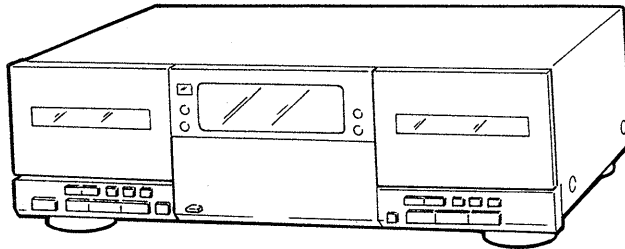


TC-WR890

SERVICE MANUAL

AEP Model



* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	TC-WR870
Tape Transport Mechanism Type	TCM-200R5

SPECIFICATIONS

Recording system 4-track 2-channel stereo
Fast winding time Approx. 90 sec. (with Sony C-60 cassette)
Bias AC bias
Signal-to-noise ratio (at peak level)

Cassette (Dolby NR OFF)	Type IV (Sony Metal-S)	Type II (Sony UX-S)	Type I (Sony HF-S)
	59 dB	58 dB	56dB

Measured at peak level weighted without NR.
The S/N is improved by about 15 dB at 500 Hz and by about 20 dB about 1 kHz with Dolby-C NR on, and by 5 dB at 1 kHz and by 10 dB about 5 kHz with Dolby-B NR on.

Harmonic distortion 0.4% (with Sony Type I, 160 nWb/m, 315 Hz, 3rd H.D.)
1.8% (with Sony Type IV, 250 nWb/m, 315 Hz, 3rd H.D.)

Frequency response (DOLBY NR OFF)

Type IV cassette (Sony Metal-S)	25 - 19,000 Hz (± 3 dB, IEC) 30 - 15,000 Hz (± 3 dB (-4 dB) recording]
Type II cassette (Sony UX-S)	25 - 18,000 Hz (± 3 dB, IEC)
Type I cassette (Sony HF-S)	25 - 16,000 Hz (± 3 dB, IEC)

Wow and flutter $\pm 0.09\%$ W.Peak (IEC)
0.06% W.RMS (NAB)
 $\pm 0.16\%$ W.Peak (DIN)

Inputs

Line inputs (phono jacks)	Sensitivity	0.16 V
	Input impedance	47 kilohms

Outputs

Line outputs (phono jacks)	Rated output level	0.5 V at a load impedance of 47 kilohms
	Load impedance	Over 10 kilohms
Headphones (stereo phone jack)	Output level	0 — 3 mW at a load impedance of 32 ohms

General

Power requirements

220 - 230 V AC, (or 240 V AC adjustable by Sony personnel), 50/60 Hz

Power consumption

30 W

Dimensions

430 x 135 x 350 mm (w/h/d)
(17 x 5 $\frac{3}{8}$ x 13 $\frac{7}{8}$ inches) including projecting parts and controls

Weight

6.5 kg (14 lbs 6 oz)

Supplied accessories

Audio connecting cords (2)

Wireless remote commander RM-J903 (1)

Sony size SUM-3(NS) (2)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

STEREO CASSETTE DECK
SONY[®]

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
Specification		1
Features		2
1. GENERAL		
Identifying the Parts		3
2. DISASSEMBLY		5
3. ADJUSTMENTS		
3-1. Mechanical Adjustment		8
3-2. Electrical Adjustment		8
4. DIAGRAMS		
4-1. Semiconductor Lead Layout		12
4-1-1. Circuit Boards Location		15
4-2. Printed Wiring Boards		16
4-3. Schematic Diagram		21
4-4. Semiconductor Lead Layouts		24
5. EXPLODED VIEWS		29
6. ELECTRICAL PARTS LIST		33

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  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.

Features

For higher quality recording/playback

- **The Dolby HX PRO* system** which improves the linearity of the tape's high-range response during recording.
- **Independent B and C type Dolby NR* systems on each deck** which allow the free selection of Dolby systems on each deck during Simultaneous Recording, Relay Recording, or normal-speed dubbing.
- **Independent bias calibration on each deck** to achieve the optimum bias current setting for any tape.

For your convenience

- **Quick reversing** at the end of a tape to minimize interruptions during playback and recording.
- **Automatic tape type detection** during playback and recording.
- **The Multi-AMS, Blank Skip and Memory Play functions** which provide easy access to a desired selection.
- **A relay function** for long recording and playback.
- **Auto play function** which automatically starts playback after tape rewinding to start.
- **Timer-activated playback and recording** through the use of an optional timer.
- **Synchronized dubbing** at normal or high speed.
- **Simultaneous Recording function** for the simultaneous recording of the same source to cassettes in both decks.
- **A dubbing level control** which allows the dubbing volume level to be varied during normal-speed dubbing.
- **A tape speed control** for varying the tape speed (on deck A) during playback and normal-speed dubbing.

For easier operation

- **Twin easy-to read digital linear counters** which show the elapsed recording or playing time on each deck.

Identifying the parts

Identifying the Parts

Front Panel

For details, refer to the page number indicated in parenthesis.

- (Continued from previous page.)
- 9 OPEN/CLOSE button (deck B)
 - 10 Front cover
 - 11 OPEN/CLOSE button (deck A)
 - 12 TAPE SPEED control and button (26)
 - 13 BLANK SKIP button (30)
 - 14 DUBBING LEVEL control (66)
 - 15 AUTO PAUSE button (70)
 - 16 BIAS controls (46)
 - 17 A-B REC (simultaneous recording) button (52)
 - 18 REC (recording) LEVEL control (38,44)
 - 19 BALANCE control (38)
 - 20 MPX FILTER switch (46)
 - 21 DOLBY NR (Dolby noise reduction) switches (22,28,38,52,56,66)
 - 22 DIR (direction) MODE switch (22,28,38,52,56,66)
 - 23 SYNCHRO DUBBING buttons (66)
 - 24 HIGH SPEED button
 - 25 NORM (normal) SPEED button
 - 26 TIMER switch (72)
 - 27 Headphone LEVEL control (24)
 - 28 PHONES (headphones) jack (stereo phone jack)

SECTION 1
GENERAL

This section is extracted from instruction manual.

Identifying the Parts

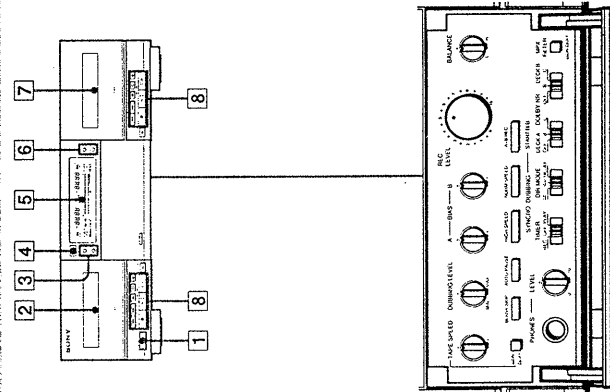
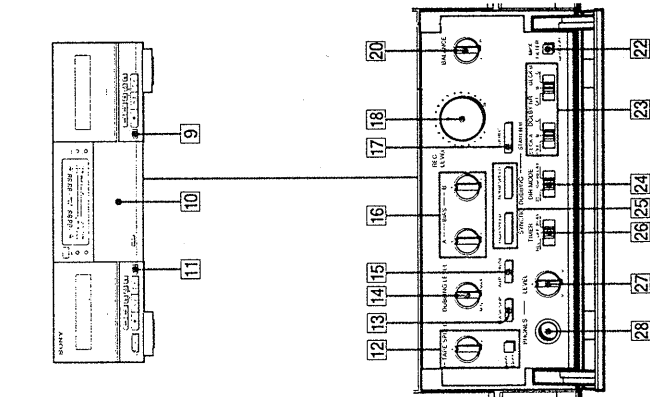
Front Panel

For details, refer to the page number indicated in parenthesis.

- 1 POWER switch
- 2 Deck A
- 3 COUNTER buttons (deck A) (36)
- 4 RESET button
- 5 MEMORY button
- 6 Remote control sensor
- 7 You can remotely control this cassette deck with:
 - The supplied remote commander
 - A remote commander that came with a Sony amplifier or receiver if it has the  mark and cassette deck control capability.
 - Any optional Sony remote commander with the  mark and cassette deck control capability.
- 8 Display panel
- 9 COUNTER buttons (deck B) (36)
- 10 RESET button
- 11 MEMORY button
- 12 Deck B
- 13 Tape operation buttons
 - (stop) button
 - ▶ (reverse play) button
 - ▶ (forward play) button
 - ◀ (leftward fast winding) (Multi-AMS*) button
 - ▶ (rightward fast winding) (Multi-AMS*) button
 - AMS* button
 - PAUSE button
 - REC MUTE (record muting) button (58)
 - REC (recording) button

* AMS is an abbreviation for Automatic Music Sensor.

(Continued on next page.)

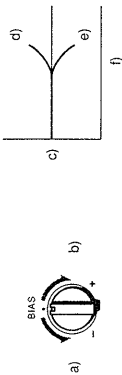




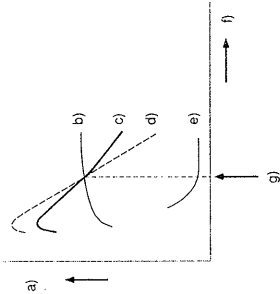
Recording FM Broadcasts with the Dolby NR System

When recording FM broadcasts with DOLBY NR system, set the MPX FILTER switch to ON. The MPX filter eliminates remnants of the 19 kHz stereo carrier and 38 kHz subcarrier signals which may impair the operation of the DOLBY NR system. Be sure that the DOLBY NR switch is turned on since the MPX filter will not function otherwise. During recording with the Dolby NR system, use this switch only if the tuner is not equipped with its own MPX filter or the equipped filter does not function effectively.

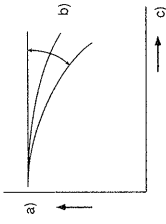
A



A



B



What is the Dolby HX PRO system?

The Dolby HX PRO system provides linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.

As shown in Fig. A, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current.

- Fig. A .
- a) Distortion output
 - b) 315 Hz
 - c) 6.3 kHz
 - d) 10 kHz
 - e) 315 Hz distortion
 - f) Bias current
 - g) Established bias current
- In conventional systems (see Fig. B), the bias current is susceptible to variations in certain recording signals which may cause fluctuations in frequency response, distortion, or other unwanted characteristics.

- Fig. B .
- a) Output
 - b) Fluctuation
 - c) Frequency

With the Dolby HX PRO system, the effective bias amount added to the bias current is controlled in millisecond units to greatly reduce distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

Adjusting the Bias According to the Tape Type

To obtain the optimum frequency response, use the BIAS control to adjust the bias current according to the tape type being used. Reducing the bias boosts high frequencies but increases distortion. Increasing the bias decreases distortion but suppresses high frequencies. Balance the bias according to your listening preference.

Fig. A shows the BIAS control and a high-frequency response balance chart.

- a) Bias reduced (high frequencies boosted)
- b) Bias increased (high frequencies suppressed)

- c) Output (level in dB)
- d) Bias reduced (-)
- e) Bias increased (+)
- f) Frequency in Hz

Note

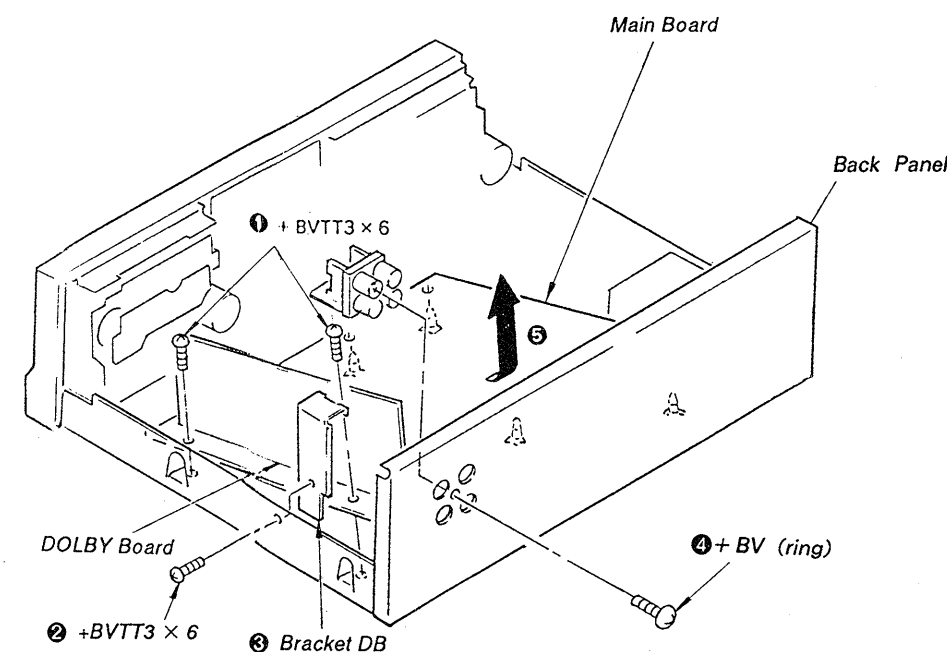
In the case of Type IV cassette tapes, the frequency change for any given bias setting will be minimal.

SECTION 2 DISASSEMBLY

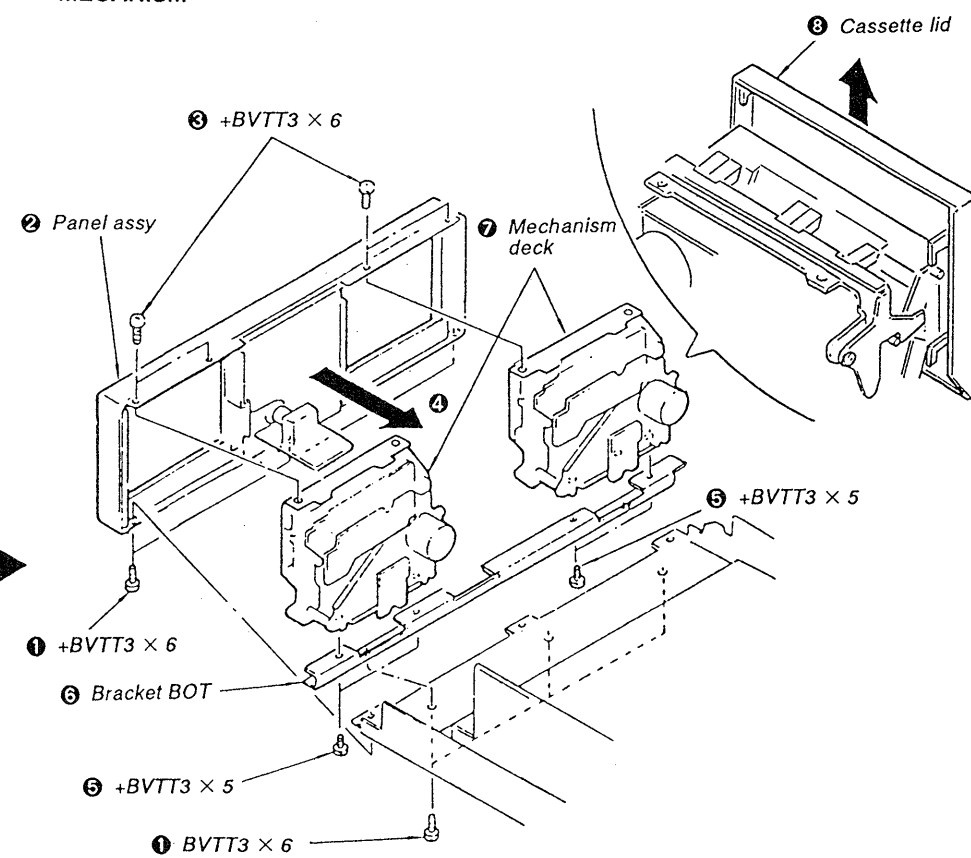
Note: Follow the disassembly procedure in the numerical order given.

Unscrew four screws (M3 × 8)
and remove the upper case.

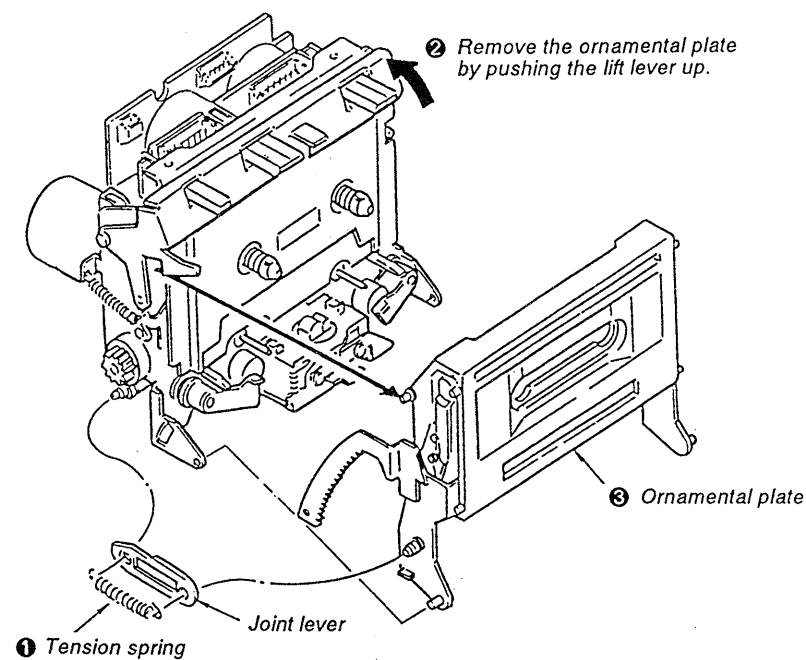
DOLBY BOARD, MAIN BOARD



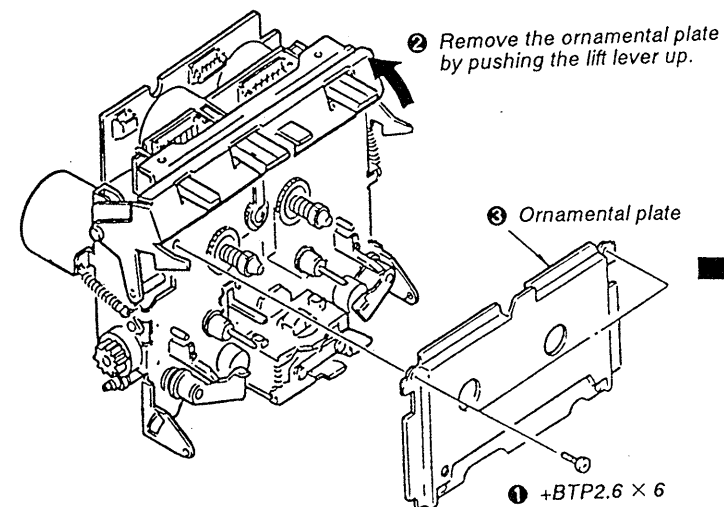
MECANISM



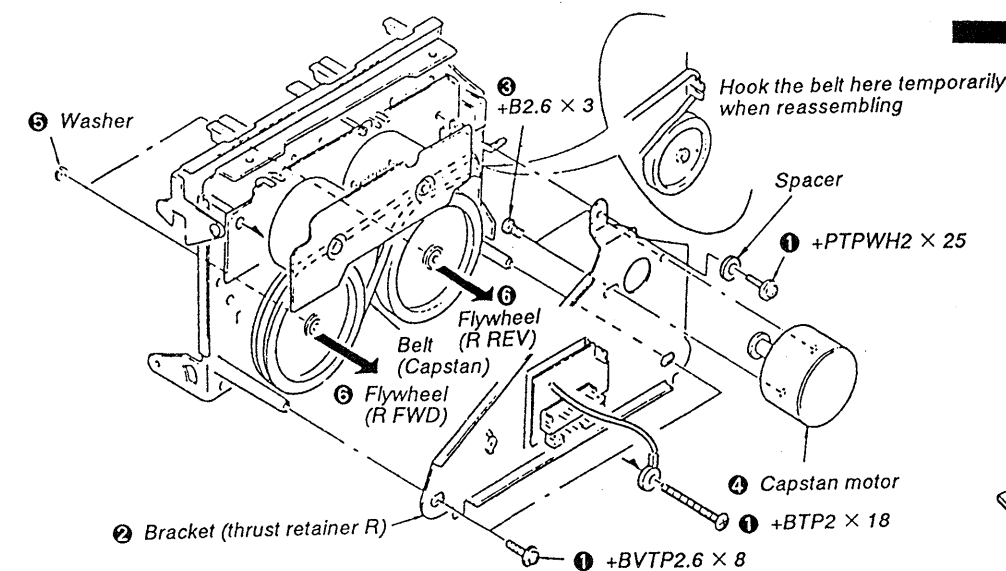
CASSETTE HOLDER



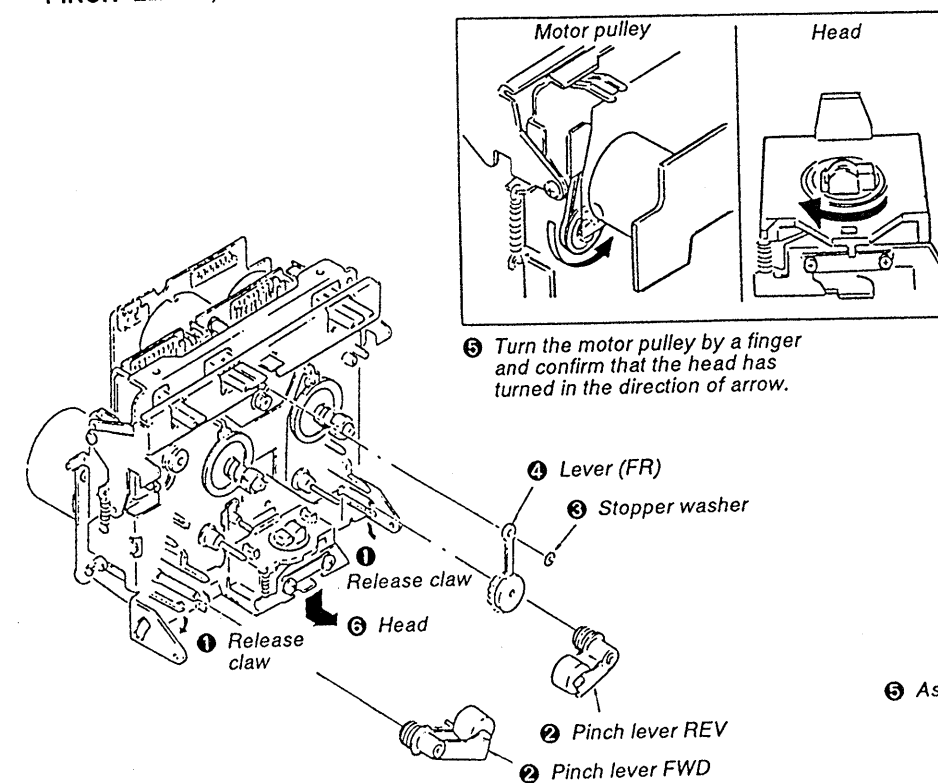
ORNAMENTAL PLATE



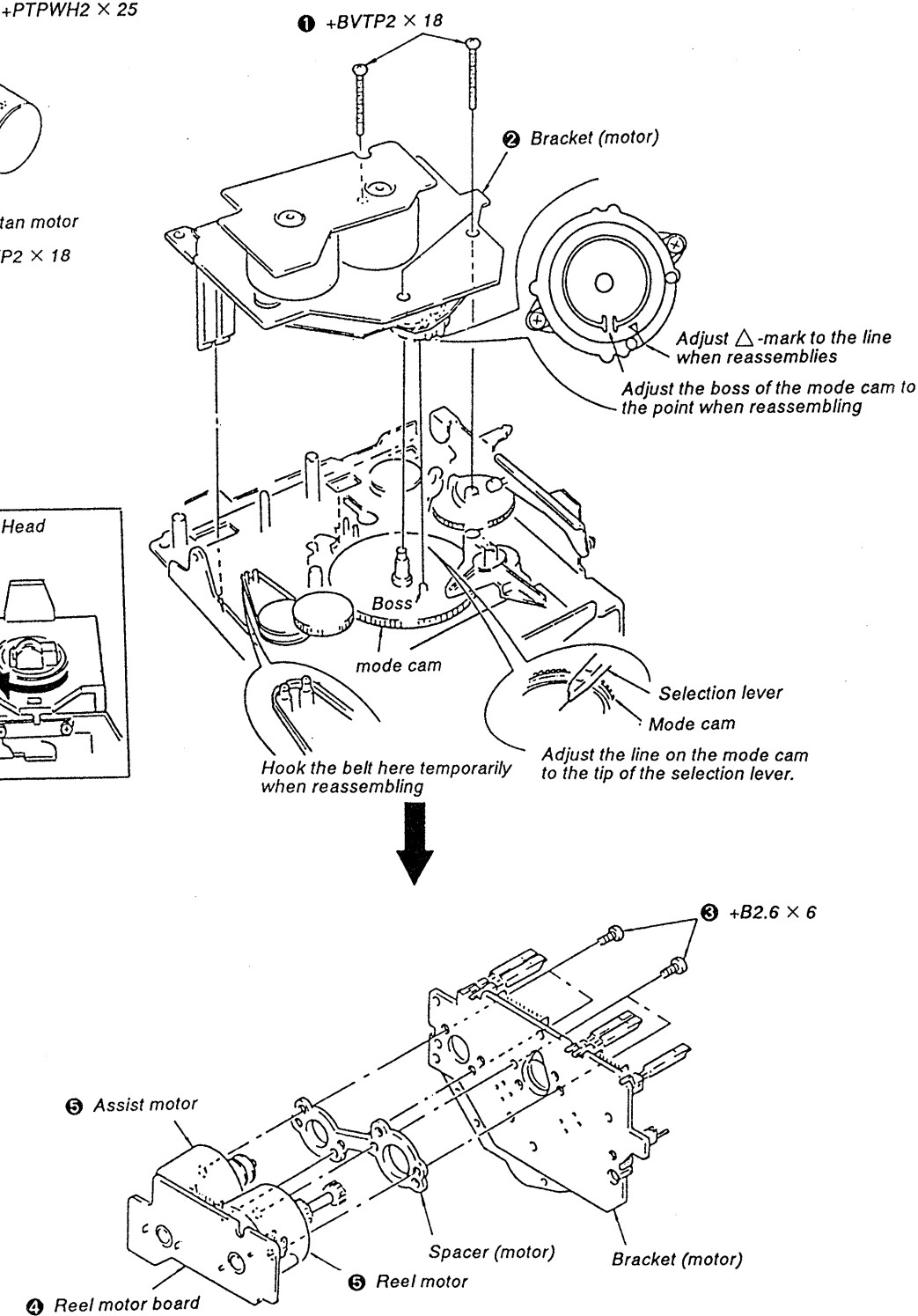
CAPSTAN PLATE, FLYWHEEL



PINCH LEVER, HEAD



REEL AND ASSIST MOTORS



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	idler
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 in the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30-60g·cm (0.42-0.83oz·inch)
FWD Back tension	CQ-102C	1-5g·cm (0.014-0.063oz·inch)
REV	CQ-102RC	30-60g·cm (0.42-0.83oz·inch)
REV Back tension	CQ-102RC	1-5g·cm (0.014-0.063oz·inch)
FF, REW	CQ-201B	65-90 g·cm (0.90-1.25 oz·inch)

3-2. ELECTRICAL ADJUSTMENT

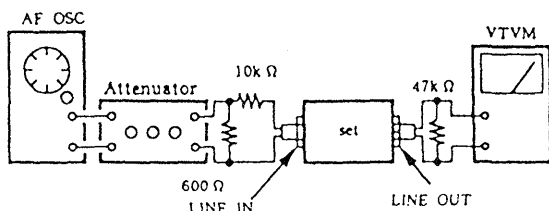
Note : The adjustment should be performed in the order given in the service manual. As a rule, adjustments about playback should be performed before those about recording. The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch	: OFF
DIRECTION switch	: $\Rightarrow$
TIMER switch	: OFF
MPX FILTER switch	: OFF

- Standard Record :
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

-Record Mode-



0 dB = 775mV

Standard Input Level

input terminal	LINE IN
source impedance	10k Ω
input level	0.5V (-3.8dB)

Standard Output Level

output terminal	LINE OUT
load impedance	47k Ω
output level	0.5V (-3.8dB)

Test tape

Type	Signal	Used for
P-4-A100	10kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

The set will get into TEST MODE by shorting the pins of TP801 (TEST) on Main board before turning the power on, and TEST MODE functions as follows :

1. High speed playback
Pressing HIGH SPEED (DUBBING) button while playback changes to high speed playback and another press of the button returns the set to normal speed playback.
2. Record memory stop
When starting recording, tape counter is reset to zero and counter memory turned on.

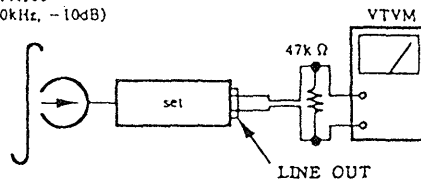
Record/Playback Head Azimuth Adjustment

DECK A DECK B

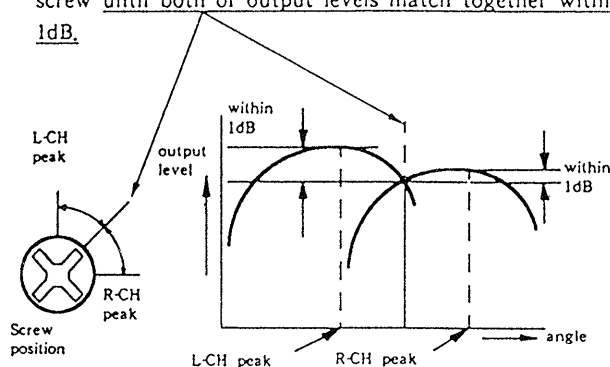
Procedure :

1. Mode : FWD playback

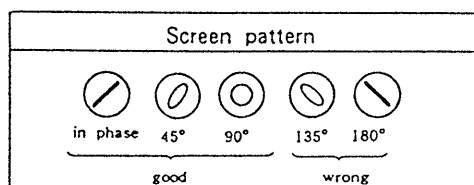
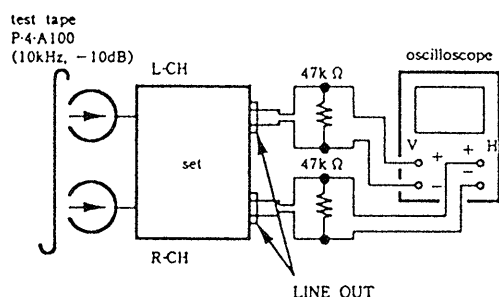
Test tape
P-4-A100
(10kHz, -10dB)



- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.

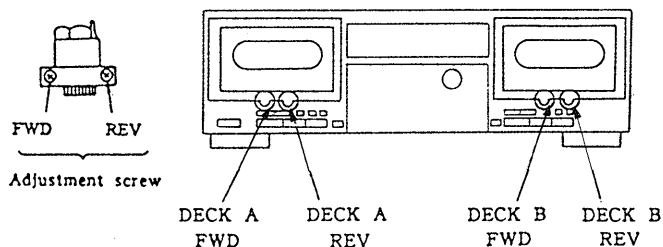


- Phase Check
Mode : playback



- Set in the REV mode and repeat the step 1-3.
- After the adjustment, lock the screws with locking compound.

Adjustment Location : Record/Playback head

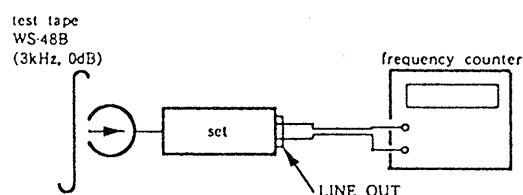


Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback

Perform high speed adjustment before normal speed adjustment



(high speed adjustment)

- Short test pin TP801 (TEST) on Main board.
- Set to FWD playback mode.
- Press the HIGH SPEED DUBBING switch.
- Adjust RV871 (DECK A) and RV881 (DECK B) on Main board so that the frequency counter reading becomes $6,000 \pm 30\text{Hz}$.
- After adjustment, disconnect TP801 shorted in step 1.

(normal speed adjustment)

- Set to FWD playback mode.
- Adjust RV872 (DECK A) and RV882 (DECK B) on Main board so that the frequency counter reading becomes $3,000 \pm 15\text{Hz}$.

Frequency difference between the beginning and the end of the tape should be within 5%.

Frequency difference between deck A and deck B should be within 20 Hz (high speed) or 10 Hz (normal speed).

Adjustment Location: Main board

Pitch Control Speed Adjustment DECK A

- Set TAPE SPEED (RV901) to the center and turn on S902.
- Play back DECK A FWD and adjust RV891.
Adjustment value : $3000\text{Hz} \pm 15\text{Hz}$
A, B deviation within 10Hz
Speed difference : VOL MAX $3250\text{Hz} \pm 70\text{Hz}$
: VOL MIN $2710\text{Hz} \pm 70\text{Hz}$

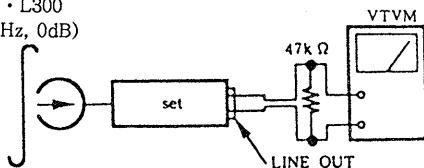
Adjustment Location : Main board

Playback Level Adjustment DECK A DECK B

Procedure :

Mode : playback

test tape
P • 4 • L300
(315Hz, 0dB)



Adjust RV131 (L-ch) and RV231 (R-ch) for DECK A and RV151 (L-ch) and RV251 (R-ch) for DECK B so that the reading on VTVM meter the adjustment limits below.

Adjustment Limits :

LINE OUT level: -8.2dB to -7.2dB (0.301 to 0.338V)

Level difference between channels : less than 0.5dB

Check that the LINE OUT level does not change even if Playback and Stop operation is repeated several times.

Adjustment Location : MAIN board

Bias Current Adjustment

Procedure :

1. Set RV121 and RV221 (DECK A), RV141 and RV241 (DECK B) to mechanical center and turn the set recording mode.
2. Connect digital voltmeter as shown by the following table.
3. Adjust the following transformers for the minimum readings on the digital voltmeter.

DECK	Mesurement Point	Adjustment	Value
A	L ① and ②, TP521	T121	Adjust for a minimum readings on digital voltmeter.
	R ② and ③, TP521	T221	
B	L ① and ②, TP541	T141	
	R ② and ③, TP541	T241	

Adjustment Location : MAIN board

Record Bias Adjustment DECK A DECK B

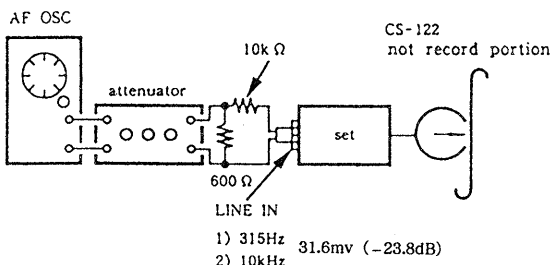
Setting :

REC LEVEL control : standard Record (See page 8.)

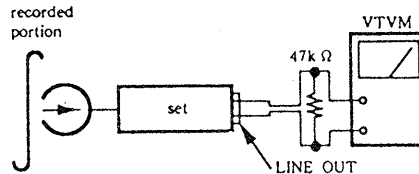
test pin TP801 : short

Procedure :

1. Mode : record



2. Mode : playback



Playback the signal recorded in step 1.

Confirm that the 10kHz playback output is $0 \pm 0.5\text{dB}$ relative to the 315Hz output. If necessary, adjust RV121 (L-ch) and RV221 (R-ch) for DECK A and RV141 (L-ch) and RV241 (R-ch) for DECK B, and repeat the steps given above.

Adjustment Location : MAIN board

Record Level Adjustment DECK A DECK B

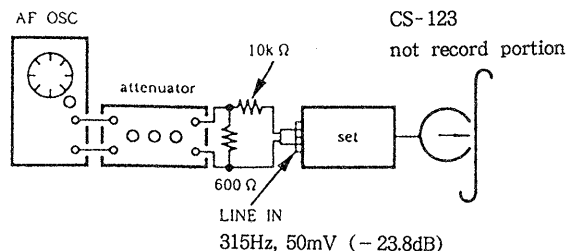
Setting :

REC LEVEL control : Standard Record (See page 8.)

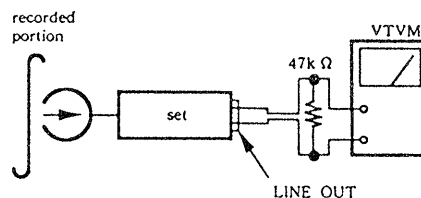
test pin TP801 : short

Procedure :

1. Mode : record



2. Mode : playback



3. Playback the signal recorded in step1.

Confirm that the signal level is within the adjustment limits below.

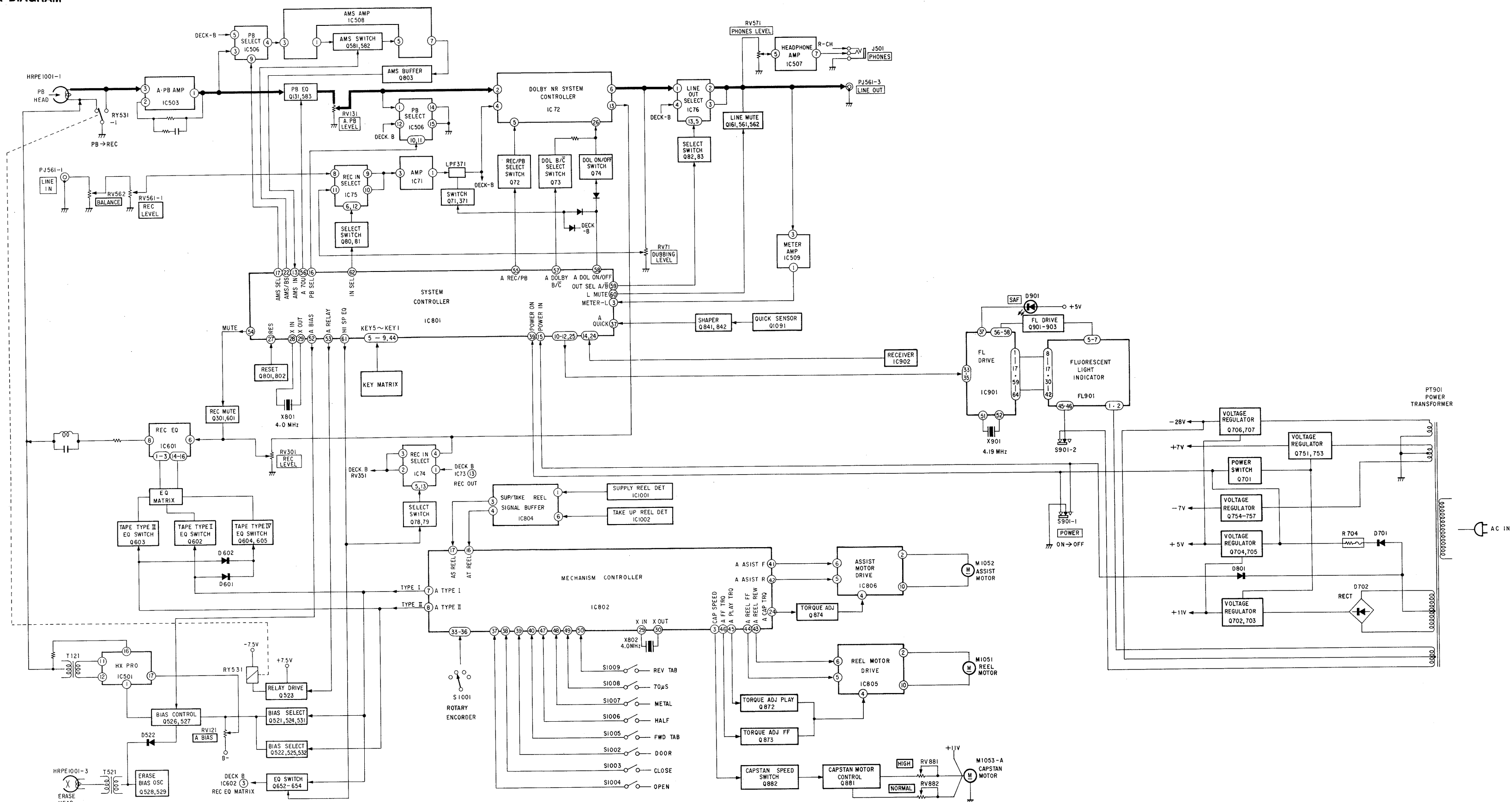
If necessary, adjust RV301 (L-ch) and RV401 (R-ch) for DECK A and RV351 (L-ch) and RV451 (R-ch) for DECK B, and repeat the step1-2.

Adjustment Limits: $-23.8\text{dB} \pm 0.5\text{dB}$ (47.2 to 53mV)

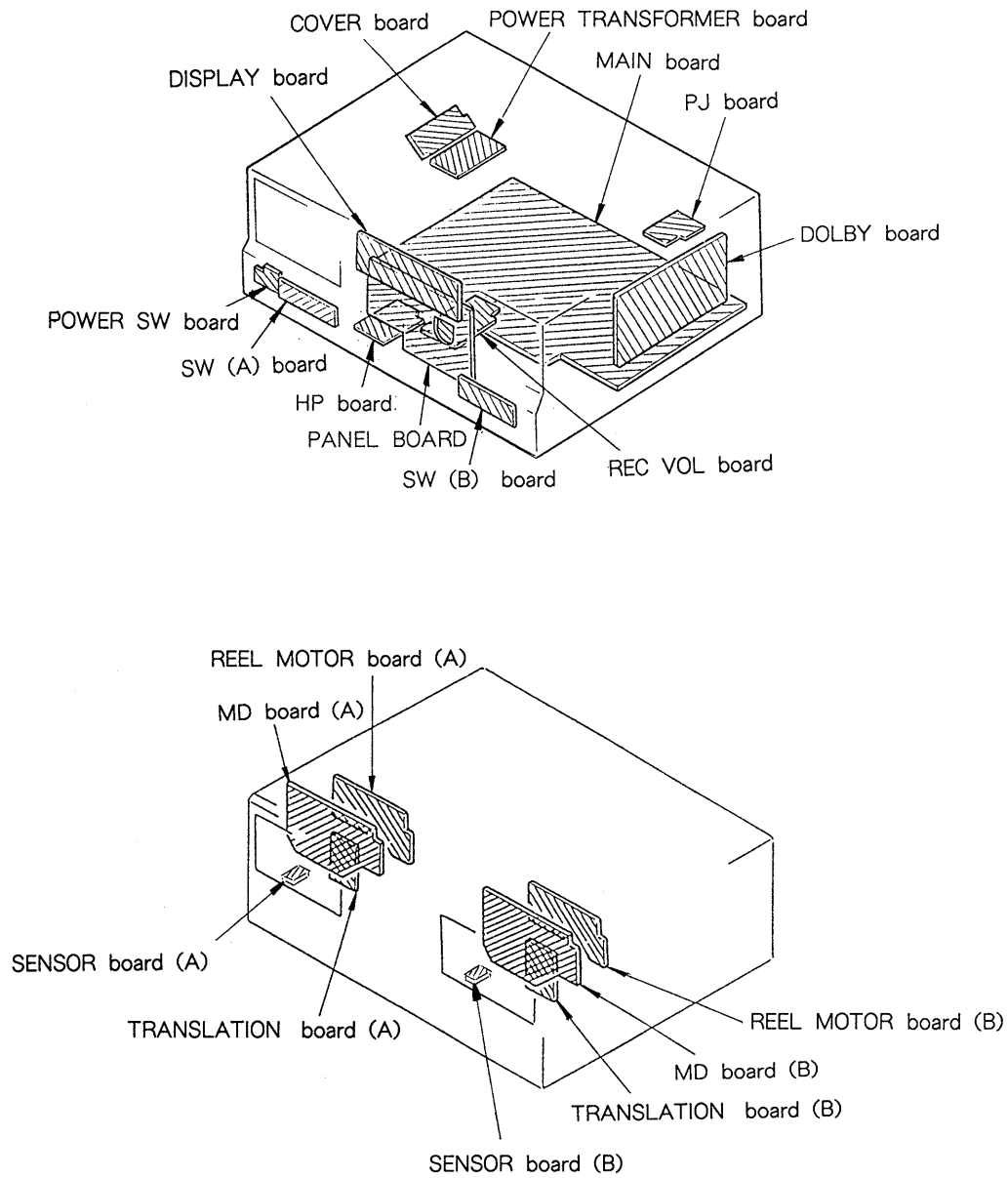
Adjustment Location: Main board

SECTION 4 DIAGRAMS

4-1. BLOCK DIAGRAM



4-1-1. Circuit Boards Location

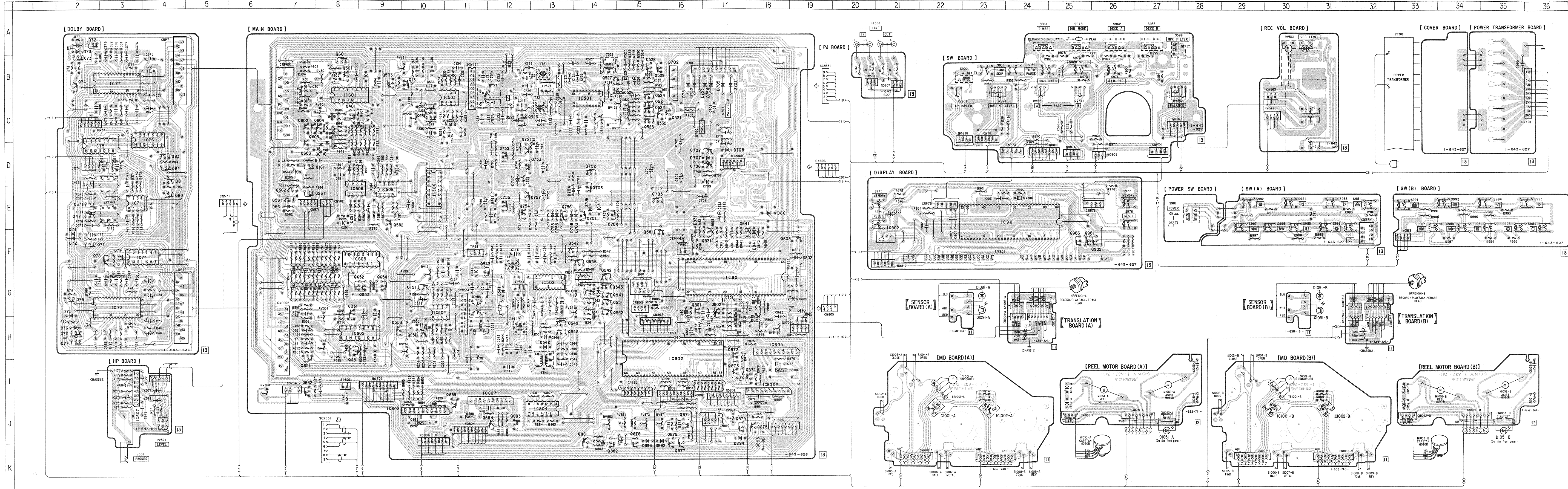


4-2. PRINTED WIRING BOARDS •See Page 15 for Circuit Boards location, Page 24 for Semiconductor Lead Layouts.

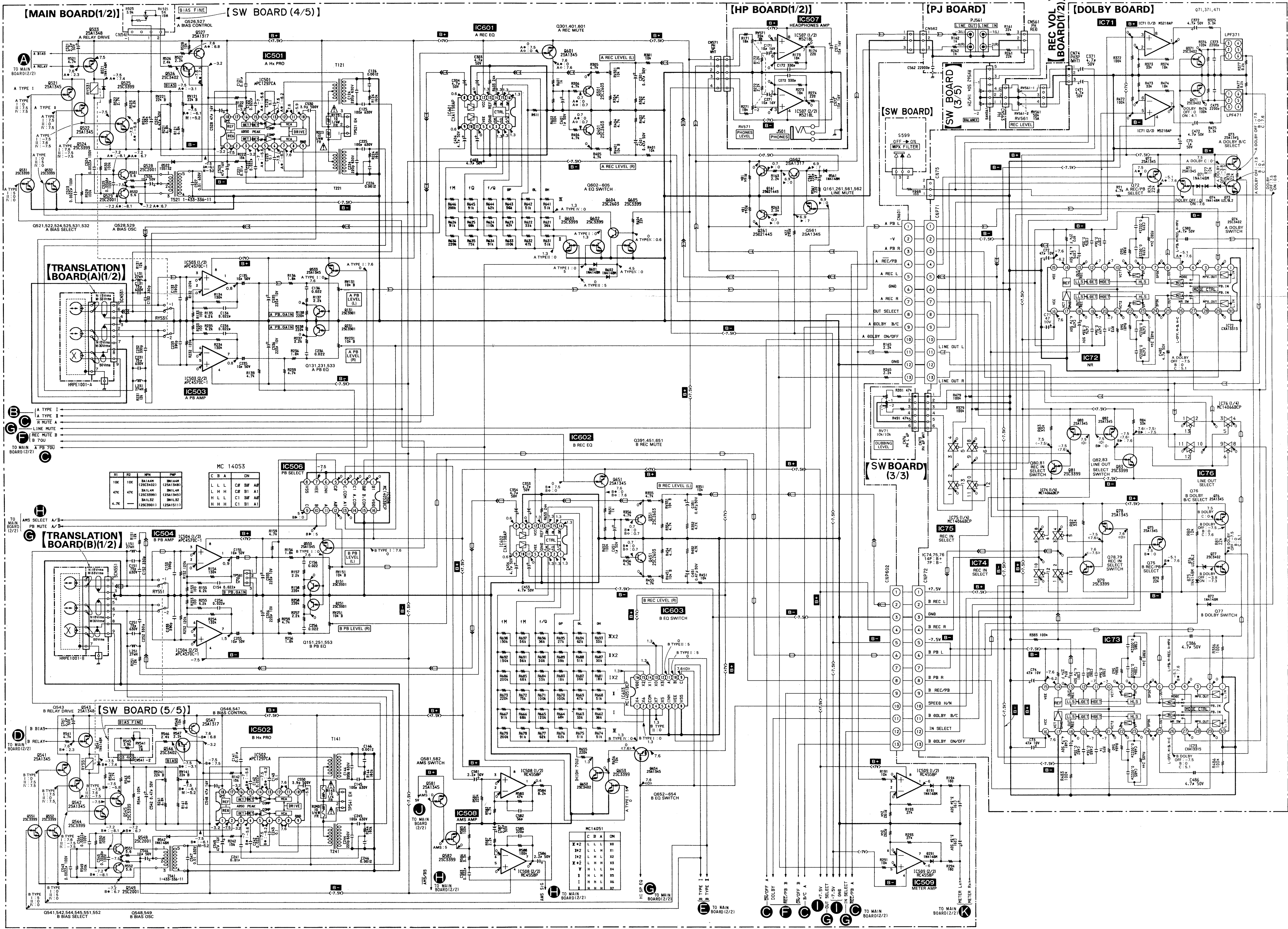
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D71	F-2	IC603	F-8	Q548	H-13
D72	F-2	IC801	G-17	Q549	H-13
D73	A-2	IC802	H-16	Q551	G-14
D74	N-2	IC804	J-14	Q552	G-14
D75	G-2	IC805	H-18	Q553	H-9
D76	H-2	IC806	I-18	Q561	E-7
D191	D-8	IC807	I-12	Q562	F-7
D291	E-8	IC808	J-10	Q581	F-15
D521	C-12	IC901	E-24	Q582	E-9
D522	B-15	IC902	F-21	Q583	C-7
D541	D-12	IC1001-A	J-22	Q602	C-7
D542	H-13	IC1001-B	J-30	Q603	D-7
D561	E-7	IC1002-A	J-23	Q604	C-8
D601	D-8	IC1002-B	J-31	Q605	C-7
D602	D-8			Q651	I-7
D701	B-17	Q71	F-2	Q652	G-8
D702	B-16	Q72	A-2	Q653	G-9
D703	E-14	Q73	B-2	Q654	G-9
D704	E-13	Q74	B-2	Q701	E-14
D705	B-17	Q75	G-2	Q702	D-14
D706	E-14	Q76	H-2	Q703	I-14
D707	D-17	Q77	F-2	Q704	E-14
D708	D-17	Q78	F-2	Q705	E-15
D751	B-16	Q79	F-3	Q706	D-17
D752	B-16	Q80	E-4	Q707	D-17
D753	B-17	Q81	D-4	Q751	D-12
D754	B-17	Q82	D-4	Q752	D-12
D755	E-13	Q83	D-4	Q753	D-12
D756	E-13	Q131	B-10	Q754	E-12
D757	D-12	Q151	G-10	Q755	E-12
D758	E-13	Q161	D-7	Q756	E-13
D801	I-18	Q231	C-10	Q757	F-12
D802	F-19	Q251	H-10	Q801	G-16
D804	H-17	Q261	E-7	Q802	G-17
D805	H-17	Q301	B-8	Q803	F-19
D831	F-16	Q351	G-8	Q831	F-17
D841	F-16	Q371	E-2	Q832	I-7
D892	J-16	Q401	C-8	Q841	F-17
VD893	J-15	Q451	H-8	Q842	G-19
D894	J-17	Q471	E-2	Q871	J-16
D895	J-18	Q521	C-15	Q872	H-17
D901	B-27	Q522	C-15	Q873	I-17
		Q523	C-12	Q874	I-18
IC71	E-3	Q524	B-15	Q875	J-18
IC72	B-3	Q525	C-15	Q876	J-16
IC73	G-3	Q526	B-14	Q877	J-16
IC74	F-3	Q527	B-14	Q878	J-15
IC75	D-2	Q528	B-15	Q879	J-15
IC76	C-4	Q529	B-15	Q881	J-14
IC501	C-14	Q531	C-16	Q882	J-14
IC502	G-16	Q532	C-16	Q883	J-12
IC503	B-11	Q533	B-9	Q884	J-12
IC504	G-10	Q541	G-14	Q885	J-11
IC506	E-10	Q542	G-14	Q901	F-25
IC507	I-3	Q543	F-11	Q902	F-26
IC508	E-9	Q544	G-14	Q903	F-25
IC509	B-8	Q545	G-14	Q1091-A	G-23
IC601	B-8	Q546	F-14	Q1091-B	G-31
IC602	H-8	Q547	F-13		

Note:
• : parts extracted from the component side.



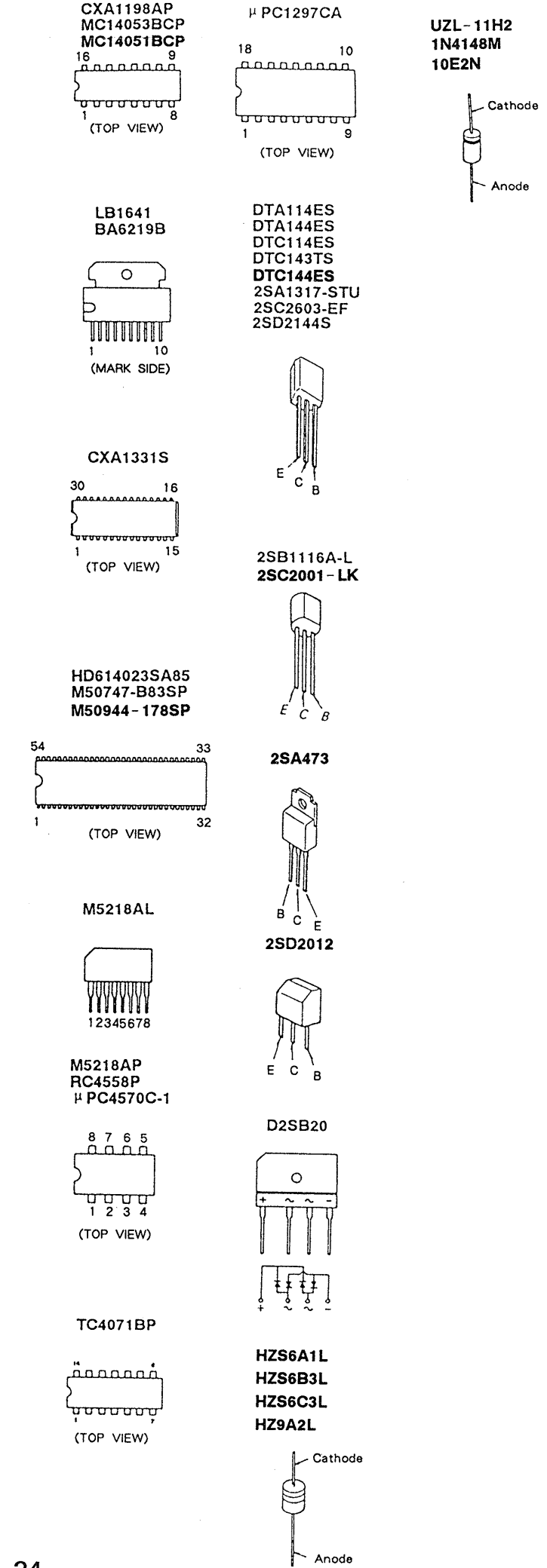
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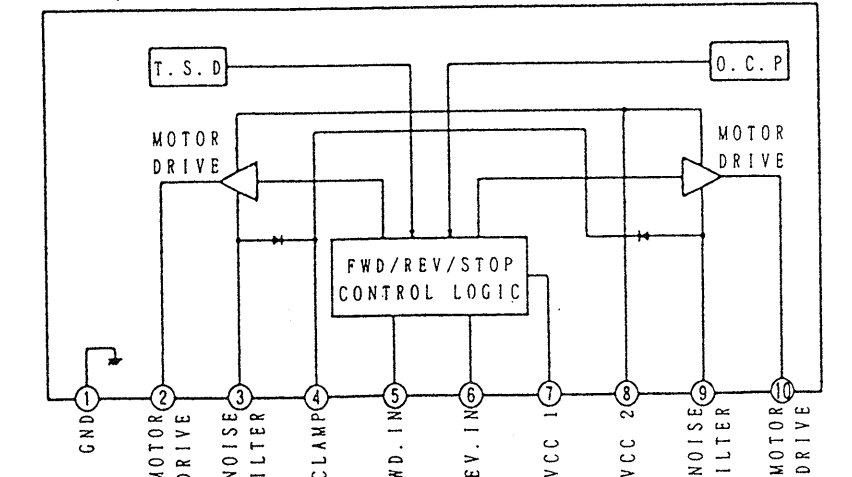
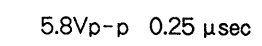


Note on Schematic Diagram :
• All capacitors are in μF unless otherwise noted. pF : μF
50WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and $\angle$ W or less unless otherwise specified.
• Δ : internal component.
• ∇ : fusible resistor.
Note : The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

- Δ : B + Line
- ∇ : B - Line
- Δ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : STOP
- () : NORMAL SPEED DUBBING
- () : HIGH SPEED DUBBING
- $\blacktriangleright$: FWD $\blacktriangleleft$: REV
- Voltages are taken with a VOM (input impedance 10 M Ω).
Voltage variations may be noted due to normal production tolerances.
- Signal path.
 - $\circ$: PB(DECK A)
 - $\circ$: REC(DECK A)
 - $\circ$: PB(DECK B)
 - $\circ$: REC(DECK B)

4-4. Semiconductor Lead Layouts





SECTION 5

EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.

- Color Indication of Appearance Parts
Example :

 KNOB, BALANCE (WHITE)...(RED)

↑
↑
 Parts color Cabinet's color

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

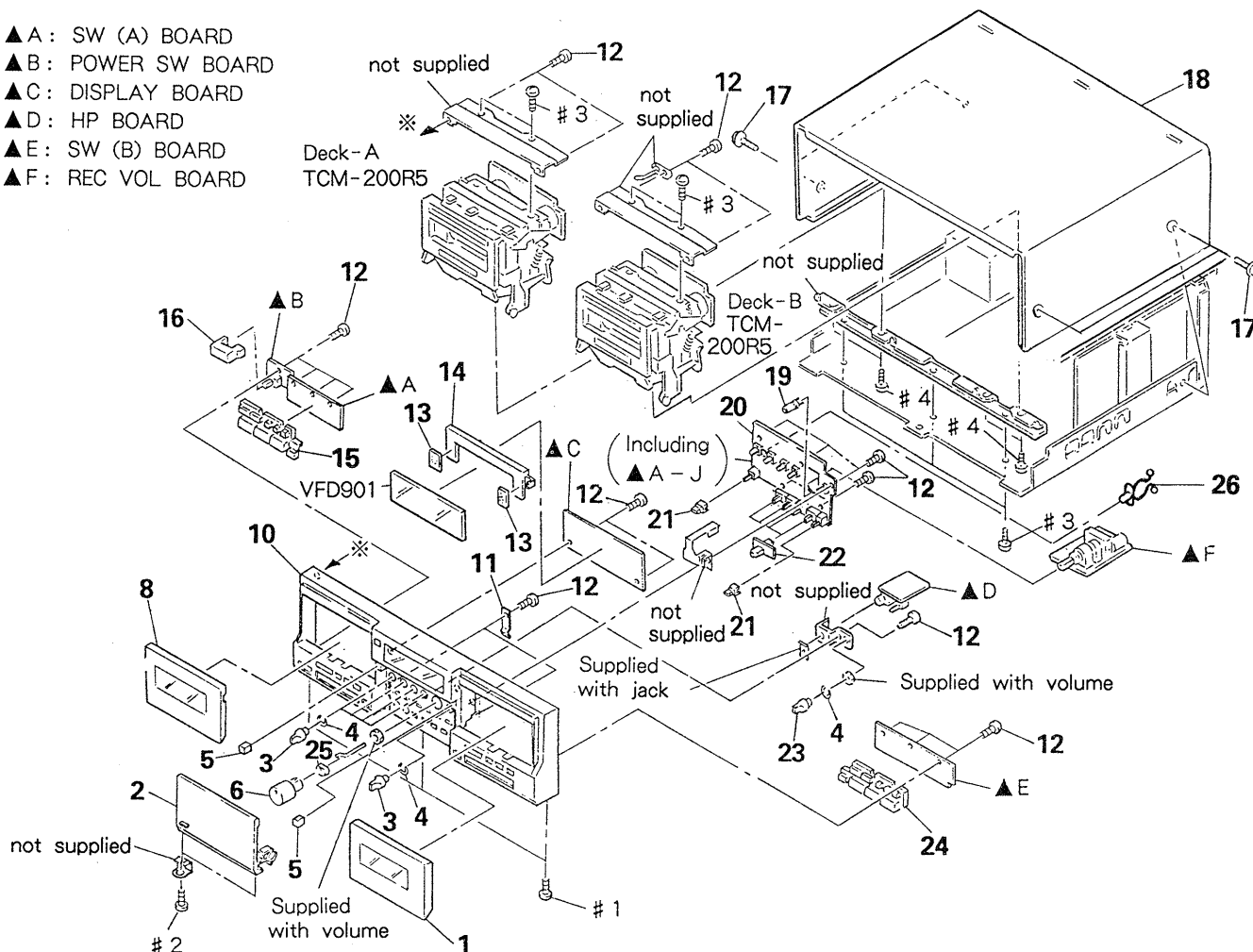
- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

(1) CASE, FRONT PANEL SECTION

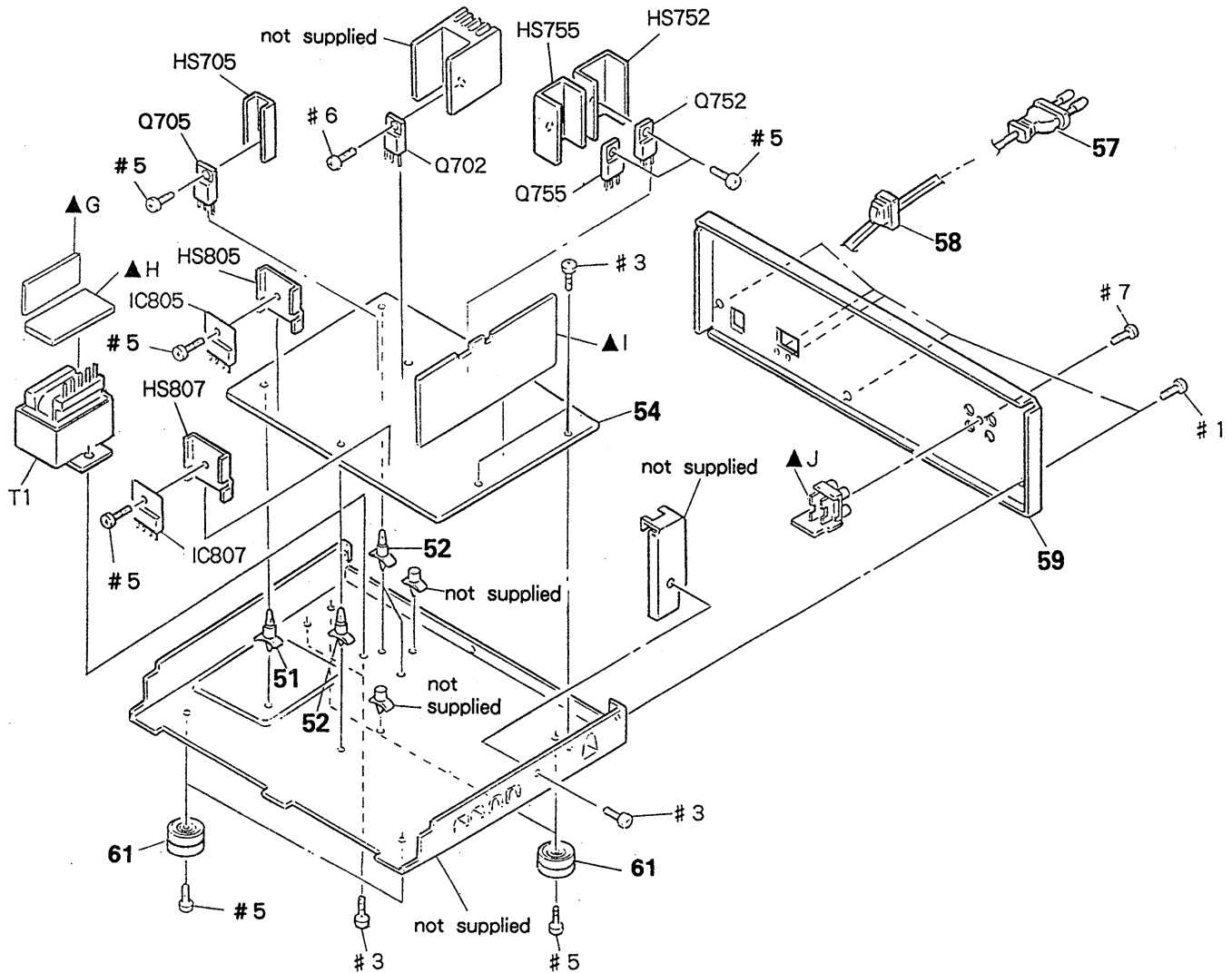
- ▲A : SW (A) BOARD
- ▲B : POWER SW BOARD
- ▲C : DISPLAY BOARD
- ▲D : HP BOARD
- ▲E : SW (B) BOARD
- ▲F : REC VOL BOARD



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	X-3365-197-1	LID (B) ASSY, CASSETTE		16	3-354-932-01	BUTTON (POWER)	
2	X-3365-195-3	LID (M) ASSY		17	3-704-366-01	SCREW (CASE) (M3X8)	
3	3-354-931-11	KNOB (DIA. 10)		18	4-925-039-61	CASE	
4	3-354-981-01	SPRING (SUS), RING		* 19	3-362-478-11	HOLDER (T), LED	
5	3-322-044-01	SPACER, RUBBER		* 20	A-2006-724-A	PANEL BOARD, COMPLETE	
6	3-359-932-01	KNOB (REC)		21	3-378-285-01	BUTTON (CORNER 4)	
8	X-3365-196-1	LID (A) ASSY, CASSETTE		22	4-924-444-01	KNOB (TIMER) (AEP)	
10	X-3365-194-2	PANEL ASSY, FRONT		22	4-924-444-11	KNOB (TIMER) (Germany)	
11	3-378-283-01	SPRING (M)		23	3-354-931-01	KNOB (DIA. 10)	
12	4-951-620-01	SCREW (2. 6X8), +BVTP		24	3-378-303-11	BUTTON (CONTROL)	
13	9-911-844-XX	CUSHION		25	3-362-235-01	SPRING (REC LEVEL), RING	
14	3-365-420-01	HOLDER, FL TUBE		26	4-953-346-01	CLAMP, LEAD	
15	3-378-303-01	BUTTON (CONTROL)		VFD901	1-519-594-11	INDICATOR TUBE, FLUORESCENT	

(2) CHASSIS SECTION

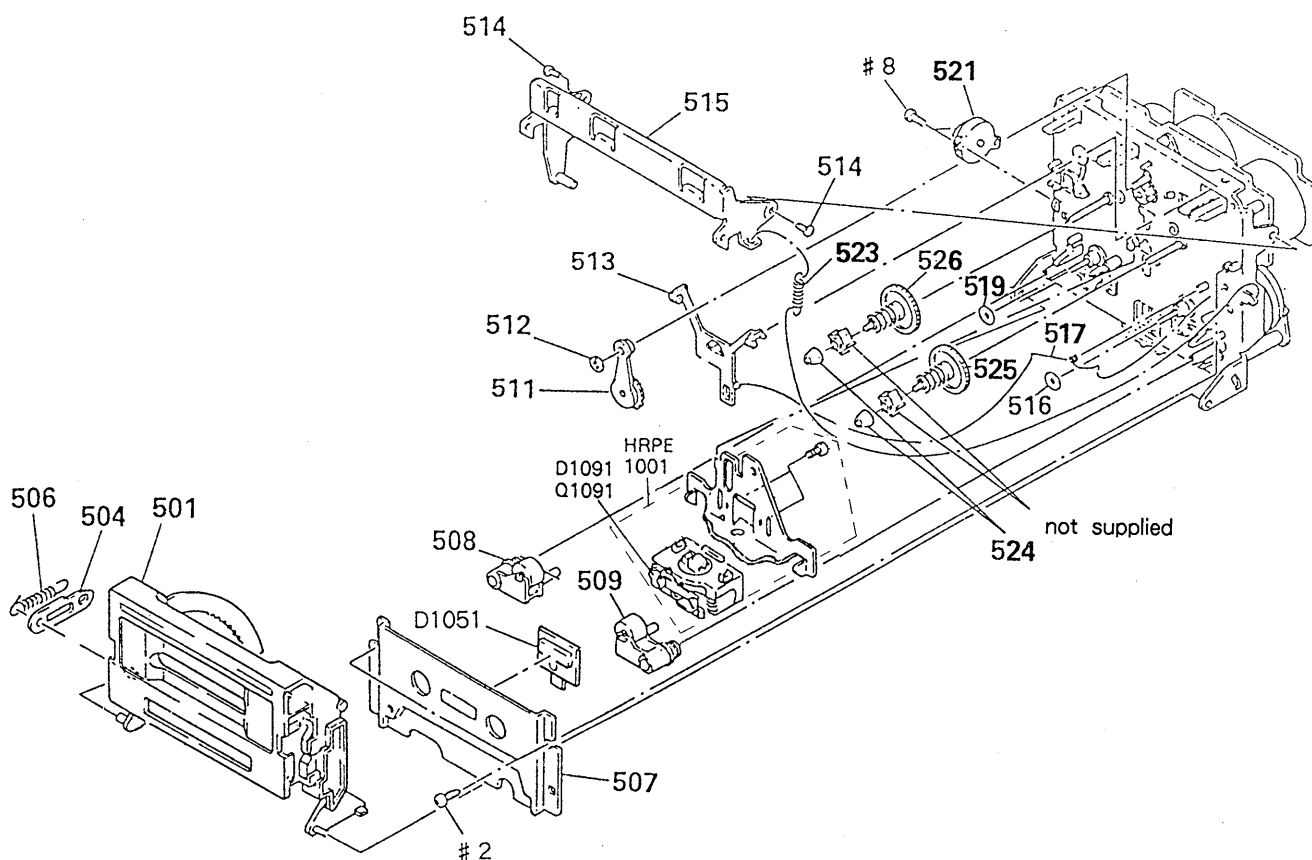
- ▲G : COVER BOARD
 ▲H : POWER TRANSFORMER BOARD
 ▲I : DOLBY BOARD
 ▲J : PJ BOARD



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 51	4-924-098-11	HOLDER, PC BOARD		* HS755	4-880-403-11	HEAT SINK	
* 52	3-346-265-11	HOLDER, PC BOARD		* HS805	3-356-925-01	HEAT SINK	
* 54	A-2006-723-A	MAIN BOARD, COMPLETE		* HS807	3-356-925-01	HEAT SINK	
▲57	1-555-795-00	CORD, POWER, EULO PLUG		IC805	8-759-973-95	IC BA6219B	
* 58	3-703-244-00	BUSHING (2104), CORD		IC807	8-759-973-95	IC BA6219B	
* 59	3-375-669-01	PANEL, BACK (Germany)		Q702	8-729-141-83	TRANSISTOR 2SA473	
* 59	3-375-669-11	PANEL, BACK (AEP)		Q705	8-729-209-15	TRANSISTOR 2SD2012	
61	4-943-148-42	FOOT (F58175SW)		Q752	8-729-209-15	TRANSISTOR 2SD2012	
* HS705	3-309-144-21	HEAT SINK		Q755	8-729-141-83	TRANSISTOR 2SA473	
* HS752	4-880-403-11	HEAT SINK		▲T1	1-450-446-11	TRANSFORMER, POWER	

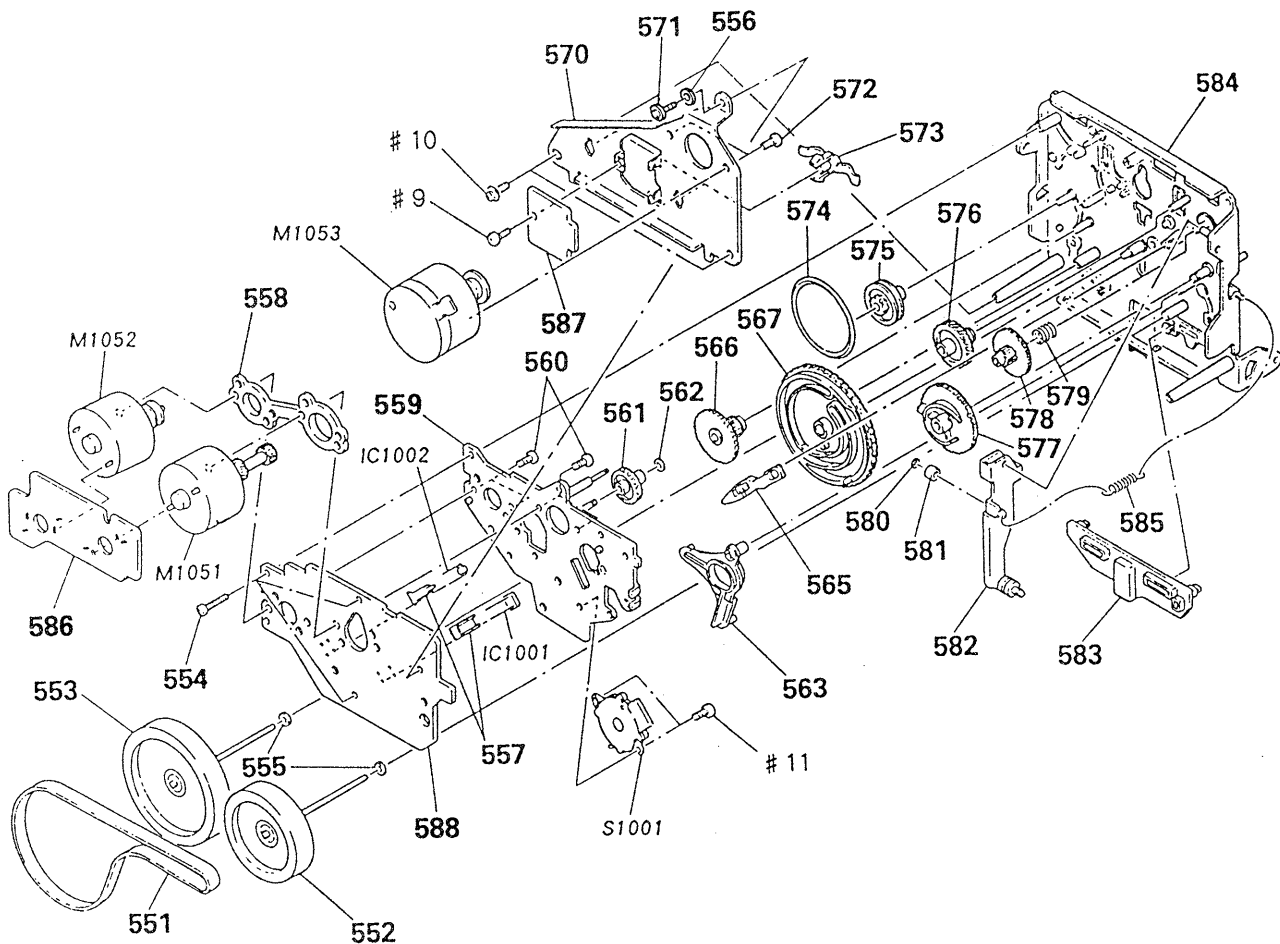
Note: The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

(4) MECHANISM DECK SECTION 4 (TCM-200R5)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
501	X-3364-566-1	HOLDER (CD-W) ASSY, CASSETTE		517	3-356-619-01	SPRING (B), TORSION	
* 504	3-356-717-01	LEVER (JOINT)		519	3-356-714-01	WASHER	
506	3-356-626-01	SPRING, TENSION		521	3-712-786-01	DAMPER, OIL	
507	X-3356-613-1	PLATE ASSY, ORNAMENTAL		523	3-356-625-01	SPRING, TENSION	
508	X-3343-456-1	LEVER (PINCH R) ASSY		524	3-362-308-01	CAP (REEL)	
509	X-3343-455-1	LEVER (PINCH F) ASSY		525	X-3356-627-1	GEAR (T) ASSY	
511	X-3356-641-1	LEVER (FR2) ASSY		526	X-3356-628-1	GEAR (S) ASSY	
512	3-669-465-11	WASHER (1.5), STOPPER		D1051	8-719-980-85	DIODE SLF325C	
513	3-356-614-01	SLIDER (BRAKE)		D1091	8-719-950-74	DIODE SLR314D	
514	3-356-601-11	SCREW, STEP		HRPE1001	A-2003-723-A	BASE ASSY, HEAD	
* 515	X-3356-608-1	LEVER (LIFTER) ASSY		Q1091	8-729-809-43	TRANSISTOR SPS-314B	
516	3-356-713-01	WASHER					

(4) MECHANISM DECK SECTION 4 (TCM-200R5)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
551	3-356-604-01	BELT (CAPSTAN)		574	3-356-603-01	BELT (MODE)	
552	X-3356-642-1	FLYWHEEL (R FWD) ASSY		575	3-356-607-01	PULLEY (MODE)	
553	X-3356-643-1	FLYWHEEL (R REV) ASSY		576	3-356-703-01	GEAR (COMMUNICATION C)	
554	3-355-801-01	SCREW (BTP 2X18)		577	3-356-616-01	GEAR (LOADING CAM)	
555	3-356-705-01	WASHER (CAPSTAN)		578	3-356-609-01	GEAR (LOADING)	
* 556	3-356-718-01	SPACER (THRUST RETAINER R)		579	3-356-605-01	SPRING, COMPRESSION	
557	3-356-631-01	HOLDER (SENSOR)		580	3-558-708-11	WASHER, STOPPER	
* 558	3-356-628-01	SPACER (MOTOR)		581	3-356-630-01	ROLLER (LOADING)	
* 559	X-3356-602-1	BRACKET (MOTOR R) ASSY		* 582	X-3356-606-1	LEVER (LOADING) ASSY	
560	3-363-804-01	SCREW (+P 2.6X6.5)		583	3-356-612-01	SLIDER (REVERSE)	
561	3-356-702-01	GEAR (COMMUNICATION B)		584	X-3356-634-1	CHASSIS (R2) COMPLETE ASSY, MECH	
562	3-669-465-00	WASHER (1.5), STOPPER		585	3-356-624-01	SPRING, TENSION	
563	3-356-613-01	LEVER (MODE)		* 586	1-632-741-11	REEL MOTOR BOARD	
565	3-356-617-01	LEVER (SELECTION)		* 587	1-634-323-11	TRANSLATION BOARD	
566	3-356-606-01	GEAR (MODE)		* 588	1-632-631-01	MD BOARD	
567	3-356-615-01	GEAR (MODE CAM RR)		IC1001	8-749-920-97	DIODE GP2S22B	
* 570	3-356-629-01	BRACKET (THRUST RETAINER R)		IC1002	8-749-920-97	DIODE GP2S22B	
571	3-356-707-01	SCREW (+PTPWH 2X25)		M1051	X-3356-638-1	MOTOR (REEL R) ASSY	
572	4-885-599-00	SCREW, FITTING, REINFORCEMENT		M1052	X-3356-604-1	MOTOR (ASSIST) ASSY	
573	3-575-321-00	RETAINER, THRUST, CAPSTAN		M1053	X-3356-605-1	MOTOR (CAPSTAN R) ASSY	
				S1001	1-466-525-11	ENCODER, ROTARY	

SECTION 6

ELECTRICAL PARTS LIST

MAIN

NOTE:

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...
- CAPACITORS:
uF: μ F
- COILS
uH: μ H

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
*	A-2006-723-A	MAIN BOARD, COMPLETE		C225	1-136-433-11	FILM 100PF 5% 630V	
	*****			C226	1-130-472-00	MYLAR 0.0012uF 5% 50V	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3		C231	1-136-273-91	FILM 75PF 5% 630V	
	7-682-548-04	SCREW +BVTT 3X8 (S)		C232	1-162-288-31	CERAMIC 330PF 10% 50V	
				C233	1-110-342-11	MYLAR 390PF 5% 50V	
		< CAPACITOR >		C234	1-136-157-00	FILM 0.022uF 5% 50V	
C121	1-136-153-00	FILM 0.01uF 5% 50V		C235	1-124-657-00	ELECT 10uF 20% 50V	
C122	1-136-157-00	FILM 0.022uF 5% 50V		C236	1-136-157-00	FILM 0.022uF 5% 50V	
C123	1-136-165-00	FILM 0.1uF 5% 50V		C241	1-136-153-00	FILM 0.01uF 5% 50V	
C124	1-136-437-11	FILM 220PF 5% 630V		C242	1-136-157-00	FILM 0.022uF 5% 50V	
C125	1-136-433-11	FILM 100PF 5% 630V		C243	1-136-165-00	FILM 0.1uF 5% 50V	
C126	1-130-472-00	MYLAR 0.0012uF 5% 50V		C244	1-136-437-11	FILM 220PF 5% 630V	
C131	1-136-273-91	FILM 75PF 5% 630V		C245	1-136-433-11	FILM 100PF 5% 630V	
C132	1-162-288-31	CERAMIC 330PF 10% 50V		C246	1-130-472-00	MYLAR 0.0012uF 5% 50V	
C133	1-110-342-11	MYLAR 390PF 5% 50V		C251	1-136-273-91	FILM 75PF 5% 630V	
C134	1-136-157-00	FILM 0.022uF 5% 50V		C252	1-162-288-31	CERAMIC 330PF 10% 50V	
C135	1-124-657-00	ELECT 10uF 20% 50V		C253	1-110-342-11	MYLAR 390PF 5% 50V	
C136	1-136-157-00	FILM 0.022uF 5% 50V		C254	1-136-157-00	FILM 0.022uF 5% 50V	
C141	1-136-153-00	FILM 0.01uF 5% 50V		C255	1-124-657-00	ELECT 10uF 20% 50V	
C142	1-136-157-00	FILM 0.022uF 5% 50V		C256	1-136-157-00	FILM 0.022uF 5% 50V	
C143	1-136-165-00	FILM 0.1uF 5% 50V		C291	1-123-382-00	ELECT 3.3uF 20% 100V	
C144	1-136-437-11	FILM 220PF 5% 630V		C292	1-164-159-11	CERAMIC 0.1uF 50V	
C145	1-136-433-11	FILM 100PF 5% 630V		C301	1-124-902-00	ELECT 0.47uF 20% 50V	
C146	1-130-472-00	MYLAR 0.0012uF 5% 50V		C303	1-124-927-11	ELECT 4.7uF 20% 100V	
C151	1-136-273-91	FILM 75PF 5% 630V		C304	1-124-927-11	ELECT 4.7uF 20% 100V	
C152	1-162-288-31	CERAMIC 330PF 10% 50V		C351	1-124-902-00	ELECT 0.47uF 20% 50V	
C153	1-110-342-11	MYLAR 390PF 5% 50V		C353	1-124-927-11	ELECT 4.7uF 20% 100V	
C154	1-136-157-00	FILM 0.022uF 5% 50V		C354	1-124-927-11	ELECT 4.7uF 20% 100V	
C155	1-124-657-00	ELECT 10uF 20% 50V		C401	1-124-902-00	ELECT 0.47uF 20% 50V	
C156	1-136-157-00	FILM 0.022uF 5% 50V		C403	1-124-927-11	ELECT 4.7uF 20% 100V	
C191	1-123-382-00	ELECT 3.3uF 20% 100V		C404	1-124-927-11	ELECT 4.7uF 20% 100V	
C192	1-164-159-11	CERAMIC 0.1uF 50V		C451	1-124-902-00	ELECT 0.47uF 20% 50V	
C221	1-136-153-00	FILM 0.01uF 5% 50V		C453	1-124-927-11	ELECT 4.7uF 20% 100V	
C222	1-136-157-00	FILM 0.022uF 5% 50V		C454	1-124-927-11	ELECT 4.7uF 20% 100V	
C223	1-136-165-00	FILM 0.1uF 5% 50V		C521	1-124-925-11	ELECT 2.2uF 20% 100V	
C224	1-136-437-11	FILM 220PF 5% 630V					

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C522	1-124-902-00	ELECT	0.47uF 20% 50V	C758	1-126-176-11	ELECT	220uF 20% 10V
C523	1-136-230-00	FILM	0.0022uF 5% 100V	C759	1-126-176-11	ELECT	220uF 20% 10V
C524	1-136-230-00	FILM	0.0022uF 5% 100V	C803	1-161-494-00	CERAMIC	0.022uF 25V
C525	1-130-856-00	FILM	0.0068uF 5% 100V	C804	1-162-306-11	CERAMIC	0.01uF 20% 16V
C526	1-124-907-11	ELECT	10uF 20% 50V	C805	1-124-925-11	ELECT	2.2uF 20% 100V
C527	1-136-601-11	FILM	0.01uF 5% 630V	C807	1-164-159-11	CERAMIC	0.1uF 50V
C528	1-124-477-11	ELECT	47uF 20% 25V	C811	1-126-233-11	ELECT	22uF 20% 50V
C529	1-124-477-11	ELECT	47uF 20% 25V	C831	1-124-927-11	ELECT	4.7uF 20% 100V
C530	1-107-045-00	MICA	3.9PF 500V	C832	1-124-477-11	ELECT	47uF 20% 25V
C535	1-126-176-11	ELECT	220uF 20% 10V	C833	1-130-479-00	MYLAR	0.0047uF 5% 50V
C536	1-126-176-11	ELECT	220uF 20% 10V	C834	1-124-443-00	ELECT	100uF 20% 10V
C541	1-124-925-11	ELECT	2.2uF 20% 100V	C841	1-124-927-11	ELECT	4.7uF 20% 100V
C542	1-124-902-00	ELECT	0.47uF 20% 50V	C842	1-124-477-11	ELECT	47uF 20% 25V
C543	1-136-230-00	FILM	0.0022uF 5% 100V	C843	1-130-479-00	MYLAR	0.0047uF 5% 50V
C544	1-136-230-00	FILM	0.0022uF 5% 100V	C851	1-124-443-00	ELECT	100uF 20% 10V
C545	1-130-856-00	FILM	0.0068uF 5% 100V	C871	1-164-159-11	CERAMIC	0.1uF 50V
C546	1-124-907-11	ELECT	10uF 20% 50V	C872	1-164-159-11	CERAMIC	0.1uF 50V
C547	1-136-601-11	FILM	0.01uF 5% 630V	C873	1-162-306-11	CERAMIC	0.01uF 20% 16V
C548	1-124-477-11	ELECT	47uF 20% 25V	C881	1-164-159-11	CERAMIC	0.1uF 50V
C549	1-124-477-11	ELECT	47uF 20% 25V	C882	1-164-159-11	CERAMIC	0.1uF 50V
C550	1-107-045-00	MICA	3.9PF 500V	C899	1-161-375-00	CERAMIC	0.0022uF 20% 50V
C555	1-126-176-11	ELECT	220uF 20% 10V	< CONNECTOR >			
C556	1-126-176-11	ELECT	220uF 20% 10V	CN541	1-506-469-11	PIN, CONNECTOR	4P
C561	1-124-120-11	ELECT	220uF 20% 25V	* CN561	1-564-705-11	PIN, CONNECTOR (SMALL TYPE)	3P
C562	1-161-494-00	CERAMIC	0.022uF 25V	* CN562	1-564-337-00	PIN, CONNECTOR	3P
C581	1-124-925-11	ELECT	2.2uF 20% 100V	* CN571	1-564-707-11	PIN, CONNECTOR (SMALL TYPE)	5P
C582	1-162-217-31	CERAMIC	56PF 5% 50V	* CN701	1-564-513-11	PLUG, CONNECTOR	10P
C583	1-136-157-00	FILM	0.022uF 5% 50V	* CN801	1-564-340-61	PIN, CONNECTOR	6P
C585	1-162-286-31	CERAMIC	220PF 10% 50V	* CN802	1-568-935-11	PIN, CONNECTOR	8P
C586	1-124-925-11	ELECT	2.2uF 20% 100V	* CN804	1-691-908-11	SOCKET, CONNECTOR	
C587	1-124-925-11	ELECT	2.2uF 20% 100V	* CN805	1-564-338-71	PIN, CONNECTOR	4P
C601	1-124-903-11	ELECT	1uF 20% 50V	CN810	1-506-469-11	PIN, CONNECTOR	4P
C651	1-124-903-11	ELECT	1uF 20% 50V	< CONNECTOR >			
C701	1-124-927-11	ELECT	4.7uF 20% 100V	* CNP601	1-691-915-11	CONNECTOR, BOARD TO BOARD	15P
C702	1-124-772-11	ELECT	10000uF 20% 25V	* CNP602	1-691-915-11	CONNECTOR, BOARD TO BOARD	15P
C703	1-124-126-00	ELECT	47uF 20% 10V	< COMPOSITION CIRCUIT BLOCK >			
C704	1-124-898-11	ELECT	4700uF 20% 16V	CP851	1-233-199-11	COMPOSITION CIRCUIT BLOCK	
C705	1-124-556-11	ELECT	2200uF 20% 16V	CP852	1-233-199-11	COMPOSITION CIRCUIT BLOCK	
C706	1-124-443-00	ELECT	100uF 20% 10V	< DIODE >			
C707	1-124-471-00	ELECT	1000uF 20% 6.3V	D191	8-719-987-63	DIODE	1N4148M
C708	1-124-919-11	ELECT	220uF 20% 63V	D291	8-719-987-63	DIODE	1N4148M
C709	1-124-927-11	ELECT	4.7uF 20% 100V	D521	8-719-987-63	DIODE	1N4148M
C710	1-124-927-11	ELECT	4.7uF 20% 100V	D522	8-719-987-63	DIODE	1N4148M
C751	1-124-556-11	ELECT	2200uF 20% 16V	D541	8-719-987-63	DIODE	1N4148M
C752	1-124-556-11	ELECT	2200uF 20% 16V				
C753	1-124-120-11	ELECT	220uF 20% 25V				
C754	1-124-120-11	ELECT	220uF 20% 25V				
C755	1-124-925-11	ELECT	2.2uF 20% 100V				
C756	1-162-286-31	CERAMIC	220PF 10% 50V				
C757	1-162-286-31	CERAMIC	220PF 10% 50V				

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
D542	8-719-987-63	DIODE	1N4148M	< COIL >			
D561	8-719-987-63	DIODE	1N4148M	L131	1-410-780-11	INDUCTOR	27mH
D601	8-719-987-63	DIODE	1N4148M	L151	1-410-780-11	INDUCTOR	27mH
D602	8-719-987-63	DIODE	1N4148M	L231	1-410-780-11	INDUCTOR	27mH
D701	8-719-200-77	DIODE	10E2N	L251	1-410-780-11	INDUCTOR	27mH
D702	8-719-500-36	DIODE	D2SB20	< JACK >			
D703	8-719-987-63	DIODE	1N4148M	PJ561	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)	
D704	8-719-001-54	DIODE	UZL-11H2	< TRANSISTOR >			
D705	8-719-200-77	DIODE	10E2N	Q151	8-729-900-74	TRANSISTOR	DTC143TS
D706	8-719-933-41	DIODE	HZS6C3L	Q161	8-729-922-37	TRANSISTOR	2SD2144S
D707	8-719-987-63	DIODE	1N4148M	Q231	8-729-900-74	TRANSISTOR	DTC143TS
D708	8-719-933-38	DIODE	HZS6B3L	Q251	8-729-900-74	TRANSISTOR	DTC143TS
D751	8-719-200-77	DIODE	10E2N	Q261	8-729-922-37	TRANSISTOR	2SD2144S
D752	8-719-200-77	DIODE	10E2N	Q301	8-729-620-05	TRANSISTOR	2SC2603-EF
D753	8-719-200-77	DIODE	10E2N	Q351	8-729-620-05	TRANSISTOR	2SC2603-EF
D754	8-719-200-77	DIODE	10E2N	Q401	8-729-620-05	TRANSISTOR	2SC2603-EF
D755	8-719-987-63	DIODE	1N4148M	Q451	8-729-620-05	TRANSISTOR	2SC2603-EF
D756	8-719-987-63	DIODE	1N4148M	Q521	8-729-900-65	TRANSISTOR	DTA144ES
D757	8-719-933-33	DIODE	HZS6A1L	Q522	8-729-900-65	TRANSISTOR	DTA144ES
D758	8-719-987-63	DIODE	1N4148M	Q523	8-729-900-61	TRANSISTOR	DTA114ES
D801	8-719-987-63	DIODE	1N4148M	Q524	8-729-900-89	TRANSISTOR	DTC144ES
D802	8-719-987-63	DIODE	1N4148M	Q525	8-729-900-89	TRANSISTOR	DTC144ES
D804	8-719-987-63	DIODE	1N4148M	Q526	8-729-900-80	TRANSISTOR	DTC114ES
D805	8-719-987-63	DIODE	1N4148M	Q527	8-729-821-04	TRANSISTOR	2SA1317-STU
D831	8-719-987-63	DIODE	1N4148M	Q528	8-729-142-46	TRANSISTOR	2SC2001-LK
D841	8-719-987-63	DIODE	1N4148M	Q529	8-729-142-46	TRANSISTOR	2SC2001-LK
D892	8-719-987-63	DIODE	1N4148M	Q531	8-729-900-89	TRANSISTOR	DTC144ES
D893	8-719-987-63	DIODE	1N4148M	Q532	8-729-900-89	TRANSISTOR	DTC144ES
D894	8-719-987-63	DIODE	1N4148M	Q533	8-729-900-65	TRANSISTOR	DTA144ES
D895	8-719-987-63	DIODE	1N4148M	Q541	8-729-900-65	TRANSISTOR	DTA144ES
< IC >				Q542	8-729-900-65	TRANSISTOR	DTA144ES
IC501	8-759-106-56	IC	uPC1297CA	Q543	8-729-900-61	TRANSISTOR	DTA114ES
IC502	8-759-106-56	IC	uPC1297CA	Q544	8-729-900-89	TRANSISTOR	DTC144ES
IC503	8-759-111-44	IC	uPC4570C-1	Q545	8-729-900-89	TRANSISTOR	DTC144ES
IC504	8-759-111-44	IC	uPC4570C-1	Q546	8-729-900-80	TRANSISTOR	DTC114ES
IC506	8-759-140-53	IC	MC14053BCP	Q547	8-729-821-04	TRANSISTOR	2SA1317-STU
IC508	8-759-945-58	IC	RC4558P	Q548	8-729-142-46	TRANSISTOR	2SC2001-LK
IC509	8-759-945-58	IC	RC4558P	Q549	8-729-142-46	TRANSISTOR	2SC2001-LK
IC601	8-752-060-64	IC	CXA1198AP	Q551	8-729-900-89	TRANSISTOR	DTC144ES
IC602	8-752-060-64	IC	CXA1198AP	Q552	8-729-900-89	TRANSISTOR	DTC144ES
IC603	8-759-000-47	IC	MC14051BCP	Q553	8-729-900-65	TRANSISTOR	DTA144ES
IC801	8-759-059-44	IC	M50944-178SP	Q561	8-729-900-65	TRANSISTOR	DTA144ES
IC802	8-759-633-86	IC	M50747-B83SP	Q562	8-729-821-04	TRANSISTOR	2SA1317-STU
IC804	8-759-240-71	IC	TC4071BP	Q581	8-729-900-65	TRANSISTOR	DTA144ES
IC805	8-759-973-95	IC	BA6219B	Q582	8-729-900-89	TRANSISTOR	DTC144ES
IC806	8-759-822-09	IC	LB1641	Q601	8-729-900-65	TRANSISTOR	DTA144ES
IC807	8-759-973-95	IC	BA6219B	Q602	8-729-900-89	TRANSISTOR	DTC144ES
IC808	8-759-822-09	IC	LB1641	Q603	8-729-900-89	TRANSISTOR	DTC144ES

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q604	8-729-620-05	TRANSISTOR 2SC2603-EF		R131	1-249-430-11	CARBON 12K 5% 1/4W	
Q605	8-729-900-89	TRANSISTOR DTC144ES		R132	1-247-881-00	CARBON 120K 5% 1/4W	
Q651	8-729-900-65	TRANSISTOR DTA144ES		R133	1-249-405-11	CARBON 100 5% 1/4W	
Q652	8-729-900-80	TRANSISTOR DTC114ES		R134	1-247-882-11	CARBON 130K 5% 1/4W	
Q653	8-729-900-89	TRANSISTOR DTC144ES		R135	1-247-850-11	CARBON 6.2K 5% 1/4W	
Q654	8-729-900-65	TRANSISTOR DTA144ES		R136	1-249-420-11	CARBON 1.8K 5% 1/4W	
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF		R137	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q702	8-729-141-83	TRANSISTOR 2SA473		R138	1-247-887-00	CARBON 220K 5% 1/4W	
Q703	8-729-620-05	TRANSISTOR 2SC2603-EF		R139	1-249-425-11	CARBON 4.7K 5% 1/4W	
Q704	8-729-620-05	TRANSISTOR 2SC2603-EF		R141	1-249-427-11	CARBON 6.8K 5% 1/4W	
Q705	8-729-209-15	TRANSISTOR 2SD2012		R142	1-249-431-11	CARBON 15K 5% 1/4W	
Q706	8-729-821-04	TRANSISTOR 2SA1317-STU		△R143	1-219-153-11	FUSIBLE 10 5% 1/4W F	
Q707	8-729-140-04	TRANSISTOR 2SB1116A-L		R144	1-247-884-11	CARBON 160K 5% 1/4W	
Q751	8-729-620-05	TRANSISTOR 2SC2603-EF		R151	1-249-430-11	CARBON 12K 5% 1/4W	
Q752	8-729-209-15	TRANSISTOR 2SD2012		R152	1-247-881-00	CARBON 120K 5% 1/4W	
Q753	8-729-620-05	TRANSISTOR 2SC2603-EF		R153	1-249-405-11	CARBON 100 5% 1/4W	
Q754	8-729-821-04	TRANSISTOR 2SA1317-STU		R154	1-247-882-11	CARBON 130K 5% 1/4W	
Q755	8-729-141-83	TRANSISTOR 2SA473		R155	1-247-850-11	CARBON 6.2K 5% 1/4W	
Q756	8-729-821-04	TRANSISTOR 2SA1317-STU		R156	1-249-420-11	CARBON 1.8K 5% 1/4W	
Q757	8-729-821-04	TRANSISTOR 2SA1317-STU		R157	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q801	8-729-620-05	TRANSISTOR 2SC2603-EF		R158	1-247-887-00	CARBON 220K 5% 1/4W	
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF		R159	1-249-425-11	CARBON 4.7K 5% 1/4W	
Q803	8-729-821-04	TRANSISTOR 2SA1317-STU		R161	1-249-433-11	CARBON 22K 5% 1/4W	
Q831	8-729-620-05	TRANSISTOR 2SC2603-EF		R162	1-249-417-11	CARBON 1K 5% 1/4W	
Q832	8-729-620-05	TRANSISTOR 2SC2603-EF		R163	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q841	8-729-620-05	TRANSISTOR 2SC2603-EF		R164	1-249-432-11	CARBON 18K 5% 1/4W	
Q842	8-729-620-05	TRANSISTOR 2SC2603-EF		R165	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q871	8-729-900-65	TRANSISTOR DTA144ES		R191	1-249-429-11	CARBON 10K 5% 1/4W	
Q872	8-729-900-80	TRANSISTOR DTC114ES		R192	1-247-864-11	CARBON 24K 5% 1/4W	
Q873	8-729-900-80	TRANSISTOR DTC114ES		R193	1-249-434-11	CARBON 27K 5% 1/4W	
Q874	8-729-900-80	TRANSISTOR DTC114ES		R194	1-249-408-11	CARBON 180 5% 1/4W	
Q875	8-729-900-65	TRANSISTOR DTA144ES		R221	1-249-427-11	CARBON 6.8K 5% 1/4W	
Q876	8-729-900-89	TRANSISTOR DTC144ES		R222	1-249-431-11	CARBON 15K 5% 1/4W	
Q877	8-729-900-89	TRANSISTOR DTC144ES		△R223	1-219-153-11	FUSIBLE 10 5% 1/4W F	
Q878	8-729-900-89	TRANSISTOR DTC144ES		R224	1-247-884-11	CARBON 160K 5% 1/4W	
Q879	8-729-900-65	TRANSISTOR DTA144ES		R231	1-249-430-11	CARBON 12K 5% 1/4W	
Q881	8-729-900-65	TRANSISTOR DTA144ES		R232	1-247-881-00	CARBON 120K 5% 1/4W	
Q882	8-729-900-89	TRANSISTOR DTC144ES		R233	1-249-405-11	CARBON 100 5% 1/4W	
Q883	8-729-900-80	TRANSISTOR DTC114ES		R234	1-247-882-11	CARBON 130K 5% 1/4W	
Q884	8-729-900-80	TRANSISTOR DTC114ES		R235	1-247-850-11	CARBON 6.2K 5% 1/4W	
Q885	8-729-900-80	TRANSISTOR DTC114ES		R236	1-249-420-11	CARBON 1.8K 5% 1/4W	
< RESISTOR >				R237	1-249-421-11	CARBON 2.2K 5% 1/4W	
(C802)	1-164-159-11	CARBON 10K 5% 1/4W		R238	1-247-887-00	CARBON 220K 5% 1/4W	
R001	1-249-429-11	CARBON 10K 5% 1/4W		R239	1-249-425-11	CARBON 4.7K 5% 1/4W	
R121	1-249-427-11	CARBON 6.8K 5% 1/4W		R241	1-249-427-11	CARBON 6.8K 5% 1/4W	
R122	1-249-431-11	CARBON 15K 5% 1/4W		R242	1-249-431-11	CARBON 15K 5% 1/4W	
△R123	1-219-153-11	FUSIBLE 10 5% 1/4W F		△R243	1-219-153-11	FUSIBLE 10 5% 1/4W F	
R124	1-247-884-11	CARBON 160K 5% 1/4W		R244	1-247-884-11	CARBON 160K 5% 1/4W	
				R251	1-249-430-11	CARBON 12K 5% 1/4W	
				R252	1-247-881-00	CARBON 120K 5% 1/4W	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R253	1-249-405-11	CARBON 100 5% 1/4W		R544	1-249-441-11	CARBON 100K 5% 1/4W	
R254	1-247-882-11	CARBON 130K 5% 1/4W		R546	1-247-840-00	CARBON 2.4K 5% 1/4W	
R255	1-247-850-11	CARBON 6.2K 5% 1/4W		R547	1-249-421-11	CARBON 2.2K 5% 1/4W	
R256	1-249-420-11	CARBON 1.8K 5% 1/4W		R548	1-249-429-11	CARBON 10K 5% 1/4W	
R257	1-249-421-11	CARBON 2.2K 5% 1/4W		R549	1-249-441-11	CARBON 100K 5% 1/4W	
R258	1-247-887-00	CARBON 220K 5% 1/4W		R550	1-249-441-11	CARBON 100K 5% 1/4W	
R259	1-249-425-11	CARBON 4.7K 5% 1/4W		R551	1-249-390-11	CARBON 5.6 5% 1/6W	
R261	1-249-433-11	CARBON 22K 5% 1/4W		R552	1-249-390-11	CARBON 5.6 5% 1/6W	
R262	1-249-417-11	CARBON 1K 5% 1/4W		R561	1-249-409-11	CARBON 220 5% 1/4W	
R263	1-249-421-11	CARBON 2.2K 5% 1/4W		R562	1-249-433-11	CARBON 22K 5% 1/4W	
R264	1-249-432-11	CARBON 18K 5% 1/4W		R581	1-247-887-00	CARBON 220K 5% 1/4W	
R265	1-249-421-11	CARBON 2.2K 5% 1/4W		R582	1-249-425-11	CARBON 4.7K 5% 1/4W	
R291	1-249-429-11	CARBON 10K 5% 1/4W		R583	1-249-437-11	CARBON 47K 5% 1/4W	
R292	1-247-864-11	CARBON 24K 5% 1/4W		R584	1-249-428-11	CARBON 8.2K 5% 1/4W	
R293	1-249-434-11	CARBON 27K 5% 1/4W		R585	1-249-441-11	CARBON 100K 5% 1/4W	
R294	1-249-408-11	CARBON 180 5% 1/4W		R586	1-249-423-11	CARBON 3.3K 5% 1/4W	
R301	1-249-429-11	CARBON 10K 5% 1/4W		R587	1-249-421-11	CARBON 2.2K 5% 1/4W	
R302	1-249-425-11	CARBON 4.7K 5% 1/4W		R588	1-249-441-11	CARBON 100K 5% 1/4W	
R304	1-249-425-11	CARBON 4.7K 5% 1/4W		R601	1-249-417-11	CARBON 1K 5% 1/4W	
R305	1-249-425-11	CARBON 4.7K 5% 1/4W		R602	1-249-441-11	CARBON 100K 5% 1/4W	
R306	1-249-425-11	CARBON 4.7K 5% 1/4W		R603	1-247-864-11	CARBON 24K 5% 1/4W	
R351	1-249-429-11	CARBON 10K 5% 1/4W		R604	1-249-433-11	CARBON 22K 5% 1/4W	
R352	1-249-425-11	CARBON 4.7K 5% 1/4W		R621	1-247-868-11	CARBON 36K 5% 1/4W	
R354	1-249-425-11	CARBON 4.7K 5% 1/4W		R622	1-249-435-11	CARBON 33K 5% 1/4W	
R355	1-249-425-11	CARBON 4.7K 5% 1/4W		R623	1-247-874-11	CARBON 62K 5% 1/4W	
R356	1-249-425-11	CARBON 4.7K 5% 1/4W		R624	1-247-880-11	CARBON 110K 5% 1/4W	
R401	1-249-429-11	CARBON 10K 5% 1/4W		R625	1-249-439-11	CARBON 68K 5% 1/4W	
R402	1-249-425-11	CARBON 4.7K 5% 1/4W		R626	1-247-878-00	CARBON 91K 5% 1/4W	
R404	1-249-425-11	CARBON 4.7K 5% 1/4W		R631	1-247-872-11	CARBON 51K 5% 1/4W	
R405	1-249-425-11	CARBON 4.7K 5% 1/4W		R632	1-249-437-11	CARBON 47K 5% 1/4W	
R406	1-249-425-11	CARBON 4.7K 5% 1/4W		R633	1-249-441-11	CARBON 100K 5% 1/4W	
R451	1-249-429-11	CARBON 10K 5% 1/4W		R634	1-247-878-00	CARBON 91K 5% 1/4W	
R452	1-249-425-11	CARBON 4.7K 5% 1/4W		R635	1-247-876-11	CARBON 75K 5% 1/4W	
R454	1-249-425-11	CARBON 4.7K 5% 1/4W		R636	1-247-887-00	CARBON 220K 5% 1/4W	
R455	1-249-425-11	CARBON 4.7K 5% 1/4W		R641	1-247-872-11	CARBON 51K 5% 1/4W	
R456	1-249-425-11	CARBON 4.7K 5% 1/4W		R642	1-247-872-11	CARBON 51K 5% 1/4W	
R521	1-249-425-11	CARBON 4.7K 5% 1/4W		R643	1-249-438-11	CARBON 56K 5% 1/4W	
R522	1-249-422-11	CARBON 2.7K 5% 1/4W		R644	1-247-874-11	CARBON 62K 5% 1/4W	
R523	1-249-428-11	CARBON 8.2K 5% 1/4W		R645	1-247-878-00	CARBON 91K 5% 1/4W	
R524	1-249-441-11	CARBON 100K 5% 1/4W		R646	1-247-886-11	CARBON 200K 5% 1/4W	
R526	1-247-840-00	CARBON 2.4K 5% 1/4W		R651	1-249-417-11	CARBON 1K 5% 1/4W	
R527	1-249-421-11	CARBON 2.2K 5% 1/4W		R652	1-249-441-11	CARBON 100K 5% 1/4W	
R528	1-249-429-11	CARBON 10K 5% 1/4W		R653	1-247-864-11	CARBON 24K 5% 1/4W	
R529	1-249-441-11	CARBON 100K 5% 1/4W		R655	1-247-887-00	CARBON 220K 5% 1/4W	
R530	1-249-441-11	CARBON 100K 5% 1/4W		R656	1-249-429-11	CARBON 10K 5% 1/4W	
R531	1-249-390-11	CARBON 5.6 5% 1/6W		R662	1-247-868-11	CARBON 36K 5% 1/4W	
R532	1-249-390-11	CARBON 5.6 5% 1/6W		R663	1-249-435-11	CARBON 33K 5% 1/4W	
R541	1-249-425-11	CARBON 4.7K 5% 1/4W		R664	1-249-439-11	CARBON 68K 5% 1/4W	
R542	1-249-422-11	CARBON 2.7K 5% 1/4W		R665	1-247-881-00	CARBON 120K 5% 1/4W	
R543	1-249-428-11	CARBON 8.2K 5% 1/4W		R666	1-249-439-11	CARBON 68K 5% 1/4W	

MAIN

Ref. No.	Part No.	Description	Remarks
R667	1-247-878-00	CARBON 91K 5% 1/4W	
R668	1-247-872-11	CARBON 51K 5% 1/4W	
R669	1-249-437-11	CARBON 47K 5% 1/4W	
R670	1-249-441-11	CARBON 100K 5% 1/4W	
R671	1-249-441-11	CARBON 100K 5% 1/4W	
R672	1-247-876-11	CARBON 75K 5% 1/4W	
R673	1-247-887-00	CARBON 220K 5% 1/4W	
R674	1-247-872-11	CARBON 51K 5% 1/4W	
R675	1-247-872-11	CARBON 51K 5% 1/4W	
R676	1-247-874-11	CARBON 62K 5% 1/4W	
R677	1-247-874-11	CARBON 62K 5% 1/4W	
R678	1-247-878-00	CARBON 91K 5% 1/4W	
R679	1-247-886-11	CARBON 200K 5% 1/4W	
R681	1-249-432-11	CARBON 18K 5% 1/4W	
R682	1-247-868-11	CARBON 36K 5% 1/4W	
R683	1-249-432-11	CARBON 18K 5% 1/4W	
R684	1-249-435-11	CARBON 33K 5% 1/4W	
R685	1-249-439-11	CARBON 68K 5% 1/4W	
R686	1-247-886-11	CARBON 200K 5% 1/4W	
R687	1-247-866-11	CARBON 30K 5% 1/4W	
R688	1-247-872-11	CARBON 51K 5% 1/4W	
R689	1-249-436-11	CARBON 39K 5% 1/4W	
R690	1-247-866-11	CARBON 30K 5% 1/4W	
R691	1-249-438-11	CARBON 56K 5% 1/4W	
R692	1-247-883-00	CARBON 150K 5% 1/4W	
R693	1-249-435-11	CARBON 33K 5% 1/4W	
R694	1-247-874-11	CARBON 62K 5% 1/4W	
R695	1-249-434-11	CARBON 27K 5% 1/4W	
R696	1-247-868-11	CARBON 36K 5% 1/4W	
R697	1-249-438-11	CARBON 56K 5% 1/4W	
R698	1-247-883-00	CARBON 150K 5% 1/4W	
△R700	1-219-134-11	FUSIBLE 0.1 5% 1/4W F	
R701	1-249-433-11	CARBON 22K 5% 1/4W	
R702	1-249-421-11	CARBON 2.2K 5% 1/4W	
R703	1-219-154-11	FUSIBLE 0.12 10% 1/4W	
R704	1-219-136-11	FUSIBLE 0.22 10% 1/4W	
R705	1-249-422-11	CARBON 2.7K 5% 1/4W	
R706	1-249-421-11	CARBON 2.2K 5% 1/4W	
R707	1-247-840-00	CARBON 2.4K 5% 1/4W	
R708	1-249-430-11	CARBON 12K 5% 1/4W	
R709	1-247-856-00	CARBON 11K 5% 1/4W	
R710	1-249-436-11	CARBON 39K 5% 1/4W	
R751	1-249-433-11	CARBON 22K 5% 1/4W	
R752	1-249-421-11	CARBON 2.2K 5% 1/4W	
R753	1-249-421-11	CARBON 2.2K 5% 1/4W	
R754	1-249-421-11	CARBON 2.2K 5% 1/4W	
R755	1-249-421-11	CARBON 2.2K 5% 1/4W	
R756	1-249-417-11	CARBON 1K 5% 1/4W	
R757	1-249-417-11	CARBON 1K 5% 1/4W	
R758	1-249-417-11	CARBON 1K 5% 1/4W	

Ref. No.	Part No.	Description	Remarks
R759	1-249-415-11	CARBON 680 5% 1/4W	
R760	1-249-422-11	CARBON 2.7K 5% 1/4W	
R761	1-249-424-11	CARBON 3.9K 5% 1/4W	
R762	1-249-423-11	CARBON 3.3K 5% 1/4W	
R763	1-249-405-11	CARBON 100 5% 1/4W	
R801	1-249-405-11	CARBON 100 5% 1/4W	
R802	1-249-405-11	CARBON 100 5% 1/4W	
R803	1-249-433-11	CARBON 22K 5% 1/4W	
R804	1-249-433-11	CARBON 22K 5% 1/4W	
R806	1-249-421-11	CARBON 2.2K 5% 1/4W	
R807	1-249-421-11	CARBON 2.2K 5% 1/4W	
R808	1-249-421-11	CARBON 2.2K 5% 1/4W	
R809	1-249-421-11	CARBON 2.2K 5% 1/4W	
R810	1-249-421-11	CARBON 2.2K 5% 1/4W	
R811	1-249-433-11	CARBON 22K 5% 1/4W	
R812	1-249-433-11	CARBON 22K 5% 1/4W	
R813	1-247-903-00	CARBON 1M 5% 1/4W	
R814	1-249-425-11	CARBON 4.7K 5% 1/4W	
R815	1-249-433-11	CARBON 22K 5% 1/4W	
R816	1-249-433-11	CARBON 22K 5% 1/4W	
R817	1-249-424-11	CARBON 3.9K 5% 1/4W	
R818	1-249-433-11	CARBON 22K 5% 1/4W	
R819	1-249-433-11	CARBON 22K 5% 1/4W	
R820	1-249-429-11	CARBON 10K 5% 1/4W	
R821	1-249-441-11	CARBON 100K 5% 1/4W	
R822	1-249-417-11	CARBON 1K 5% 1/4W	
R823	1-249-437-11	CARBON 47K 5% 1/4W	
R831	1-249-429-11	CARBON 10K 5% 1/4W	
R832	1-249-433-11	CARBON 22K 5% 1/4W	
R833	1-249-429-11	CARBON 10K 5% 1/4W	
R834	1-249-421-11	CARBON 2.2K 5% 1/4W	
R835	1-249-429-11	CARBON 10K 5% 1/4W	
R836	1-249-417-11	CARBON 1K 5% 1/4W	
R837	1-249-412-11	CARBON 390 5% 1/4W	
R841	1-249-429-11	CARBON 10K 5% 1/4W	
R842	1-249-433-11	CARBON 22K 5% 1/4W	
R843	1-249-429-11	CARBON 10K 5% 1/4W	
R844	1-249-421-11	CARBON 2.2K 5% 1/4W	
R845	1-249-429-11	CARBON 10K 5% 1/4W	
R846	1-249-417-11	CARBON 1K 5% 1/4W	
R847	1-249-412-11	CARBON 390 5% 1/4W	
R851	1-247-903-00	CARBON 1M 5% 1/4W	
R852	1-249-425-11	CARBON 4.7K 5% 1/4W	
R853	1-249-425-11	CARBON 4.7K 5% 1/4W	
R854	1-249-425-11	CARBON 4.7K 5% 1/4W	
R855	1-249-425-11	CARBON 4.7K 5% 1/4W	
R856	1-249-425-11	CARBON 4.7K 5% 1/4W	
R857	1-249-425-11	CARBON 4.7K 5% 1/4W	
R858	1-249-425-11	CARBON 4.7K 5% 1/4W	
R859	1-249-425-11	CARBON 4.7K 5% 1/4W	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

MAIN MD

Ref. No.	Part No.	Description	Remarks
R861	1-249-436-11	CARBON 39K 5% 1/4W	
R862	1-249-436-11	CARBON 39K 5% 1/4W	
R863	1-247-895-00	CARBON 470K 5% 1/4W	
R864	1-247-895-00	CARBON 470K 5% 1/4W	
R865	1-249-436-11	CARBON 39K 5% 1/4W	
R866	1-249-436-11	CARBON 39K 5% 1/4W	
R867	1-247-895-00	CARBON 470K 5% 1/4W	
R868	1-247-895-00	CARBON 470K 5% 1/4W	
R871	1-249-433-11	CARBON 22K 5% 1/4W	
R872	1-247-864-11	CARBON 24K 5% 1/4W	
R873	1-249-411-11	CARBON 330 5% 1/4W	
R874	1-247-830-11	CARBON 910 5% 1/4W	
R875	1-249-418-11	CARBON 1.2K 5% 1/4W	
R876	1-249-417-11	CARBON 1K 5% 1/4W	
△R877	1-212-950-00	FUSIBLE 4.7 5% 1/2W F	
R878	1-249-416-11	CARBON 820 5% 1/4W	
R879	1-249-419-11	CARBON 1.5K 5% 1/4W	
R880	1-249-417-11	CARBON 1K 5% 1/4W	
△R881	1-212-950-00	FUSIBLE 4.7 5% 1/2W F	
R882	1-249-433-11	CARBON 22K 5% 1/4W	
R883	1-247-864-11	CARBON 24K 5% 1/4W	
R884	1-249-411-11	CARBON 330 5% 1/4W	
R885	1-247-830-11	CARBON 910 5% 1/4W	
R886	1-249-418-11	CARBON 1.2K 5% 1/4W	
R887	1-249-417-11	CARBON 1K 5% 1/4W	
△R888	1-212-950-00	FUSIBLE 4.7 5% 1/2W F	
R889	1-249-416-11	CARBON 820 5% 1/4W	
R890	1-249-419-11	CARBON 1.5K 5% 1/4W	
R891	1-249-417-11	CARBON 1K 5% 1/4W	
△R892	1-212-950-00	FUSIBLE 4.7 5% 1/2W F	
R893	1-249-433-11	CARBON 22K 5% 1/4W	
R941	1-249-433-11	CARBON 22K 5% 1/4W	
R942	1-247-862-11	CARBON 20K 5% 1/4W	
R943	1-249-429-11	CARBON 10K 5% 1/4W	
R945	1-249-433-11	CARBON 22K 5% 1/4W	
< VARIABLE RESISTOR >			
RV121	1-238-600-11	RES, ADJ, CARBON 10K	
RV131	1-238-600-11	RES, ADJ, CARBON 10K	
RV141	1-238-600-11	RES, ADJ, CARBON 10K	
RV151	1-238-600-11	RES, ADJ, CARBON 10K	
RV221	1-238-600-11	RES, ADJ, CARBON 10K	
RV231	1-238-600-11	RES, ADJ, CARBON 10K	
RV241	1-238-600-11	RES, ADJ, CARBON 10K	
RV251	1-238-600-11	RES, ADJ, CARBON 10K	
RV301	1-238-600-11	RES, ADJ, CARBON 10K	
RV351	1-238-600-11	RES, ADJ, CARBON 10K	
RV401	1-238-600-11	RES, ADJ, CARBON 10K	
RV451	1-238-600-11	RES, ADJ, CARBON 10K	
RV831	1-238-602-11	RES, ADJ, CARBON 47K	
RV841	1-238-602-11	RES, ADJ, CARBON 47K	

Ref. No.	Part No.	Description	Remarks
RV871	1-238-600-11	RES, ADJ, CARBON 10K	
RV872	1-238-600-11	RES, ADJ, CARBON 10K	
RV881	1-238-600-11	RES, ADJ, CARBON 10K	
RV882	1-238-600-11	RES, ADJ, CARBON 10K	
RV891	1-238-600-11	RES, ADJ, CARBON 10K	
< RELAY >			
RY531	1-515-683-11	RELAY	
RY551	1-515-683-11	RELAY	
< TRANSFORMER >			
T121	1-433-367-11	TRANSFORMER, BIAS OSCILLATION	
T141	1-433-367-11	TRANSFORMER, BIAS OSCILLATION	
T221	1-433-367-11	TRANSFORMER, BIAS OSCILLATION	
T241	1-433-367-11	TRANSFORMER, BIAS OSCILLATION	
T521	1-433-366-11	TRANSFORMER, BIAS OSCILLATION	
T541	1-433-366-11	TRANSFORMER, BIAS OSCILLATION	
< TEST PIN >			
* TP521	1-564-506-11	PLUG, CONNECTOR 3P	
* TP541	1-564-506-11	PLUG, CONNECTOR 3P	
* TP581	1-564-506-11	PLUG, CONNECTOR 3P	
* TP801	1-564-505-11	PLUG, CONNECTOR 2P	
* TP802	1-564-505-11	PLUG, CONNECTOR 2P	
* TP803	1-564-505-11	PLUG, CONNECTOR 2P	
< VIBRATOR >			
X801	1-577-358-21	VIBRATOR, CERAMIC 4MHz	
X802	1-577-358-21	VIBRATOR, CERAMIC 4MHz	

* 1-632-740-11	MD BOARD		

3-356-631-01	HOLDER (SENSOR)		
< CONNECTOR >			
CN1001	1-506-615-11	PIN, CONNECTOR 9P	
* CN1002	1-564-502-11	PIN, CONNECTOR 10P	
< IC >			
IC1001	8-749-920-97	DIODE GP2S22B	
IC1002	8-749-920-97	DIODE GP2S22B	
< RESISTOR >			
R1001	1-249-408-11	CARBON 180 5% 1/4W	
R1002	1-249-408-11	CARBON 180 5% 1/4W	

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

PANEL (including SW (A)/(B) /POWER SW/DISPLAY/HP/REC VOL/COVER/POWER TRANSFORMER/DOLBY/PJ)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< SWITCH >							
S1002	1-570-953-11	SWITCH, PUSH (1 KEY) (DOOR)		C472	1-124-927-11	ELECT 4.7uF 20% 100V	
S1003	1-571-958-11	SWITCH, PUSH (1 KEY) (CLOSE)		C473	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
S1004	1-572-126-11	SWITCH, PUSH (1 KEY) (OPEN)		C475	1-124-927-11	ELECT 4.7uF 20% 100V	
S1005	1-572-125-11	SWITCH, LEAF (FWD)		C476	1-136-171-00	FILM 0.33uF 5% 50V	
S1006	1-572-202-11	SWITCH, LEAF (HALF)		C477	1-136-174-00	FILM 0.56uF 5% 50V	
S1007	1-572-125-11	SWITCH, LEAF (METAL)		C478	1-130-475-00	MYLAR 0.0022uF 5% 50V	
S1008	1-572-125-11	SWITCH, LEAF (70 μ S)		C479	1-130-475-00	MYLAR 0.0022uF 5% 50V	
S1009	1-572-125-11	SWITCH, LEAF (KEY)		C480	1-124-768-11	ELECT 4.7uF 20% 50V	
< TERMINAL >				C481	1-124-927-11	ELECT 4.7uF 20% 100V	
* TB1001	1-694-018-11	TERMINAL (5P)		C482	1-136-171-00	FILM 0.33uF 5% 50V	
*****				C483	1-136-174-00	FILM 0.56uF 5% 50V	
*	A-2006-724-A	PANEL BOARD, COMPLETE		C484	1-130-475-00	MYLAR 0.0022uF 5% 50V	
		*****		C485	1-130-475-00	MYLAR 0.0022uF 5% 50V	
	9-911-844-XX	CUSHION		C486	1-124-768-11	ELECT 4.7uF 20% 50V	
*	3-362-478-11	HOLDER (T), LED		C571	1-126-157-11	ELECT 10uF 20% 16V	
	3-365-420-01	HOLDER, FL TUBE		C572	1-126-157-11	ELECT 10uF 20% 16V	
< CAPACITOR >				C901	1-161-494-00	CERAMIC 0.022uF 25V	
C71	1-124-126-00	ELECT 47uF 20% 10V		C902	1-164-159-11	CERAMIC 0.1uF 50V	
C72	1-124-126-00	ELECT 47uF 20% 10V		C903	1-124-443-00	ELECT 100uF 20% 10V	
C73	1-124-126-00	ELECT 47uF 20% 10V		C904	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
C74	1-124-126-00	ELECT 47uF 20% 10V		C905	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
C75	1-124-903-11	ELECT 1uF 20% 50V		C999	1-164-159-11	CERAMIC 0.1uF 50V	
C171	1-126-157-11	ELECT 10uF 20% 16V		< CONNECTOR >			
C172	1-162-288-31	CERAMIC 330PF 10% 50V		* CN73	1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P	
C271	1-126-157-11	ELECT 10uF 20% 16V		* CN74	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P	
C272	1-162-288-31	CERAMIC 330PF 10% 50V		CN75	1-506-468-11	PIN, CONNECTOR 3P	
C371	1-124-927-11	ELECT 4.7uF 20% 100V		CN76	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P	
C372	1-124-927-11	ELECT 4.7uF 20% 100V		* CN563	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P	
C373	1-161-375-00	CERAMIC 0.0022uF 20% 50V		CN572	1-691-909-11	SOCKET, CONNECTOR 8P	
C375	1-124-927-11	ELECT 4.7uF 20% 100V		< CONNECTOR >			
C376	1-136-171-00	FILM 0.33uF 5% 50V		* CNP71	1-691-914-11	CONNECTOR, BOARD TO BOARD 15P	
C377	1-136-174-00	FILM 0.56uF 5% 50V		* CNP72	1-691-914-11	CONNECTOR, BOARD TO BOARD 15P	
C378	1-130-475-00	MYLAR 0.0022uF 5% 50V		* CNP73	1-691-469-11	CONNECTOR (PC BOARD) (PLUG) 5P	
C379	1-130-475-00	MYLAR 0.0022uF 5% 50V		* CNP74	1-691-007-11	CONNECTOR (PC BOARD) (PLUG) 4P	
C380	1-124-768-11	ELECT 4.7uF 20% 50V		CNP76	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
C381	1-124-927-11	ELECT 4.7uF 20% 100V		< DIODE >			
C382	1-136-171-00	FILM 0.33uF 5% 50V		D71	8-719-987-63	DIODE 1N4148M	
C383	1-136-174-00	FILM 0.56uF 5% 50V		D72	8-719-987-63	DIODE 1N4148M	
C384	1-130-475-00	MYLAR 0.0022uF 5% 50V		D73	8-719-933-54	DIODE HZS9A2L	
C385	1-130-475-00	MYLAR 0.0022uF 5% 50V		D74	8-719-987-63	DIODE 1N4148M	
C386	1-124-768-11	ELECT 4.7uF 20% 50V		D75	8-719-987-63	DIODE 1N4148M	
C471	1-124-927-11	ELECT 4.7uF 20% 100V		D76	8-719-933-54	DIODE HZS9A2L	

PANEL (including SW (A)/(B) / POWER SW / DISPLAY / HP / REC VOL / COVER / POWER TRANSFORMER / DOLBY / PJ)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< IC >							
IC71	8-759-634-51	IC M5218AP		R81	1-249-433-11	CARBON 22K 5% 1/4W	
IC72	8-752-059-55	IC CXA1331S		R82	1-249-435-11	CARBON 33K 5% 1/4W	
IC73	8-752-059-55	IC CXA1331S		R83	1-249-435-11	CARBON 33K 5% 1/4W	
IC74	8-759-000-49	IC uPD4066BC		R84	1-249-435-11	CARBON 33K 5% 1/4W	
IC75	8-759-000-49	IC uPD4066BC		R001	1-249-673-11	CARBON 1K 5% 1/2W	
IC76	8-759-000-49	IC uPD4066BC		R002	1-249-417-11	CARBON 1K 5% 1/4W	
IC507	8-759-634-50	IC M5218AL		R171	1-249-432-11	CARBON 18K 5% 1/4W	
IC901	8-759-323-40	IC HD614023SA85		R172	1-249-421-11	CARBON 2.2K 5% 1/4W	
IC902	8-741-100-48	IC SBX1610-59		R173	1-249-432-11	CARBON 18K 5% 1/4W	
< JACK >				R174	1-249-409-11	CARBON 220 5% 1/4W	
J501	1-507-796-71	JACK (PHONES)		R271	1-249-432-11	CARBON 18K 5% 1/4W	
< FILTER >				R272	1-249-421-11	CARBON 2.2K 5% 1/4W	
LPF371	1-231-388-00	FILTER, LOW PASS		R273	1-249-432-11	CARBON 18K 5% 1/4W	
LPF471	1-231-388-00	FILTER, LOW PASS		R274	1-249-409-11	CARBON 220 5% 1/4W	
< TRANSISTOR >				R372	1-249-441-11	CARBON 100K 5% 1/4W	
Q71	8-729-900-65	TRANSISTOR DTA144ES		R373	1-249-435-11	CARBON 33K 5% 1/4W	
Q72	8-729-900-65	TRANSISTOR DTA144ES		R374	1-249-432-11	CARBON 18K 5% 1/4W	
Q73	8-729-900-65	TRANSISTOR DTA144ES		R375	1-249-423-11	CARBON 3.3K 5% 1/4W	
Q74	8-729-900-80	TRANSISTOR DTC114ES		R376	1-249-441-11	CARBON 100K 5% 1/4W	
Q75	8-729-900-65	TRANSISTOR DTA144ES		R377	1-249-428-11	CARBON 8.2K 5% 1/4W	
Q76	8-729-900-65	TRANSISTOR DTA144ES		R379	1-249-441-11	CARBON 100K 5% 1/4W	
Q77	8-729-900-80	TRANSISTOR DTC114ES		R381	1-249-414-11	CARBON 560 5% 1/4W	
Q78	8-729-900-65	TRANSISTOR DTA144ES		R382	1-247-864-11	CARBON 24K 5% 1/4W	
Q79	8-729-900-89	TRANSISTOR DTC144ES		R383	1-249-441-11	CARBON 100K 5% 1/4W	
Q80	8-729-900-65	TRANSISTOR DTA144ES		R384	1-249-414-11	CARBON 560 5% 1/4W	
Q81	8-729-900-89	TRANSISTOR DTC144ES		R385	1-247-864-11	CARBON 24K 5% 1/4W	
Q82	8-729-900-65	TRANSISTOR DTA144ES		R386	1-249-441-11	CARBON 100K 5% 1/4W	
Q83	8-729-900-89	TRANSISTOR DTC144ES		R391	1-249-437-11	CARBON 47K 5% 1/4W	
Q371	8-729-900-80	TRANSISTOR DTC114ES		R472	1-249-441-11	CARBON 100K 5% 1/4W	
Q471	8-729-900-80	TRANSISTOR DTC114ES		R473	1-249-435-11	CARBON 33K 5% 1/4W	
Q901	8-729-900-61	TRANSISTOR DTA114ES		R474	1-249-432-11	CARBON 18K 5% 1/4W	
Q902	8-729-900-61	TRANSISTOR DTA114ES		R475	1-249-423-11	CARBON 3.3K 5% 1/4W	
Q903	8-729-620-05	TRANSISTOR 2SC2603-EF		R476	1-249-441-11	CARBON 100K 5% 1/4W	
< RESISTOR >				R477	1-249-428-11	CARBON 8.2K 5% 1/4W	
R71	1-249-425-11	CARBON 4.7K 5% 1/4W		R479	1-249-441-11	CARBON 100K 5% 1/4W	
R72	1-215-455-00	METAL 27K 1% 1/6W		R481	1-249-414-11	CARBON 560 5% 1/4W	
R73	1-249-417-11	CARBON 1K 5% 1/4W		R482	1-247-864-11	CARBON 24K 5% 1/4W	
R74	1-215-455-00	METAL 27K 1% 1/6W		R483	1-249-441-11	CARBON 100K 5% 1/4W	
R75	1-249-417-11	CARBON 1K 5% 1/4W		R484	1-249-414-11	CARBON 560 5% 1/4W	
R76	1-249-433-11	CARBON 22K 5% 1/4W		R485	1-247-864-11	CARBON 24K 5% 1/4W	
R77	1-249-429-11	CARBON 10K 5% 1/4W		R486	1-249-441-11	CARBON 100K 5% 1/4W	
R78	1-249-433-11	CARBON 22K 5% 1/4W		R491	1-249-437-11	CARBON 47K 5% 1/4W	
R79	1-249-433-11	CARBON 22K 5% 1/4W		R525	1-249-424-11	CARBON 3.9K 5% 1/4W	
R80	1-249-429-11	CARBON 10K 5% 1/4W		R545	1-249-424-11	CARBON 3.9K 5% 1/4W	
				R901	1-249-411-11	CARBON 330 5% 1/4W	
				R902	1-249-433-11	CARBON 22K 5% 1/4W	
				R903	1-249-433-11	CARBON 22K 5% 1/4W	
				R904	1-249-417-11	CARBON 1K 5% 1/4W	
				R905	1-247-903-00	CARBON 1M 5% 1/4W	
				R906	1-249-441-11	CARBON 100K 5% 1/4W	

PANEL (including SW (A)/(B) / POWER SW/DISPLAY/HP/REC VOL/COVER/POWER TRANSFORMER/DOLBY/PJ)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R907	1-249-441-11	CARBON 100K 5% 1/4W				< SWITCH >	
R908	1-249-441-11	CARBON 100K 5% 1/4W		S599	1-554-118-00	SWITCH, PUSH (1 KEY) (MPX FILTER)	
R951	1-249-407-11	CARBON 150 5% 1/4W		S901	1-554-118-00	SWITCH, PUSH (1 KEY) (POWER)	
R952	1-249-409-11	CARBON 220 5% 1/4W		S902	1-554-118-00	SWITCH, PUSH (1 KEY) (TAPE SPEED)	
R953	1-249-411-11	CARBON 330 5% 1/4W		S951	1-554-303-21	SWITCH, TACTILE (BLANK SKIP)	
				S952	1-554-303-21	SWITCH, TACTILE (AUTO PAUSE)	
R954	1-249-421-11	CARBON 2.2K 5% 1/4W					
R955	1-249-420-11	CARBON 1.8K 5% 1/4W		S955	1-571-452-11	SWITCH, SLIDE (DECK B)	
R961	1-249-407-11	CARBON 150 5% 1/4W		S961	1-571-452-11	SWITCH, SLIDE (TIMER)	
R962	1-249-422-11	CARBON 2.7K 5% 1/4W		S962	1-571-452-11	SWITCH, SLIDE (DECK A)	
R963	1-249-420-11	CARBON 1.8K 5% 1/4W		S971	1-554-303-21	SWITCH, TACTILE (A+B REC)	
				S972	1-554-303-21	SWITCH, TACTILE (HIGH SPEED)	
R968	1-249-405-11	CARBON 100 5% 1/4W					
R969	1-249-405-11	CARBON 100 5% 1/4W		S973	1-554-303-21	SWITCH, TACTILE (NORMAL SPEED)	
R970	1-249-405-11	CARBON 100 5% 1/4W		S974	1-554-303-21	SWITCH, TACTILE (RESET A)	
R971	1-249-407-11	CARBON 150 5% 1/4W		S975	1-554-303-21	SWITCH, TACTILE (MEMORY A)	
R972	1-249-409-11	CARBON 220 5% 1/4W		S976	1-554-303-21	SWITCH, TACTILE (RESET B)	
				S977	1-554-303-21	SWITCH, TACTILE (MEMORY B)	
R973	1-249-411-11	CARBON 330 5% 1/4W					
R974	1-249-413-11	CARBON 470 5% 1/4W		S978	1-571-452-11	SWITCH, SLIDE (DIR MODE)	
R975	1-249-415-11	CARBON 680 5% 1/4W		S981	1-554-303-21	SWITCH, TACTILE (▲) A DECK	
R976	1-249-417-11	CARBON 1K 5% 1/4W		S982	1-554-303-21	SWITCH, TACTILE (■) A DECK	
R977	1-249-420-11	CARBON 1.8K 5% 1/4W		S983	1-554-303-21	SWITCH, TACTILE (▷) A DECK	
				S984	1-554-303-21	SWITCH, TACTILE (<) A DECK	
R978	1-249-424-11	CARBON 3.9K 5% 1/4W					
R981	1-249-407-11	CARBON 150 5% 1/4W		S985	1-554-303-21	SWITCH, TACTILE (■■) A DECK	
R982	1-249-409-11	CARBON 220 5% 1/4W		S986	1-554-303-21	SWITCH, TACTILE (●) B DECK	
R983	1-249-411-11	CARBON 330 5% 1/4W		S987	1-554-303-21	SWITCH, TACTILE (◀) B DECK	
R984	1-249-413-11	CARBON 470 5% 1/4W		S988	1-554-303-21	SWITCH, TACTILE (▶) B DECK	
				S989	1-554-303-21	SWITCH, TACTILE (●) B DECK	
R985	1-249-415-11	CARBON 680 5% 1/4W					
R986	1-249-417-11	CARBON 1K 5% 1/4W		S991	1-554-303-21	SWITCH, TACTILE (▲) B DECK	
R987	1-249-420-11	CARBON 1.8K 5% 1/4W		S992	1-554-303-21	SWITCH, TACTILE (■) B DECK	
R988	1-249-424-11	CARBON 3.9K 5% 1/4W		S993	1-554-303-21	SWITCH, TACTILE (▷) B DECK	
R991	1-249-407-11	CARBON 150 5% 1/4W		S994	1-554-303-21	SWITCH, TACTILE (<) B DECK	
				S995	1-554-303-21	SWITCH, TACTILE (■■) B DECK	
R992	1-249-409-11	CARBON 220 5% 1/4W					
R993	1-249-411-11	CARBON 330 5% 1/4W		S996	1-554-303-21	SWITCH, TACTILE (●) B DECK	
R994	1-249-413-11	CARBON 470 5% 1/4W		S997	1-554-303-21	SWITCH, TACTILE (◀) A DECK	
R995	1-249-415-11	CARBON 680 5% 1/4W		S998	1-554-303-21	SWITCH, TACTILE (▶) A DECK	
R996	1-249-417-11	CARBON 1K 5% 1/4W		S999	1-554-303-21	SWITCH, TACTILE (●) A DECK	
						< FLUORESCENT INDICATOR >	
R997	1-249-420-11	CARBON 1.8K 5% 1/4W		VFD901	1-519-594-11	INDICATOR TUBE, FLUORESCENT	
R998	1-249-424-11	CARBON 3.9K 5% 1/4W					
						< VIBRATOR >	
		< VARIABLE RESISTOR >					
RV71	1-241-898-11	RES, VAR, CARBON 10K/10K(DUBBING LEVEL)					
RV521	1-241-895-11	RES, VAR, CARBON 5K (BIAS A)					
RV541	1-241-895-11	RES, VAR, CARBON 5K (BIAS B)		X901	1-577-359-21	VIBRATOR, CERAMIC 4.19MHz	
RV561	1-241-899-11	RES, VAR (REC LEVEL)					
RV562	1-241-897-11	RES, VAR, CARBON 50K/50K (BALANCE)					
RV571	1-238-085-11	REA, VAR, CARBON 20K/20K (LEVEL PHONES)					
RV901	1-241-896-11	RES, VAR, CARBON 10K (TAPE SPEED)					

REEL MOTOR**TRANSLATION**

Ref. No.	Part No.	Description	Remarks
*	1-632-741-11	REEL MOTOR BOARD *****	
		< CAPACITOR >	
C1051	1-124-907-11	ELECT 10uF 20% 50V	
C1052	1-124-907-11	ELECT 10uF 20% 50V	
C1053	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
CN1051	1-564-501-11	PIN, CONNECTOR 8P	
* CN1052	1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P	
* CN1053	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P	
		< RESISTOR >	
R1051	1-249-414-11	CARBON 560 5% 1/4W	

*	1-634-323-11	TRANSLATION BOARD *****	
		< CONNECTOR >	
* CN1091	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
* CN1092	1-564-509-11	PLUG, CONNECTOR 6P	
* CN1093	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P	
* CN1094	1-564-506-11	PLUG, CONNECTOR 3P	

		MISCELLANEOUS *****	
△57	1-555-795-00	CORD, POWER, EULO PLUG	
D1051	8-719-980-85	DIODE SLF325C	
D1091	8-719-950-74	DIODE SLR314D	
HRPE1001	A-2003-723-A	BASE ASSY, HEAD	
* HS705	3-309-144-21	HEAT SINK	
* HS752	4-880-403-11	HEAT SINK	
* HS755	4-880-403-11	HEAT SINK	
* HS805	3-356-925-01	HEAT SINK	
* HS807	3-356-925-01	HEAT SINK	
IC1001	8-749-920-97	DIODE GP2S22B	
IC1002	8-749-920-97	DIODE GP2S22B	
M1051	X-3356-638-1	MOTOR (REEL R) ASSY	
M1052	X-3356-604-1	MOTOR (ASSIST) ASSY	
M1053	X-3356-605-1	MOTOR (CAPSTAN R) ASSY	
Q1091	8-729-809-43	TRANSISTOR SPS-314B	
S1001	1-466-525-11	ENCODER, ROTARY	
△T1	1-450-446-11	TRANSFORMER, POWER	

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS *****	
	1-465-738-11	REMOTE COMMANDER (RM-J903)	
	1-558-271-11	CORD, CONNECTION	
	2-181-754-01	COVER, BATTERY (FOR COMMANDER)	
*	3-354-913-01	CUSHION	
*	3-366-699-71	INDIVIDUAL CARTON	
	3-754-915-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (AEP)	
	3-754-915-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP)	
	3-754-915-61	MANUAL, INSTRUCTION (GERMAN) (Germany)	

HARDWARE LIST

#1	7-682-548-09	SCREW +BVTT 3X8 (S)
#2	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S
#3	7-682-547-04	SCREW +BVTT 3X6 (S)
#4	7-685-870-01	SCREW +BVTT 3X5 (S)
#5	7-682-548-04	SCREW +BVTT 3X8 (S)
#6	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
#7	7-621-849-00	SCREW (BV/RING)
#8	7-621-255-20	SCREW +BVTT 2X4 (S)
#9	7-621-770-67	SCREW +BVTT 2.6X6 (S)
#10	7-685-131-19	SCREW +BTP 2.6X4 TYPE2 N-S
#11	7-621-283-00	SCREW +BVTT 2X5 (S)

Note: The components identified by mark △ or dotted line with mark △ are critical for safety.
 Replace only with part number specified.

