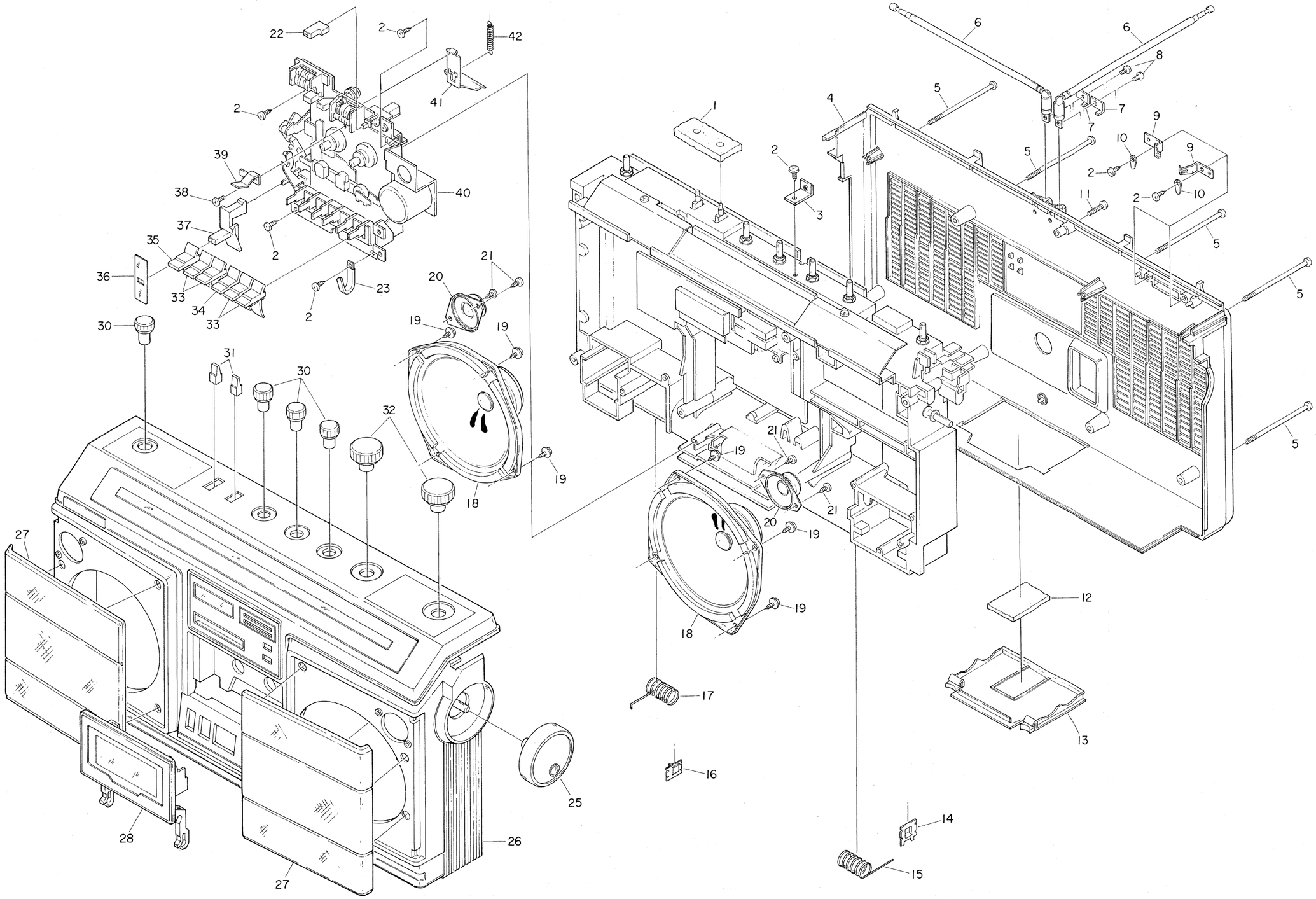


Fig. 21

9. CHASSIS EXPLODED VIEW

SK-51

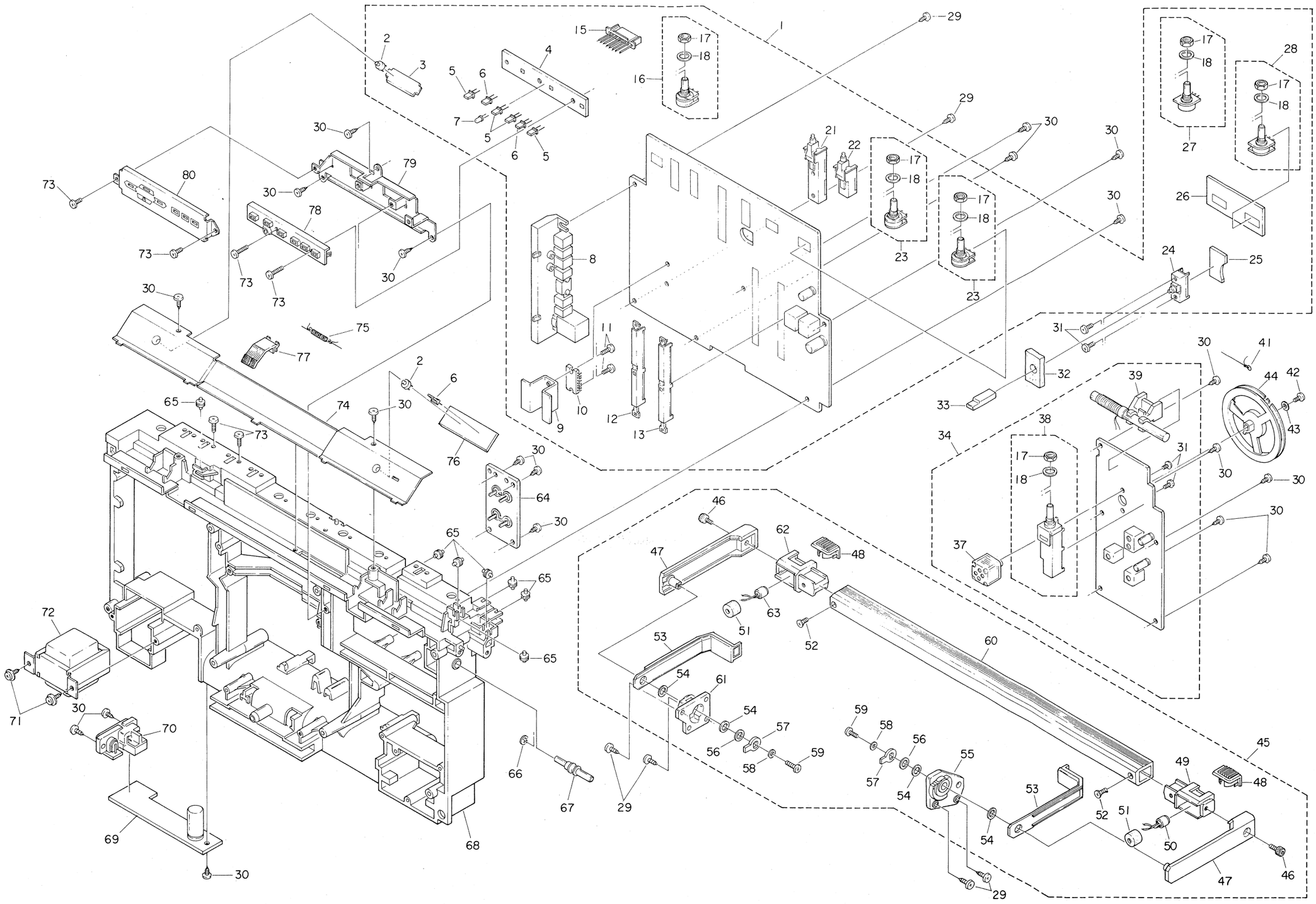


Fig. 22

11. CASSETTE MECHANISM EXPLODED VIEW (BOTTOM) SK-51

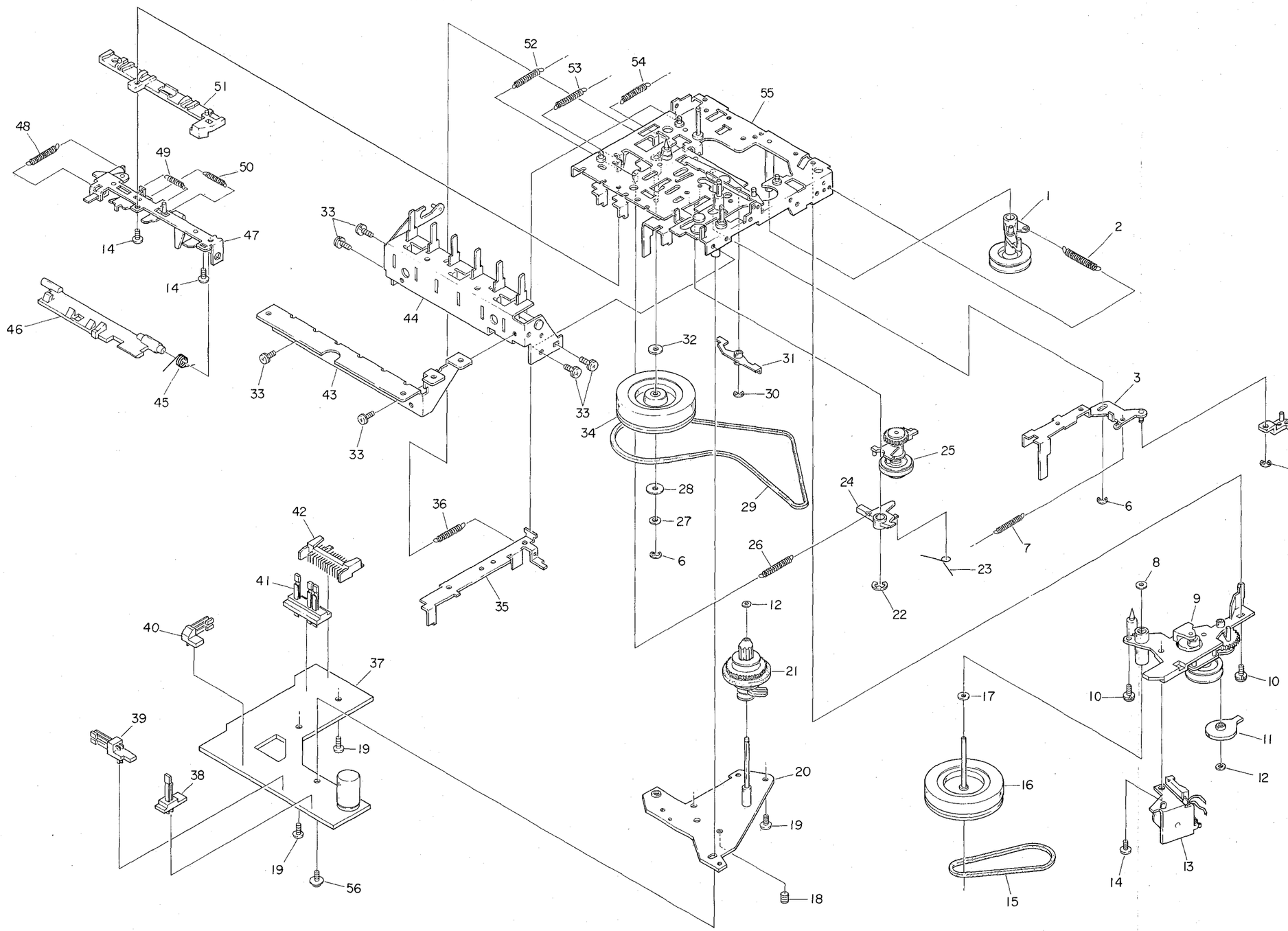


Fig. 24

10. CASSETTE MECHANISM EXPLODED VIEW (TOP)

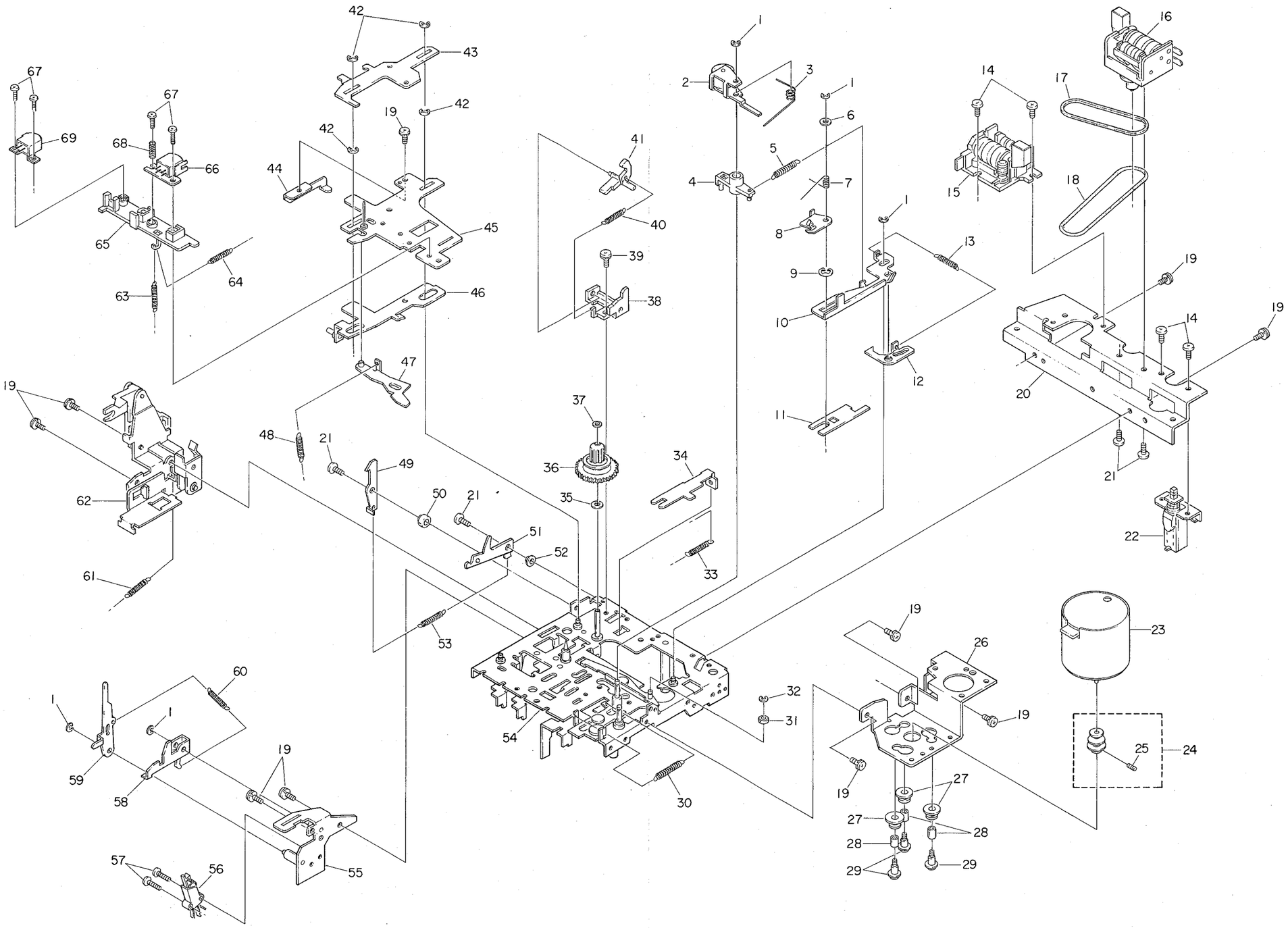


Fig. 23

12. PACKING METHOD

SK-51

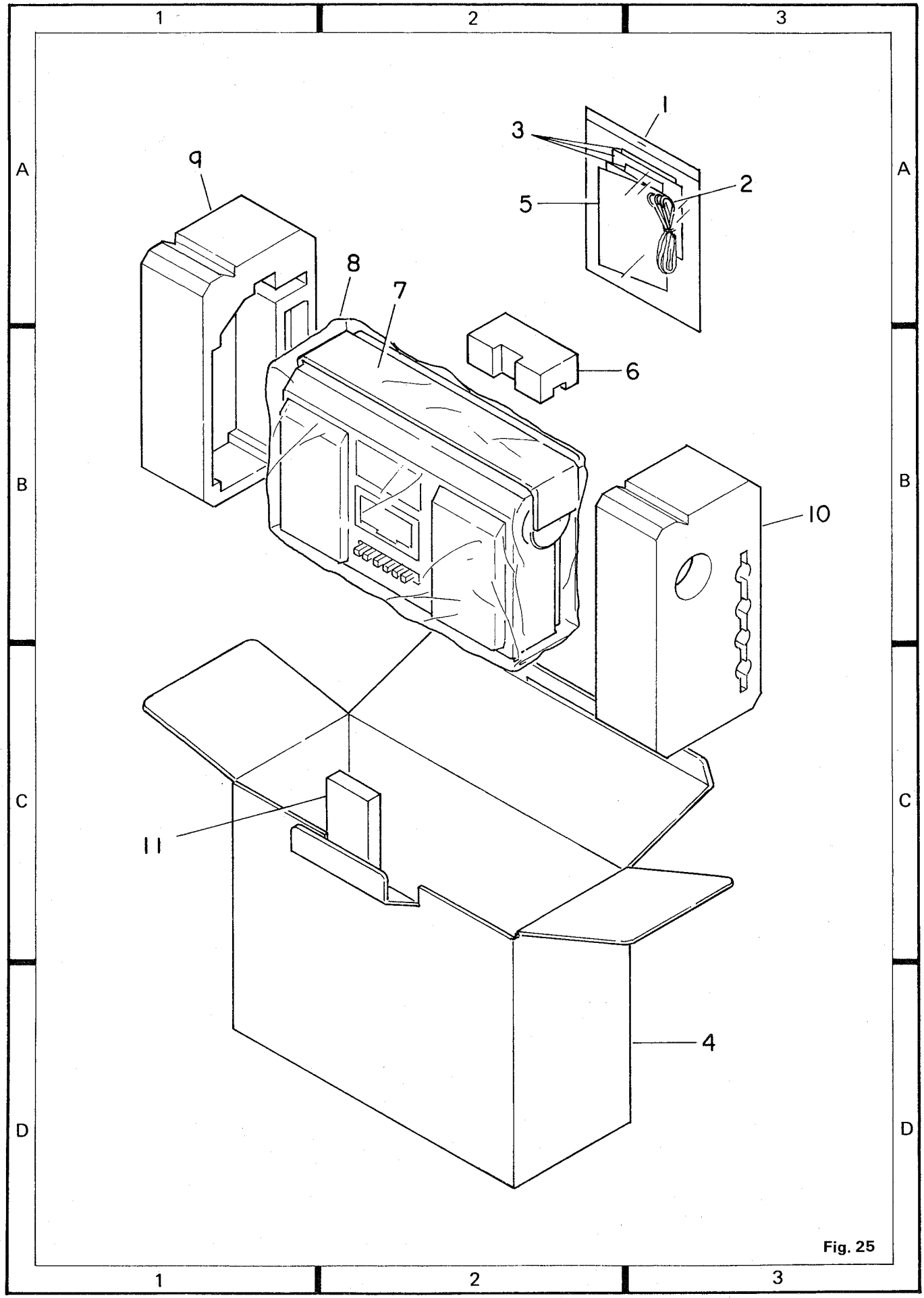


Fig. 25

13. PARTS LIST

NOTE:
When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56×10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47×10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562×10¹*		*RN1/4SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Tuner Unit (HWE-123)

MISCELLANEOUS

Part No.	Symbol & Description	
TA7303P-C	IC1	
KB4409	IC2	
2SC1674-L	Q1, Q2	
2SC1675-L	Q3, Q4	
2SC945-P	Q5, Q7	
2SA733-P	Q6	
2SC460-B	Q8 – Q11	
1S2790	D1	
1S1555 or 1S2076	D2, D3, D6	
VACANT	D4, D7	
1S188FM-1	D5	
CTF-010	L1	Ferri-Inductor, 2.2 μH
HTB-129 or HTB-131	L2	Bar Antenna Assy
CTF-016	L3	Ferri-Inductor, 15 μH
CTC-060	T1	Coil
CTC-061	T2	Coil
HTC-134	T3	Coil
CTC-028 or CTC-040	T4	IF Transformer
CTC-080	T5	Coil
HTE-102 or HTE-103	T6	IF Transformer
HTE-117	T7	IF Transformer
CTB-031 or CTB-037	T8	IF Transformer
CTF-038 or CTF-040	CF1	Ceramic Filter
CCL-035 or	VC1 – VC5, TC1, TC4, TC5	
CCL-037		Variable Condenser
HCK-102	TC2, TC3	Trimmer
CCP-053 or CCP-055	VR1	Semi-fixed, 5 kΩ(B)
VACANT	VR2	
HCP-106	VR3	Semi-fixed, 50 kΩ(B)
HSD-106	S1	Switch

RESISTORS

Part No.	Symbol & Description
RD1/4PM□□□J	R1 – R4, R6, R9 – R13, R15 – R17, R19, R22, R24, R27 – R52, R66
RD1/4VM□□□J	R5, R14, R18, R62, R63, R67
RD1/4VS□□□J	R20, R26
VACANT	R7, R8, R21, R23, R25, R53 – R61, R64, R65

CAPACITORS

Part No.	Symbol & Description
CCDSH180J50	C1
CCDCH050D50	C2
CKDYF103Z25	C3, C8, C18 – C21, C24, C41, C46, C47, C55
CCDSH200J50	C4
CCDCH030C50	C5
CCDCH100F50	C6, C26
CCDSL101K50	C7, C44, C53
CEA010P50	C9, C27, C54
CCDSH020C50	C10
VACANT	C11
CCDTH180J50	C12
CCDCH010C50	C13
CCDRH100F50	C14
CCDSH100F50	C15

Part No.	Symbol & Description
CCDSH330J50	C16
CKDYF103M50	C17, C22, C43, C48, C51, C56
CKDYF403Z25	C23, C42
CEA2R2P50	C25
CKDYB222K50	C28
CCDSL470K50	C29
VACANT	C30
CEA470P10	C31, C45, C50, C52, C64
CQMA473K50	C32
CSYAR22M16	C33, C35
CSYAR47M16	C34
CQSH511J50	C36
CQMA223K50	C37, C38
CSYAR10M16	C39, C40
CCDSH040D50	C49
CEA100P16	C57
CQMA273K50	C58
VACANT	C59—C62
CCDSH220J50	C63

Amp Unit (HWK-176)

MISCELLANEOUS

Part No.	Symbol & Description	
M51521L	IC1	
AN7311	IC2	
AN7146M	IC3	
μPC592H2-E	IC4	
2SC945-P	Q1, Q2, Q15, Q17	
2SC945	Q3—Q7, Q9, Q12, Q13, Q18—Q20	
2SC1317-R	Q8	
2SC2209	Q10	
2SA733	Q11, Q14, Q21	
2SC2320L-F	Q16	
1S1555 or 1S2076	D1—D6, D8—D15, D19, D20, D22—D26, D34—D36	
1N34A or 1S188FM-1	D7	
SEL-104RC	D16	
RD8.2EB	D17	
RD10EB	D18	
RD6.8EB	D21	
GL-9PR2	D27, D30, D31, D33	
GL-9NG2	D28, D32	
SLR-30UR	D29	
HTF-112	L1, L2	Coil
HTH-105	L3, L4	Coil, 4.7 mH
HTX-115	OSC	Oscillator Unit
HKN-115	J1	Jack Unit
HCS-121	VR1	Volume, 20 kΩ(B)
HCS-104	VR2, VR3	Volume, 50 kΩ(A)
HCS-123	VR4	Volume, 20 kΩ(K)
HCS-122	VR5	Volume, 50 kΩ(W)
HSH-106	S1	Switch
HSH-110	S2	Switch
HSK-112	S3	Switch
HSK-106	S4	Switch
HSK-115	S5	Switch

RESISTORS

Part No.	Symbol & Description
RD1/4PM□□□J	R1—R5, R7—R28, R31—R42, R44, R46—R62, R64, R68, R70—R77, R79—R94, R101—R112, R114—R128, R151—R154, R156—R172, R175—R179, R201—R212, R214—R228, R251—R254, R256—R272, R275—R279
RN2P□□□K	R29
RD1/4PS□□□J	R30, R63, R66, R78, R173, R273
RD1/4VM□□□J	R45, R65, R67
RD1/2PS□□□J	R174, R274
VACANT	R6, R43, R69, R95—R100, R113, R129—R150, R155, R180—R200, R213, R229—R250, R255

CAPACITORS

Part No.	Symbol & Description
CEA101P16	C1, C7
CEA220P10	C2, C36, C47, C143, C243
CEA471M16L	C3, C6
VACANT	C4, C5
CEA470P10	C8, C18, C31, C40, C106, C114, C146, C206, C214, C246
CEA470P16	C9, C34, C46
CEA100P16L	C10
CEA100P16	C11, C27, C33, C38, C39, C48, C49, C107, C207
CEA470P10L	C12
CEA4R7P35	C13, C35, C54, C141, C241
CSZAR22M35	C14, C30, C102, C202
CEA010P50	C15, C43, C45, C131, C133, C231, C233
CEA101P10	C16, C21, C26, C29
CKDYB222K50	C17, C23, C142, C242
CEA221P16	C19
CKDYB331K50	C20, C101, C111, C201, C211
CKDYB471K50	C22
CQMA273K50	C24
CKDYB221K50	C25, C44, C105, C145, C205, C245
CCPSL100J50	C28
CEA331P10	C32, C37
VACANT	C41
CKDYB472K50	C42, C103, C203

Part No.	Symbol & Description
CQMA103M50	C50
CEA2R2PM25NP	C51
CEA101P25L	C52
VACANT	C53
CKDYB151K50	C55
VACANT	C56 – C100
CEA2R2P50	C104, C116, C204, C216
CQMA473K50	C108, C150, C208, C250
CQMA153M50	C109, C209
CEAR47P50	C110, C210
CSZAR15M35	C112, C212
CKPYB221K50	C113, C149, C213, C249
CCPSL101J50	C115, C215
VACANT	C117 – C127
CQMA563M50	C128, C228
CKDYB561K50	C129, C229
VACANT	C130
CQMA333K50	C132, C232
CKPYX222M50	C134, C234
CQMA183M50	C135, C235
CQMA683M50	C136, C236
CSZAR10M35	C137, C140, C151, C237, C240, C251
CSZAR33M35	C138, C238
CKDYB182K50	C139, C239
CKPYB271K50	C144, C244
CQMA224M50	C147, C247
CEA102P10	C148, C248
CKDYB101K50	C152, C252
VACANT	C153 – C200, C217 – C227, C230

Sensing Unit

Part No.	Symbol & Description	
2SD468-C	Q501	
SIB01-02 or 1S1886	D501, D502	
1S1555 or 1S2076	D503 – D508	
HSN-115	S1	Switch
HSN-101	S2	Switch
HSN-106	S3	Switch
HSN-116	S4	Switch
RN1P□□□K	R501	
RD1/4PS□□□J	R502	
RD1/4VS□□□J	R503	
CEA471P16	C501	

LED Unit (HWX-212)

Part No.	Symbol & Description
SEL-104RC	D1
GL-9NG2	D2

Power Supply Unit

Part No.	Symbol & Description	
1S1886 or SIB01-02	D1 – D4	
⚠ CKP-025	J1	AC/DC Socket
RD1/2PS□□□J	R1	
CKDYF223Z25	C1 – C4	
CEA222P25	C5	

Miscellaneous Parts List

Note;
For "ECM1 and ECM2" employ parts combination of either "HPM-110 and HPM-111 or "HPM-112 and HPM-113."

Part No.	Symbol & Description	
HCH-115	C401, C402	
HPM-110 or HPM-112	ECM1	Microphone Unit
HPM-111 or HPM-113	ECM2	Microphone Unit
⚠ HTT-135	T	Power Transformer
HPW-106	SP1, SP2	Speaker
HPW-105	SP3, SP4	Speaker
HSL-101	S1	Switch
HSG-126	S2	Switch
HXM-114	M	Motor
HXP-102	SO	Solenoid
HPB-107	HD1	Head
CPB-038	HD2	Head

Cabinet

Key No.	Part No.	Description
1.	HNM-214	Cover
2.	BNC30P100FMC	Screw
3.		Holder
4.	HNS-342	Case
5.	HBA-130	Screw
6.	HDX-104 or HDX-106	Antenna
7.	HNC-319	Terminal
8.	PMZ30P080FBK	Screw
9.	HBL-117	Terminal
10.	K16-678	Lug
11.	BMZ30P120FMC	Screw
12.	HNM-166	Cushion
13.	HNS-206	Cover
14.	HNC-320	Terminal
15.	HBH-204	Terminal
16.	HNC-316	Terminal
17.	HBH-203	Terminal
18.	HPW-106	Speaker
19.	BNM30P100FMC	Screw

Key No.	Part No.	Description
20.	HPT-105	Speaker
21.	BNC30P080FMC	Screw
22.	HAC-142	Knob
23.		Clamper
24.	VACNAT	
25.	HAA-110	Knob Unit
26.		Case Assy
27.	HXA-593	Grille Unit
28.	HXA-579	Door Unit
29.	VACANT	
30.	HAA-132	Knob
31.	HAC-158	Knob
32.	HAA-131	Knob
33.	HAC-135	Knob
34.	HAC-134	Knob
35.	HAC-133	Knob
36.	HNM-213	Cover
37.	HAC-163	Knob
38.	BMZ26P050FMC	Screw
39.	CBL-172	Spring
40.		Cassette Mechanism Assy
41.		Lever
42.		Spring

Chassis

Note;
For "No. 50 and No. 63 employ parts combination of either "HPM-111 and HPM-110" or "HPM-113 and HPM-112".

Key No.	Part No.	Description
1.	HWK-176	Amp Unit
2.	SEL104RC	LED
3.		P.W. Borad
4.		P.W. Borad
5.	GL-9PR2	LED
6.	GL-9NG2	LED
7.	SLA-30UR	LED
8.	HKN-115	Jack Unit
9.		Heat Sink
10.	AN7146M	IC
11.	BMZ30P120FMC	Screw
12.	HSH-106	Switch
13.	HSH-110	Switch
14.	VACANT	
15.	HDE-134	Connector
16.	HCS-121	Volume, 20 kΩ(B)
17.	CBN-003	Nut
18.	CBE-012	Washer
19, 20.	VACANT	
21.	HSK-112	Switch
22.	HSK-106	Switch
23.	HCS-104	Switch
24.	HSK-115	Switch
25.		P.W. Board
26.		P.W. Board
27.	HCS-122	Volume, 50 kΩ(W)
28.	HCS-123	Volume, 20 kΩ(K)
29.	BNC30P120FMC	Screw
30.	BNC30P100FMC	Screw
31.	BMZ26P040FMC	Screw
32.	HNM-212	Cover
33.	HAC-131	Knob
34.	HWE-123	Tuner Unit
35, 36.	VACANT	
37.	CCL-035 or	Variable Condenser
	CCL-037	
38.	HSD-106	Switch
39.	HTB-129 or	Antenna Unit
	HTB-131	
40.	VACANT	
41.		Ring
42.	BMZ26P060FMC	Screw
43.	WC26FMC	Washer
44.		Pulley
45.	HXA-461	Handle Unit
46.	CMZ40H080FMC	Screw
47.	HNR-123	Handle
48.		Cover
49.		Microphone House
50.	HPM-111 or	Microphone Unit
	HPM-113	
51.		Holder
52.	CMZ30P100FBK	Screw
53.		Cover
54.	HBF-146	Washer
55.	HNV-238	Holder (R)
56.	WW80FBK	Washer
57.	HNC-323	Washer
58.	WC40FMC	Washer
59.	BMZ30P080FMC	Screw
60.	HNS-209	Grip
61.	HNV-237	Holder (L)
62.		Microphone House
63.	HPM-110 or	Microphone Unit
	HPM-112	
64.	HKN-112	Jack Unit
65.	CNV-800	Pulley
66.	YE30FMC	Waher
67.		Shaft
68.		Chassis
69.		P.W. Borad
⚠ 70.	CKP-025	AC/DC Socket
71.	BNM30P100FMC	Screw
⚠ 72.	HTT-135	Power Transformer
73.	BMZ30P060FMC	Screw

Key No.	Part No.	Description
74.		Cover
75.	CBH-438	Spring
76.		P.W. Board
77.		Pointer
78.		Holder
79.		Bracket
80.		Panel

Cassette Mechanism (Top)

Key No.	Part No.	Description
1.	YE20FUC	Washer
2.	CXB-661	Roller Unit
3.	CBH-491	Spring
4.		Arm
5.	CBH-482	Spring
6.	CBF-111	Washer
7.	CBH-492	Spring
8.	CNE-137	Arm
9.	YE30FUC	Washer
10.	CNE-131	Lever
11.		Lever
12.	CNE-139	Arm
13.	CBH-479	Spring
14.	BMZ30P060FMC	Screw
15.	HAW-118	Counter
16.	HAW-119	Counter
17.	HNT-118	Belt
18.	HNT-117	Belt
19.	PMA26P040FMC	Screw
20.		Bracket
21.	BMZ26P060FMC	Screw
22.	HSG-126	Switch
23.	HXM-114	Motor
24.	HXA-494	Pulley Unit
25.	ZMK26M030FMC	Screw
26.		Bracket
27.	CNV-840	Cushion
28.		Roller
29.	HBA-126	Screw
30.	CBH-481	Spring
31	CLA-752	Roller
32.	YE12FUC	Washer
33.	CBH-488	Spring
34.		Lever
35.	HBF-115	Washer
36.	HXA-489	Reel Unit
37.	HBF-145	Washer
38.		Holder
39.	PMA26P050FMC	Screw
40.	CBH-479	Spring
41.		Stopper
42.	YE15FUC	Washer
43.		Lever
44.		Lever
45.		Head Plate Unit
46.		Lever Unit
47.		Arm Unit
48.	CBH-505	Spring
49.		Arm
50.		Collar
51.		Arm
52.		Collar
53.	CBH-497	Spring
54.		Chassis Unit
55.		Flame Unit
56.	HSL-101	Switch
57.	BMZ20P080FMC	Screw
58.		Arm
59.		Lever
60.	CBH-494	Spring
61.	CBH-476	Spring
62.	HXA-439	REC Assy
63.	CBH-480	Spring
64.	CBH-477	Spring
65.		Base
66.	HPB-107	Head
67.	BMZ20P100FMC	Screw
68.	CBH-475	Spring
69.	CPB-038	Head

Cassette Mechanism (Bottom)

Key No.	Part No.	Description
1.	HXA-495	TP Unit
2.	CBH-485	Spring
3.		Lever Unit
4.	HNV-265	Lever
5.	YE25FUC	Washer
6.	YE20FUC	Washer
7.	HBH-121	Spring
8.	CBF-103	Washer
9.	HXA-492	Base Unit
10.	PMA26P050FMC	Screw
11.	CNV-843	Holder
12.	HBF-145	Washer
13.	HXP-102	Solenoid
14.	BMZ26P080FMC	Screw
15.	CNT-068	Belt
16.	HNR-137	Flywheel
17.	HBF-148	Washer
18.	CNV-833	Screw
19.	BMZ26P060FMC	Screw
20.		Plate Unit

Key No.	Part No.	Description
21.	HXA-488	Reel Unit
22.	YE40FUC	Washer
23.	CBH-493	Spring
24.	CNV-879	Lever
25.	HXA-491	FR Unit
26.	CBH-486	Spring
27.		Washer
28.	CBE-088	Washer
29.	HNT-121	Belt
30.	YE12FUC	Washer
31.		Arm
32.	CBF-111	Washer
33.	PMA26P040FMC	Screw
34.	HNR-138	Flywheel
35.		Lever
36.	CBH-481	Spring
37.		P.W. Board
38.	HSN-116	Switch
39.	HSN-106	Switch
40.	HSN-101	Switch
41.	HSN-115	Switch
42.	HSN-114	Plug
43.		Bracket
44.		Lever Assy
45.	CBH-498	Spring
46.	CNV-881	Plate
47.		Holder Unit
48.	CBH-495	Spring
49.	CBH-476	Spring
50.	CBH-494	Spring
51.		Holder
52.	CBH-487	Spring
53.	CBH-210	Spring
54.	CBH-497	Spring
55.		Chassis Unit
56.		Screw

Packing Method

Key No.	Part No.	Description
1.		Polyethylene Bag
⚠ 2.	CDG-029	AC Cord
3.		Card
4.	HHA-417	Carton
5.	HRB-147	Owner's Manual
6.	HHA-435	Styrofoam
7.		Cover
8.		Cover
9.	HHA-376	Styrofoam
10.	HHA-377	Styrofoam
11.	HHA-424	Styrofoam