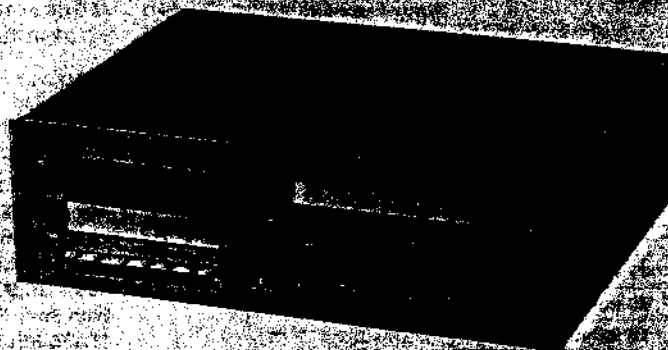


# HST-89A

AEP Model  
UK Model



## STEREO CASSETTE RECEIVER

### SPECIFICATIONS

#### GENERAL

Power Requirements:	240 V ac, 50 Hz (UK model) 220 V ac, 50/60 Hz (AEP model)
Power Consumption:	140 W
Dimensions:	Approx. 455 (w) x 147 (h) x 376 (d) mm 17 <sup>7</sup> / <sub>8</sub> (w) x 5 <sup>3</sup> / <sub>4</sub> (h) x 14 <sup>3</sup> / <sub>4</sub> (d) inches including projecting parts and controls
Weight:	Approx. 9.65 kg, 21 lb 5 oz (net) Approx. 12 kg, 26 lb 7 oz (in shipping carton)

Image Response Ratio:	40 dB
IF Response Ratio:	60 dB
AM Suppression Ratio:	40 dB
Capture Ratio:	2 dB
S/N Ratio:	65 dB
Selectivity:	50 dB
Harmonic Distortion:	at 400 Hz 0.8 % (MONO) 1.0 % (STEREO)
Frequency Response:	50 - 15,000 Hz $\pm$ 3 dB
Separation:	Better than 40 dB

#### FM TUNER SECTION

Antenna:	300 ohm balanced 75 ohm unbalanced
Tuning Range:	87.5 - 108 MHz
Intermediate Frequency:	10.7 MHz
Usable Sensitivity:	3.5 $\mu$ V (10.7 dB), IHF 2.2 $\mu$ V (6.8 dB), S/N = 30 dB

#### SW, MW and LW SECTION

Antenna:	LW, MW: Built-in ferrite-rod antenna External antenna terminal
SW:	External antenna terminal
Tuning Range:	LW: 150 - 350 kHz MW: 530 - 1,605 kHz SW: 5.8 - 15.8 MHz (49 - 19 m)
Intermediate Frequency:	468 kHz (UK model) 455 kHz (AEP model)

'Dolby' and the double-D symbol are the trade marks of Dolby Laboratory Inc. Noise reduction system manufactured under license from Dolby Laboratory Inc.

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

- Continued on next page -

# SONY®

## SERVICE MANUAL

# HST-89A

**Sensitivity:** LW: 55 dB/m (562  $\mu$ V/m), built-in antenna  
 200  $\mu$ V (46 dB), external antenna (stereo binaural jack)  
 MW: 48 dB/m (251  $\mu$ V/m), built-in antenna  
 35  $\mu$ V (30.8 dB), external antenna (S/N = 20 dB)  
 SW: 30  $\mu$ V (29.5 dB), external antenna (S/N = 20 dB)

**S/N Ratio:** 55 dB  
**Harmonic Distortion:** 1 % at 400 Hz

**Headphones:** Accepts headphones of 8 ohms or more  
**Speaker:** Accept speakers of 8 ohms or more  
**Frequency Response:** PHONO: RIAA curve  $\pm$  2 dB  
 TAPE: 40 – 20,000 Hz  $\pm$  1 dB  
 MIC: 50 – 25,000 Hz  $\pm$  3 dB  
**Tone Controls:** BASS:  $\pm$  10 dB at 100 Hz  
 TREBLE:  $\pm$  10 dB at 10 kHz  
**Loudness Control (att. 30 dB):** +10 dB at 100 Hz  
 +3 dB at 10 kHz

## AMPLIFIER SECTION

**Continuous RMS Power Output:** Both channels driven simultaneously.  
 (less than 1.0 % THD)  
 At 1 kHz  
 25 W + 25 W (8 ohms)  
**Music Power:** 90 W (8 ohms)

### Inputs:

	sensitivity	impedance	S/N
PHONO (phono jacks)	3 mV (-48 dB)	47 kohms	60 dB
TAPE (phono jacks)	440 mV (-5 dB)	50 kohms	70 dB
MIC (phono jacks)	0.775 mV (-60 dB)	10 kohms	55 dB

### Outputs:

	output voltages	impedance
REC OUT (phono jacks)	250 mV (-10 dB)	10 kohms

## CASSETTE RECORDER SECTION

**Track:** 4-track 2-channel stereo  
**Frequency Response:** With regular cassette (TAPE SELECT switch: NORMAL)  
 100 – 12,000 Hz  
 With Chromium dioxide cassette (TAPE SELECT switch: CrO<sub>2</sub>)  
 100 – 15,000 Hz  
 With Sony Ferri-Chrome cassette (TAPE SELECT switch: Fe-Cr)  
 100 – 15,000 Hz  
**S/N Ratio:** 50 dB (DOLBY NR: OFF)  
**Wow and Flutter:** Less than 0.1 % WRMS

## MODEL IDENTIFICATION

– Specification Label –

### AEP model

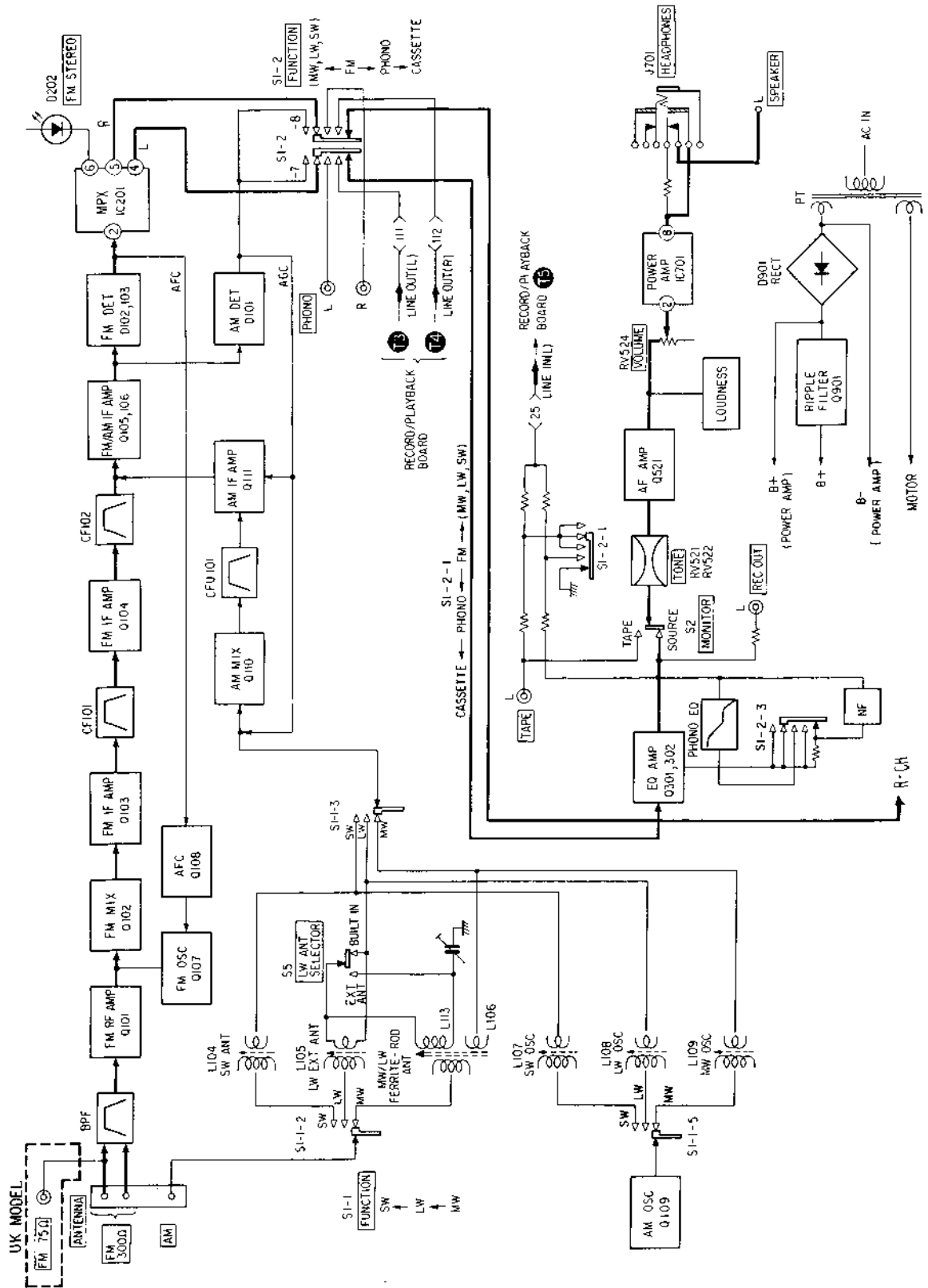
SONY	STEREO MUSIC SYSTEM
	MODEL NO. HST-89A
	FREQ. RANGE : FM 87.5 – 108 MHz
	SW 5.8 – 15.8 MHz
	MW 530 – 1605 kHz
	LW 150 – 350 kHz
	IF FM 10.7 MHz AM 455 kHz
	AC 220V ~ 50/60 Hz 140W
SOAU	MADE IN

### UK model

SONY	STEREO MUSIC SYSTEM
	MODEL NO. HST-89A
	FREQ. RANGE : FM 87.5 – 108 MHz
	SW 5.8 – 15.8 MHz
	MW 530 – 1605 kHz
	LW 150 – 350 kHz
	IF FM 10.7 MHz AM 455 kHz
	AC 240V ~ 50 Hz 140W
SOAU	MADE IN

SECTION 1  
OUTLINE

1-1. BLOCK DIAGRAM



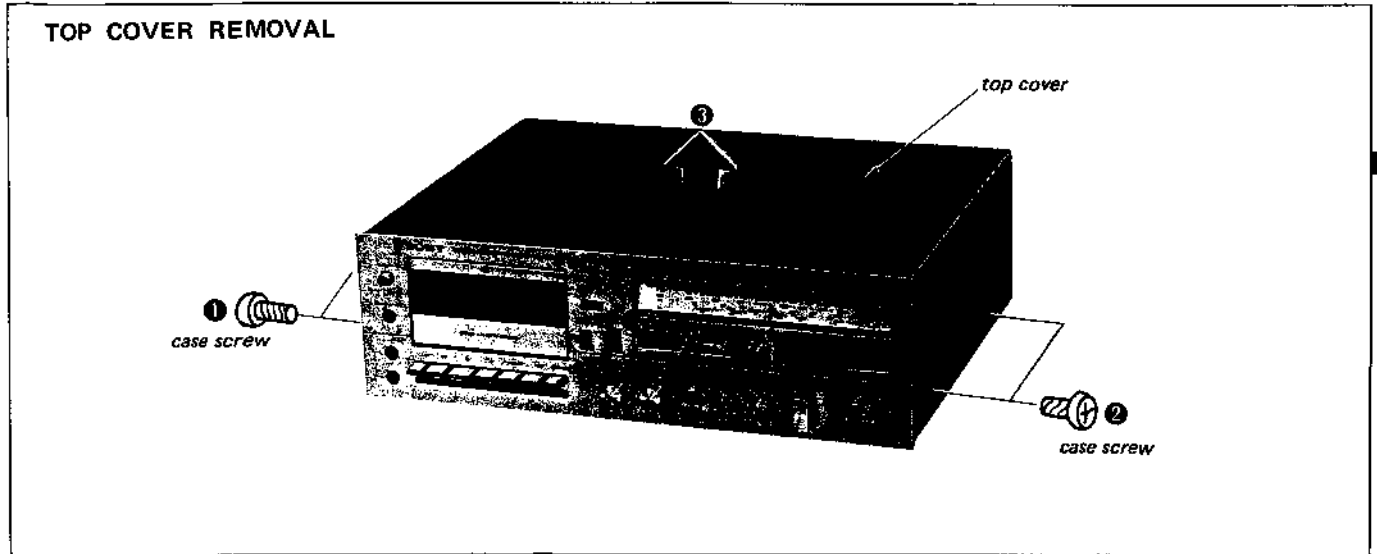
# HST-89A

RECEIVER

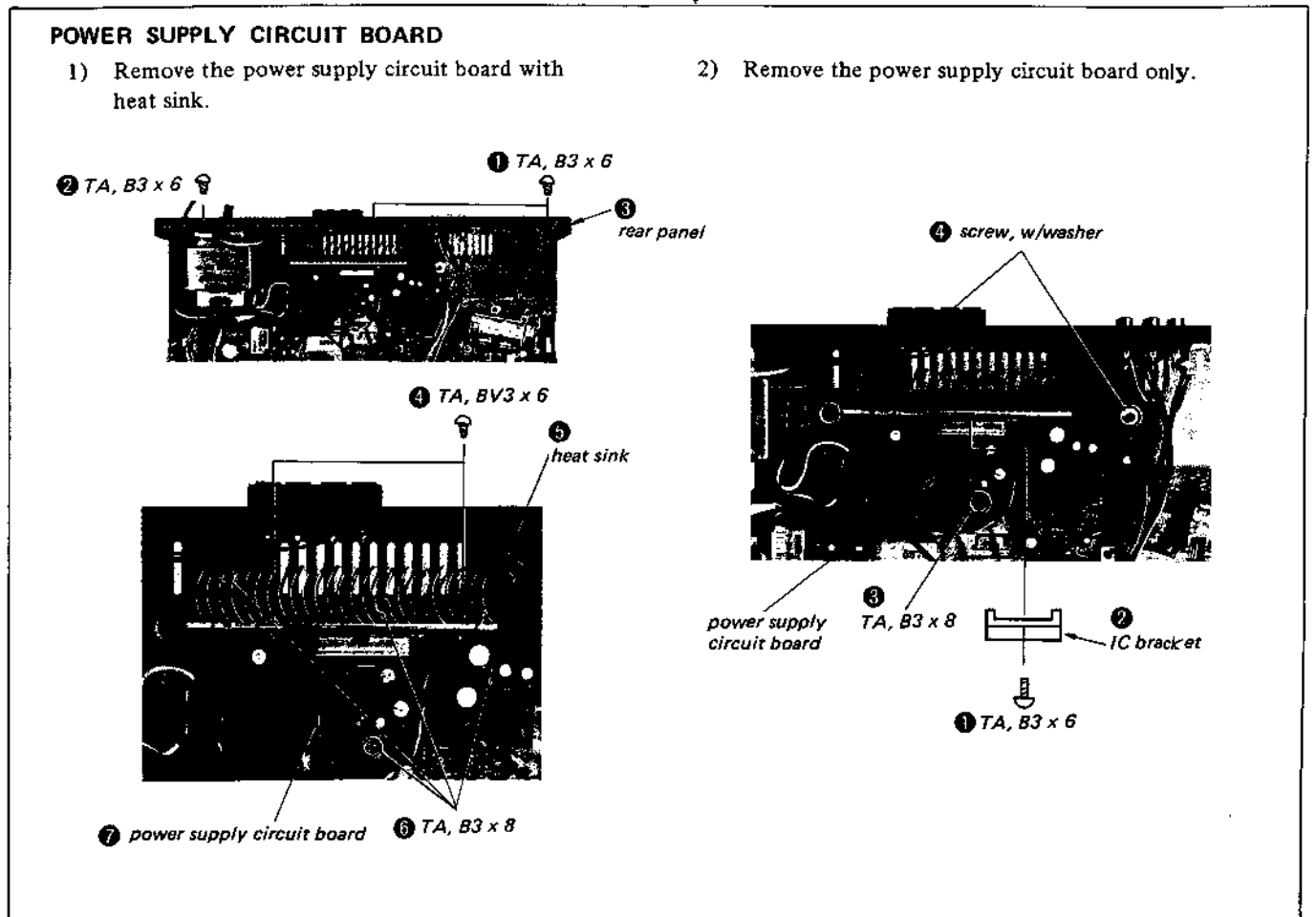
## SECTION 2 DISASSEMBLY

### 2-1. REMOVAL

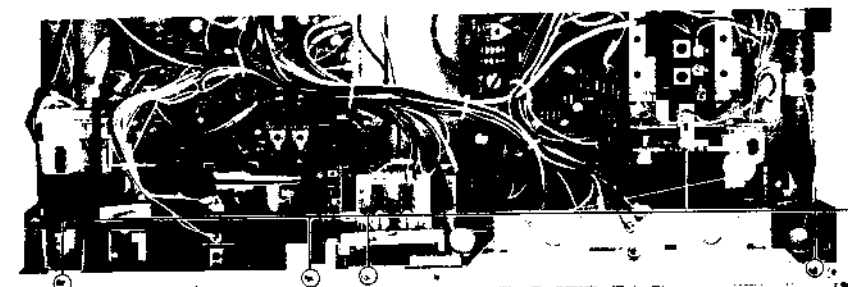
- Follow the disassembly procedure in the numerical order given.



Dial Cord Stringing  
• See page 7.



### FRONT PANEL REMOVAL

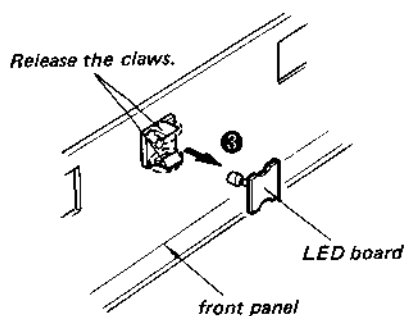


④ front panel

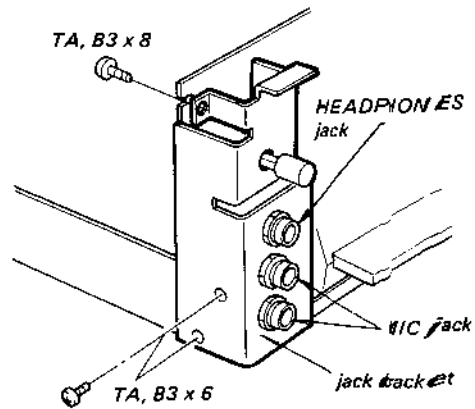
Note:  
Be careful not to lose  
the LIMITER knob.

① Pull off eight knobs.  
TUNING, FUNCTION, REC LEVEL,  
VOLUME, TREBLE, BASS

② Remove seven screws  
(TA, B3 x 6)  
(top and bottom)



### JACK BRACKET REMOVAL



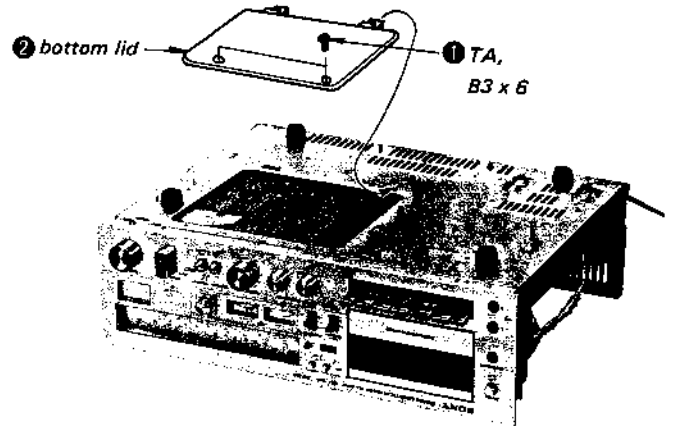
# HST-89A

## RECEIVER

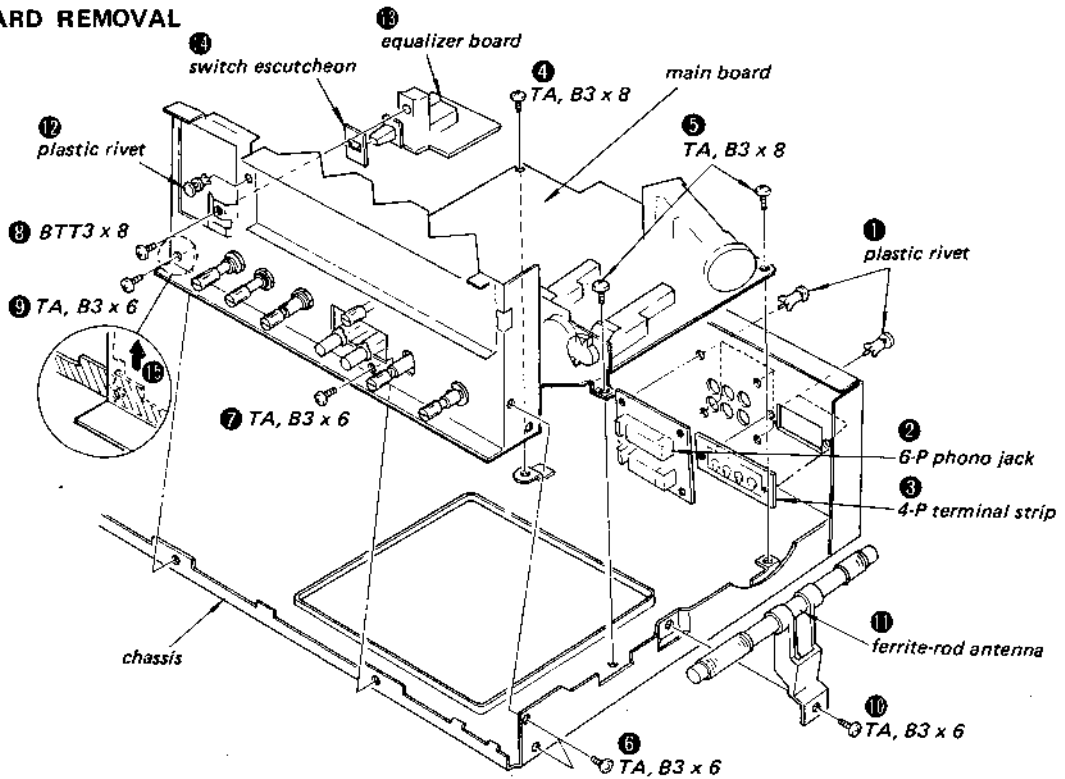
### BOTTOM LID REMOVAL

**Note:**

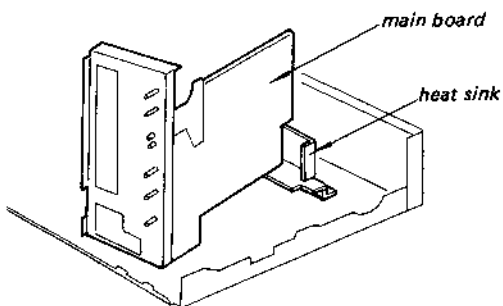
After removing the bottom lid, the main board can be almost checked. (Refer to page 15, 16.)  
If necessary, remove the main board.



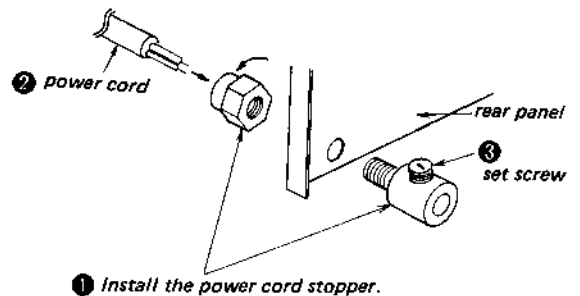
### MAIN BOARD REMOVAL



- For checking the main board, set the main board as shown below.



### INSTALLATION THE POWER CORD

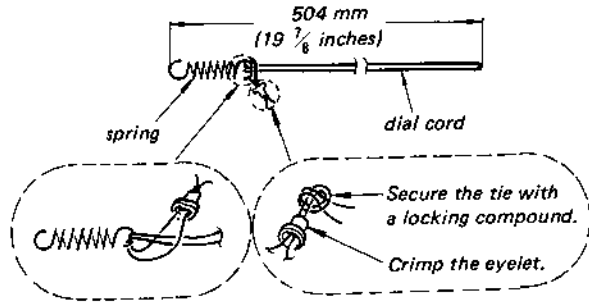


- 1 Install the power cord stopper.

SECTION 3  
ADJUSTMENTS

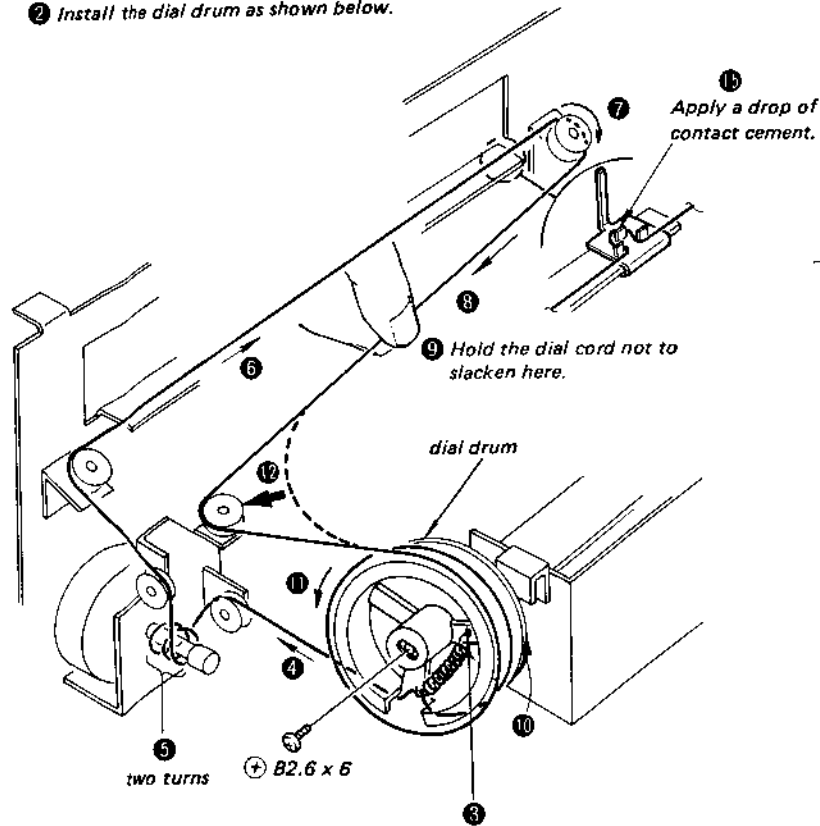
2-2. DIAL CORD STRINGING

1) Preparation

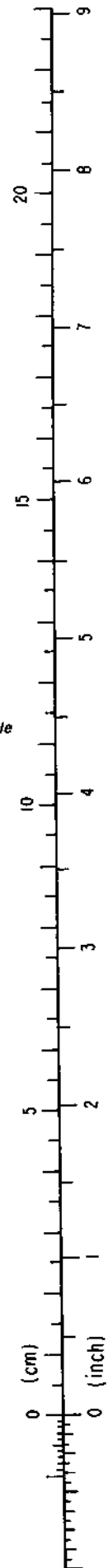
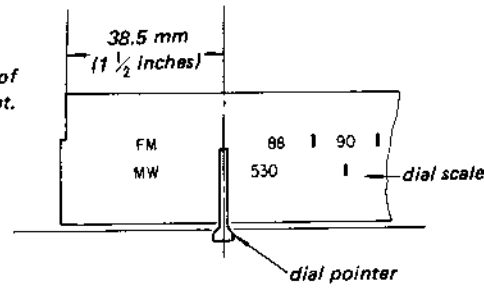


2) Stringing

- 1 Turn the tuning capacitor shaft fully clockwise.
- 2 Install the dial drum as shown below.



- 3 Turn the tuning shaft fully counterclockwise.
- 4 Install the dial pointer as shown below.



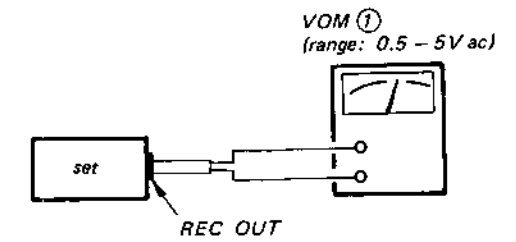
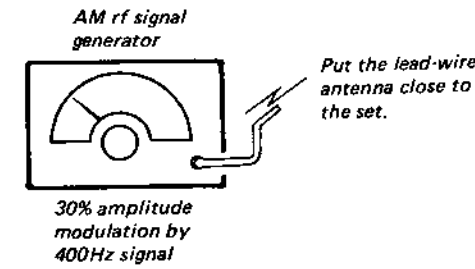
3-1. ELECTRICAL ADJUSTMENTS

Setting:

- TONE control: "0" position
- VOLUME control: mechanical-mid position
- LOUDNESS switch: OFF position
- MONITOR switch: SOURCE position

MW SECTION

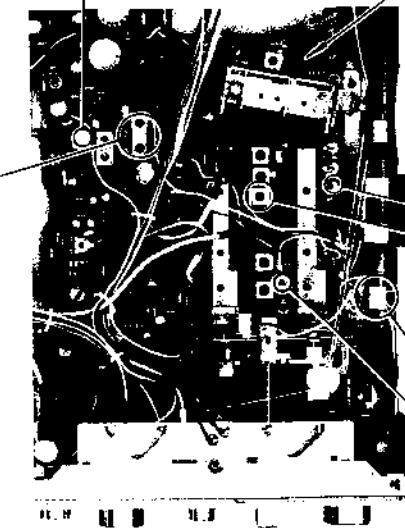
FUNCTION switch: MW



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ALIGNMENT	
Adjust for a maximum reading on VOM ①.	
455kHz (468kHz)	CFU101
( ): UK model	

IFT102  
(no adjustment is needed)



MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
CT109	1680kHz
L109	520kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
L106	620kHz
CT106	1400kHz

# HST-89A HST-89A

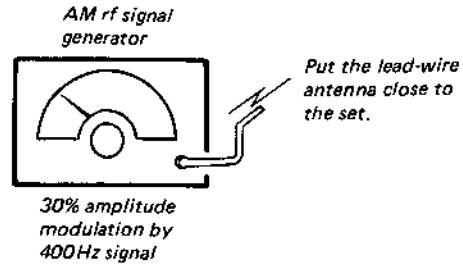
RECEIVER RECEIVER

## LW and SW SECTION

FUNCTION switch: LW or SW

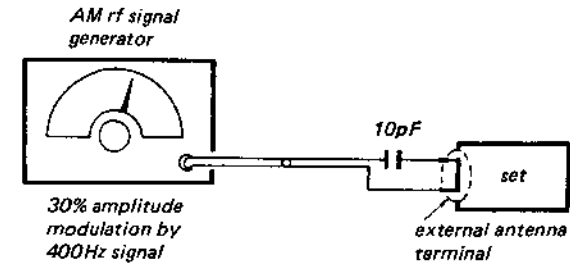
- LW frequency coverage and tracking 1 adjustments

LW antenna selector switch: BUILT IN ANT



- LW tracking 2 and SW adjustments

LW antenna selector switch: EXT ANT



### SW FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on VOM ①.

16.1MHz	CT107
5.5MHz	L107

16.1MHz	CT104
5.5MHz	L104

Adjust for a maximum reading on VOM ①.

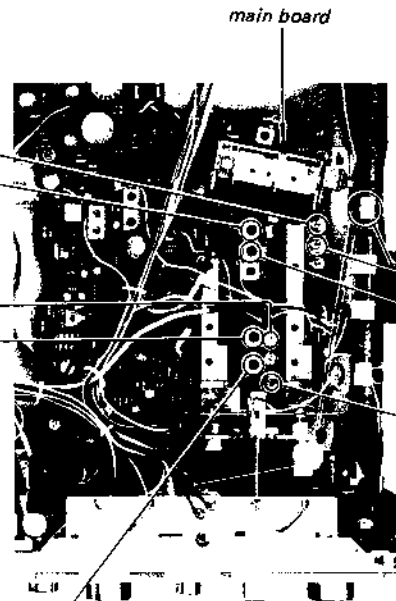
### SW TRACKING ADJUSTMENT

### LW TRACKING ADJUSTMENT 2

- LW antenna selector (S5): (bottom view) EXT ANT position

2) Adjust for a maximum reading on VOM ①.

170kHz	L105
--------	------



### LW FREQUENCY COVERAGE ADJUSTMENT

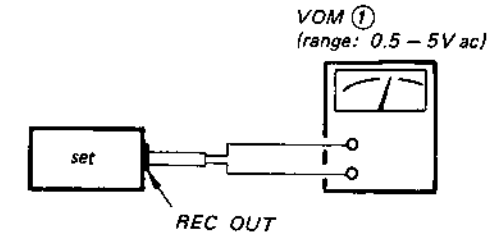
Adjust for a maximum reading on VOM ①.

CT108	365kHz
L108	145kHz

L113	170kHz
CT105	310kHz

- LW antenna selector (S5): (bottom view) BUILT IN ANT position
- Adjust for a maximum reading on VOM ①.

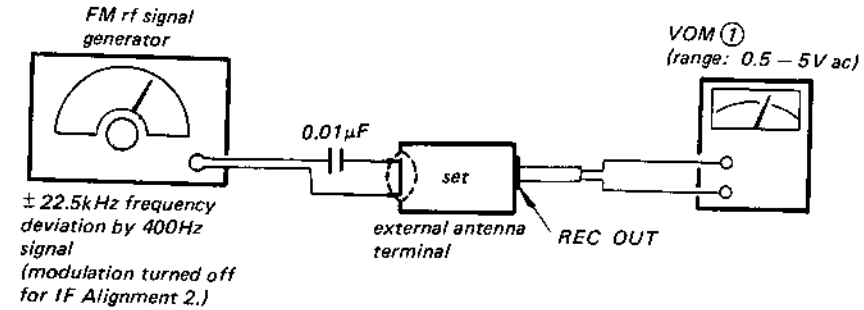
### LW TRACKING ADJUSTMENT 1



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

## FM SECTION

FUNCTION switch: FM



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

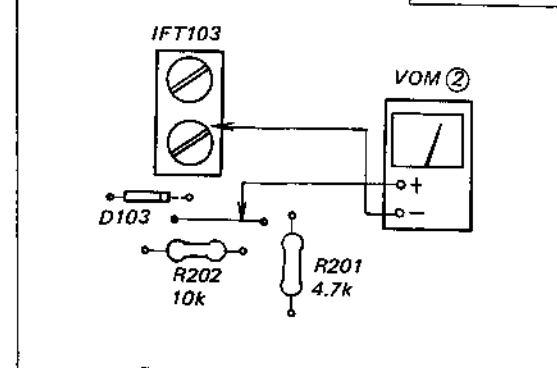
IFT101
IFT103 (primary side)
Adjust for a maximum reading on VOM ①.
FM IF ALIGNMENT 1 (10.7MHz with modulation)

FM IF ALIGNMENT 2 (10.7MHz with no modulation)
Adjust for 0V dc reading on VOM ②.
IFT103 (secondary side)



L101	87.1MHz (87.5MHz)
CT101	108.5MHz (108MHz)
Adjust for a maximum reading on VOM ①.	
FM TRACKING ADJUSTMENT ( ) : in West Germany	

CT102	108.5MHz (108MHz)
L103	87.1MHz (87.5MHz)
Adjust for a maximum reading on VOM ①.	
FM FREQUENCY COVERAGE ADJUSTMENT ( ) : in West Germany	





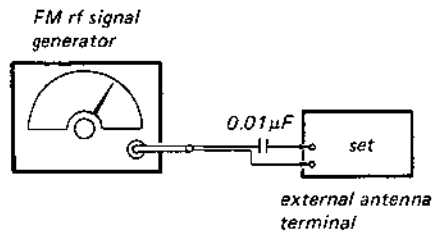
**19 kHz ADJUSTMENT**

**Setting:**

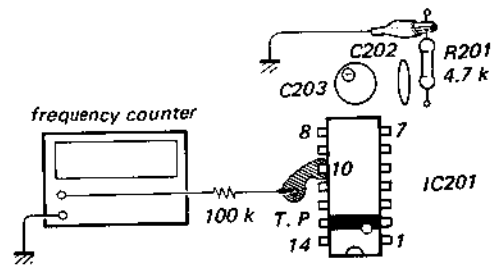
FUNCTION switch: FM

**A) With Frequency Counter**

**Procedure:**



Carrier frequency: 98 MHz  
 Modulation: no modulation  
 Output level: 1 mV (60 dB)

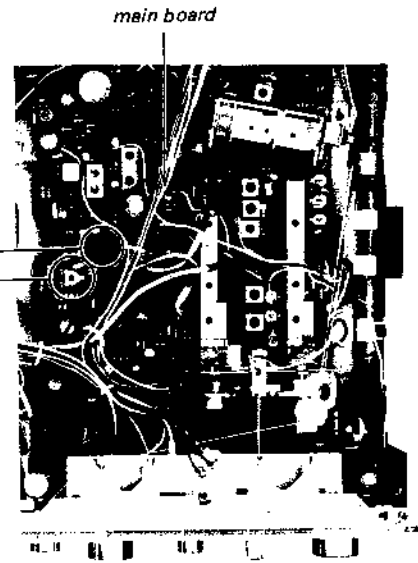
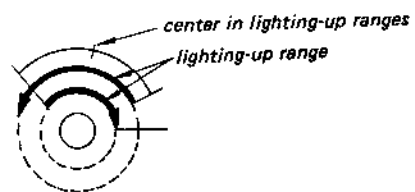


1. Tune the set to 98 MHz.
2. Adjust RV201 for 19kHz ±100Hz on the counter.

**B) Without Frequency Counter**

**Procedure:**

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RV201 clockwise or counterclockwise and memorize the lighting-up range of stereo lamp.
3. Secure RV201 at the center in lighting-up range of both turns as shown below.

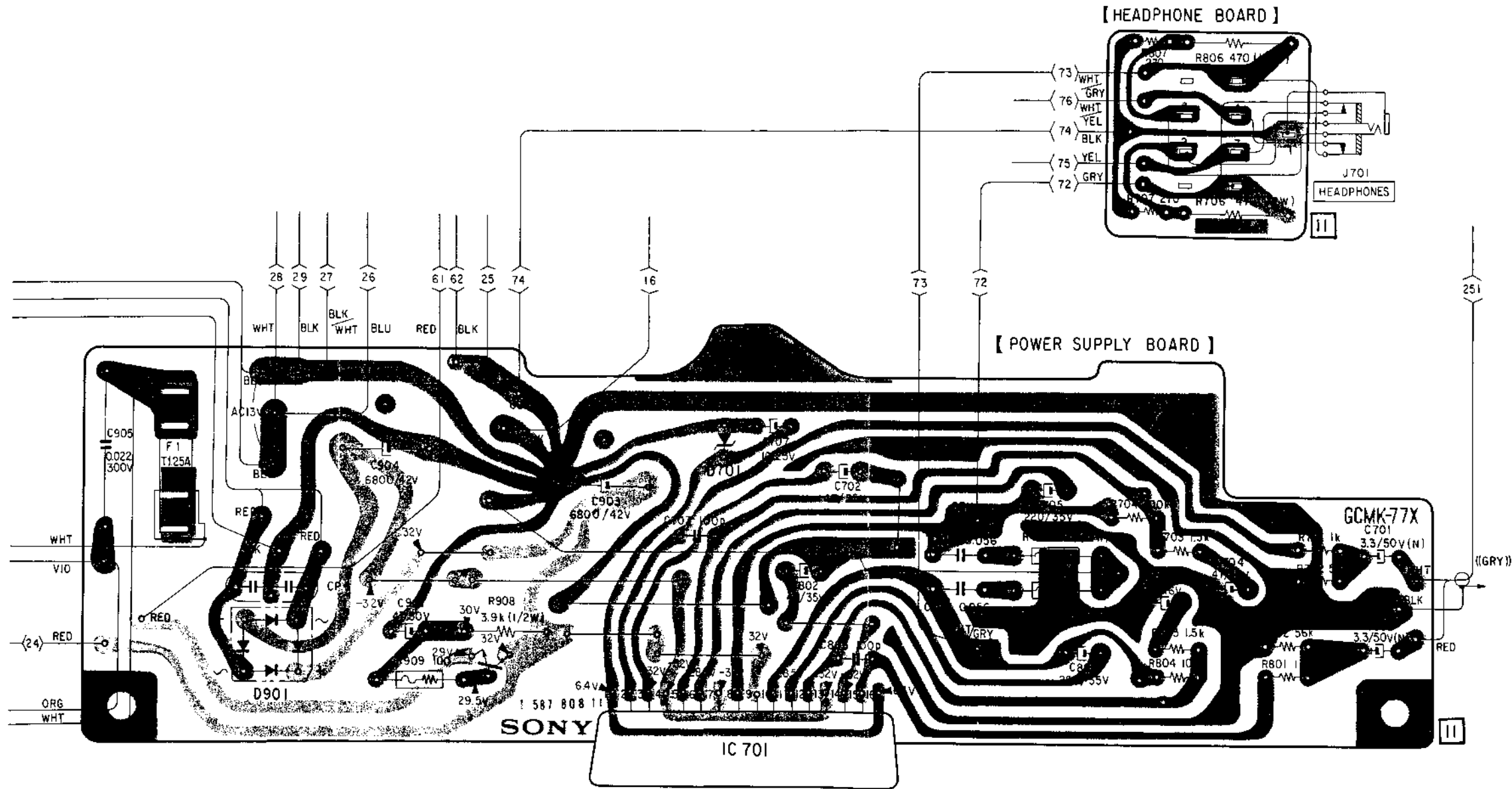


SECTION 4  
DIAGRAMS



HST-89A HST-89A

RECEIVER RECEIVER

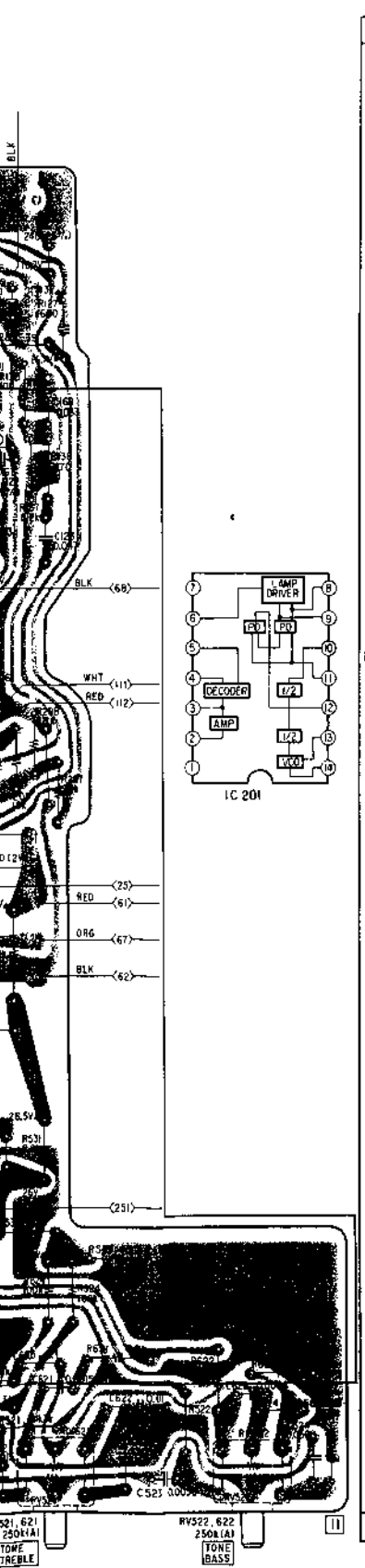
4-1. MOUNTING DIAGRAM - Power Supply Board -  
- Conductor Side -



Note:

- Readings are taken under no signal conditions with a VOM (20 k $\Omega$ /V).  
( ) : AM  
no mark: FM
- Voltage variations may be noted due to normal production tolerances.
-  : B+ pattern.
-  : B- pattern.



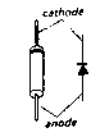


Q, IC	D
103	
101	
104	
105	
102	
	105
108, 111	
107	
	104
	107
106	
	108
	101
	102
110	
	103
	201
109	IC201
	106
	402
	302
	401
	301
	521
	621
Q, IC	D

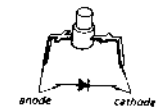
**Replacement Semiconductors**

For replacement, use semiconductors except in ( ).

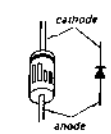
- D101 - 103 : 1S1555
- D106, 107 : 1S1555
- D104, 105 : 1T22AM



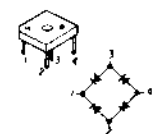
D202: SEL103R



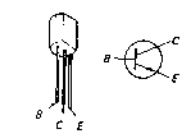
- D108, 201: EQB01-15 (EQA01-15R)
- D701: EQB01-07 (EQA01-07R)



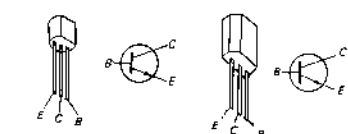
D901: S2VB20



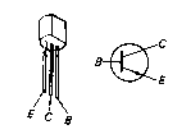
Q101 - 109: 2SC710



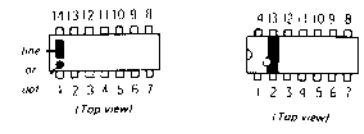
- Q110, 111: 2SC403C (2SC403)
- Q301, 401: 2SC1362 (2SC632A)
- Q521, 621: 2SC1364 (2SC634A)
- Q302, 402: 2SC1364 (2SC634A)



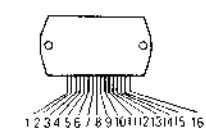
Q901: 2SC1475



IC201: HA1156W (HA1156)

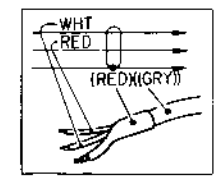


IC701: SI1123HD

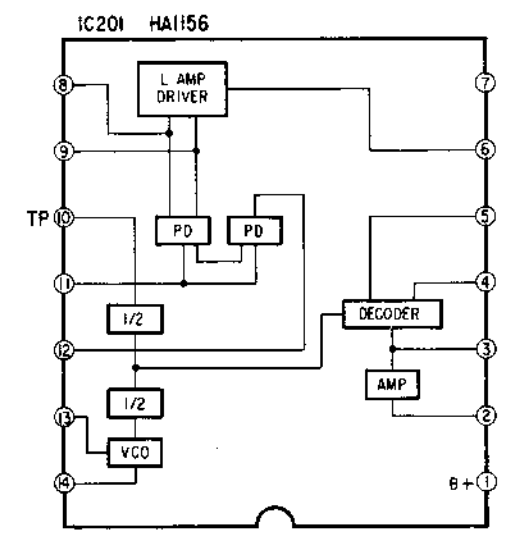
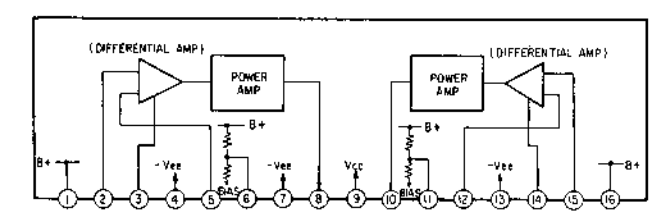


**Note:**

- Color code of sleeving over the end of the jacket.



- Indicates side identified with part number.
- B- pattern
- B+ pattern
- Signal Path
  - COMMON (FM signal)
  - L-CH (FM signal)
  - R-CH (FM signal)
  - COMMON (playback signal)
  - L-CH (playback signal)
  - R-CH (playback signal)
- nonflammable resistor.
- fusible resistor.
- no mark: FM
- ( ): AM
- { }: FORWARD
- < >: RECORD

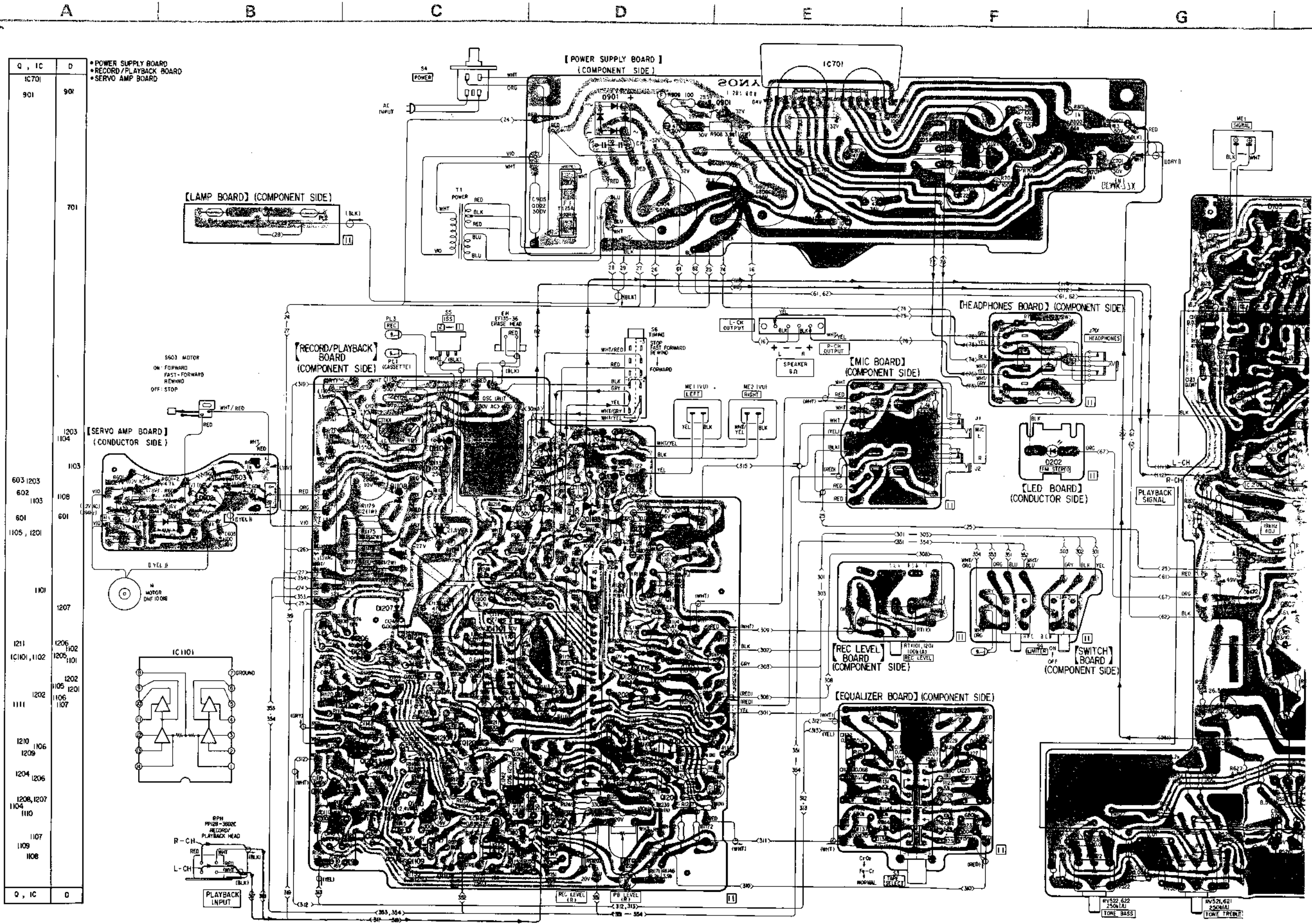


4-3. MOUNTING DIAGRAM

- Component Side -

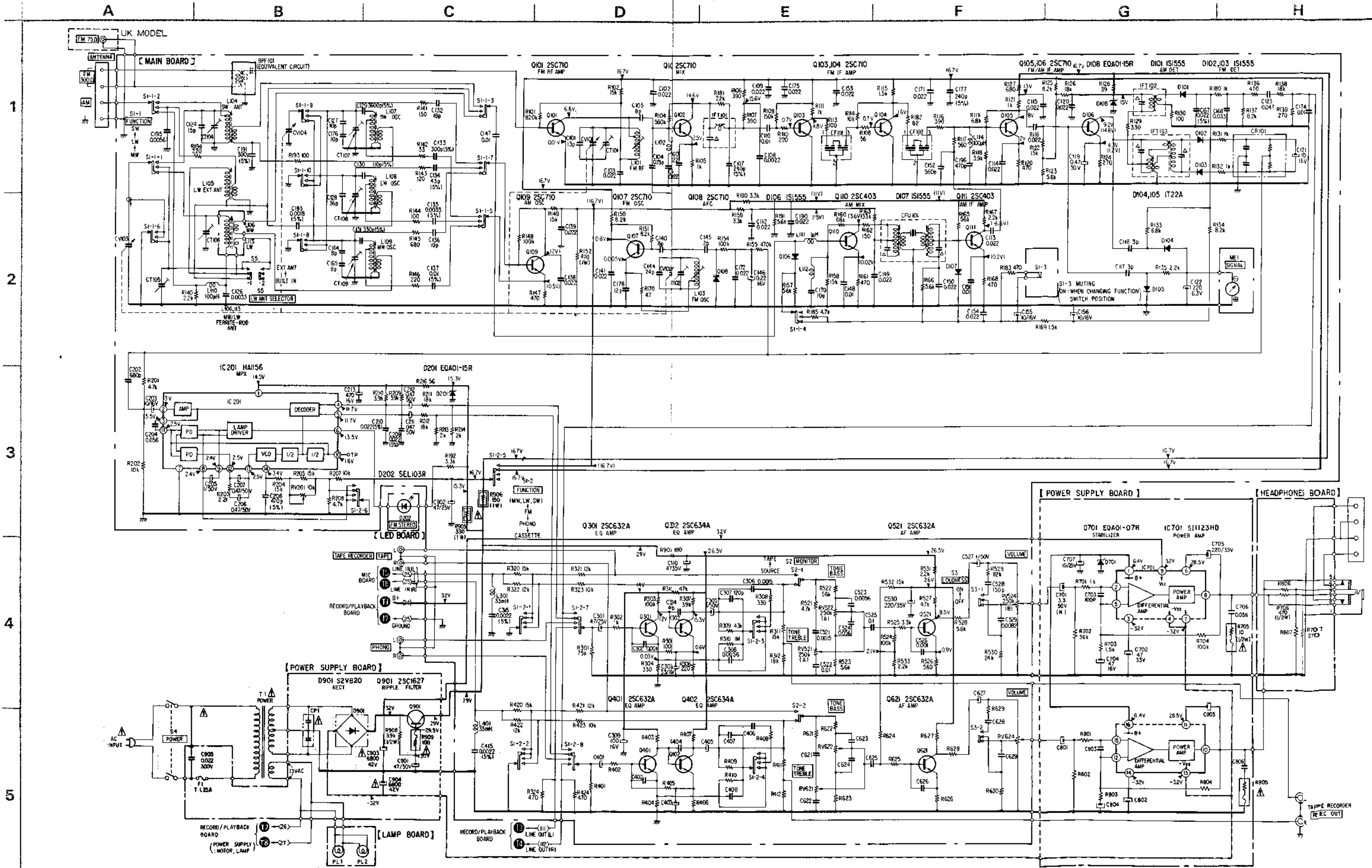
Note:  
See page 42 to 46 for the following mounting diagrams and page 47 to 49 for the schematic diagram.

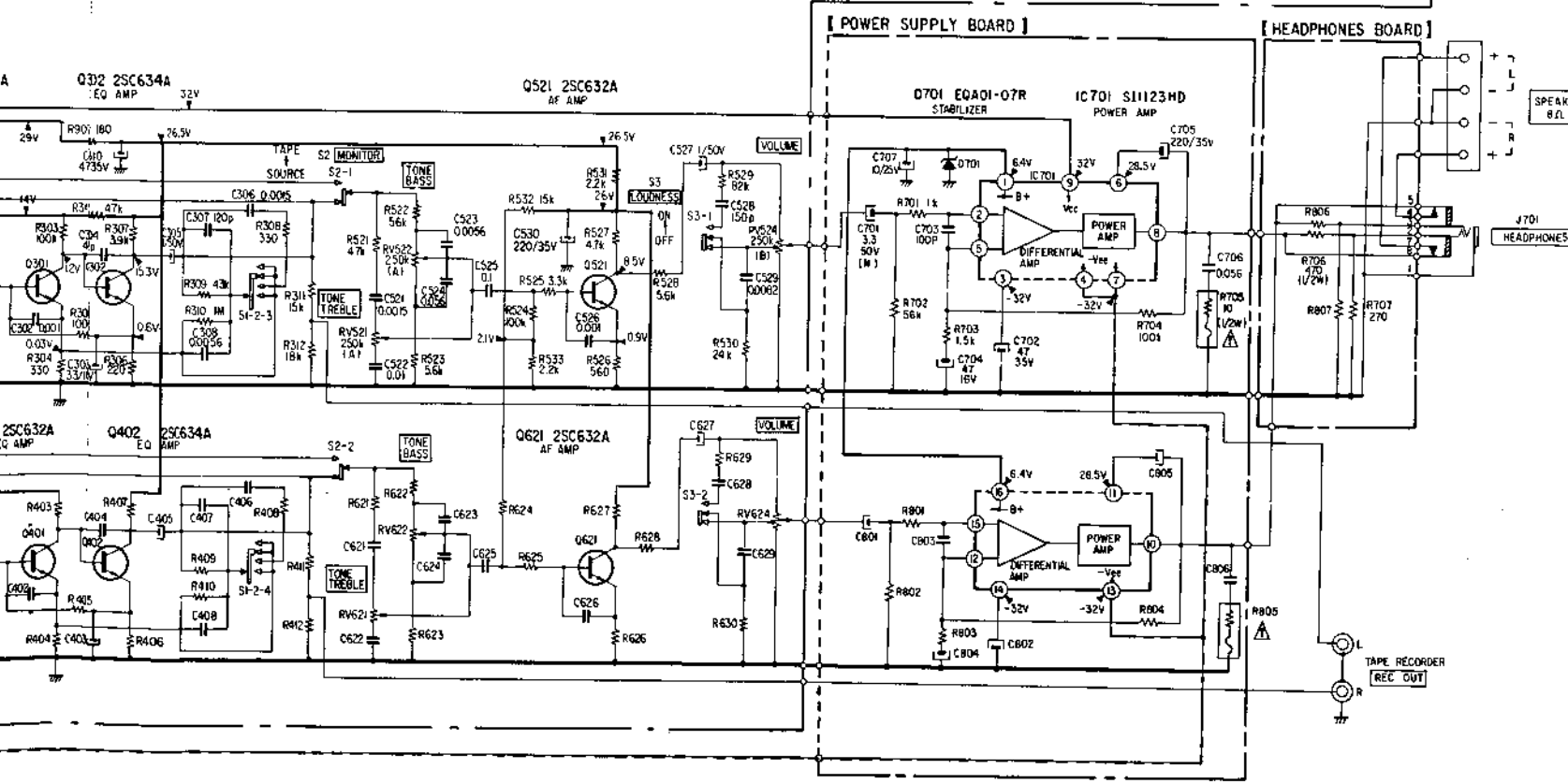
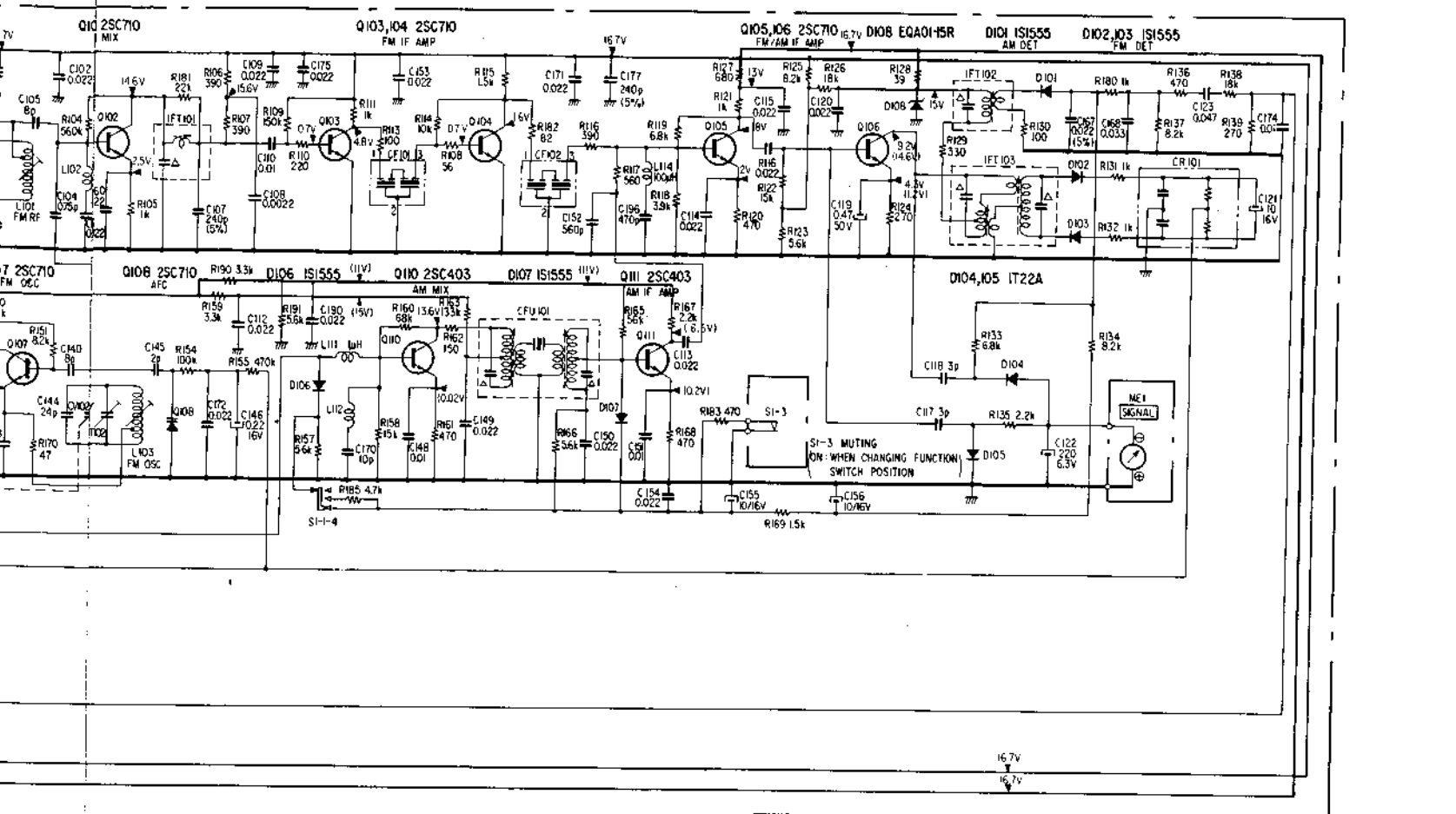
- SERVO AMP BOARD
- RECORD/PLAYBACK BOARD
- MIC BOARD
- REC LEVEL BOARD
- SWITCH BOARD
- EQUALIZER BOARD





4.4. SCHEMATIC DIAGRAM





**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\text{F}$  50WV or less are not indicated except for electrolytics.
- All resistors are in ohms,  $\frac{1}{4}\text{W}$  unless otherwise noted.  $\text{k}\Omega : 1000\Omega$ ,  $\text{M}\Omega : 1000\text{k}\Omega$
- $\square$ : nonflammable resistor.
- $\square$ : fusible resistor.
- (N): low-noise resistor.
- 2% indicates component tolerance.
- $\Delta$ : internal component.
- Transistor is used for Q108.
- ---: B- bus.
- ---: B+ bus.
- $\square$ : panel designation.
- $\square$ : adjustment for repair.

- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20  $\text{k}\Omega/\text{V}$ ).
- ( ) : AM
- no mark: FM
- Voltage variations may be noted due to normal production tolerances.
- Switch

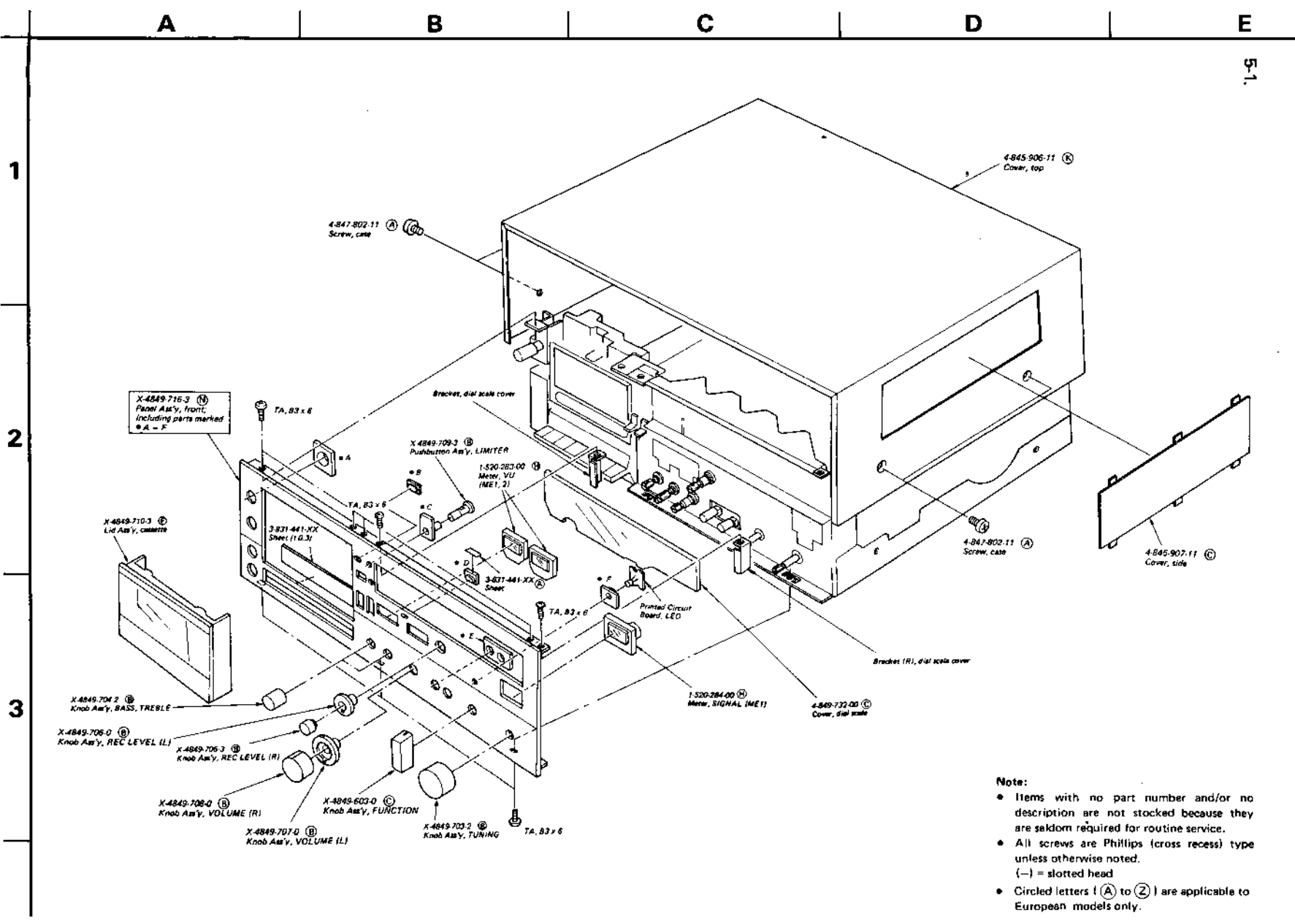
Ref. No.	Switch	Position
S1-1-1 to 1-1-10	FUNCTION	MW
S1-2-1 to 1-2-8	FUNCTION	FM
S1-3	MUTING	OFF
S2-1, 2	MONITOR	SOURCE
S3-1, 2	LOUDNESS	OFF
S4	POWER	OFF
S5	LW ANT SELECTOR	BUILT IN

**Note:** The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.



SECTION 5  
EXPLODED VIEWS

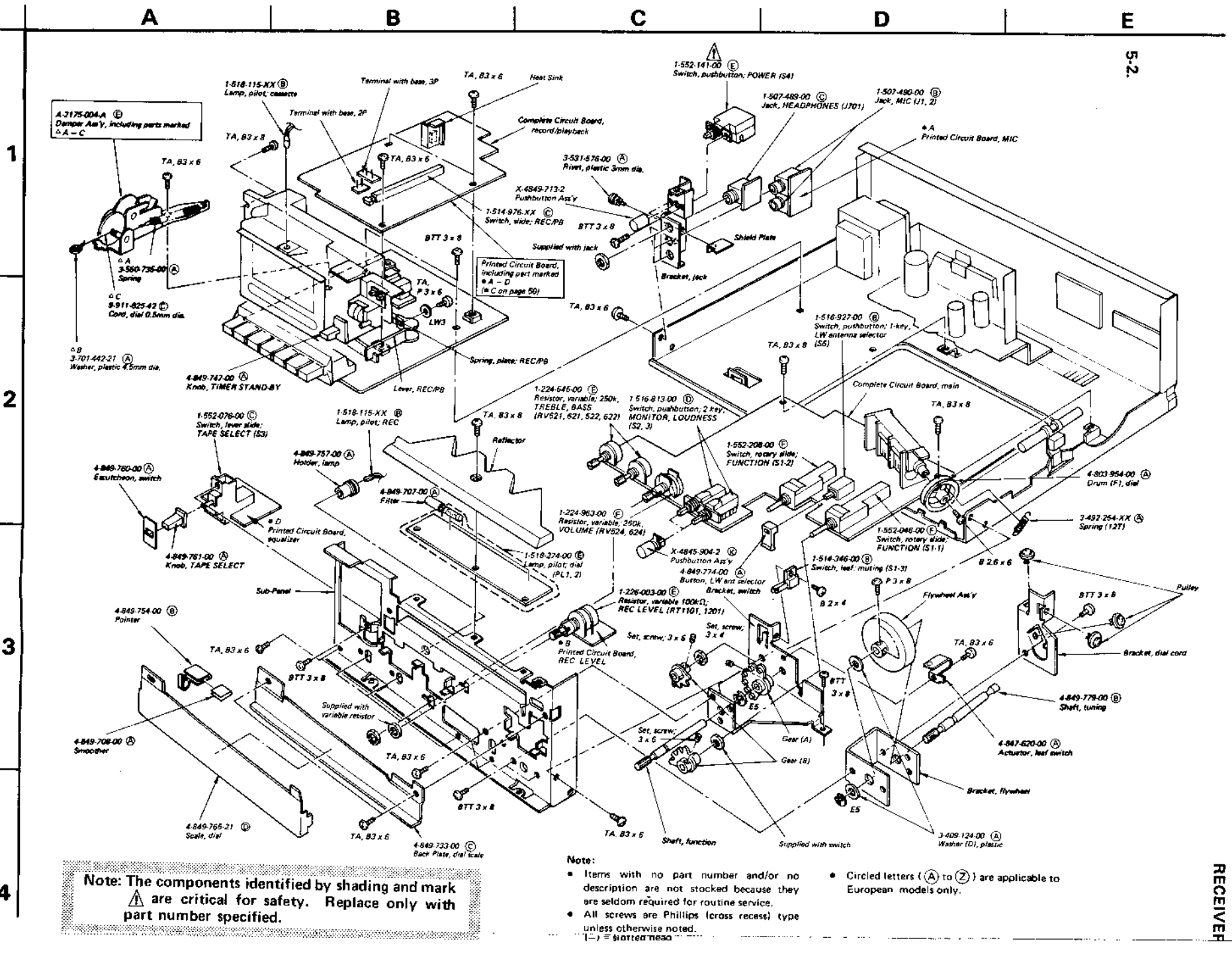
5-1.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted. (—) = slotted head
- Circled letters (A) to (Z) are applicable to European models only.

5-2.



Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted. (—) = slotted head
- Circled letters (A) to (Z) are applicable to European models only.

5-3.



# HST-89A HST-89A

RECEIVER RECEIVER

## SECTION 6 ELECTRICAL PARTS LIST

Note: Circled letters (A to Z) are applicable to European models only.

Note: Circled letters (A to Z) are applicable to European models only.

Ref. No. Part No. Description

### SEMICONDUCTORS

#### Transistors

Q101-109 8-729-671-13 (B) 2SC710  
 ⇒ Q110, 111 8-724-375-01 (B) 2SC403C  
 ⇒ Q301, 401 8-729-665-47 (B) 2SC1362  
 ⇒ Q302, 402 8-729-663-47 (B) 2SC1364  
 ⇒ Q521, 621 8-729-665-47 (B) 2SC1362  
 Q901 8-760-413-10 (E) 2SC1475

#### ICs

⇒ IC201 8-759-311-56 (J) HA1156W  
 IC701 8-759-301-23 (L) SI1123HD

#### Diodes

D101-103 8-719-815-55 (B) 1S1555  
 D104, 105 8-719-422-21 (B) 1T22AM  
 D106, 107 8-719-815-55 (B) 1S1555  
 ⇒ D108, 201 8-719-931-15 (B) EQB01-15  
 D202 8-719-301-03 (B) SEL103R  
 ⇒ D701 8-719-931-07 (B) EQB01-07  
 D901 (A) 8-719-502-20 (C) S2VB20

#### COILS

L104 1-401-677-00 (B) SW Ant  
 L105 1-401-676-00 (B) LW EXT Ant  
 L106, L113 1-401-678-00 (E) LW/MW Ferrite-rod Ant  
 L107 1-405-743-00 (B) SW Osc  
 L108 1-405-769-00 (B) LW Osc  
 L109 1-405-732-00 (B) MW Osc  
 L110 1-407-169-XX (A) Microinductor, 100μH  
 L111 1-407-178-XX (A) Microinductor, 1μH  
 L114 1-407-169-XX (A) Microinductor, 100μH  
 L301, 401 1-407-212-XX (A) Microinductor, 33mH

#### TRANSFORMERS AND FILTERS

BPF101 1-231-313-00 (B) Filter, bandpass  
 CF101,102 1-527-220-XX (F) Filter, ceramic; 10.7MHz  
 CFU101 (1-403-150-00 (C) AM IFT (AEP model)  
 1-403-830-00 (C) AM IFT (UK model)

• ⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No. Part No. Description

IFT101 1-404-004-00 (B) FM IFT  
 IFT102 1-404-064-00 (B) AM IFT  
 IFT103 1-403-822-00 (C) FM Discriminator  
 T1 (A) 1-446-145-11 (C) Power (AEP model)  
 1-446-146-00 (C) Power (UK model)

#### CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.  
 50WV or less are not indicated except for electrolytics.  
 pF = μμF, elect = electrolytic

C101 1-102-950-11 (A) 13p  
 C102,103 1-101-005-11 (A) 0.022  
 C104 1-101-586-11 (A) 0.75p  
 C105 1-102-945-11 (A) 8p  
 C106 1-102-121-11 (A) 0.0022  
 C107 1-102-979-11 (A) 240p  
 C108 1-102-121-11 (A) 0.0022  
 C109 1-101-005-11 (A) 0.022  
 C110 1-101-004-11 (A) 0.01  
 C112-116 1-101-005-11 (A) 0.022  
 C117,118 1-102-936-11 (A) 3p  
 C119 1-121-726-11 (A) 0.47 50V elect  
 C120 1-101-005-11 (A) 0.022  
 C121 1-121-651-11 (A) 10 16V elect  
 C122 1-121-419-11 (B) 220 6.3V elect  
 C123 1-108-246-12 (A) 0.047 mylar  
 C124 1-102-951-11 (A) 15p  
 C126 1-102-123-11 (A) 0.0033  
 C127 1-102-286-11 (A) 10p  
 C128 1-102-964-11 (A) 36p  
 C129 1-103-738-11 (A) 3600p polystyrol  
 C130 1-103-702-11 (A) 110p polystyrol  
 C131 1-103-713-11 (A) 330p polystyrol  
 C132 1-102-893-11 (A) 18p  
 C133 1-107-097-11 (A) 330p silvered mica  
 C134 1-102-521-11 (A) 43p  
 C135 1-108-232-12 (A) 0.0033 mylar  
 C136 1-102-508-11 (A) 10p  
 C137 1-108-239-12 (A) 0.01 mylar  
 C138,139 1-101-005-11 (A) 0.022

Ref. No. Part No. Description

C140 1-102-684-11 (A) 8p  
 C141 1-101-005-11 (A) 0.022  
 C144 1-101-982-11 (A) 24p  
 C145 1-102-681-11 (A) 2p  
 C146 1-127-046-11 (A) 0.22 16V solid aluminum  
 C147,148 1-101-004-11 (A) 0.01  
 C149 1-101-005-11 (A) 0.022  
 C150 1-101-005-11 (A) 0.022  
 C151 1-101-004-11 (A) 0.01  
 C152 1-102-115-11 (A) 560p  
 C153 1-108-242-12 (A) 0.022 mylar  
 C154 1-101-005-11 (A) 0.022  
 C155,156 1-121-651-11 (A) 10 16V elect  
 C160 1-101-005-11 (A) 0.022  
 C164,165 1-102-282-11 (A) 8p mylar  
 C167 1-108-242-12 (A) 0.022  
 C168 1-108-244-12 (A) 0.033 mylar  
 C170 1-102-947-11 (A) 10p  
 C171 1-108-242-12 (A) 0.022 mylar  
 C172 1-101-005-11 (A) 0.022  
 C174 1-101-118-11 (A) 0.01  
 C175 1-101-005-11 (A) 0.022  
 C176 1-102-286-11 (A) 10p  
 C177 1-102-979-11 (A) 240p  
 C178 1-102-687-11 (A) 12p  
 C190 1-101-005-11 (A) 0.022  
 C191 1-107-085-11 (A) 100p silvered mica  
 C193 1-103-731-11 (A) 0.0018 polystyrol  
 C195 1-102-126-11 (A) 0.0056  
 C196 1-102-114-11 (A) 470p  
 C202 1-102-116-11 (A) 680p  
 C203 1-121-651-11 (A) 10 16V elect  
 C204 1-108-361-12 (A) 0.056 mylar  
 C205 1-121-391-11 (A) 1 50V elect  
 C206,207 1-121-726-11 (A) 0.47 50V elect  
 C208 1-103-617-11 (A) 470p polystyrol  
 C209,210 1-108-242-12 (A) 0.022 mylar  
 C211,212 1-121-726-11 (A) 0.47 50V elect  
 C213 1-121-940-11 (B) 470 16V elect

Ref. No. Part No. Description

C301, 401 1-121-395-11 (A) 4.7 25V elect  
 C302, 402 1-101-001-11 (A) 0.001  
 C303, 403 1-121-402-11 (A) 33 10V elect  
 C304, 404 1-101-881-11 (A) 47p  
 C305, 405 1-121-391-11 (A) 1 50V elect  
 C306, 406 1-102-119-11 (A) 0.0015  
 C307, 407 1-102-816-11 (A) 120p  
 C308, 408 1-102-126-11 (A) 0.0056  
 C309 1-123-193-11 (B) 100 16V elect  
 C310 1-123-186-11 (B) 47 35V elect  
 C315, 415 1-108-230-12 (A) 0.0022 mylar  
 C521, 621 1-102-119-11 (A) 0.0015  
 C525, 622 1-102-129-11 (A) 0.01  
 C523, 623 1-102-126-11 (A) 0.0056  
 C524, 624 1-108-361-12 (A) 0.056 mylar  
 C525, 625 1-101-797-11 (A) 0.1 (semiconductor)  
 C526, 626 1-101-001-11 (A) 0.001  
 C527, 627 1-121-391-11 (A) 1 50V elect  
 C528, 628 1-102-108-11 (A) 150p  
 C529, 629 1-102-128-11 (A) 0.0082  
 C530 1-121-261-11 (B) 220 35V elect  
 C701, 801 1-121-914-11 (A) 3.3 50V elect  
 C702, 802 1-121-652-11 (A) 47 35V elect  
 C703, 803 1-102-975-11 (A) 100p  
 C704, 804 1-121-409-11 (A) 47 16V elect  
 C705, 805 1-121-261-11 (B) 220 35V elect  
 C706, 806 1-108-361-12 (A) 0.056 mylar  
 C707 1-121-398-11 (A) 10 25V elect  
 C901 1-123-058-11 (B) 47 50V elect  
 C902 1-121-410-11 (B) 47 25V elect  
 C903 (A) 1-125-157-11 (F) 6800 42V elect  
 C904 (A) 1-125-157-11 (F) 6800 42V elect  
 C905 (A) 1-108-777-12 (B) 0.022 300V mylar  
 CT101,102 1-151-318-00 (J) Tuning  
 CV101-104  
 CT104-109 1-141-138-XX (B) Trimmer

Note: The components identified by shading and mark (A) are critical for safety. Replace only with part number specified.

Note: The components identified by shading and mark (A) are critical for safety. Replace only with part number specified.

# HST-89A HST-89A

RECEIVER RECEIVER

Note: Circled letters (A to Z) are applicable to European models only.

Ref. No. Part No. Description

### RESISTORS

All resistors are in ohms. Common 1/4W carbon resistors are omitted. Refer to the list on page 30 for their part number.

R152	1-213-139-11	(A) 470	1W	metal oxide
R705, 805	(A) 1-212-958-11	(A) 10	1/2W	fusible
R706, 806	1-202-565-11	(A) 470	1/2W	composition
R905	(A) 1-213-137-11	(A) 330	1W	metal oxide (nonflammable)
R906	(A) 1-213-133-11	(A) 150	1W	metal oxide (nonflammable)
R908	1-202-587-11	(A) 3.8k	1/2W	composition
R909	(A) 1-212-881-11	(A) 100	1/2W	fusible
RV201	1-224-645-XX	(B) 10k-B, adjustable;	19kHz	
RV521, 621	1-224-545-00	(E) 250k-A, variable;	TREBLE, BASS	
RV522, 622				
RV524, 624	1-224-963-00	(F) 250k-B, variable;	VOLUME	

### SWITCHES

S1-1	1-552-046-00	(F) Rotary-slide, FUNCTION
S1-2	1-552-208-00	(F) Rotary-slide, FUNCTION
S1-3	1-514-346-00	(B) Leaf, muting
S2,3	1-516-813-00	(D) Pushbutton, 2-key; MONITOR, LOUDNESS
S4	(A) 1-552-141-00	(E) Pushbutton, POWER
S5	1-516-927-00	(E) Pushbutton, 1-key; LW antenna selector

### MISCELLANEOUS

CP1	(A) 1-102-394-11	(A) Capacitor, ceramic
CR101	1-231-202-11	(B) Encapsulated Component
F1	(A) 1-532-285-00	(B) Fuse, T1.25A
J701	1-507-489-00	(C) Jack, HEADPHONES
ME1	1-520-284-00	(H) Meter, SIGNAL
PL1, 2	1-518-274-00	(E) Lamp, dial
	1-507-430-XX	(D) Jack, 6p; PHONO, REC OUT TAPE
	1-508-457-00	(C) Connector, FM 75Ω (UK model)
	1-536-486-00	(B) Terminal Strip, 4p; ANTENNA
	1-536-524-00	(C) Terminal Strip, 4p; SPEAKER
	(A) 1-534-777-00	(D) Cord, power (UK model)
	(A) 1-534-817-00	(D) Cord, power (AEP model)

### ACCESSORIES & PACKING MATERIALS

Part No.	Description
X-3701-105-0	(A) Tips Ass'y, head cleaning
1-501-161-00	(F) Feeder, antenna
1-534-492-00	(C) Cord, antenna
3-701-630-00	(A) Bag, plastic
3-770-576-11	(F) Manual, instruction
4-841-807-00	(E) Bag, plastic
4-845-953-00	(B) Cushion (R)
4-845-954-00	(B) Cushion (L)
4-849-787-00	(G) Carton
4-849-789-00	Cushion
4-849-790-00	Cushion, lower (L)
4-849-791-00	Cushion, lower (R)
7-824-012-10	(A) Leaflet

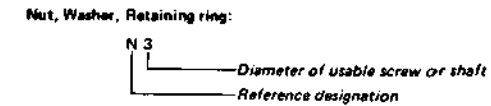
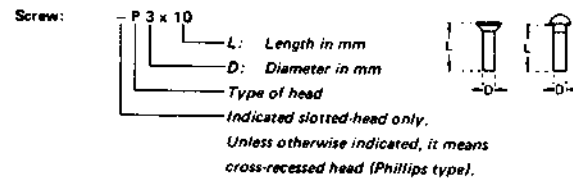
Note: The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

### 1/4 WATT CARBON RESISTORS (A)

Note: Circled letter (A) is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-244-601-11	10	1-244-625-11	100	1-244-649-11	1.0k	1-244-673-11	10k	1-244-697-11	100k	1-244-721-11	1.0M	1-244-745-11
1.1	1-244-602-11	11	1-244-626-11	110	1-244-650-11	1.1k	1-244-674-11	11k	1-244-698-11	110k	1-244-722-11	1.1M	1-244-746-11
1.2	1-244-603-11	12	1-244-627-11	120	1-244-651-11	1.2k	1-244-675-11	12k	1-244-699-11	120k	1-244-723-11	1.2M	1-244-747-11
1.3	1-244-604-11	13	1-244-628-11	130	1-244-652-11	1.3k	1-244-676-11	13k	1-244-700-11	130k	1-244-724-11	1.3M	1-244-748-11
1.5	1-244-605-11	15	1-244-629-11	150	1-244-653-11	1.5k	1-244-677-11	15k	1-244-701-11	150k	1-244-725-11	1.5M	1-244-749-11
1.6	1-244-606-11	16	1-244-630-11	160	1-244-654-11	1.6k	1-244-678-11	16k	1-244-702-11	160k	1-244-726-11	1.6M	1-244-750-11
1.8	1-244-607-11	18	1-244-631-11	180	1-244-655-11	1.8k	1-244-679-11	18k	1-244-703-11	180k	1-244-727-11	1.8M	1-244-751-11
2.0	1-244-608-11	20	1-244-632-11	200	1-244-656-11	2.0k	1-244-680-11	20k	1-244-704-11	200k	1-244-728-11	2.0M	1-244-752-11
2.2	1-244-609-11	22	1-244-633-11	220	1-244-657-11	2.2k	1-244-681-11	22k	1-244-705-11	220k	1-244-729-11	2.2M	1-244-753-11
2.4	1-244-610-11	24	1-244-634-11	240	1-244-658-11	2.4k	1-244-682-11	24k	1-244-706-11	240k	1-244-730-11	2.4M	1-244-754-11
2.7	1-244-611-11	27	1-244-635-11	270	1-244-659-11	2.7k	1-244-683-11	27k	1-244-707-11	270k	1-244-731-11	2.7M	1-244-755-11
3.0	1-244-612-11	30	1-244-636-11	300	1-244-660-11	3.0k	1-244-684-11	30k	1-244-708-11	300k	1-244-732-11	3.0M	1-244-756-11
3.3	1-244-613-11	33	1-244-637-11	330	1-244-661-11	3.3k	1-244-685-11	33k	1-244-709-11	330k	1-244-733-11	3.3M	1-244-757-11
3.6	1-244-614-11	36	1-244-638-11	360	1-244-662-11	3.6k	1-244-686-11	36k	1-244-710-11	360k	1-244-734-11	3.6M	1-244-758-11
3.9	1-244-615-11	39	1-244-639-11	390	1-244-663-11	3.9k	1-244-687-11	39k	1-244-711-11	390k	1-244-735-11	3.9M	1-244-759-11
4.3	1-244-616-11	43	1-244-640-11	430	1-244-664-11	4.3k	1-244-688-11	43k	1-244-712-11	430k	1-244-736-11	4.3M	1-244-760-11
4.7	1-244-617-11	47	1-244-641-11	470	1-244-665-11	4.7k	1-244-689-11	47k	1-244-713-11	470k	1-244-737-11	4.7M	1-244-761-11
5.1	1-244-618-11	51	1-244-642-11	510	1-244-666-11	5.1k	1-244-690-11	51k	1-244-714-11	510k	1-244-738-11	5.1M	1-244-762-11
5.6	1-244-619-11	56	1-244-643-11	560	1-244-667-11	5.6k	1-244-691-11	56k	1-244-715-11	560k	1-244-739-11		
6.2	1-244-620-11	62	1-244-644-11	620	1-244-668-11	6.2k	1-244-692-11	62k	1-244-716-11	620k	1-244-740-11		
6.8	1-244-621-11	68	1-244-645-11	680	1-244-669-11	6.8k	1-244-693-11	68k	1-244-717-11	680k	1-244-741-11		
7.5	1-244-622-11	75	1-244-646-11	750	1-244-670-11	7.5k	1-244-694-11	75k	1-244-718-11	750k	1-244-742-11		
8.2	1-244-623-11	82	1-244-647-11	820	1-244-671-11	8.2k	1-244-695-11	82k	1-244-719-11	820k	1-244-743-11		
9.1	1-244-624-11	91	1-244-648-11	910	1-244-672-11	9.1k	1-244-696-11	91k	1-244-720-11	910k	1-244-744-11		

### HARDWARE NOMENCLATURE



Reference Designation	Shape	Description	Remarks
<b>SCREWS</b>			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-filister-head screw	
RF		filister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
<b>SELF-TAPPING SCREWS</b>			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
<b>SET SCREWS</b>			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
<b>NUT</b>			
N		nut	
<b>WASHERS</b>			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
<b>RETAINING RINGS</b>			
E		retaining ring	
G		grip-type retaining ring	

**HST-89A**

CASSETTE RECORDER

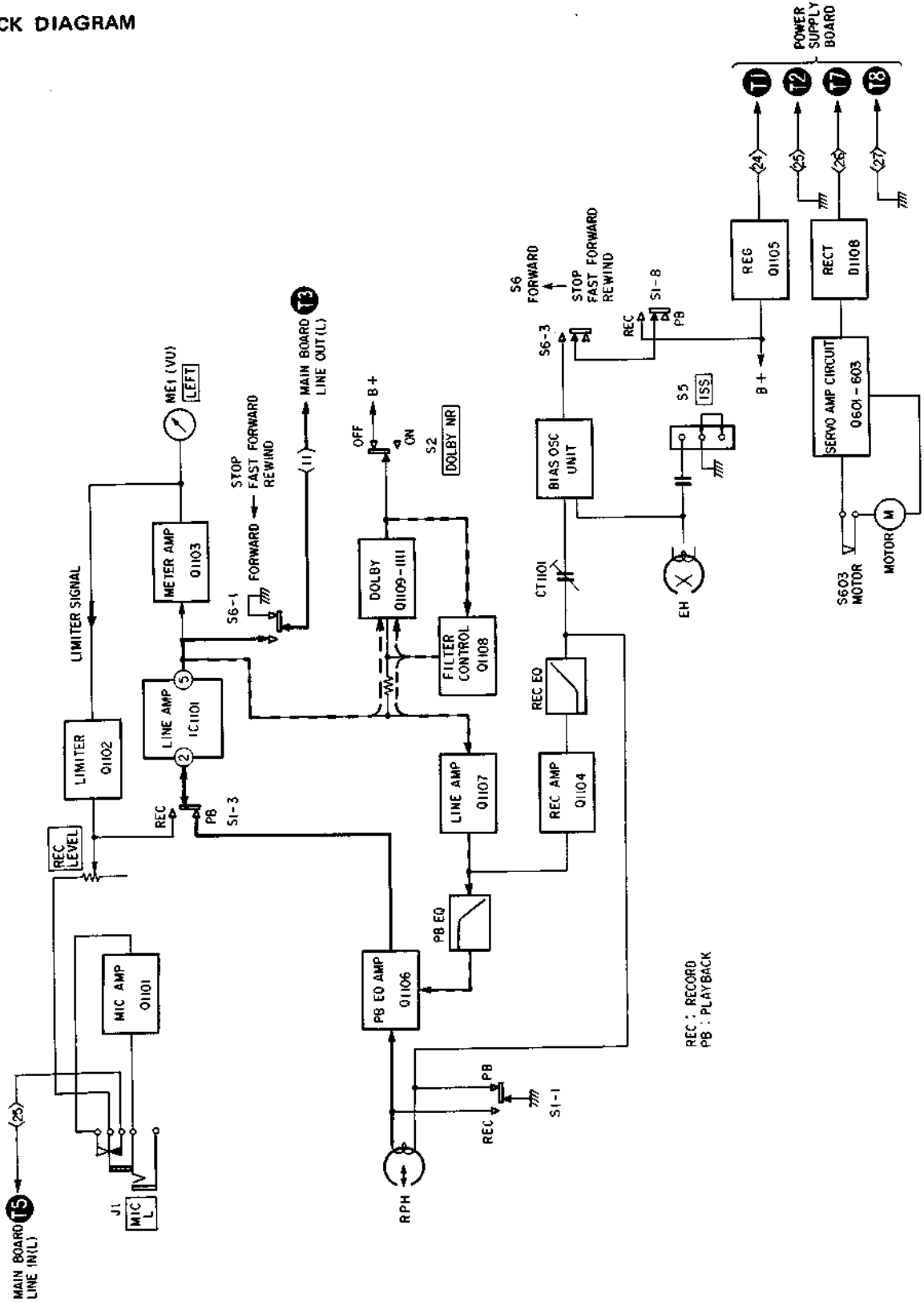
## **CASSETTE RECORDER SECTION**

# HST-89A

## CASSETTE RECORDER

### SECTION 1 OUTLINE

#### 1-1. BLOCK DIAGRAM

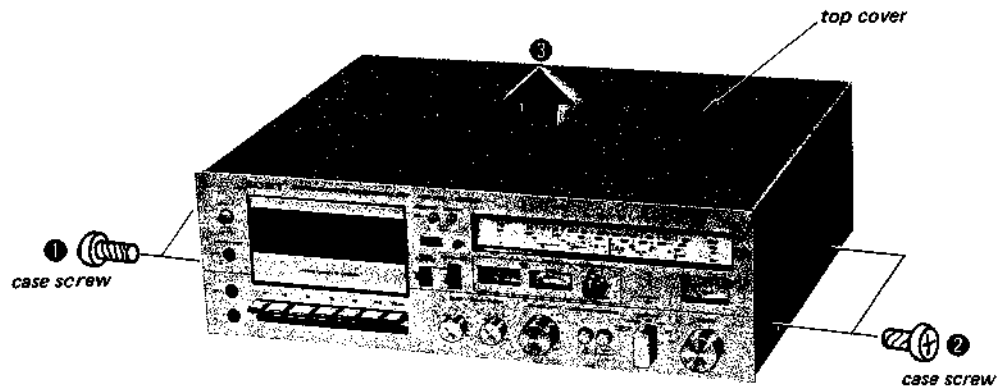


### SECTION 2 DISASSEMBLY

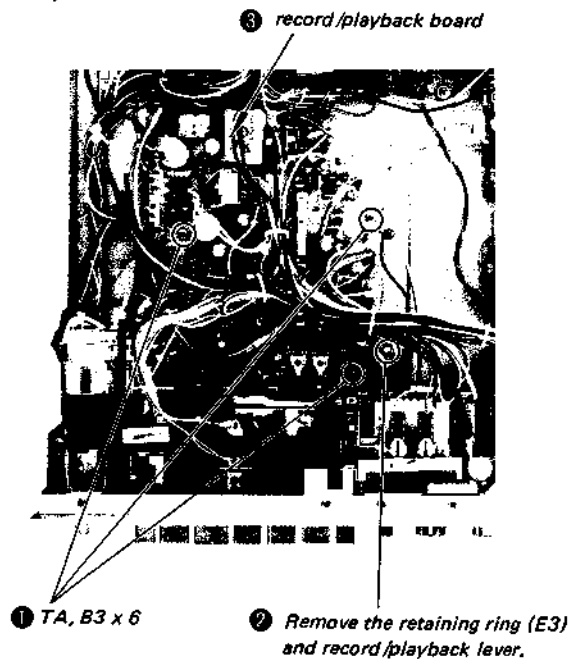
#### 2-1. REMOVAL

- Follow the disassembly procedure in the numerical order given.

#### TOP COVER REMOVAL



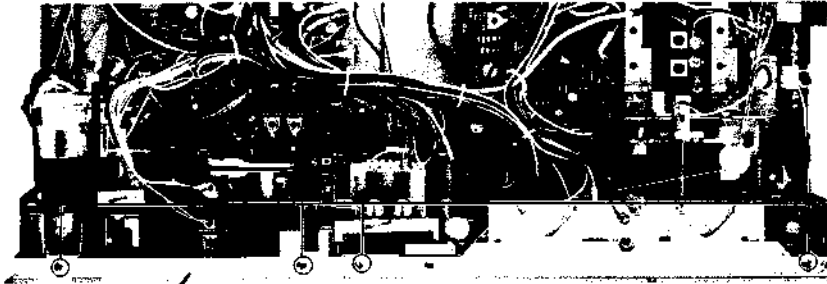
#### Record/Playback Board



# HST-89A

## CASSETTE RECORDER

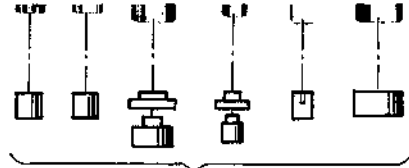
### Front Panel



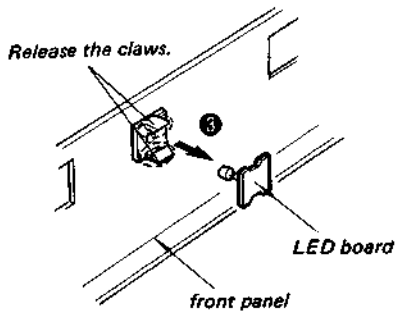
② Remove seven screws  
(TA, B3 x 6)  
(top and bottom)

④ front panel

Note:  
Be careful not to lose the LIMITER knob.

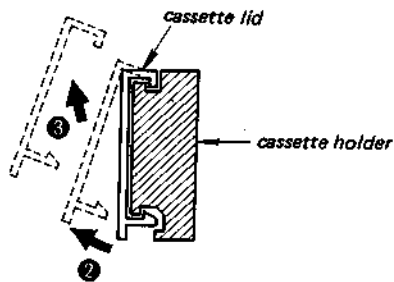


① Pull off eight knobs.  
TUNING, FUNCTION, REC LEVEL,  
VOLUME, TREBLE, BASS



### Cassette Lid

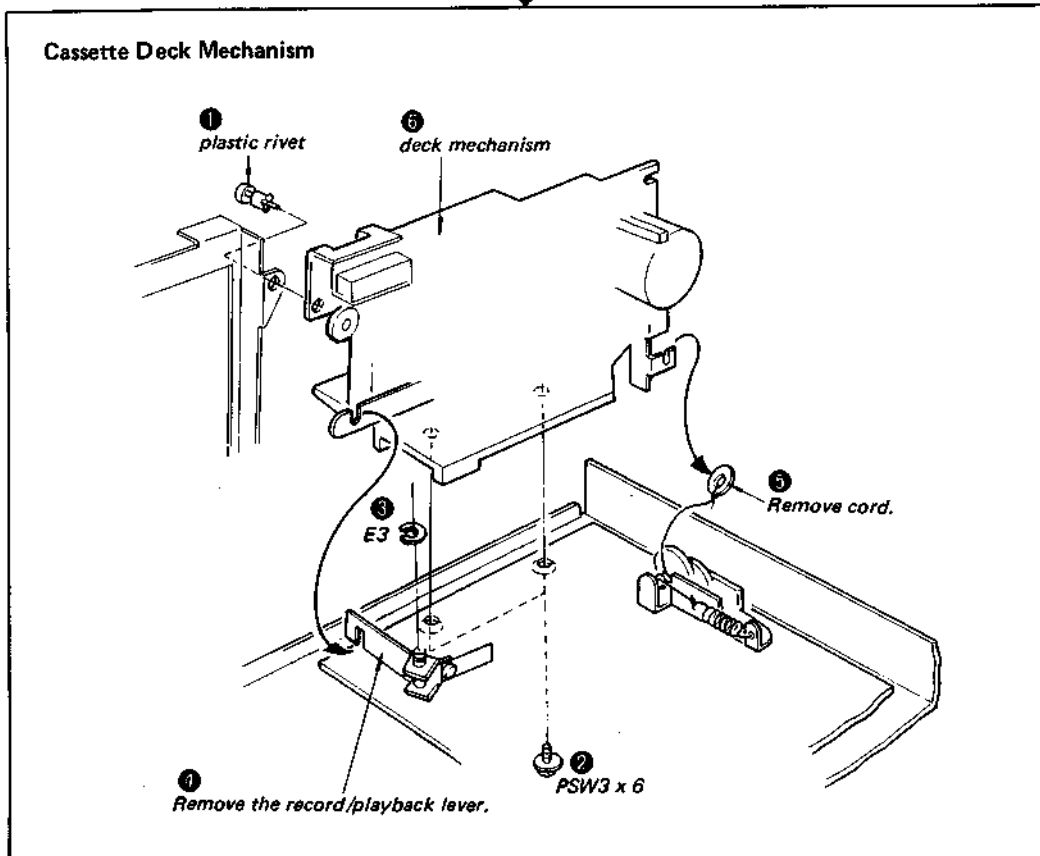
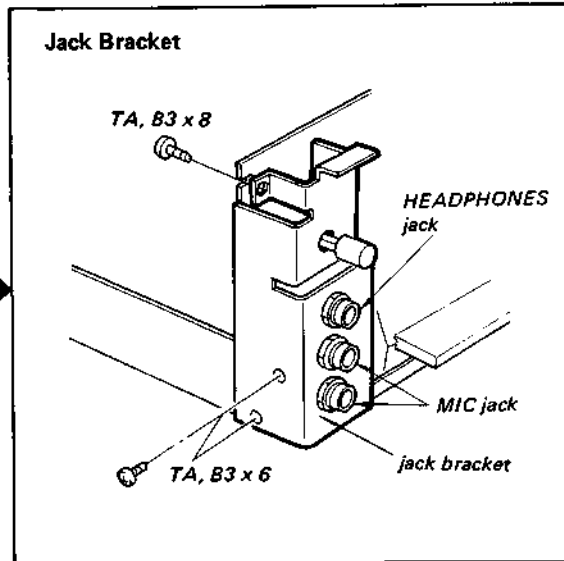
① Depress the EJECT button.





# HST-89A

CASSETTE RECORDER



### SECTION 3 ADJUSTMENTS

#### 3-1. MECHANICAL ADJUSTMENTS

##### PRECAUTION

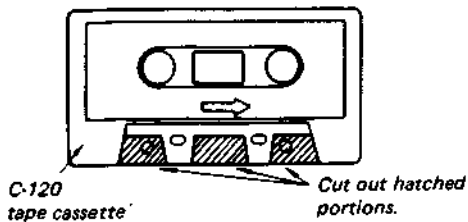
1. Clean the following parts with a denatured-alcohol-moistened swab:
 

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

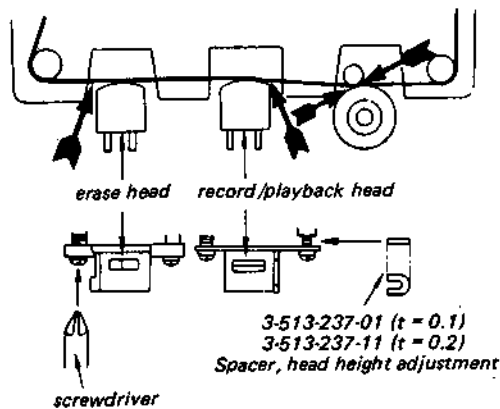
##### Tape Path Adjustment

###### – Playback Mode –

1. Make an adjustment cassette as shown below.



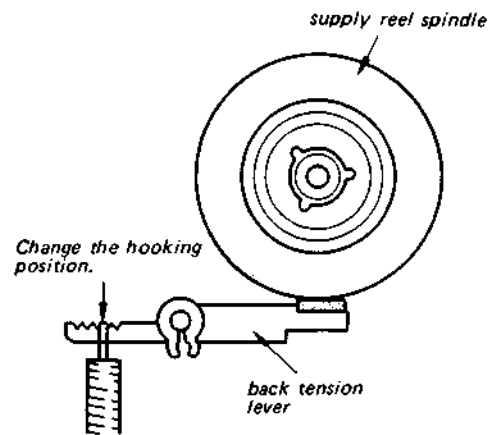
2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at arrowed portions.



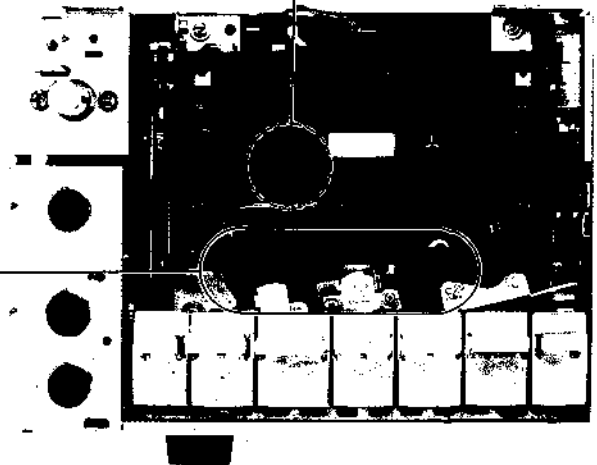
##### Forward Back Tension Torque Adjustment

###### – Playback Mode –

Use type CQ-102A cassette torque meter.



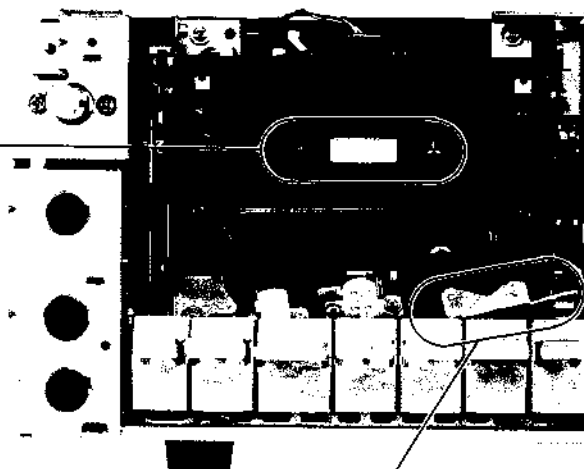
Specification: 2 – 5 g·cm  
(0.028 – 0.069 oz·inch)



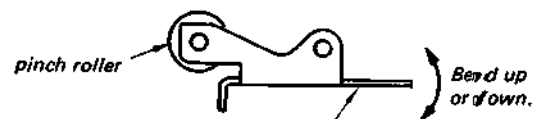
**Forward Torque Measurement**

— Playback Mode —

Torque meter	Meter reading
SONY CQ-101A	30 – 50 g-cm (0.42 – 0.69 oz-inch)
CQ-102A	
CQ-103A	

**PAUSE Timing Adjustment**

— PAUSE Mode —



Bend here and adjust the position of pinch roller so that the rotations of pinch roller and reel spindles stop at the same time when slowly depressing PAUSE button.

# HST-89A

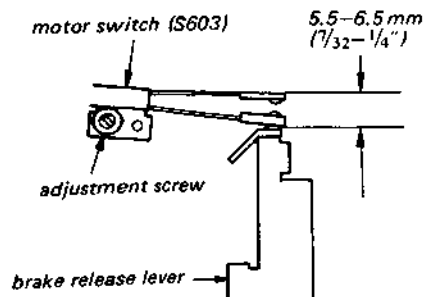
## CASSETTE RECORDER

### Motor Switch (S603) Position Adjustment

#### — Stop Mode —

Loosen adjustment screw and adjust the position of the switch for the specified clearance between the switch leaves.

After the adjustment, tighten and lock the screw with suitable locking compound.

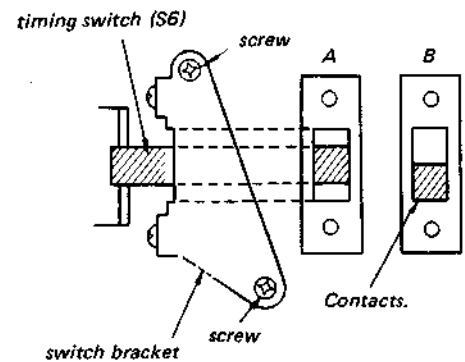


### Timing Switch (S6) Position Adjustment

#### — Stop Mode —

Loosen the screws and adjust position of the switch bracket as marked B in figure below.

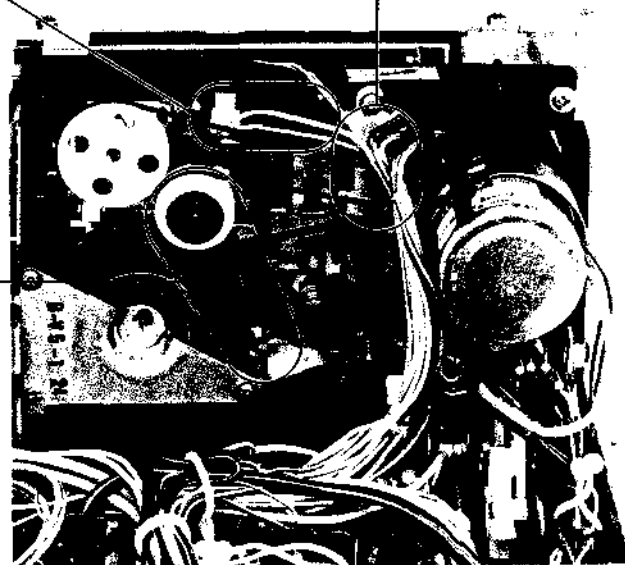
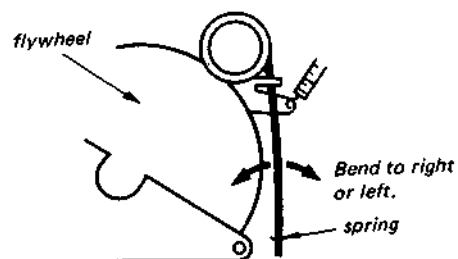
After the adjustment, tighten the screws.



### Fast Forward and Rewind Torque Adjustment

#### — Fast Forward and Rewind Modes —

Use type CQ-201A cassette torque meter. Bend the spring for the torque of 55–95 g·cm (0.77–1.3 oz·inch).



### 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustments should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

Switches should be set as follows unless otherwise specified.

FUNCTION switch: CASSETTE  
 MONITOR switch: SOURCE  
 TAPE SELECT switch: NORMAL  
 LIMITER switch: OFF  
 DOLBY NR switch: OFF

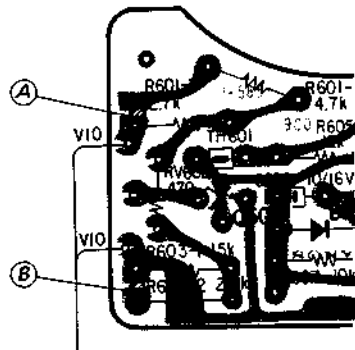
#### Standard Record

Feed the input signal (1 kHz, -10 dB) to the TAPE jack and set the REC LEVEL control to obtain 0 VU meter reading.

If adjustment is not made with RV602, solder portion (A) or (B) and repeat the adjustment.

Soldering portion	tape speed
(A)	fast
(B)	slow

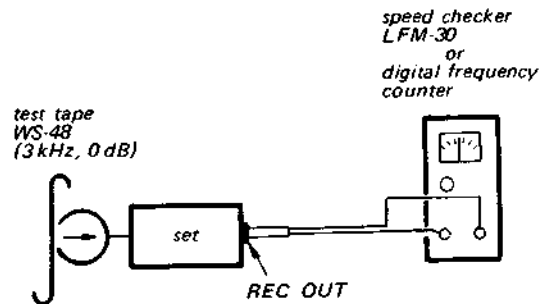
**[SERVO AMP BOARD]  
(CONDUCTOR SIDE)**



#### Tape Speed Adjustment

##### Procedure:

Mode: playback



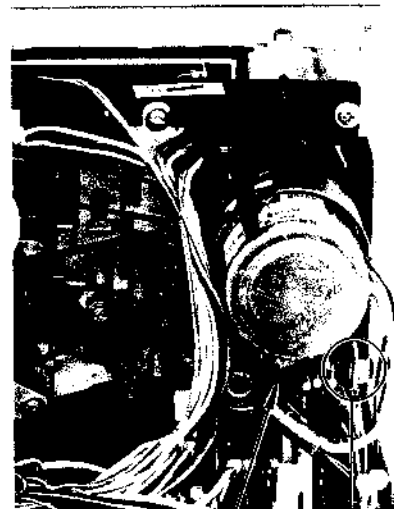
Adjust RV602 to obtain the specified values below.

##### Specification:

Speed checker	Digital frequency counter
-0.8 to +1 %	2,975 to 3,030 Hz

Frequency difference between beginning and end of tape should be within 1 % (30 Hz).

##### Adjustment Location:



servo amp board      RV602

# HST-89A

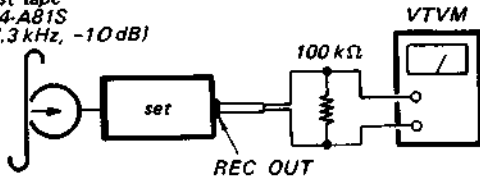
## CASSETTE RECORDER

### Record/playback Head Azimuth Adjustment

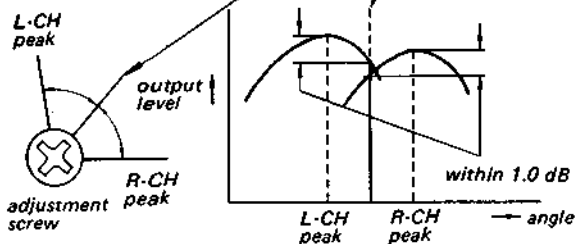
#### Procedure:

1. Mode: playback

test tape  
P-4-A81S  
(6.3 kHz, -10 dB)

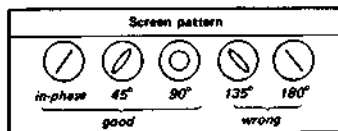
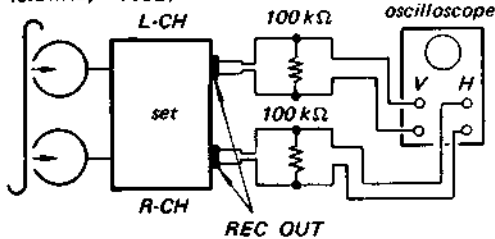


2. Turn the adjustment screw for the maximum level and set it to the mechanical mid position between L-CH and R-CH peak position.

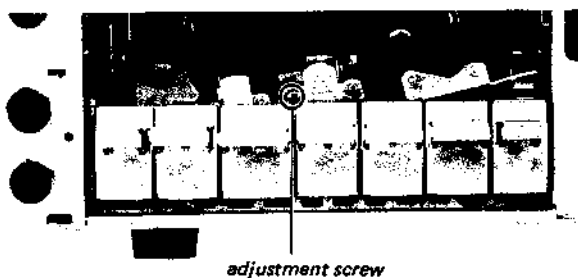


3. Mode: playback

test tape  
P-4-A81S  
(6.3 kHz, -10 dB)



#### Adjustment Location:

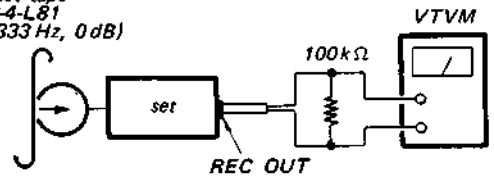


### Playback Level Adjustment

#### Procedure:

1. Mode: playback

test tape  
P-4-L81  
(333 Hz, 0 dB)



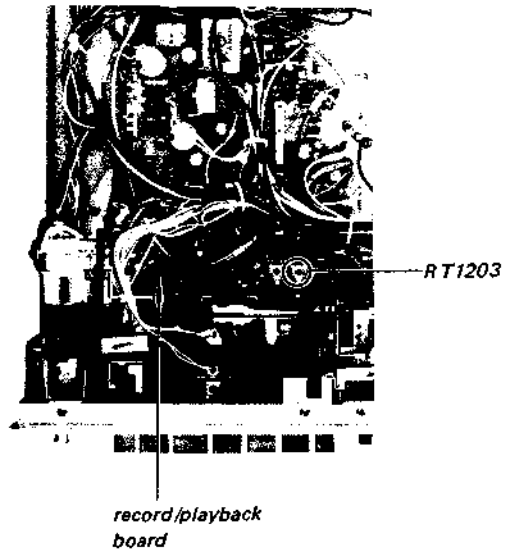
Adjust RT1203 to make the R-CH output signal level equal to the L-CH's.

#### Specification:

Level difference between channels:

less than 0.2 dB

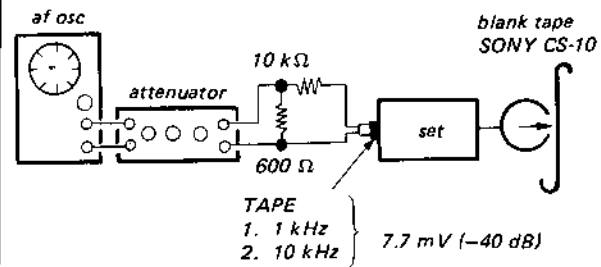
#### Adjustment Location:



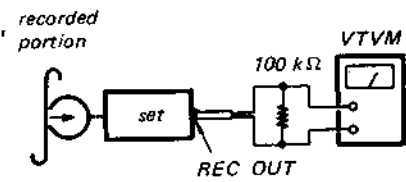
**Record Bias Adjustment**

**Procedure:**

1. Mode: standard record (See page 39.)



2. Mode: playback



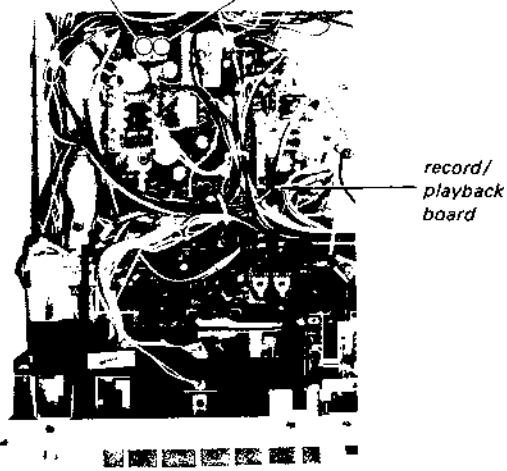
Adjust CT1101 (L-CH) and CT1201 (R-CH) to make 10 kHz and 1 kHz signal output levels equal.

**Specifications:**

- 10 kHz signal output level: -3 to +0.5 dB (at this time 1 kHz signal output level is 0 dB)
- Level difference between channels: less than 3 dB

**Adjustment Location:**

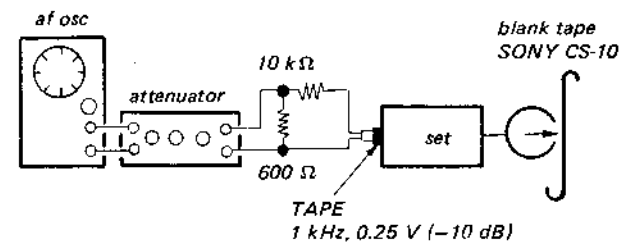
CT1101 (L-CH) CT1201 (R-CH)



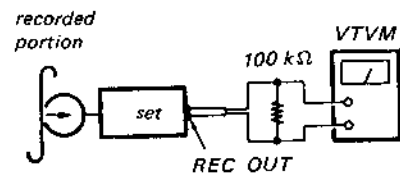
**Record Level Adjustment**

**Procedure:**

1. Mode: standard record (See page 39.)



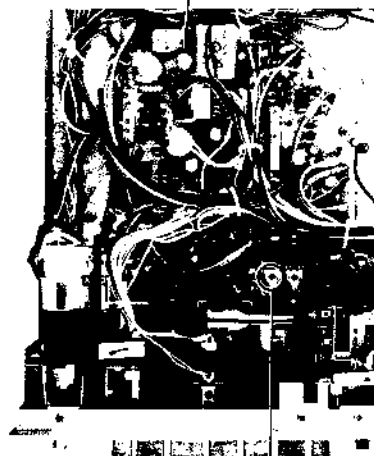
2. Mode: playback



Adjust RT1202 to make the R-CH output signal level equal to the L-CH's.

**Adjustment Location:**

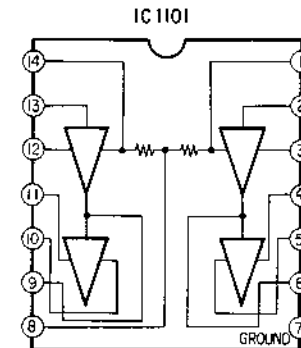
record/playback board



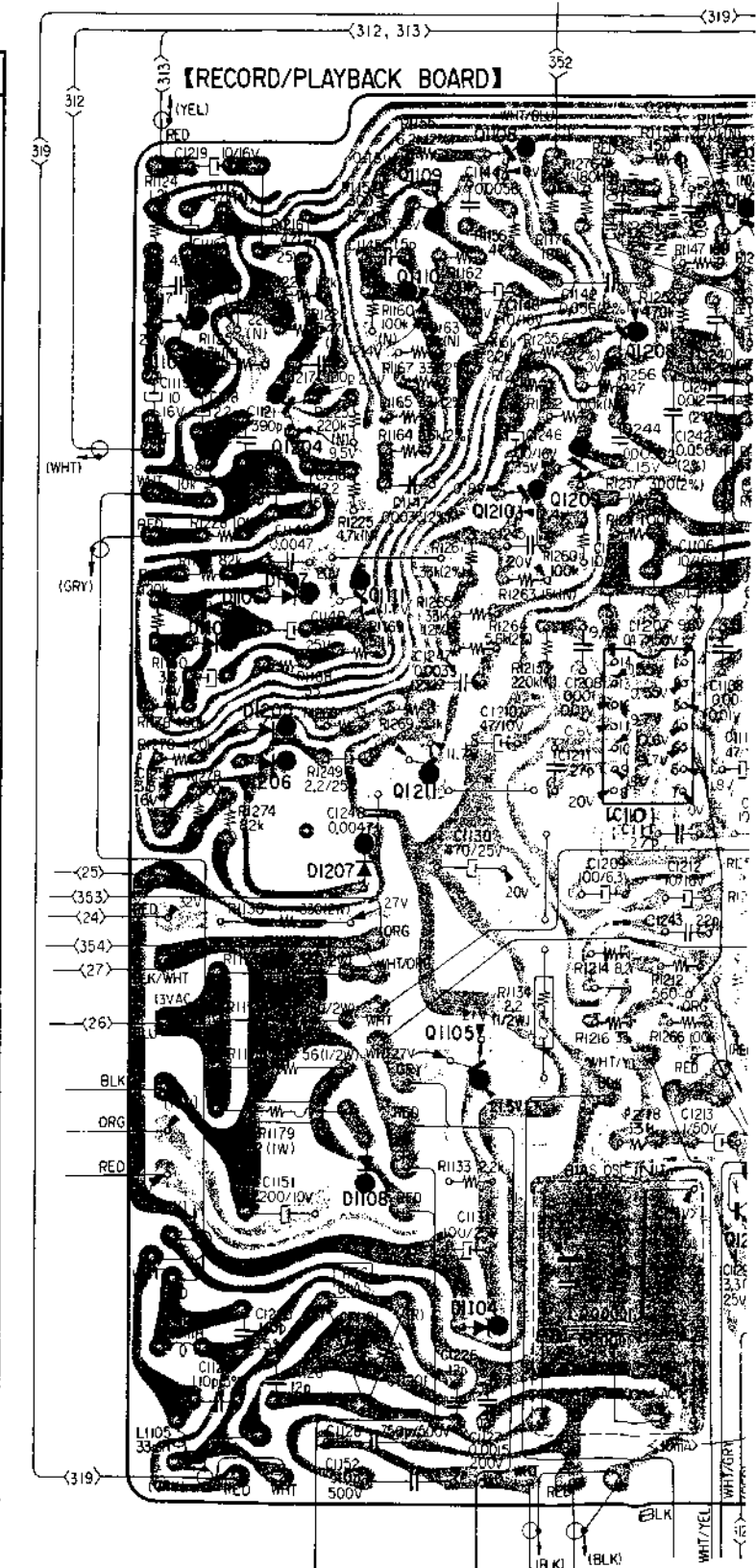
RT1202

**4-1. MOUNTING DIAGRAM - Record/Playback Board -**

- Conductor Side -



Q, IC	D
1108	
1109	1107
1110	1207
1104	1208
	1206
1204	
	1209
1210	1106
	1107
1111	1106
1202	1105, 1201
1102	1205, 1101
1211	1102
	1206
	1207
1101	
1105	1201
	1108
1203	
	1103
	1104
	1203







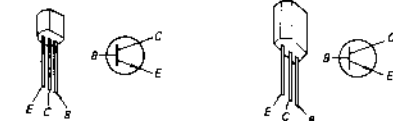
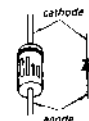
### 4-2. MOUNTING DIAGRAM --Record/playback board -- -- Component Side --

#### Replacement Semiconductors

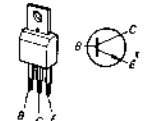
For replacement, use semiconductor except in ( ).

Q1101, 1106, 1107  
Q1201, 1206, 1207 : 2SC1362 (2SC632A)  
Q1102 - 1104  
Q1202 - 1204  
Q1108 - 1111 : 2SC1364 (2SC634A)  
Q1208 - 1211  
Q601, 602 : 2SC1364 (2SC633A)

D1104: EQB01-21 (EQA01-21R)

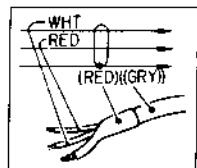


Q603: 2SC1761

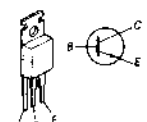


#### Note:

- Color code of sleeving over the end of the jacket.

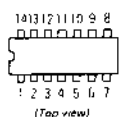


Q1105: 2SC1173



- (F) : fusible resistor.
- (B+) : B+ pattern.

IC1101: LA3122

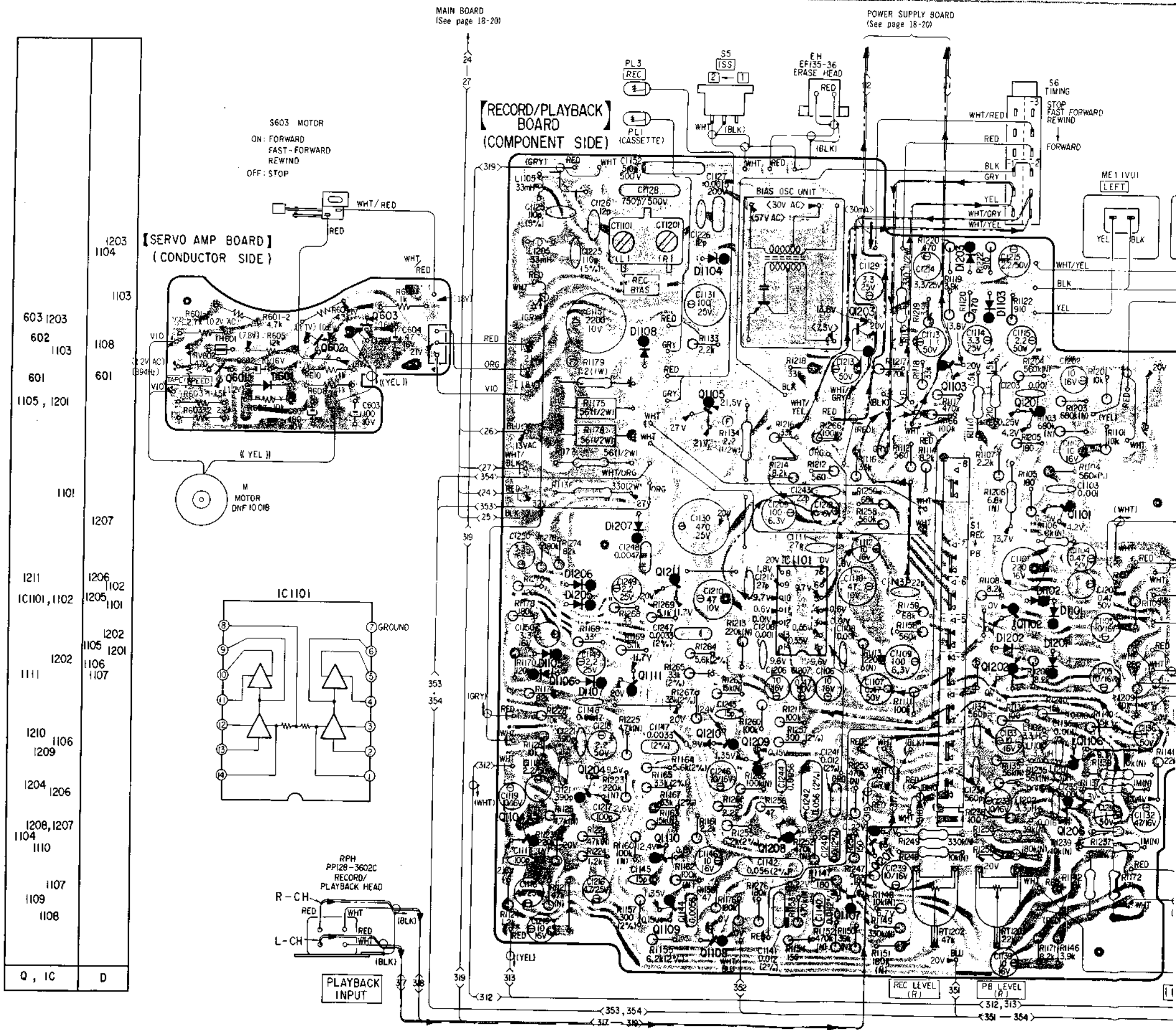
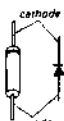


- Signal Path
  - : COMMON
  - - - : L-CH
  - · - · : R-CH
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20 kΩ/V).
  - ( ) : FORWARD
  - < > : RECORD
  - no mark: FM
- AC voltage readings in the bias oscillator circuit are taken with a VTVM.
- Voltage variations may be noted due to normal production tolerances.

D1101, 1201: VO9C (VO6C)



D601  
D1102, 1202 : 1S1555 (1T40)  
D1105, 1205  
D1107, 1207 : 1S1555  
D1103, 1203  
D1106, 1206 : 1T22AM (1T22A)  
D1108: 10E2

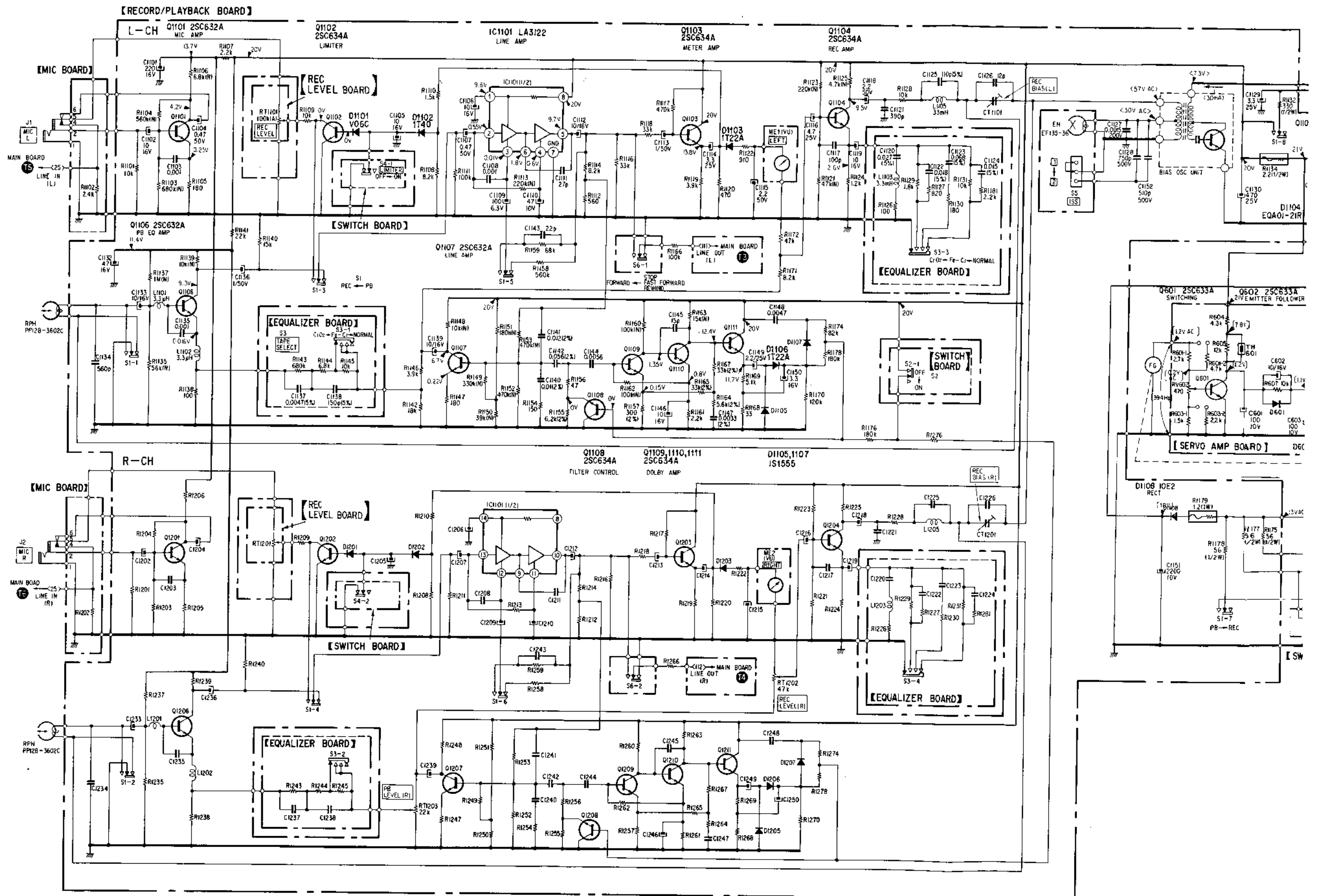


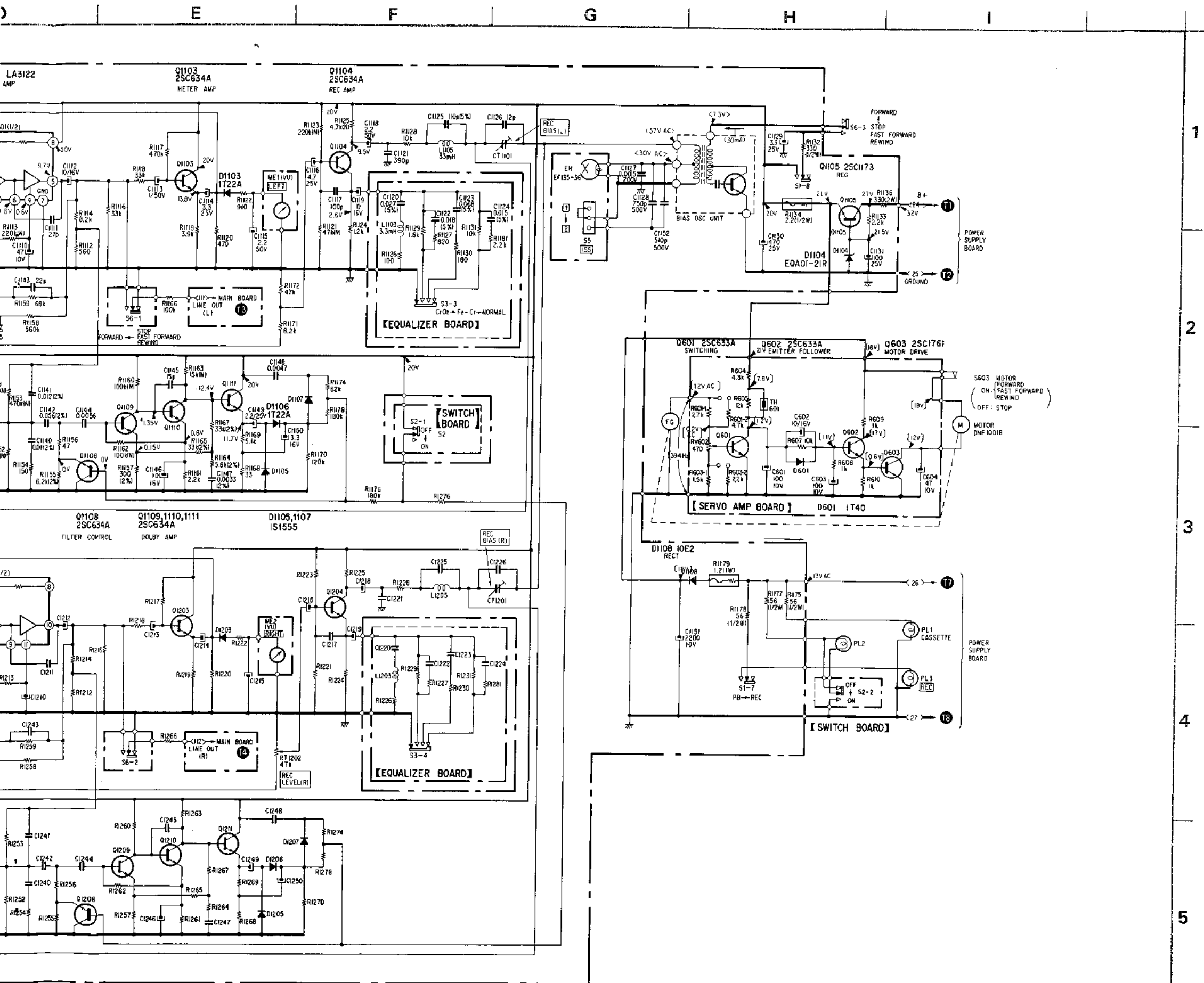


4.3. SCHEMATIC DIAGRAM

A B C D E F G H

1  
2  
3  
4  
5





**Note:**

- Components for right channel have same values as for left channel.
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\mu\text{F}$ . 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms,  $\frac{1}{4}\text{W}$  unless otherwise noted.  $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{k}\Omega$ .
- : fusible resistor.
- (N) : low-noise resistor.
- 2% or 5% indicates component tolerance.
- : B+ bus.
- : panel designation.
- : adjustment for repair.
- PB: PLAYBACK  
REC: RECORD
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20  $\text{k}\Omega/\text{V}$ ).
- ( ) : FORWARD  
< > : RECORD  
no mark: FM
- AC voltage readings in the bias oscillator circuit are taken with a VTVM.
- Voltage variations may be noted due to normal production tolerances.
- Switch

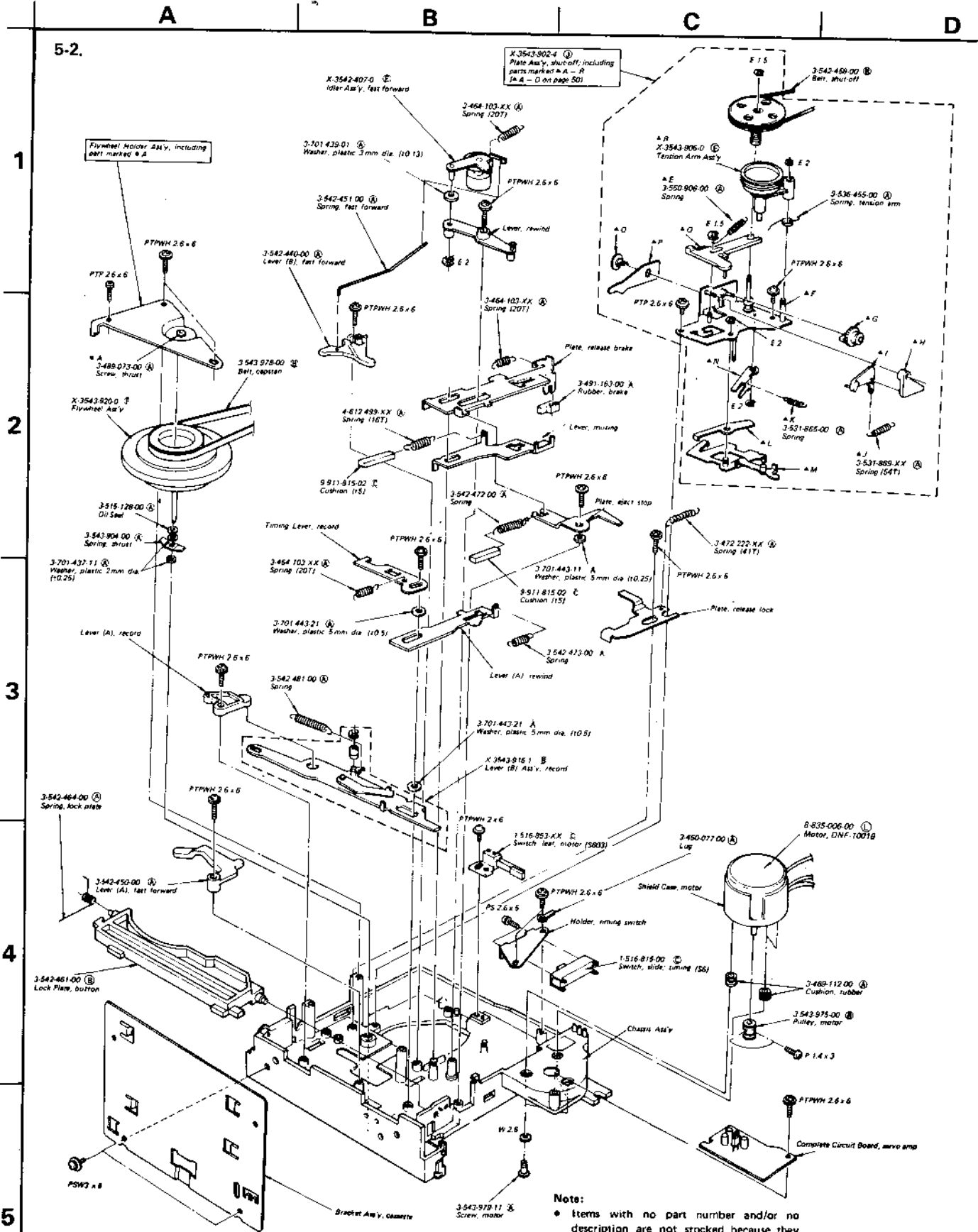
Ref.	Switch	Position
S1-1 to 1-8	RECORD/PLAYBACK	PLAYBACK
S2-1, 2	DOLBY NR	OFF
S3-1 to 3-4	TAPE SELECT	NORMAL
S4-1, 2	LIMITER	OFF
S5	ISS	1
S6-1 to 6-3	TIMING	STOP
		FAST FORWARD
		REWIND
S603	MOTOR	OFF



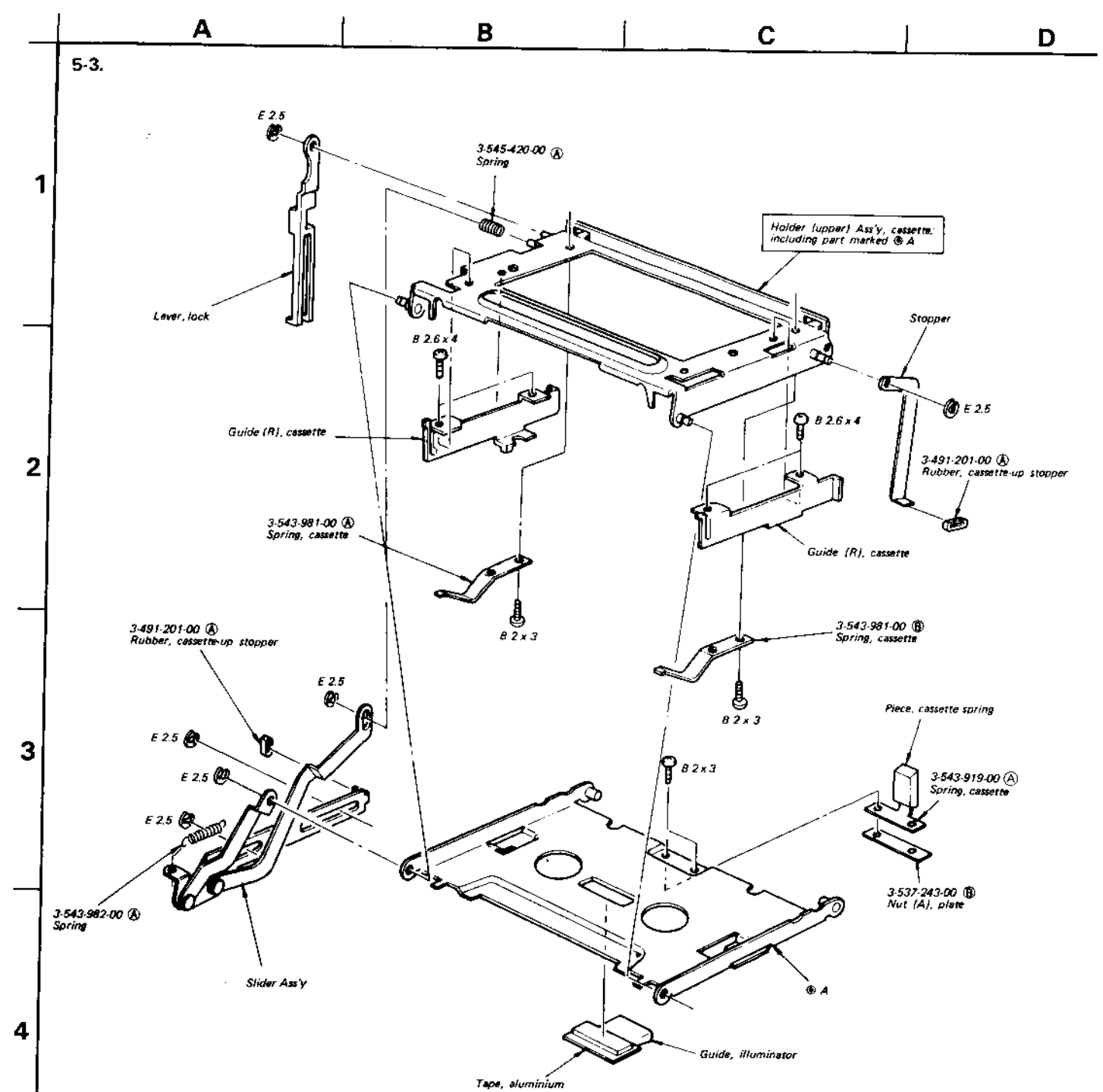
# HST-89A HST-89A

## CASSETTE RECORDER CASSETTE RECORDER

5-2.



5-3.



### SECTION 6 ELECTRICAL PARTS LIST

Note: Circled letters (A) to (Z) are applicable to European models only.

Ref. No.   Part No.   Description

#### SEMICONDUCTORS

##### Transistors

⇒ Q1101,1201	8-729-665-47	ⓐ	2SC1362
⇒ Q1102-1104	8-729-663-47	ⓐ	2SC1364
⇒ Q1202-1204			
Q1105	8-729-217-33	ⓒ	2SC1173
⇒ Q1106,1107	8-729-665-47	ⓐ	2SC1362
⇒ Q1206,1207			
⇒ Q1108-1111	8-729-663-47	ⓐ	2SC1364
⇒ Q1208-1211			
⇒ Q601,602	8-729-663-47	ⓐ	2SC1364
Q603	8-763-113-00	ⓒ	2SC1761

##### IC

IC1101	8-759-831-22	ⓐ	LA3122
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##### Diodes

⇒ D601	8-719-815-55	ⓐ	1S1555
⇒ D1101, 1201	8-719-900-93	ⓐ	VO9C
⇒ D1102,1202	8-719-815-55	ⓐ	1S1555
⇒ D1103,1203	8-719-422-21	ⓐ	1T22AM
⇒ D1104	8-719-931-21	ⓐ	EQB01-21
D1105,1205	8-719-815-55	ⓐ	1S1555
⇒ D1106,1206	8-719-422-21	ⓐ	1T22AM
D1107,1207	8-719-815-55	ⓐ	1S1555
D1108	8-719-200-02	ⓐ	10E2

##### Thermistor

TH601	1-800-200-00	ⓐ	S-3K
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##### COILS

L1101,1201	1-407-184-XX	ⓐ	Microinductor, 3.3μH
L1102,1202			
L1103,1203	1-407-200-XX	ⓐ	Microinductor, 3.3mH
L1105,1205	1-407-212-XX	ⓐ	Microinductor, 33mH

• ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No.   Part No.   Description

#### CAPACITORS

All capacitors are in μF and electrolytic unless otherwise noted. 50WV or less are not indicated except for electrolytics and tantalum.

C601	1-121-414-11	ⓐ	100	10V	
C602	1-121-651-11	ⓐ	10	16V	
C603	1-121-414-11	ⓐ	100	10V	
C604	1-121-409-11	ⓐ	47	10V	
C1101	1-123-068-11	ⓐ	220	16V	
C1102,1202	1-121-916-11	ⓐ	10	16V	
C1103,1203	1-102-074-11	ⓐ	0.001		ceramic
C1104,1204	1-121-726-11	ⓐ	0.47	50V	
C1105,1205	1-121-651-11	ⓐ	10	16V	
C1106,1206	1-121-651-11	ⓐ	10	16V	
C1107,1207	1-121-726-11	ⓐ	0.47	50V	
C1108,1208	1-102-074-11	ⓐ	0.001		ceramic
C1109,1209	1-121-414-11	ⓐ	100	6.3V	
C1110,1210	1-121-352-11	ⓐ	47	10V	
C1111,1211	1-102-961-11	ⓐ	27p		ceramic
C1112,1212	1-121-651-11	ⓐ	10	16V	
C1113,1213	1-121-391-11	ⓐ	1	50V	
C1114,1214	1-121-392-11	ⓐ	3.3	25V	
C1115,1215	1-121-450-11	ⓐ	2.2	50V	
C1116,1216	1-121-395-11	ⓐ	4.7	25V	
C1117,1217	1-102-106-11	ⓐ	100p		ceramic
C1118,1218	1-121-450-11	ⓐ	2.2	50V	
C1119,1219	1-121-651-11	ⓐ	10	16V	
C1120,1220	1-108-359-12	ⓐ	0.027		mylar
C1121,1221	1-102-113-11	ⓐ	390p		ceramic
C1122,1222	1-108-358-12	ⓐ	0.018		mylar
C1123,1223	1-108-599-12	ⓐ	0.068		mylar
C1124,1224	1-108-240-12	ⓐ	0.015		mylar
C1125,1225	1-102-949-11	ⓐ	110p		ceramic
C1126,1226	1-102-959-11	ⓐ	12p		ceramic
C1127	1-108-411-12	ⓐ	0.0015	200V	mylar
C1128	1-107-258-11	ⓐ	750p	500V	silvered mica
C1129	1-121-392-11	ⓐ	3.3	25V	
C1130	1-121-940-11	ⓐ	470	25V	

# HST-89A

## CASSETTE RECORDER

Note: Circled letters (A to Z) are applicable to European models only.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	
C1131	1-121-416-11	ⓑ 100	25V
C1132	1-121-409-11	Ⓐ 47	16V
C1133,1233	1-121-916-11	ⓑ 10	16V
C1134,1234	1-102-115-11	Ⓐ 560p	ceramic
C1135,1235	1-102-074-11	Ⓐ 0.001	ceramic
C1136,1236	1-121-391-11	Ⓐ 1	50V
C1137,1237	1-108-234-12	Ⓐ 0.0047	mylar
C1138,1238	1-101-361-11	Ⓐ 150p	ceramic
C1139,1239	1-121-651-11	Ⓐ 10	16V
C1140,1240	1-129-701-11	ⓑ 0.01	polyethylene
C1141,1241	1-129-896-11	ⓑ 0.012	polyethylene
C1142,1242	1-129-899-11	ⓑ 0.056	polyethylene
C1143,1243	1-102-959-11	Ⓐ 22p	ceramic
C1144,1244	1-108-355-12	Ⓐ 0.0056	mylar
C1145,1245	1-102-956-11	Ⓐ 15p	ceramic
C1146,1246	1-121-651-11	Ⓐ 10	16V
C1147,1247	1-129-794-11	ⓑ 0.0033	polyethylene
C1148,1248	1-108-234-12	Ⓐ 0.0047	mylar
C1149,1249	1-131-205-11	ⓑ 2.2	25V tantalum
C1150,1250	1-131-197-11	ⓑ 3.3	16V tantalum
C1151	1-123-074-11	ⓑ 2200	10V
C1152	1-107-201-11	Ⓐ 510p	500V silvered mica
CT101,1201	1-141-127-00	ⓑ Trimmer	

### RESISTORS

All resistors are in ohms. Common 1/4W carbon resistors are omitted. Check schematic diagram for values.

RV602	1-221-663-11	ⓑ 2k-B, adjustable; tape speed
R1132	1-102-561-11	Ⓐ 330 1/2W composition
R1134	1-212-942-11	Ⓐ 2.2 1/2W fusible
R1136	1-206-652-11	Ⓐ 330 2W metal oxide
R1175,1177	1-202-543-11	Ⓐ 56 1/2W composition
R1178		
⇒ R1179	1-217-469-11	ⓑ 1 1W fusible
RT1101, RT1201	1-226-003-00	ⓑ 100k-A, variable; REC LEVEL
RT1202	1-224-647-XX	ⓑ 47k-B, adjustable; REC LEVEL
RT1203	1-224-646-XX	ⓑ 22k-B, adjustable; PB LEVEL

• ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
<b>SWITCHES</b>		
S1	1-514-976-XX	Ⓒ Slide, REC/PB
S2	1-516-813-00	Ⓓ Pushbutton, DOLBY NR
S3	1-552-076-00	Ⓒ Lever Slide, TAPE SELECT
S4	1-516-813-00	Ⓓ Pushbutton, LIMITER
S5	1-506-373-00	ⓑ Short-plug, ISS
	1-551-093-00	Ⓒ Lead with connector, ISS
S6	1-516-815-00	Ⓒ Slide, timing
S603	1-516-853-XX	Ⓒ Leaf, motor

### MISCELLANEOUS

EH	8-825-506-00	Ⓒ Head, erase; EF135-36
J1, 2	1-507-490-00	ⓑ Jack, MIC
M	8-835-006-00	Ⓓ Motor, DNF1001B
ME1, 2	1-520-283-00	Ⓓ Meter, VU
PL1-3	1-518-115-XX	ⓑ Lamp, cassette; DOLBY NR, REC
RPH	8-829-236-23	Ⓓ Head, record/playback; PP128-3602C
	1-464-005-00	Ⓓ Unit, bias osc

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9-958-523-01

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