TC-RX311

SERVICE MANUAL

US Model
Canadian Model
AEP Model

Model Name Using Similar Mechanism	TC-RX390
Tape Transport Machanism Type	TCM-190RB12CJ

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 90 sec. (with Sony C-60 cassette)
Bias	AC bias
Heads	Erasing head × 1 (F&F head) Playback/Recording head × 1 (SD head)
Motors	Capstan motor × 1 (DC servo motor) Reel motor × 1 (DC motor)

Signal-to-noise ratio (at peak level and weighted)

Cassette (Dolby NR off)	Type IV	Type II	Type I
	58 dB	57 dB	55 dB

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

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

Frequency response (Dolby NR off)

Type IV cassette	30 - 15,000 Hz (±3 dB, IEC) 30 - 13,000 Hz [±3 dB (-4 dB recording)]
Type II cassette	30 - 15,000 Hz (±3 dB, IEC)
Type I cassette	30 - 14,000 Hz (±3 dB, IEC)

Type IV : Sony METAL-S or ES-IV
Type II : Sony UX-S or UX
Type I : Sony HF-S

Wow and flutter
± 0.13% W.Peak (IEC)
0.07% W.RMS (NAB)
± 0.18% W.Peak (DIN)

Inputs

Line inputs (phone jacks)	Sensitivity	0.16 V
	Input impedance	47 k ohms

Outputs

Line outputs (phone jacks)	Rated output level	0.5 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Headphones (stereo phone jack)	Output level	1 mW at a load impedance of 32 ohms

General

Power requirements
AEP Model :
220 - 230 V AC, 50/60 Hz
US, Canadian Model :
120 V AC, 60 Hz

Power consumption 23 W
Dimensions Approx. 430 × 123 × 310 mm (w/h/d)
(17 × 4⅞ × 12¼ inches)
including projecting parts and controls
Mass Approx. 3.8 kg (8 lbs 6 oz)

Supplied accessories Audio connecting cords (2)

Design and specifications are subject to change without notice.

Note

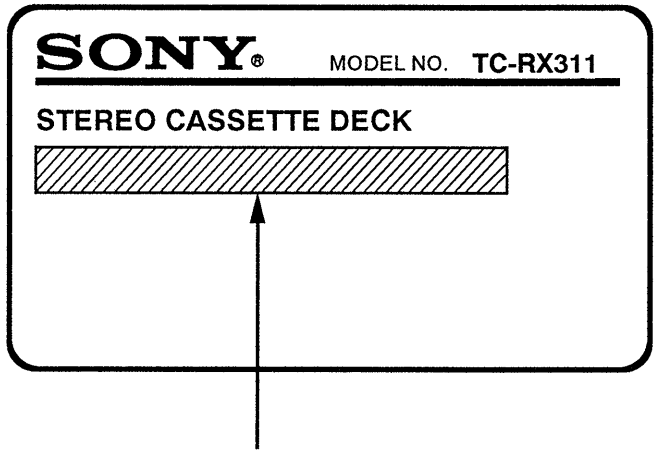
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

STEREO CASSETTE DECK

SONY®

TABLE OF CONTENTS

MODEL IDENTIFICATION
(Specification Label)



US, Canadian model : AC 120V 60Hz 21W
AEP model : AC 220-230V~50 /60Hz 21W

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

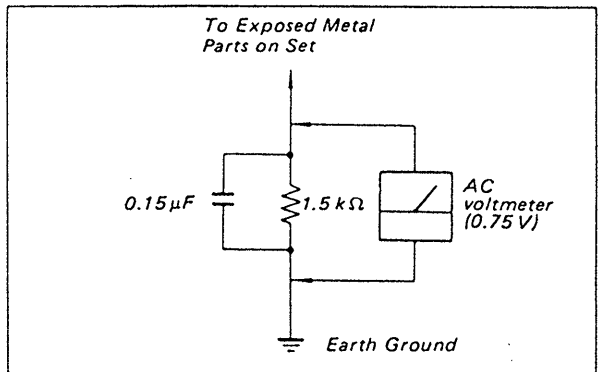


Fig. A. Using an AC voltmeter to check AC leakage.

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.

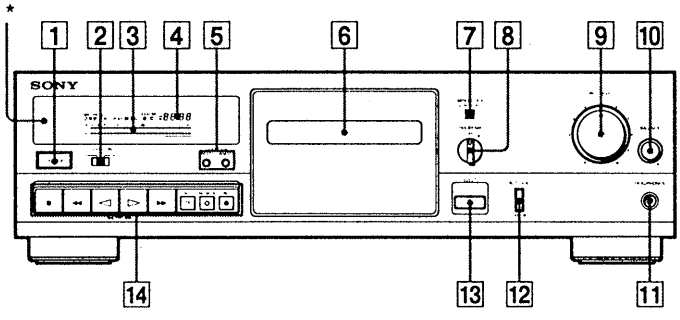
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. IDENTIFYING THE PARTS



Front Panel

For details, refer to the page number(s) indicated in parentheses.

1 POWER switch
2 DIRECTION mode switch
3 Peak level meter
4 Digital counter
5 COUNTER buttons
RESET button
MEMORY button
6 Cassette holder
7 MPX FILTER button
8 DOLBY NR (noise reduction) switch
9 REC (recording) LEVEL control
10 BALANCE control
11 HEADPHONES jack (stereo phone jack)
12 AUTO CAL button
13 ⏏ (eject) button
14 Tape operation buttons
■ (stop) button
◀◀ (leftward fast winding) (Multi-AMS**) button
◀ (reverse play) button
▶ (forward play) button
▶▶ (rightward fast winding) (Multi-AMS**) button
II PAUSE button
O REC MUTE (record muting) button
● REC (recording) button

* Remote control sensor
You can remotely control this cassette deck with:
— A remote commander that came with a Sony amplifier or receiver if it has the R mark and cassette deck control capability.
— An optional Sony remote commander with the R mark and cassette deck control capability.

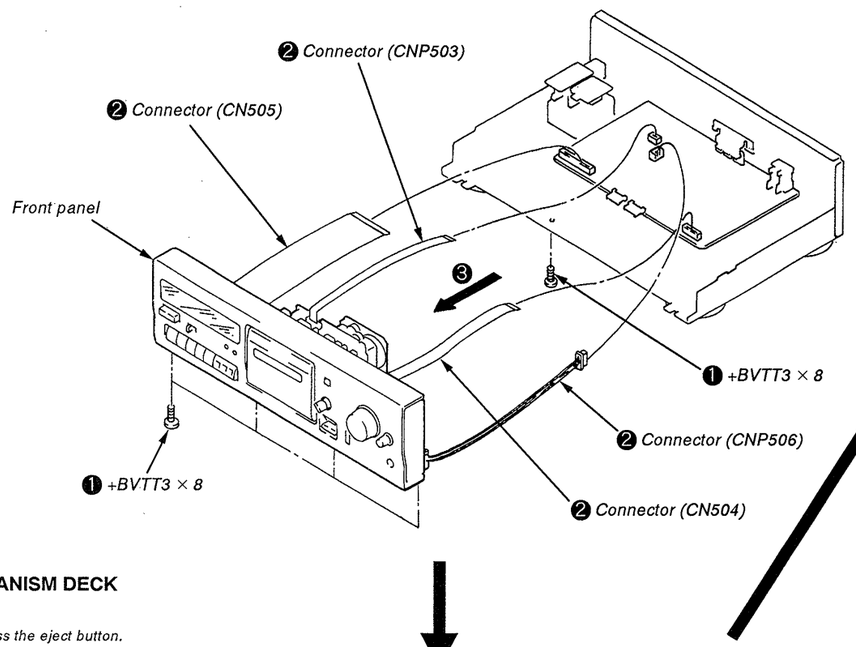
** AMS is an abbreviation for Automatic Music Sensor.

SECTION 2
DISASSEMBLY

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

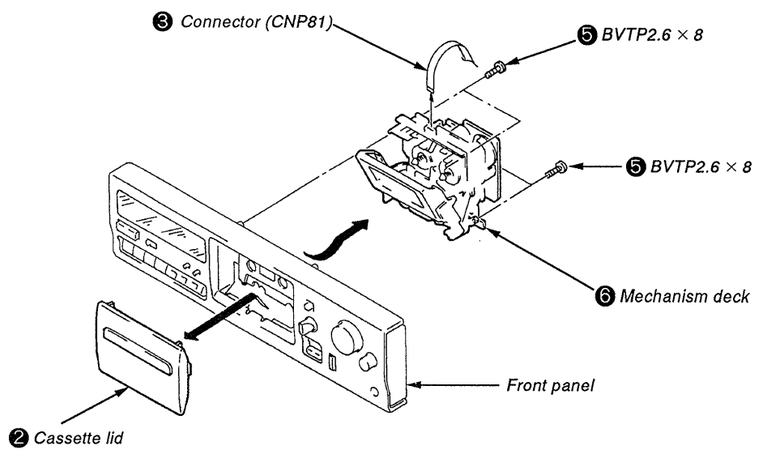
CASE
Unscrew the four case attachment screws M3 × 8 and remove the case.

2-1. FRONT PANEL

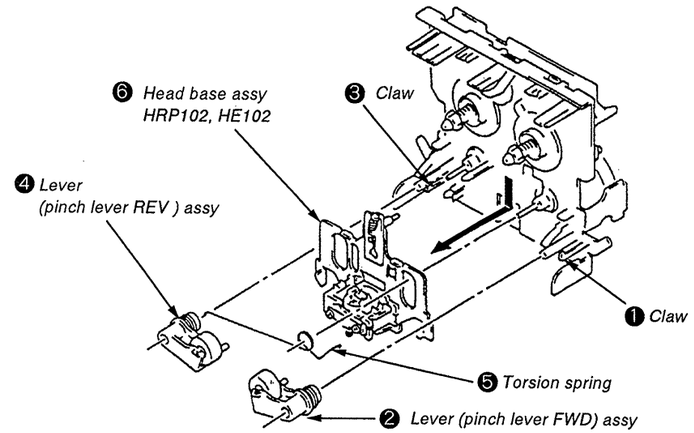


2-2 MECHANISM DECK

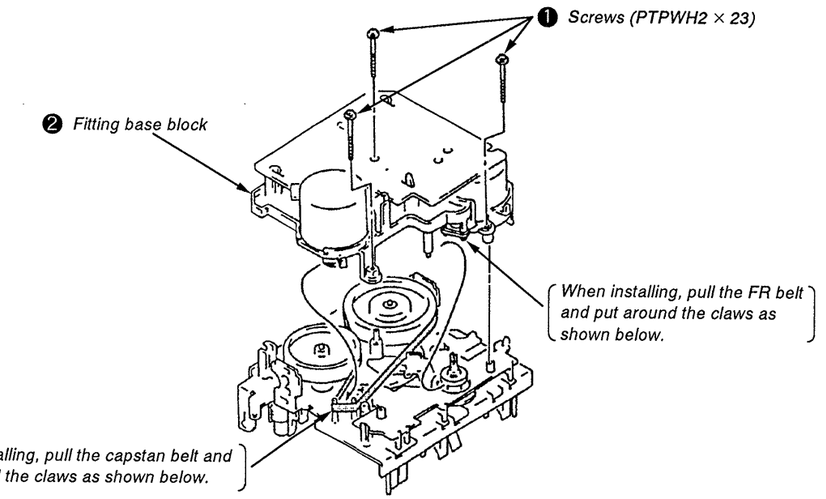
❶ *Press the eject button.*



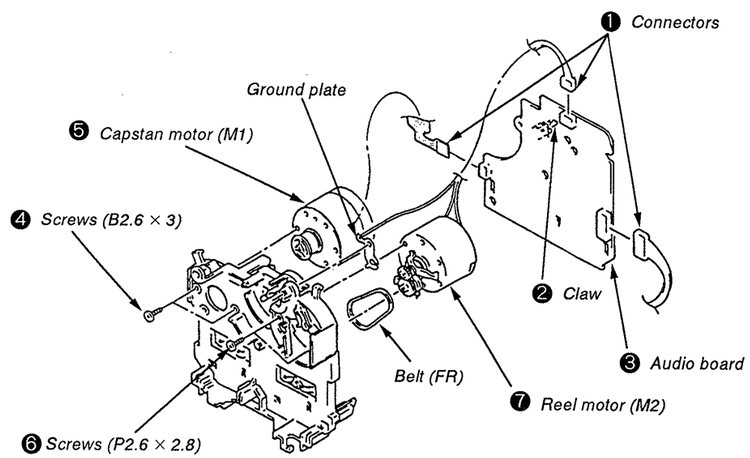
2-3. HEAD



2-4. FITTING BASE BLOCK



2-5. MOTOR



SECTION 3
EXPLANATION OF IC TERMINALS

IC801 CXP82316-014Q

Pin No.	Pin name	I/O	Description
1	STOP SW	I	Mechanism stop switch input terminal.
2	SIRCS	I	SIRCS signal in terminal.
3	NC	–	Not used.
4	———	–	
5	———	–	
6	MPX KEY	I	MPX Key ON/OFF switch input terminal. OFF = 0V
7	MPX ON/$\overline{\text{OFF}}$	O	MPX Filter ON/OFF control terminal. OFF = L
8	CAL ON/$\overline{\text{OFF}}$	O	Calibration ON/OFF control terminal.
9	REC CAL0	I	REC calibration terminal.
10	REC CAL1	I	REC calibration terminal.
11	GP CAL0	I	GP calibration terminal.
12	GP CAL1	I	GP calibration terminal.
13	———	–	
14	LINE MUTE	O	Line mute ON/OFF. 0V =Mute
15	$\overline{\text{REC}}$/PB	O	Recording/Playback selector for dolby IC select.
16	REC MUTE	O	REC out mute terminal.
17	REEL –	O	Reel motor – control terminal.
18	REEL +	O	Reel motor + control terminal.
19	BIAS	O	Bias ON/OFF.
20	$\overline{\text{RELAY}}$	O	Relay selector, terminal
21	CAL KEY	I	Calibration ON/OFF switch input terminal. ON = 0V
22	KEY X	I	Key switch input terminal.
23	KEY Y	I	Key switch input terminal.
24	METER L	I	Meter level Lch.
25	METER R	I	Meter level Rch.
26	DOLBY	I	Dolby OFF/B/C select terminal.
27	HALF	I	Half pawl input terminal.
28	AMS	I	AMS signal input terminal.
29	S • REEL	I	Suplly pulse input terminal.
30	RESET	I	Reset terminal. Reset = 0V
31	XO	O	System clock input terminal.
32	XI	I	System clock output terminal.
33	GND	–	Power supply (GND)
34	BIAS CAL0	O	Bias calibration terminal.
35	BIAS CAL1	O	Bias calibration terminal.
36	BIAS CAL2	O	Bias calibration terminal.
37	BIAS CAL3	O	Bias calibration terminal.
38	CAP • M ON/$\overline{\text{OFF}}$	O	Capstan motor. ON/OFF control.
39	NC	–	Not used.
40	OSC ON/$\overline{\text{OFF}}$	O	OSC ON/OFF control.

Pin No.	Pin name	I/O	Description
41	OSC H/$\overline{L}$	O	OSC H/L control.
42	NC	–	Not used.
43	NC	–	Not used.
44	NC	–	Not used.
45	NC	–	Not used.
46	S1	O	FL Segment.
47	S2	O	FL Segment.
48	S3	O	FL Segment.
49	S4	O	FL Segment.
50	S5	O	FL Segment.
51	S6	O	FL Segment.
52	S7	O	FL Segment.
53	S8	O	FL Segment.
54	S9	O	FL Segment.
55	S10	O	FL Segment.
56	S11	O	FL Segment.
57	S12	O	FL Segment.
58	S13	O	FL Segment.
59	S14	O	FL Segment.
60	S15	O	FL Segment.
61	S16	O	FL Segment.
62	S18	O	FL Segment.
63	NC	–	Not used.
64	NC	–	Not used.
65	NC	–	Not used.
66	G5	O	FL Grid.
67	G4	O	FL Grid.
68	G3	O	FL Grid.
69	G2	O	FL Grid.
70	G1	O	FL Grid.
71	– 20V	–	– 20V.
72	+5V	–	Power supply (+5V)
73	+5V	–	Power supply (+5V)
74	METAL	I	Metal tape selector terminal. "H" : Metal
75	CrO_2	I	CrO_2 tape select terminal. "H" : CrO_2
76	POWER IN	I	0V = Power OFF
77	POWER OUT	O	Power ON/OFF. ON = 0V
78	NC	–	Not used.
79	TEST	I	Test mode selector. 5V =Normal, 0V = Test mode
80	VER	I	Version selector. "H" : Reverse "L" : 1 way

SECTION 4
ADJUSTMENT

4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
   record/playback/erase head pinch roller
   rubber belts capstan
   idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Head demagnetizer do not approach for the erase head.)
3. Do not use a magnetized screwdriver for the adjustment.
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.

Torque Measurement

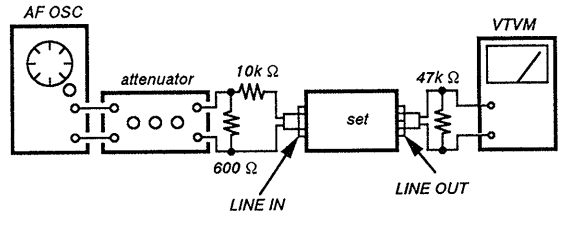
Torque	Torque	Meter reading
Forward	CQ-102C	30 to 65g•cm (0.42 to 0.9 oz•inch)
Forward back tension	CQ-102C	1 to 6g•cm (0.014 to 0.08 oz•inch)
Reverse	CQ-102RC	30 to 65g•cm (0.42 to 0.9 oz•inch)
Reverse back tension	CQ-102RC	1 to 6g•cm (0.014 to 0.08 oz•inch)
FF/REW	CQ-201B	70 to 120g•cm (0.98 to 1.67 oz•inch)

4-2. ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustment should be performed in the publication. (Be sure to male playback adjustment at first.)
2. The adjustments and measurement should be performed for both L-CH and R-CH.
   - Switch position
     DOLBY NR switch : OFF
     DIR MODE switch : ⇄
   - Standard record position:
     Deliver the standard input signal level to input jack and set the REC LEVEL control to obtain the standard output signal level as follows.

– Record Mode –



Standard Input Level

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

Standard Output Level

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

Test Tape

Tape	Contents	Use
P-4-A100	10kHz, – 10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

0dB=0.775V

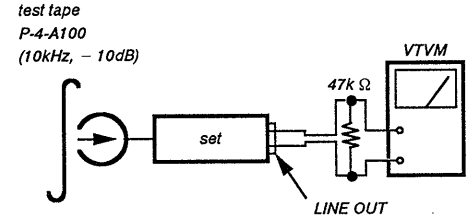
Test Mode

1. Insert a short-circuit plug into TP801 (2P) and turn ON the power switch. (Earth pin ⑦⑨ of IC801 and turn ON the power switch.)
   At first, all the fluorescent tubes light up, then the system returns to normal display. (However, "0000" is not displayed on the counter.)
2. To release the test mode, remove the short plug and turn off the power switch.
3. Remove the short plug after completion of adjustment.

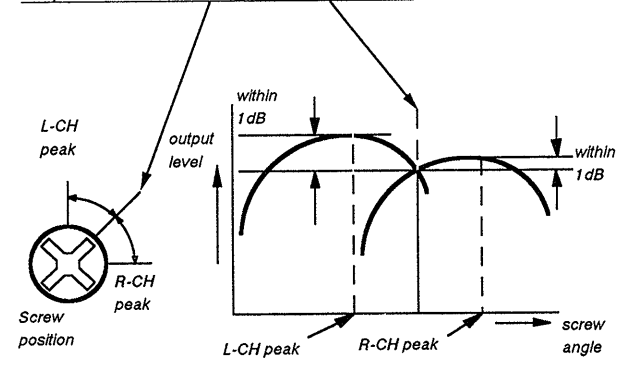
Record/Playback Head Azimuth Adjustment

Procedure :

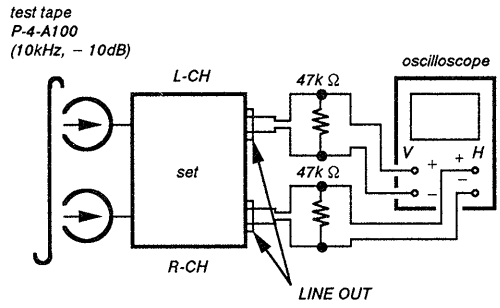
1. Forward playback Mode

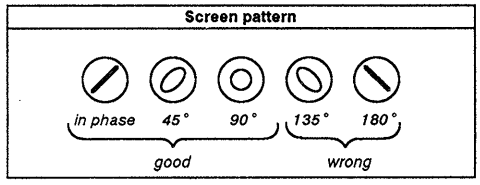


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



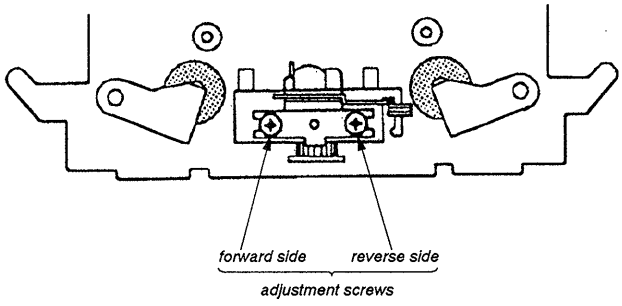
3. Playback Mode





4. Change the reveres playback mode and repeat the steps 1 to 3.
5. After the adjustment, lock the adjustment screws with suitable locking compound.

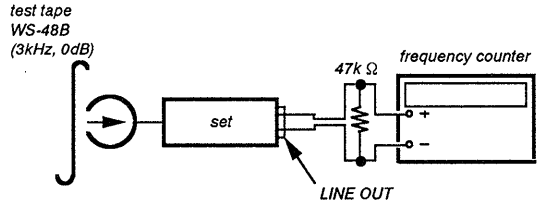
Adjustment Location : – record/playback head –



Tape Speed Adjustment

Procedure :

– Forward Playback Mode –



1. Set to FWD playback mode.
2. Adjust RV71 so that the frequency counter reading becomes 3,000 ± 10Hz.

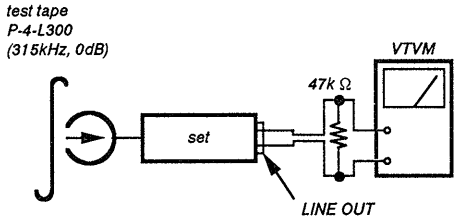
Frequency difference between the beginning and the end of the tape should be within 3%.

Adjustment Location : AUDIO board

Playback Level Adjustment

Procedure :

– Forward Playback Mode –



Adjust RV11(L-CH) and RV21(R-CH) so the VTVM reading becomes the adjustment limits below.

Adjustment Value :

LINE OUT level : – 7.7 ± 0.5dB (0.301 to 0.338V)

Level difference between channels : within 0.5dB

Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times

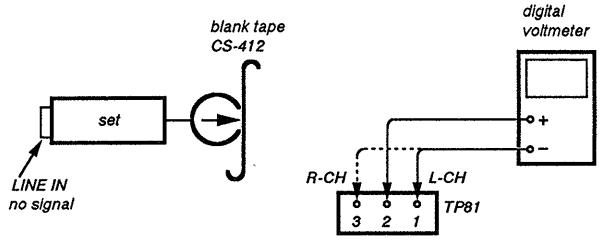
Adjustment Location : AUDIO board

Bias Consumption Current Adjustment

This adjustment should be performed when replacing the head assy or the bias oscillating transformer (T81,T91).

Procedure :

( ) : R-CH



1. Connect the digital voltmeter to test point TP81.
2. Set RV81 (RV91) to mechanical center.
3. Set to FWD record mode.
4. Adjust T81 (T91) so that the digital voltmeter reading becomes minimum.

Adjustment Location : AUDIO board

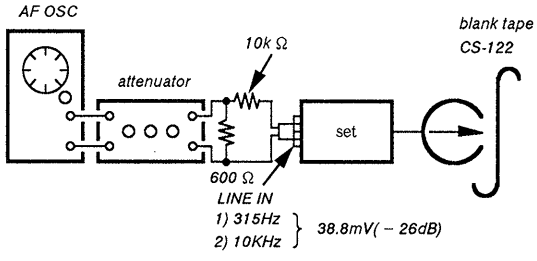
Record Bias Adjustment

Setting :

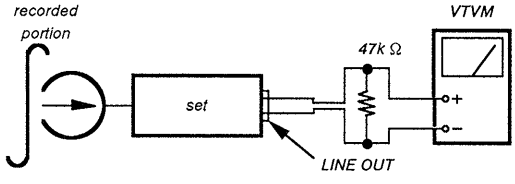
REC LEVEL control : standard record position (Refer to page 9.)

Procedure :

1. Record Mode



2. Playback Mode



Confirm that the 10kHz playback output is 0 ± 0.5dB relative to the 315Hz output. If necessary, adjust RV81(L-CH), RV91(R-CH) and repeat the steps given above.

Adjustment Location : AUDIO board

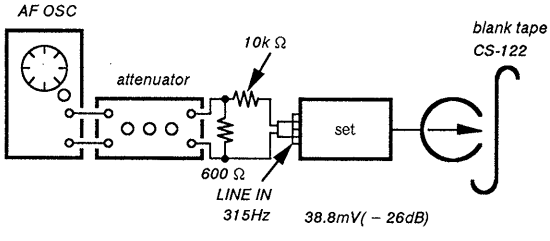
Record Level Adjustment

Setting :

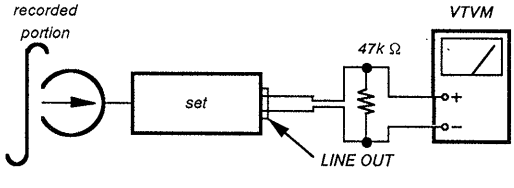
REC LEVEL control : standard record position (Refer to page 9.)

Procedure :

1. Record Mode



2. Playback Mode



Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV111(L-CH), RV211(R-CH) and repeat the steps 1 and 2.

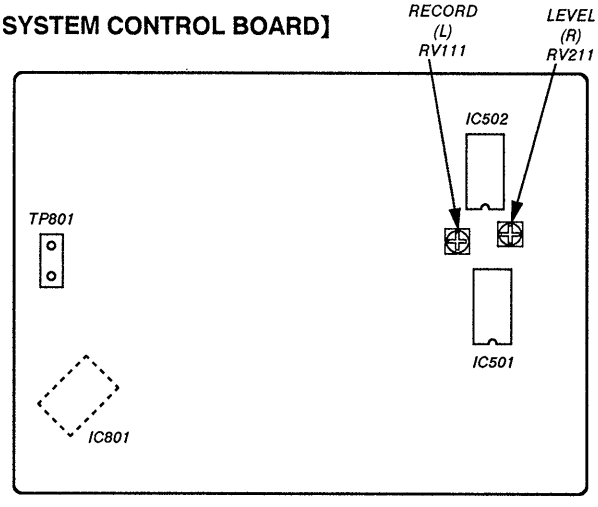
Adjustment Value :

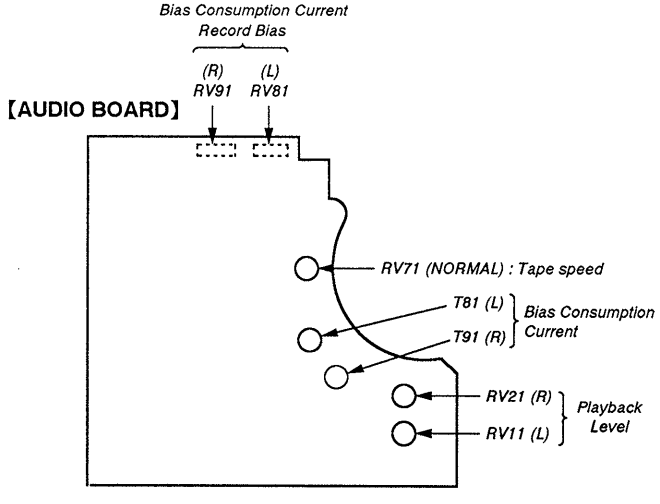
LINE OUT level : – 26 ± 0.5dB (36.7 to 41.1mV)

Adjustment Location : SYSTEM CONTROL

– Adjustment Parts Location Diagrams –

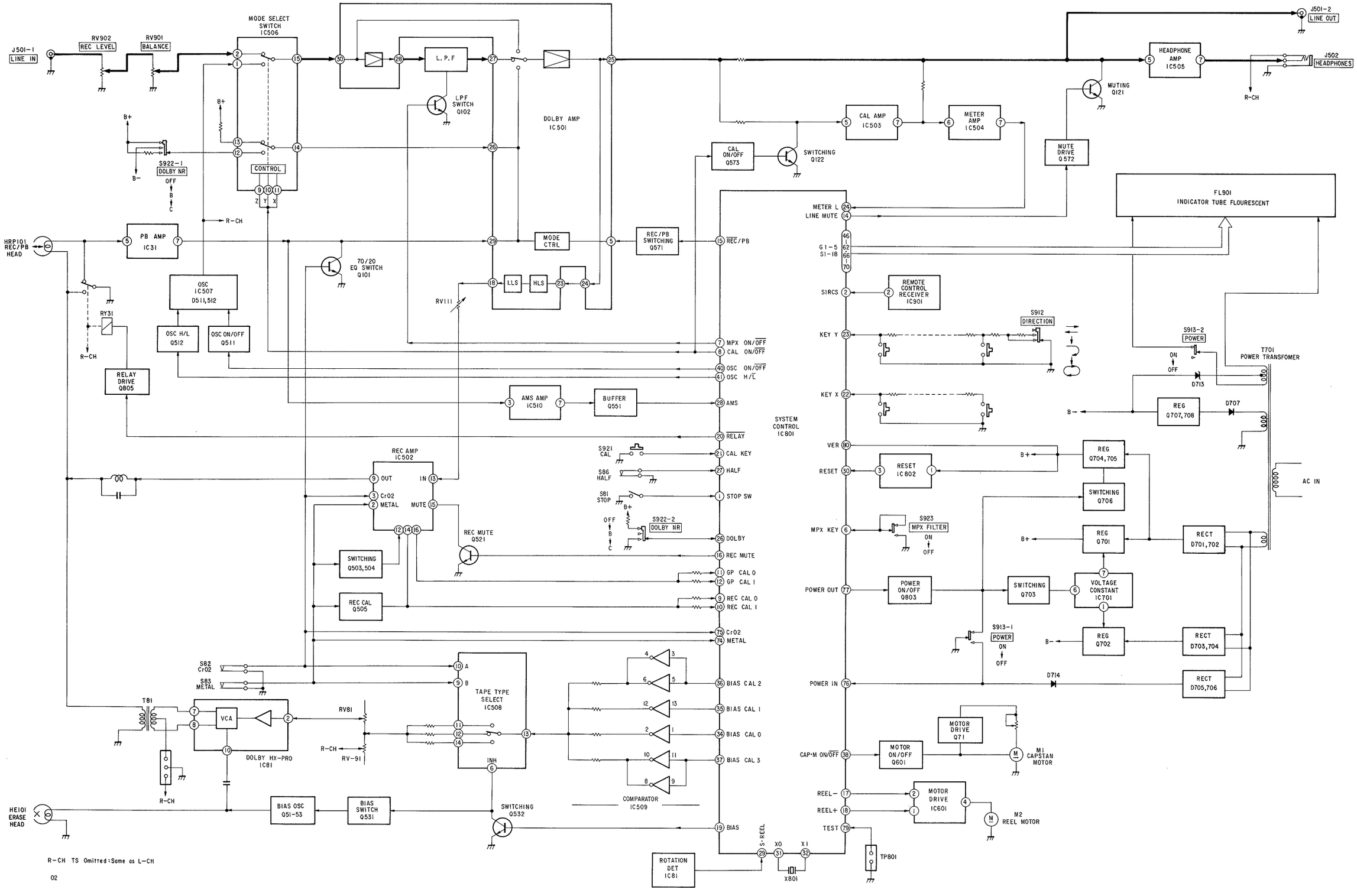
[SYSTEM CONTROL BOARD]



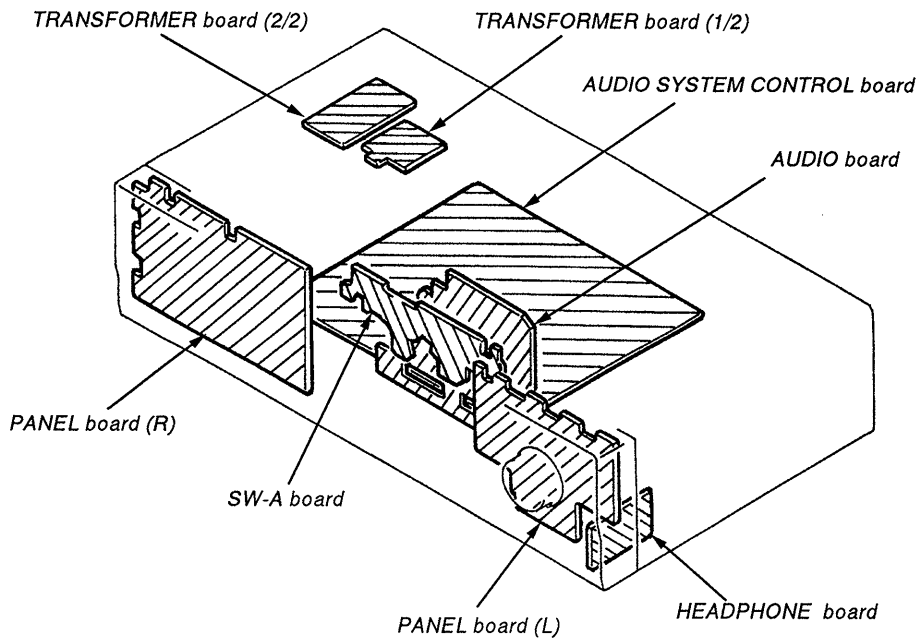


SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM



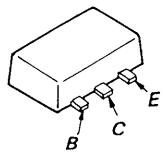
5-2. CIRCUIT BOARDS LOCATION



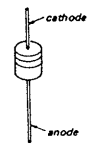
- **Semiconductor Lead Layouts.**

2SB1116A-L
2SD1387

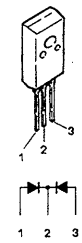
2SD1622-S



HZS6A1L
HZS6B1L
HZS6C3L
HZS7B2L
HZS7C1L

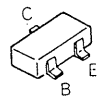


1SS352

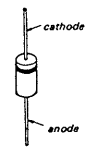


2SC2603-EF
DTA114ES
DTA144ES
DTC114ES
DTC143TS

2SA1162

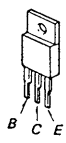


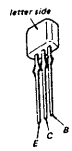
10W2N
1N4148



2SA1175-HFE
2SC2785-HFE
DTC144ES

2SA483
2SB1094-LK
2SD2012





5-3. PRINTED WIRING BOARDS

● Refer to page 14 for Semiconductor Lead Layouts.

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D31	H - 21	IC801	G - 15
D131	E - 13	IC701	B - 12
D132	F - 13	IC801	F - 16
D231	F - 13	IC802	E - 16
D232	F - 12	IC901	I - 2
D511	G - 11		
D512	G - 11	Q51	G - 21
D551	G - 13	Q52	G - 21
D571	D - 11	Q53	H - 21
D701	B - 15	Q71	H - 23
		Q101	H - 10
D702	B - 15		
D703	B - 15	Q102	F - 10
D704	B - 15	Q121	C - 8
D705	B - 15	Q122	E - 10
D706	C - 15	Q201	H - 10
		Q202	F - 8
D707	C - 16		
D708	B - 14	Q221	C - 8
D709	B - 12	Q222	E - 10
D710	B - 14	Q503	B - 10
D711	D - 15	Q504	B - 10
		Q505	C - 10
D712	C - 15		
D713	C - 16	Q511	G - 11
D714	D - 15	Q512	G - 11
D715	C - 13	Q521	C - 10
D801	E - 16	Q531	G - 13
		Q532	G - 13
D802	E - 16		
		Q551	G - 13
		Q571	D - 10
IC31	I - 21	Q572	D - 11
IC81	H - 22	Q573	E - 10
	(AUDIO)	Q601	G - 14
	H - 27		
	(SW-A)	Q701	A - 11
		Q702	A - 12
IC501	E - 9	Q703	B - 14
IC502	C - 9	Q704	A - 13
IC503	E - 11	Q705	B - 13
IC504	F - 13		
IC505	E - 13	Q706	B - 14
		Q707	C - 15
IC506	G - 9	Q708	C - 15
IC507	F - 11	Q803	G - 17
IC508	G - 14	Q805	D - 16
IC509	F - 14		
IC510	G - 12		

Note:

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▒▒▒ : Pattern on the side which is seen.
- ▒▒▒ : Pattern of the rear side.
- □ : Chip components extracted from the rear side.

【PANEL BOARD(L)】

【PANEL BOARD(R)】

【SYSTEM CONTROL BOARD】

【TRANSFORMER BOARD(1/2)】

【TRANSFORMER BOARD(2/2)】

UCJ Canadian MODEL

【TRANSFORMER BOARD(2/2)】

AEP MODEL

【HEADPHONE BOARD】

【AUDIO BOARD】

【SW-A BOARD】

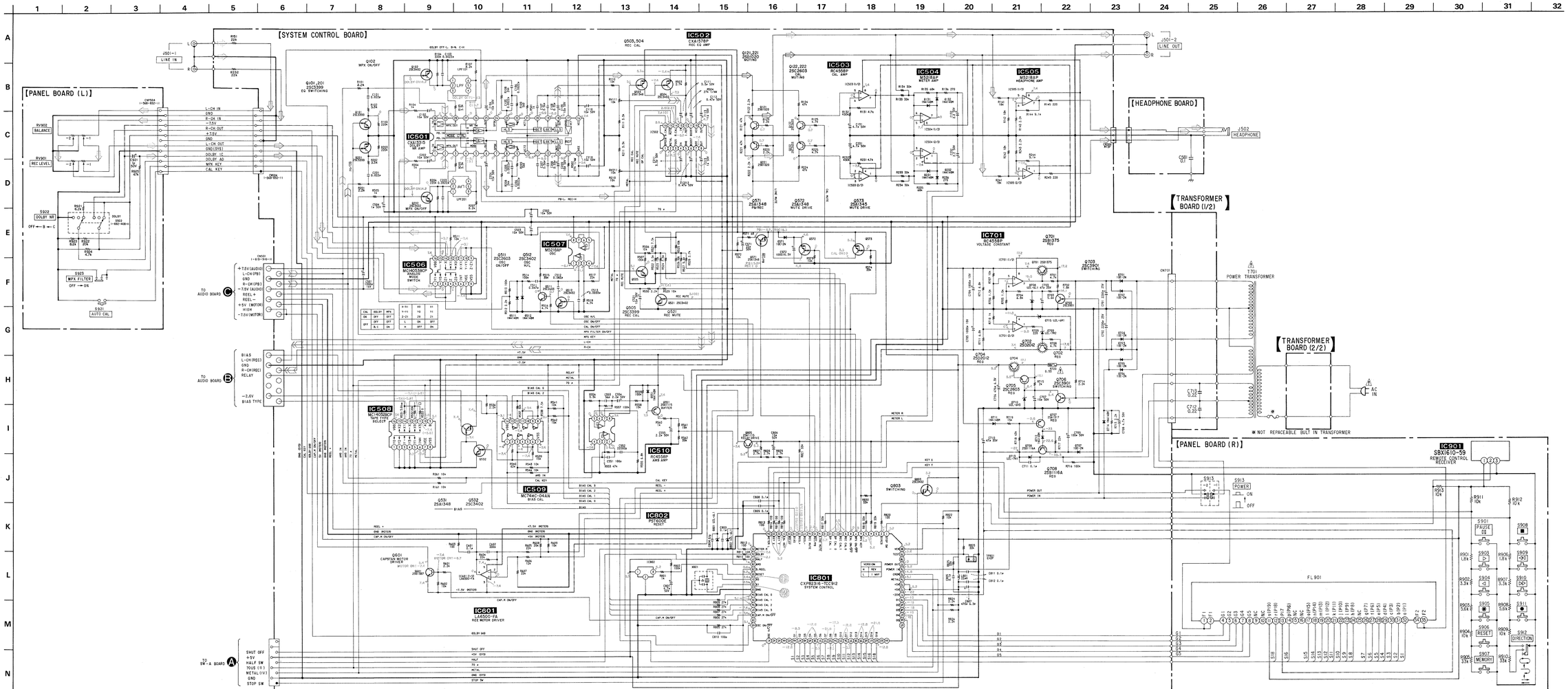
HRPE101
RECORD/PLAYBACK/ERASE HEAD

M1
CAPSTAN MOTOR

M2
REEL MOTOR

5-4. SCHEMATIC DIAGRAM (SYSTEM CONTRL SECTION)

• Refer to page 25 for IC Block Diagrams. • Refer to page 26 for Waveforms.



Note :

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ⚡ : fusible resistor.

Note :	Note :
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ⏚ : Bo Line
- ⏚ : Ch Line
- [ ] : adjustment for repair.
- Voltage and waveforme are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : REC
- Voltages are taken with a VOM. (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : PB
  ▷ : REC
  ⇨ : LINE

Note :

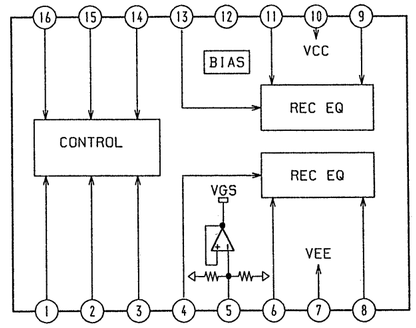
- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- : fusible resistor.

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

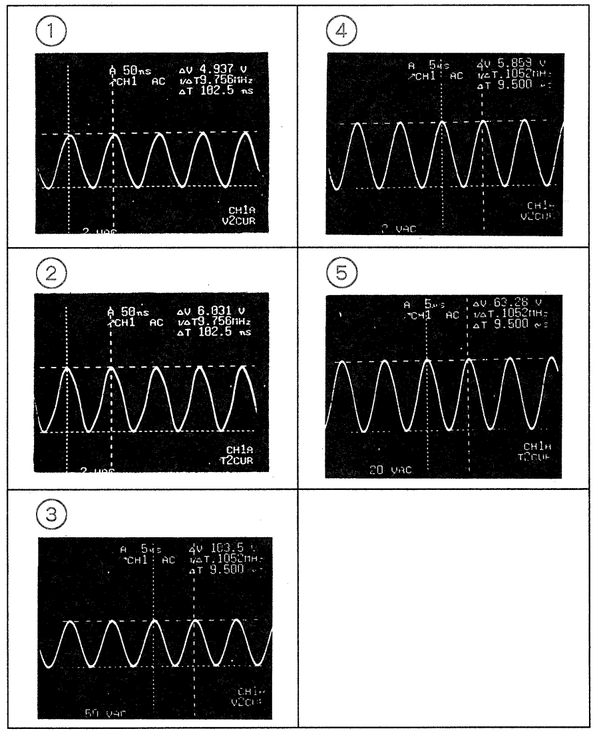
- : B+ Line
- : B − Line
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : PB
  : REC

• IC Block Diagrams

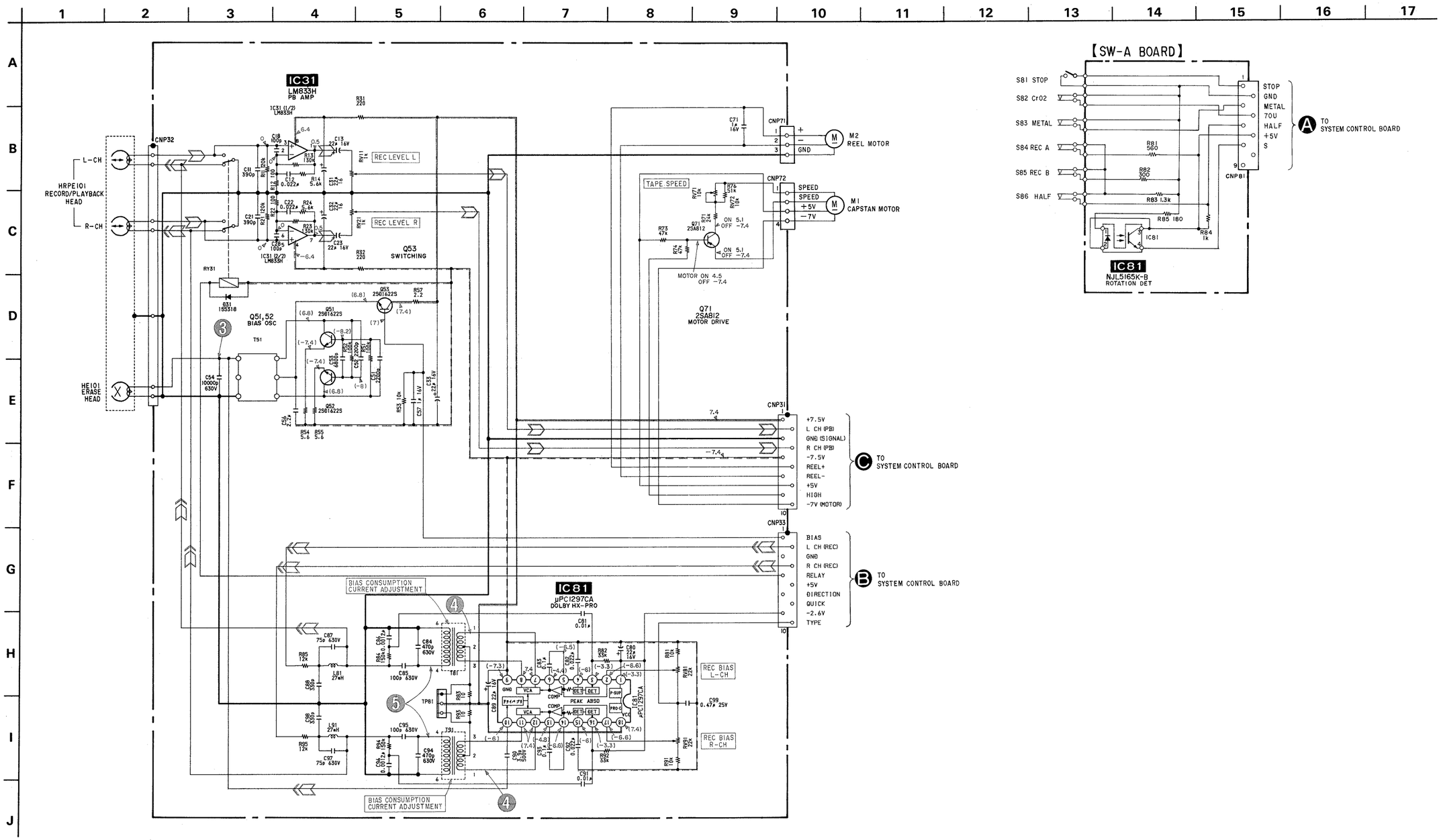
IC502 CXA1578P



• WAVEFORMS



5-5. SCHEMATIC DIAGRAM (AUDIO SECTION)



SECTION 6
EXPLODED VIEWS

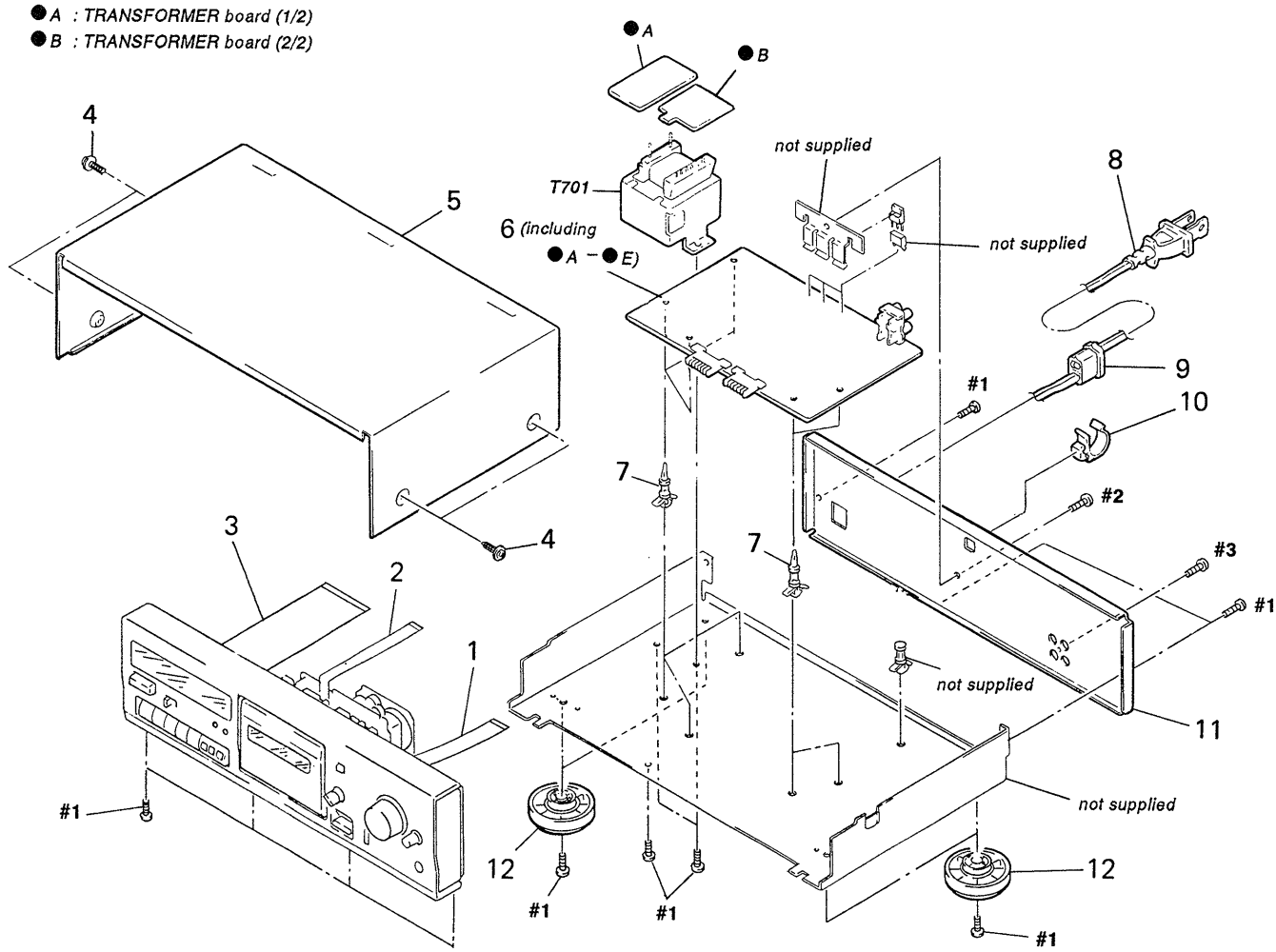
NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- 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.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. CHASSIS SECTION

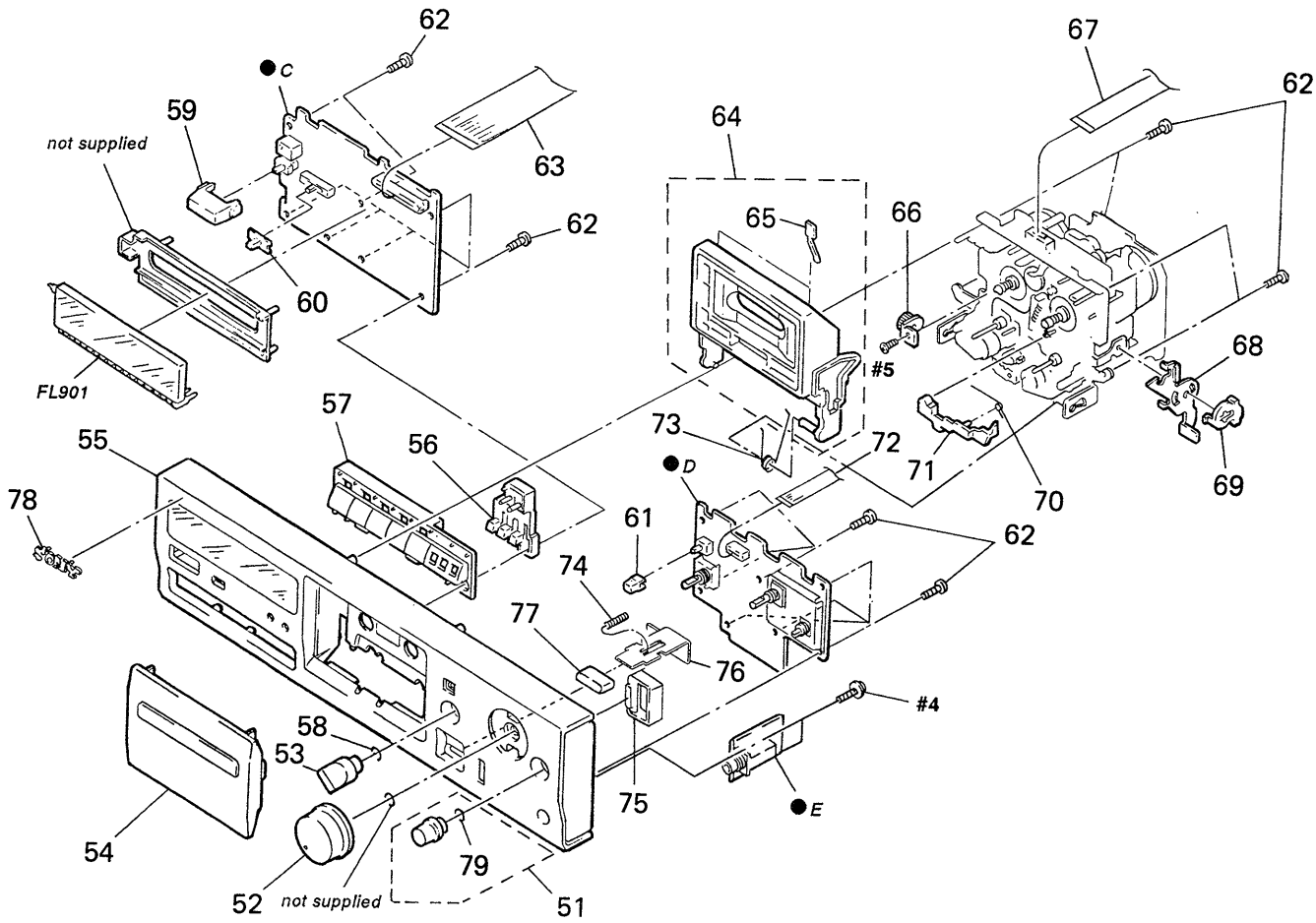
- ● *A : TRANSFORMER board (1/2)*
- ● *B : TRANSFORMER board (2/2)*



Ref. No.	Part No.	Description	Remark
1	1-751-099-11	WIRE (FLAT TYPE) (13 CORE)	
2	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
3	1-751-100-11	WIRE (FLAT TYPE) (33 CORE)	
4	3-704-366-01	SCREW (CASE) (M3X8)	
5	3-332-578-61	CASE	
* 6	A-2007-012-A	SYSTEM CONTROL BOARD, COMPLETE	(US, Canadian)
* 6	A-2007-055-A	SYSTEM CONTROL BOARD, COMPLETE (AEP)	
* 7	3-346-265-11	HOLDER, PC BOARD	
⚠8	1-558-945-21	CORD, POWER (POLAR. SPT-1) (US, Canadian)	
⚠8	1-575-651-21	CORD, POWER (AEP)	
* 9	3-703-244-00	BUSHING (2104), CORD (AEP)	
* 9	3-703-571-11	BUSHING (S) (4516), CORD (US, Canadian)	
* 10	4-949-235-01	HOOK	
* 11	3-387-837-01	PANEL, BACK (US, Canadian)	
* 11	3-387-837-11	PANEL, BACK (AEP)	
12	4-956-885-01	FOOT (F58175S2W) (US, Canadian)	
12	4-956-885-11	FOOT (F58175S2W) (AEP)	
⚠T701	1-423-634-11	TRANSFORMER, POWER (AEP)	
⚠T701	1-423-635-11	TRANSFORMER, POWER (US, Canadian)	

6-2. FRONT PANEL SECTION

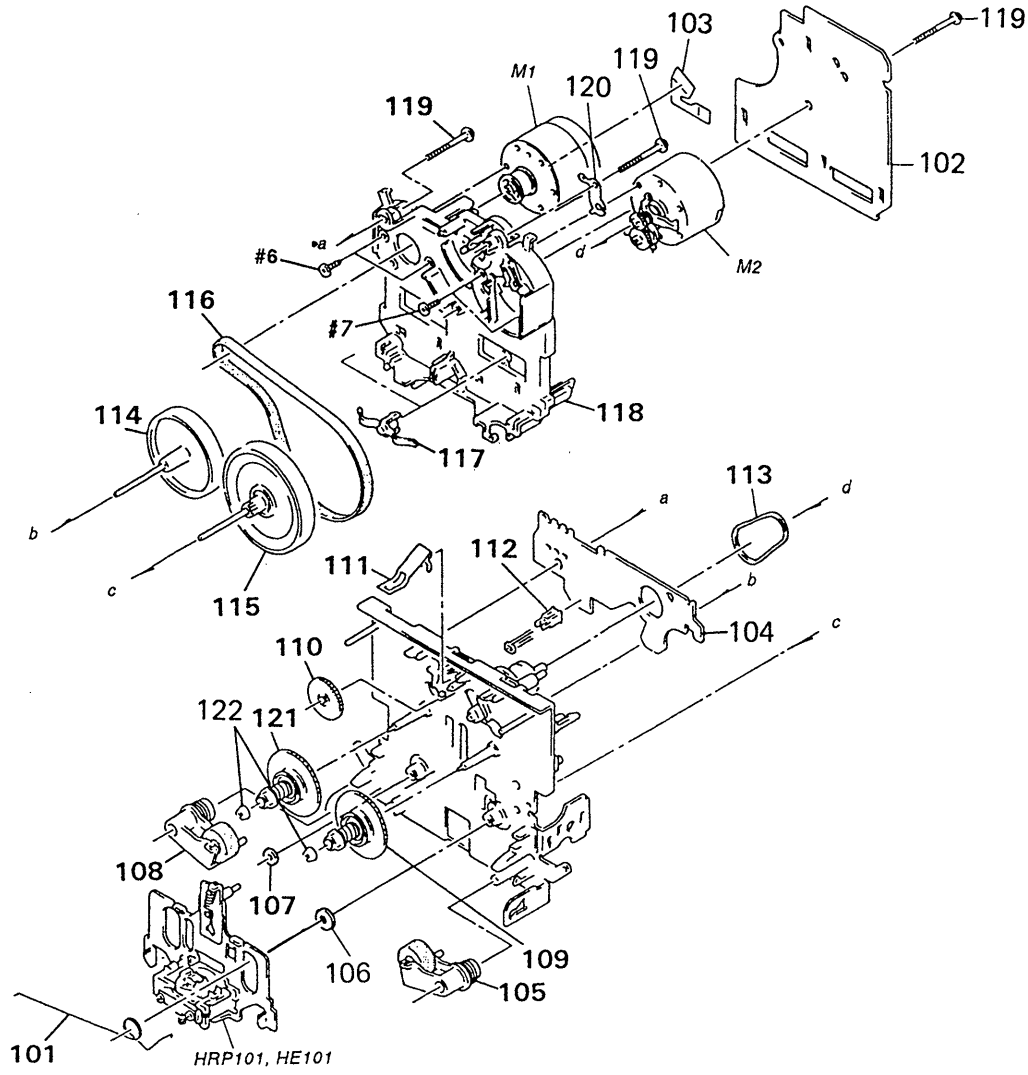
- ● *C : PANEL board (R)*
- ● *D : PANEL board (L)*
- ● *E : HEADPHONE board*



Ref. No.	Part No.	Description	Remark
51	A-2004-274-A	KNOB (RB) ASSY	
52	3-367-438-11	KNOB (REC)	
53	4-908-097-21	KNOB	
54	X-3366-525-1	LID ASSY, CASSETTE	
55	X-3366-526-1	PANEL ASSY, FRONT (US, Canadian)	
55	X-3366-527-1	PANEL ASSY, FRONT (AEP)	
56	3-386-248-01	BUTTON (RE)	
57	3-386-246-01	BUTTON (FR)	
58	3-350-440-01	SPRING	
59	3-354-932-01	BUTTON (POWER)	
60	4-922-518-01	KNOB (TIMER)	
61	3-380-952-01	BUTTON	
62	4-951-620-01	SCREW (2.6X8), +BVTP	
63	1-751-100-11	WIRE (FLAT TYPE) (33 CORE)	
64	X-3340-195-1	HOLDER (R) ASSY, CASSETTE (AEP)	
64	X-3365-324-1	HOLDER (R) ASSY, CASSETTE (US, Canadian)	

Ref. No.	Part No.	Description	Remark
65	3-308-823-11	SPRING	
66	3-354-963-01	DAMPER	
67	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
* 68	3-354-954-01	LEVER (LOCK LEVER R)	
69	3-354-957-01	JOINT (LOCK LEVER)	
70	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
71	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
72	1-751-099-11	WIRE (FLAT TYPE) (13 CORE)	
73	3-354-960-01	SPRING (LOADING R), TORSION	
74	3-359-906-01	SPRING, COMPRESSION	
75	3-387-834-11	BUTTON (MBC)	
76	3-387-833-01	SLIDER (EJECT)	
77	3-387-830-01	BUTTON (EJECT)	
78	4-925-334-11	EMBLEM (5-A), SONY	
79	3-354-981-01	SPRING (SUS), RING	
FL901	1-517-173-11	INDICATOR TUBE, FLUORESCENT	

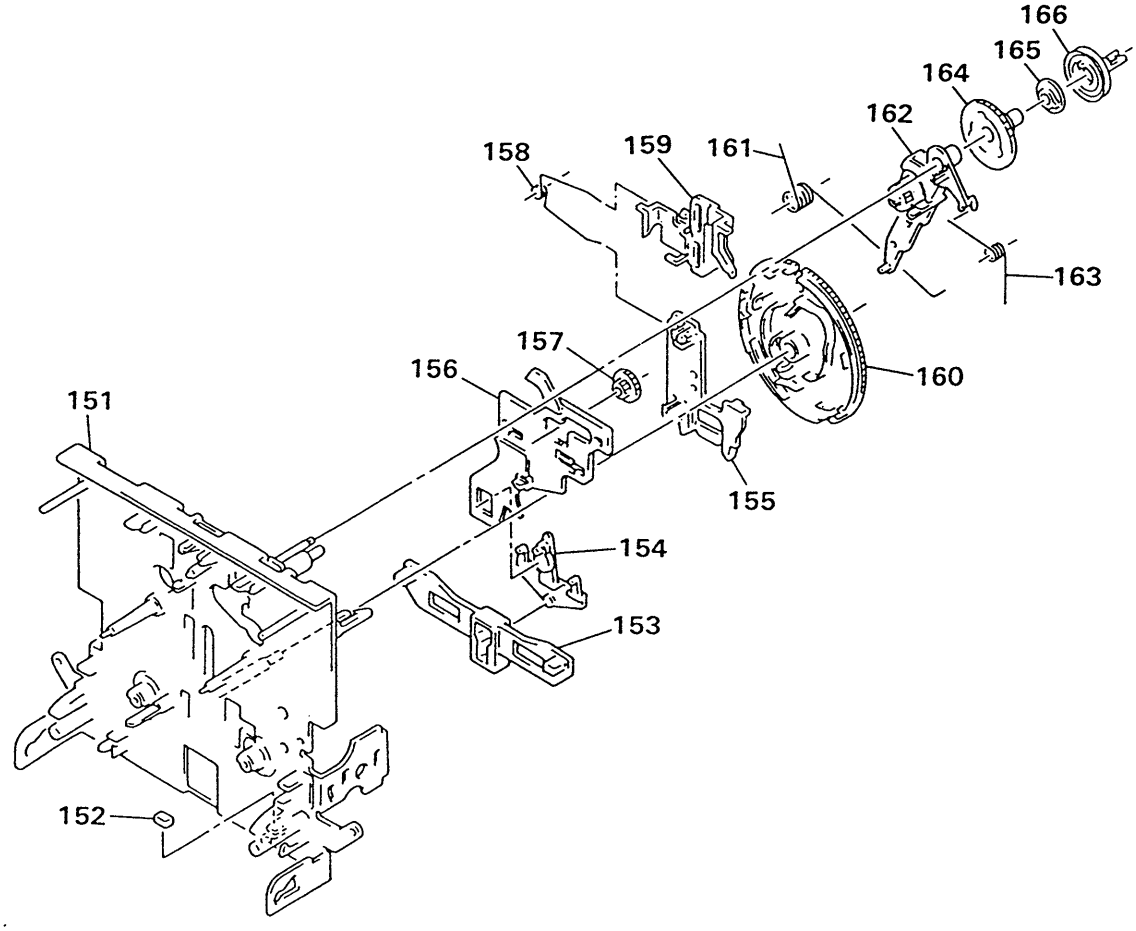
6-3. MECHANISM SECTION 1 (TCM-190RB12CJ)



Ref. No.	Part No.	Description	Remark
101	3-359-455-01	SPRING, TORSION	
* 102	A-2006-828-A	MOUNTED PCB (RB12CJ), AUDIO	
103	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
* 104	1-634-841-14	SW-A BOARD	
105	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
106	3-356-713-01	WASHER	
107	3-356-714-01	WASHER	
108	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY	
109	X-3359-404-1	TABLE ASSY, REEL	
110	3-359-424-01	GEAR (REV GEAR)	
111	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF	
112	3-343-419-01	HOLDER (S SENSER A)	
113	3-359-466-01	BELT (FR), SQUARE	

Ref. No.	Part No.	Description	Remark
114	X-3359-410-1	FLYWHEEL (REV) ASSY	
115	X-3359-406-1	FLYWHEEL (FWD) ASSY	
116	3-359-417-01	BELT (FLAT), CAPSTAN	
117	3-575-321-00	RETAINER, THRUST, CAPSTAN	
* 118	3-359-436-01	BASE (THRUST RETAINER), FITTING	
119	3-359-414-01	SCREW (+PTPWH 2X23)	
120	3-359-450-01	PLATE, GROUND	
121	X-3362-078-1	TABLE ASSY (B), REEL	
122	3-362-308-01	CAP (REEL)	
HE101	A-2003-838-F	BASE ASSY, HEAD (ERASE)	
HRP101	A-2003-838-F	BASE ASSY, HEAD (PLAYBACK/RECORD)	
M1	X-3365-377-1	MOTOR ASSY, CAPSTAN	
M2	X-3363-501-1	MOTOR ASSY, REEL	

6-4. MECHANISM SECTION 2
(TCM-190RB12CJ)



Ref. No.	Part No.	Description	Remark
151	X-3359-415-1	CHASSIS ASSY, MECHANICAL	
152	3-359-469-01	SPACER	
* 153	3-359-425-01	SLIDER (REVERSE SLIDER)	
154	3-359-426-01	LEVER (REVERSE LEVER)	
* 155	3-359-427-01	SLIDER (LEVERSE SLIDER)	
* 156	3-359-415-01	SLIDER (TRIGGER SLIDER)	
157	3-359-448-01	GEAR (TRIGGER)	
158	3-359-454-01	SPRING, TORSION	

Ref. No.	Part No.	Description	Remark
159	3-359-429-01	SLIDER (BRAKE PLATE)	
160	3-359-420-01	GEAR (CAM GEAR)	
161	3-359-456-01	SPRING(TRIGGER SPRING), TORSION	
162	X-3359-405-1	LEVER (FR ARM) ASSY	
163	3-359-453-01	SPRING (FR ARM), TORSION	
164	3-359-419-01	GEAR (FR GEAR)	
165	3-359-421-01	CLUTCH (REEL DISK)	
166	3-359-418-01	PULLEY (FR PULLEY)	

SECTION 7
ELECTRICAL PARTS LIST

SW-A **AUDIO**

NOTE :
- 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.... : μA.... , uPA.... : μPA....
  uPB.... : μPB.... , uPC.... : μPC....
  uPD.... : μPD....
- CAPACITORS
  uF : μF
- COILS
  uH : μH

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

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

Ref.No.	Part No.	Description			Remark
*	1-634-841-14	SW-A BOARD			
		**********			
	3-343-419-01	HOLDER (S SENSER A)			
		< CONNECTOR >			
* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P			
		< IC >			
IC81	8-719-710-03	DIODE	NJL5165K-B		
		< RESISTOR >			
R81	1-249-414-11	CARBON	560	5%	1/4W
R82	1-247-818-11	CARBON	300	5%	1/4W
R83	1-247-834-11	CARBON	1.3K	5%	1/4W
R84	1-249-417-11	CARBON	1K	5%	1/4W
R85	1-249-408-11	CARBON	180	5%	1/4W
		< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP)			
S82	1-571-281-21	SWITCH, LEAF (CrO_2)			
S83	1-571-281-21	SWITCH, LEAF (METAL)			
S84	1-571-281-21	SWITCH, LEAF (REC A)			
S85	1-571-281-21	SWITCH, LEAF (REC B)			
S86	1-571-281-21	SWITCH, LEAF (HALF)			
**********					
*	A-2006-828-A	MOUNTED PCB (RB12CJ), AUDIO			
		**********			
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V

Ref.No.	Part No.	Description			Remark
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C33	1-124-234-00	ELECT	22uF	20%	16V
C51	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C52	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C53	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C54	1-136-601-11	FILM	0.01uF	5%	630V
C56	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C57	1-164-346-11	CERAMIC CHIP	1uF		16V
C71	1-164-346-11	CERAMIC CHIP	1uF		16V
C80	1-124-234-00	ELECT	22uF	20%	16V
C81	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C82	1-136-157-00	FILM	0.022uF	5%	50V
C83	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C84	1-136-478-11	FILM	470PF	5%	630V
C85	1-136-433-11	FILM	100PF	5%	630V
C86	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C87	1-136-273-91	FILM	75PF	5%	630V
C88	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C89	1-124-234-00	ELECT	22uF	20%	16V
C90	1-107-045-00	MICA	3.9PF		500V
C91	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C92	1-136-157-00	FILM	0.022uF	5%	50V
C93	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C94	1-136-478-11	FILM	470PF	5%	630V
C95	1-136-433-11	FILM	100PF	5%	630V
C96	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C97	1-136-273-91	FILM	75PF	5%	630V
C98	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C99	1-164-005-11	CERAMIC CHIP	0.47uF		25V

AUDIO SYSTEM CONTROL

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P			
* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P			
* CNP75	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			
		< DIODE >			
D31	8-719-016-74	DIODE 1SS352			
		< IC >			
IC31	8-759-106-02	IC uPC4570G2			
IC81	8-759-106-56	IC uPC1297CA			
		< COIL >			
L81	1-410-780-11	INDUCTOR 27mH			
L91	1-410-780-11	INDUCTOR 27mH			
		< TRANSISTOR >			
Q51	8-729-808-01	TRANSISTOR 2SD1622-S			
Q52	8-729-808-01	TRANSISTOR 2SD1622-S			
Q53	8-729-808-01	TRANSISTOR 2SD1622-S			
Q71	8-729-216-22	TRANSISTOR 2SA1162-G			
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-00	METAL CHIP	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-00	METAL CHIP	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R51	1-216-097-00	METAL CHIP	100K	5%	1/10W
R52	1-216-097-00	METAL CHIP	100K	5%	1/10W
R53	1-216-073-00	METAL CHIP	10K	5%	1/10W
R54	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R55	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R57	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
R76	1-216-090-00	METAL CHIP	51K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R81	1-216-073-00	METAL CHIP	10K	5%	1/10W
R82	1-216-085-00	METAL CHIP	33K	5%	1/10W
R83	1-216-001-00	METAL CHIP	10	5%	1/10W
R84	1-216-101-00	METAL CHIP	150K	5%	1/10W
R85	1-216-075-00	METAL CHIP	12K	5%	1/10W
R91	1-216-073-00	METAL CHIP	10K	5%	1/10W
R92	1-216-085-00	METAL CHIP	33K	5%	1/10W
R93	1-216-001-00	METAL CHIP	10	5%	1/10W
R94	1-216-101-00	METAL CHIP	150K	5%	1/10W
R95	1-216-075-00	METAL CHIP	12K	5%	1/10W
		< VARIABLE RESISTOR >			
RV11	1-241-627-11	RES, ADJ, CARBON 1K (PB LEVEL L)			
RV21	1-241-627-11	RES, ADJ, CARBON 1K (PB LEVEL R)			
RV71	1-241-630-11	RES, ADJ, CARBON 10K (TAPE SPEED)			
RV81	1-241-122-11	RES, ADJ, CARBON 22K (REC BIAS L)			
RV91	1-241-122-11	RES, ADJ, CARBON 22K (REC BIAS R)			
		< RELAY >			
RY31	1-515-803-11	RELAY			
		< TRANSFORMER >			
T51	1-406-417-11	COIL, BIAS OSCILLATION			
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR			
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR			
		< TEST PIN >			
* TP81	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P			
**********					
*	A-2007-012-A	SYSTEM CONTROL BOARD, COMPLETE			
		**********			
					(US, Canadian)
*	A-2007-055-A	SYSTEM CONTROL BOARD, COMPLETE (AEP)			
		**********			
*	1-690-880-21	LEAD (WITH CONNECTOR)			
		< CAPACITOR >			
C101	1-136-157-00	FILM	0.022uF	5%	50V
C102	1-124-907-11	ELECT	10uF	20%	50V
C103	1-161-375-00	CERAMIC	0.0022uF	20%	50V
C104	1-124-907-11	ELECT	10uF	20%	50V
C105	1-130-475-00	MYLAR	0.0022uF	5%	50V
C106	1-130-475-00	MYLAR	0.0022uF	5%	50V
C107	1-136-174-00	FILM	0.56uF	5%	50V
C108	1-136-171-00	FILM	0.33uF	5%	50V
C109	1-124-907-11	ELECT	10uF	20%	50V
C110	1-124-907-11	ELECT	10uF	20%	50V

Ref.No.	Part No.	Description			Remark
C111	1-123-382-00	ELECT	3.3uF	20%	100V
C112	1-124-902-00	ELECT	0.47uF	20%	50V
C113	1-124-903-11	ELECT	1uF	20%	50V
C131	1-124-927-11	ELECT	4.7uF	20%	100V
C132	1-124-925-11	ELECT	2.2uF	20%	100V
C201	1-136-157-00	FILM	0.022uF	5%	50V
C202	1-124-907-11	ELECT	10uF	20%	50V
C203	1-161-375-00	CERAMIC	0.0022uF	20%	50V
C204	1-124-907-11	ELECT	10uF	20%	50V
C205	1-130-475-00	MYLAR	0.0022uF	5%	50V
C206	1-130-475-00	MYLAR	0.0022uF	5%	50V
C207	1-136-174-00	FILM	0.56uF	5%	50V
C208	1-136-171-00	FILM	0.33uF	5%	50V
C209	1-124-907-11	ELECT	10uF	20%	50V
C210	1-124-907-11	ELECT	10uF	20%	50V
C211	1-123-382-00	ELECT	3.3uF	20%	100V
C212	1-124-902-00	ELECT	0.47uF	20%	50V
C213	1-124-903-11	ELECT	1uF	20%	50V
C231	1-124-927-11	ELECT	4.7uF	20%	100V
C232	1-124-925-11	ELECT	2.2uF	20%	100V
C501	1-124-360-00	ELECT	1000uF	20%	16V
C502	1-124-907-11	ELECT	10uF	20%	50V
C503	1-124-907-11	ELECT	10uF	20%	50V
C504	1-124-903-11	ELECT	1uF	20%	50V
C511	1-136-161-00	FILM	0.047uF	5%	50V
C512	1-136-164-00	FILM	0.082uF	5%	50V
C513	1-130-477-00	MYLAR	0.0033uF	5%	50V
C521	1-124-907-11	ELECT	10uF	20%	50V
C551	1-162-282-31	CERAMIC	100PF	10%	50V
C552	1-161-494-00	CERAMIC	0.022uF		25V
C553	1-162-217-31	CERAMIC	56PF	5%	50V
C554	1-124-925-11	ELECT	2.2uF	20%	100V
C555	1-124-925-11	ELECT	2.2uF	20%	100V
C571	1-124-916-11	ELECT	22uF	20%	63V
C572	1-126-916-11	ELECT	1000uF	20%	6.3V
C581	1-164-159-11	CERAMIC	0.1uF		50V
C601	1-164-159-11	CERAMIC	0.1uF		50V
C602	1-162-288-31	CERAMIC	330PF	10%	50V
C701	1-124-563-11	ELECT	2200uF	20%	25V
C702	1-124-563-11	ELECT	2200uF	20%	25V
C703	1-124-477-11	ELECT	47uF	20%	25V
C704	1-124-473-11	ELECT	1000uF	20%	10V
C705	1-124-473-11	ELECT	1000uF	20%	10V
C706	1-124-472-11	ELECT	470uF	20%	10V
C707	1-124-907-11	ELECT	10uF	20%	50V
C708	1-124-927-11	ELECT	4.7uF	20%	100V
C709	1-124-122-11	ELECT	100uF	20%	50V
C710	1-124-910-11	ELECT	47uF	20%	50V
C711	1-164-159-11	CERAMIC	0.1uF		50V
C712	1-136-169-00	FILM	0.22uF	5%	50V
C713	1-136-169-00	FILM	0.22uF	5%	50V
C801	1-124-927-11	ELECT	4.7uF	20%	100V
C803	1-164-159-11	CERAMIC	0.1uF		50V
C804	1-164-159-11	CERAMIC	0.1uF		50V
C805	1-164-159-11	CERAMIC	0.1uF		50V
C806	1-124-907-11	ELECT	10uF	20%	50V
C807	1-124-472-11	ELECT	470uF	20%	10V
C808	1-164-159-11	CERAMIC	0.1uF		50V
C809	1-164-159-11	CERAMIC	0.1uF		50V
C810	1-162-282-31	CERAMIC	100PF	10%	50V
C811	1-164-159-11	CERAMIC	0.1uF		50V
C812	1-164-159-11	CERAMIC	0.1uF		50V
C921	1-124-903-11	ELECT	1uF	20%	50V

< CONNECTOR >

* CN501	1-691-916-11	CONNECTOR, BOARD TO BOARD	
* CN502	1-691-916-11	CONNECTOR, BOARD TO BOARD	
CN503	1-750-414-11	CONNECTOR, FFC/FPC 9P	
CN504	1-750-418-11	CONNECTOR, FFC/FPC 13P	
CN505	1-750-438-11	CONNECTOR, FFC/FPC 33P	
CN506	1-506-468-11	PIN, CONNECTOR 3P	
* CN701	1-564-510-11	PLUG, CONNECTOR 7P	

< CONNECTOR >

CNP504	1-750-418-11	CONNECTOR, FFC/FPC 13P	
CNP505	1-750-438-11	CONNECTOR, FFC/FPC 33P	
* CNP702	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P	

< DIODE >

D131	8-719-987-63	DIODE	1N4148M
D132	8-719-987-63	DIODE	1N4148M
D231	8-719-987-63	DIODE	1N4148M
D232	8-719-987-63	DIODE	1N4148M
D511	8-719-987-63	DIODE	1N4148M
D512	8-719-987-63	DIODE	1N4148M
D551	8-719-987-63	DIODE	1N4148M
D571	8-719-200-77	DIODE	10E2N
D701	8-719-200-77	DIODE	10E2N
D702	8-719-200-77	DIODE	10E2N
D703	8-719-200-77	DIODE	10E2N
D704	8-719-200-77	DIODE	10E2N
D705	8-719-200-77	DIODE	10E2N
D706	8-719-200-77	DIODE	10E2N
D707	8-719-200-77	DIODE	10E2N
D708	8-719-933-33	DIODE	HZS6A1L
D709	8-719-933-47	DIODE	HZS7B2L
D710	8-719-933-41	DIODE	HZS6C3L
D711	8-719-987-63	DIODE	1N4148M

SYSTEM CONTROL

Ref.No.	Part No.	Description	Remark
D712	8-719-987-63	DIODE 1N4148M	
D713	8-719-000-93	DIODE UZL-7H1	
D714	8-719-987-63	DIODE 1N4148M	
D715	8-719-933-36	DIODE HZS6B1L	
D801	8-719-933-33	DIODE HZS6A1L	
D802	8-719-933-33	DIODE HZS6A1L	
		< INDICATOR TUBE >	
FL901	517-173-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC501	8-752-059-55	IC CXA1331S	
IC502	8-752-055-61	IC CXA1578P	
IC503	8-759-634-51	IC M5218AP	
IC504	8-759-634-51	IC M5218AP	
IC505	8-759-634-51	IC M5218AP	
IC506	8-759-140-53	IC uPD4053BC	
IC507	8-759-634-51	IC M5218AP	
IC508	8-759-000-48	IC MC14052BCP	
IC509	8-759-916-14	IC SN74HC04AN	
IC510	8-759-145-58	IC uPC4558C	
IC601	8-759-803-42	IC LA6500-FA	
IC701	8-759-145-58	IC uPC4558C	
IC801	8-752-842-10	IC CXP82316-014Q	
IC802	8-759-165-82	IC PST600E-T	
IC901	8-741-100-48	IC SBX1610-59	
		< JACK >	
J501	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)	
J502	1-568-519-41	JACK, LARGE TYPE (HEADPOHONES)	
		< COIL >	
L801	1-410-513-11	INDUCTOR 22uH	
		< FILTER >	
LPF101	1-231-388-00	FILTER, LOW PASS	
LPF201	1-231-388-00	FILTER, LOW PASS	
		< TRANSISTOR >	
Q101	8-729-900-89	TRANSISTOR DTC144ES	
Q102	8-729-900-80	TRANSISTOR DTC114ES	
Q121	8-729-142-25	TRANSISTOR 2SD1020-HFE	
Q122	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q201	8-729-900-89	TRANSISTOR DTC144ES	
Q202	8-729-900-80	TRANSISTOR DTC114ES	
Q221	8-729-142-25	TRANSISTOR 2SD1020-HFE	
Q222	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q503	8-729-900-61	TRANSISTOR DTA114ES	
Q504	8-729-900-80	TRANSISTOR DTC114ES	
Q505	8-729-900-89	TRANSISTOR DTC144ES	
Q511	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q512	8-729-900-80	TRANSISTOR DTC114ES	
Q521	8-729-900-80	TRANSISTOR DTC114ES	
Q531	8-729-900-61	TRANSISTOR DTA114ES	
Q532	8-729-900-80	TRANSISTOR DTC114ES	
Q551	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q571	8-729-900-61	TRANSISTOR DTA114ES	
Q572	8-729-900-61	TRANSISTOR DTA114ES	
Q573	8-729-900-65	TRANSISTOR DTA144ES	
Q601	8-729-801-93	TRANSISTOR 2SD1387-3	
Q701	8-729-141-83	TRANSISTOR 2SB1049-LK	
Q702	8-729-209-15	TRANSISTOR 2SD2012	
Q703	8-729-900-74	TRANSISTOR DTC143TS	
Q704	8-729-209-15	TRANSISTOR 2SD2012	
Q705	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q706	8-729-900-74	TRANSISTOR DTC143TS	
Q707	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q708	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q803	8-729-900-80	TRANSISTOR DTC114ES	
Q805	8-729-119-76	TRANSISTOR 2SA1175-HFE	
		< RESISTOR >	
R101	1-249-421-11	CARBON 2.2K 5% 1/4W	
R102	1-249-423-11	CARBON 3.3K 5% 1/4W	
R103	1-247-887-00	CARBON 220K 5% 1/4W	
R104	1-249-417-11	CARBON 1K 5% 1/4W	
R105	1-249-423-11	CARBON 3.3K 5% 1/4W	
R106	1-247-887-00	CARBON 220K 5% 1/4W	
R107	1-249-428-11	CARBON 8.2K 5% 1/4W	
R108	1-247-864-11	CARBON 24K 5% 1/4W	
R109	1-249-414-11	CARBON 560 5% 1/4W	
R110	1-249-429-11	CARBON 10K 5% 1/4W	
R111	1-249-423-11	CARBON 3.3K 5% 1/4W	
R121	1-249-437-11	CARBON 47K 5% 1/4W	
R122	1-249-421-11	CARBON 2.2K 5% 1/4W	
R123	1-249-421-11	CARBON 2.2K 5% 1/4W	
R124	1-249-437-11	CARBON 47K 5% 1/4W	
R125	1-249-425-11	CARBON 4.7K 5% 1/4W	
R131	1-249-425-11	CARBON 4.7K 5% 1/4W	
R132	1-247-822-11	CARBON 430 5% 1/4W	
R133	1-247-866-11	CARBON 30K 5% 1/4W	
R134	1-247-866-11	CARBON 30K 5% 1/4W	
R135	1-249-439-11	CARBON 68K 5% 1/4W	
R136	1-249-410-11	CARBON 270 5% 1/4W	
R141	1-249-432-11	CARBON 18K 5% 1/4W	
R142	1-249-432-11	CARBON 18K 5% 1/4W	
R143	1-249-421-11	CARBON 2.2K 5% 1/4W	

Ref. No.	Part No.	Description			Remark
R144	1-247-854-11	CARBON	9.1K	5%	1/4W
R145	1-249-409-11	CARBON	220	5%	1/4W
R151	1-249-433-11	CARBON	22K	5%	1/4W
R152	1-249-417-11	CARBON	1K	5%	1/4W
R161	1-249-429-11	CARBON	10K	5%	1/4W
R201	1-249-421-11	CARBON	2.2K	5%	1/4W
R202	1-249-423-11	CARBON	3.3K	5%	1/4W
R203	1-247-887-00	CARBON	220K	5%	1/4W
R204	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-423-11	CARBON	3.3K	5%	1/4W
R206	1-247-887-00	CARBON	220K	5%	1/4W
R207	1-249-428-11	CARBON	8.2K	5%	1/4W
R208	1-247-864-11	CARBON	24K	5%	1/4W
R209	1-249-414-11	CARBON	560	5%	1/4W
R210	1-249-429-11	CARBON	10K	5%	1/4W
R211	1-249-423-11	CARBON	3.3K	5%	1/4W
R221	1-249-437-11	CARBON	47K	5%	1/4W
R222	1-249-421-11	CARBON	2.2K	5%	1/4W
R223	1-249-421-11	CARBON	2.2K	5%	1/4W
R224	1-249-437-11	CARBON	47K	5%	1/4W
R225	1-249-425-11	CARBON	4.7K	5%	1/4W
R231	1-249-425-11	CARBON	4.7K	5%	1/4W
R232	1-247-822-11	CARBON	430	5%	1/4W
R233	1-247-866-11	CARBON	30K	5%	1/4W
R234	1-247-866-11	CARBON	30K	5%	1/4W
R235	1-249-439-11	CARBON	68K	5%	1/4W
R236	1-249-410-11	CARBON	270	5%	1/4W
R241	1-249-432-11	CARBON	18K	5%	1/4W
R242	1-249-432-11	CARBON	18K	5%	1/4W
R243	1-249-421-11	CARBON	2.2K	5%	1/4W
R244	1-247-854-11	CARBON	9.1K	5%	1/4W
R245	1-249-409-11	CARBON	220	5%	1/4W
R251	1-249-433-11	CARBON	22K	5%	1/4W
R252	1-249-417-11	CARBON	1K	5%	1/4W
R261	1-249-429-11	CARBON	10K	5%	1/4W
R501	1-249-417-11	CARBON	1K	5%	1/4W
R502	1-215-455-00	METAL	27K	1%	1/6W
R503	1-249-422-11	CARBON	2.7K	5%	1/4W
R504	1-215-455-00	METAL	27K	1%	1/6W
R505	1-249-417-11	CARBON	1K	5%	1/4W
R506	1-249-429-11	CARBON	10K	5%	1/4W
R507	1-249-441-11	CARBON	100K	5%	1/4W
R511	1-249-429-11	CARBON	10K	5%	1/4W
R512	1-249-421-11	CARBON	2.2K	5%	1/4W
R513	1-249-441-11	CARBON	100K	5%	1/4W
R514	1-249-441-11	CARBON	100K	5%	1/4W
R515	1-249-436-11	CARBON	39K	5%	1/4W
R516	1-249-425-11	CARBON	4.7K	5%	1/4W
R517	1-249-433-11	CARBON	22K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R518	1-249-425-11	CARBON	4.7K	5%	1/4W
R521	1-247-852-11	CARBON	7.5K	5%	1/4W
R522	1-247-852-11	CARBON	7.5K	5%	1/4W
R523	1-247-858-11	CARBON	13K	5%	1/4W
R524	1-247-852-11	CARBON	7.5K	5%	1/4W
R525	1-249-429-11	CARBON	10K	5%	1/4W
R526	1-249-429-11	CARBON	10K	5%	1/4W
R527	1-249-426-11	CARBON	5.6K	5%	1/4W
R528	1-249-422-11	CARBON	2.7K	5%	1/4W
R529	1-249-429-11	CARBON	10K	5%	1/4W
R530	1-249-421-11	CARBON	2.2K	5%	1/4W
R531	1-249-426-11	CARBON	5.6K	5%	1/4W
R532	1-247-862-11	CARBON	20K	5%	1/4W
R536	1-249-421-11	CARBON	2.2K	5%	1/4W
R537	1-247-866-11	CARBON	30K	5%	1/4W
R538	1-247-852-11	CARBON	7.5K	5%	1/4W
R539	1-249-431-11	CARBON	15K	5%	1/4W
R540	1-247-874-11	CARBON	62K	5%	1/4W
R541	1-249-429-11	CARBON	10K	5%	1/4W
R542	1-249-429-11	CARBON	10K	5%	1/4W
R543	1-249-429-11	CARBON	10K	5%	1/4W
R544	1-249-429-11	CARBON	10K	5%	1/4W
R553	1-249-437-11	CARBON	47K	5%	1/4W
R555	1-249-427-11	CARBON	6.8K	5%	1/4W
R556	1-249-423-11	CARBON	3.3K	5%	1/4W
R557	1-249-441-11	CARBON	100K	5%	1/4W
R558	1-249-429-11	CARBON	10K	5%	1/4W
R559	1-249-441-11	CARBON	100K	5%	1/4W
R560	1-249-417-11	CARBON	1K	5%	1/4W
R561	1-249-432-11	CARBON	18K	5%	1/4W
R562	1-249-436-11	CARBON	39K	5%	1/4W
R571	1-249-403-11	CARBON	68	5%	1/4W
R572	1-249-429-11	CARBON	10K	5%	1/4W
R573	1-249-429-11	CARBON	10K	5%	1/4W
R574	1-249-435-11	CARBON	33K	5%	1/4W
R601	1-249-421-11	CARBON	2.2K	5%	1/4W
R602	1-249-429-11	CARBON	10K	5%	1/4W
R603	1-249-405-11	CARBON	100	5%	1/4W
R604	1-249-433-11	CARBON	22K	5%	1/4W
R605	1-249-433-11	CARBON	22K	5%	1/4W
R606	1-249-430-11	CARBON	12K	5%	1/4W
R607	1-249-433-11	CARBON	22K	5%	1/4W
R608	1-247-862-11	CARBON	20K	5%	1/4W
R609	1-249-429-11	CARBON	10K	5%	1/4W
R701	1-249-425-11	CARBON	4.7K	5%	1/4W
R702	1-249-420-11	CARBON	1.8K	5%	1/4W
R703	1-249-426-11	CARBON	5.6K	5%	1/4W
R704	1-249-427-11	CARBON	6.8K	5%	1/4W
R705	1-249-419-11	CARBON	1.5K	5%	1/4W

SYSTEM CONTROL

Ref. No.	Part No.	Description				Remark
R706	1-249-419-11	CARBON	1.5K	5%	1/4W	
R707	1-249-429-11	CARBON	10K	5%	1/4W	
R708	1-249-425-11	CARBON	4.7K	5%	1/4W	
R709	1-249-409-11	CARBON	220	5%	1/4W	
R710	1-249-417-11	CARBON	1K	5%	1/4W	
R711	1-249-427-11	CARBON	6.8K	5%	1/4W	
R712	1-249-427-11	CARBON	6.8K	5%	1/4W	
R713	1-249-421-11	CARBON	2.2K	5%	1/4W	
R714	1-249-421-11	CARBON	2.2K	5%	1/4W	
R715	1-247-838-00	CARBON	2K	5%	1/4W	
R716	1-249-441-11	CARBON	100K	5%	1/4W	
R717	1-249-433-11	CARBON	22K	5%	1/4W	
R718	1-247-870-11	CARBON	43K	5%	1/4W	
R719	1-249-431-11	CARBON	15K	5%	1/4W	
⚠R720	1-219-137-11	FUSIBLE	0.33	10%	1/4W	F
R801	1-249-417-11	CARBON	1K	5%	1/4W	
R802	1-249-441-11	CARBON	100K	5%	1/4W	
R805	1-249-434-11	CARBON	27K	5%	1/4W	
R806	1-249-434-11	CARBON	27K	5%	1/4W	
R807	1-249-434-11	CARBON	27K	5%	1/4W	
R808	1-249-434-11	CARBON	27K	5%	1/4W	
R809	1-249-434-11	CARBON	27K	5%	1/4W	
R810	1-249-405-11	CARBON	100	5%	1/4W	
R811	1-249-405-11	CARBON	100	5%	1/4W	
R812	1-249-405-11	CARBON	100	5%	1/4W	
R813	1-249-405-11	CARBON	100	5%	1/4W	
R814	1-249-405-11	CARBON	100	5%	1/4W	
R815	1-249-405-11	CARBON	100	5%	1/4W	
R816	1-249-405-11	CARBON	100	5%	1/4W	
R817	1-249-435-11	CARBON	33K	5%	1/4W	
R818	1-249-435-11	CARBON	33K	5%	1/4W	
R819	1-249-435-11	CARBON	33K	5%	1/4W	
R820	1-249-405-11	CARBON	100	5%	1/4W	
R821	1-249-435-11	CARBON	33K	5%	1/4W	
R822	1-249-429-11	CARBON	10K	5%	1/4W	
R823	1-249-435-11	CARBON	33K	5%	1/4W	
R824	1-249-421-11	CARBON	2.2K	5%	1/4W	
R825	1-249-435-11	CARBON	33K	5%	1/4W	
R826	1-249-421-11	CARBON	2.2K	5%	1/4W	
R827	1-249-422-11	CARBON	2.7K	5%	1/4W	
R828	1-249-422-11	CARBON	2.7K	5%	1/4W	
R829	1-249-422-11	CARBON	2.7K	5%	1/4W	
R830	1-249-435-11	CARBON	33K	5%	1/4W	
R901	1-249-420-11	CARBON	1.8K	5%	1/4W	
R902	1-249-423-11	CARBON	3.3K	5%	1/4W	
R903	1-249-426-11	CARBON	5.6K	5%	1/4W	
R904	1-249-429-11	CARBON	10K	5%	1/4W	
R905	1-249-435-11	CARBON	33K	5%	1/4W	
R906	1-249-420-11	CARBON	1.8K	5%	1/4W	
R907	1-249-423-11	CARBON	3.3K	5%	1/4W	
R908	1-249-426-11	CARBON	5.6K	5%	1/4W	
R909	1-249-429-11	CARBON	10K	5%	1/4W	
R910	1-249-435-11	CARBON	33K	5%	1/4W	
R911	1-249-429-11	CARBON	10K	5%	1/4W	
R912	1-249-429-11	CARBON	10K	5%	1/4W	
R913	1-249-429-11	CARBON	10K	5%	1/4W	
R914	1-249-441-11	CARBON	100K	5%	1/4W	
R921	1-247-850-11	CARBON	6.2K	5%	1/4W	
R922	1-247-862-11	CARBON	20K	5%	1/4W	
R923	1-249-428-11	CARBON	8.2K	5%	1/4W	
R924	1-249-425-11	CARBON	4.7K	5%	1/4W	
R925	1-249-437-11	CARBON	47K	5%	1/4W	
		< VARIABLE RESISTOR >				
RV111	1-238-600-11	RES, ADJ, CARBON 10K (REC GAIN L)				
RV211	1-238-600-11	RES, ADJ, CARBON 10K (REC GAIN R)				
RV901	1-241-820-11	RES, VAR, CARBON 50K/50K (REC LEVEL)				
RV902	1-241-897-11	RES, VAR, CARBON 50K/50K (REC BALANCE)				
		< SWITCH >				
S901	1-554-303-21	SWITCH, TACTILE (▮▮/PAUSE)				
S903	1-554-303-21	SWITCH, TACTILE (▷)				
S904	1-554-303-21	SWITCH, TACTILE (◁)				
S905	1-554-303-21	SWITCH, TACTILE (●/REC MUTE)				
S906	1-554-303-21	SWITCH, TACTILE (RESET)				
S907	1-554-303-21	SWITCH, TACTILE (MEMORY)				
S908	1-554-303-21	SWITCH, TACTILE (■)				
S909	1-554-303-21	SWITCH, TACTILE (◁◁)				
S910	1-554-303-21	SWITCH, TACTILE (▷▷)				
S911	1-554-303-21	SWITCH, TACTILE (●/REC)				
S912	1-692-478-11	SWITCH, SLIDE (DIRECTION)				
S913	1-692-409-11	SWITCH, PUSH (1 KEY) (POWER)				
S921	1-554-303-21	SWITCH, TACTILE (AUTO CAL)				
S922	1-692-408-11	SWITCH, ROTARY (DOLBY NR)				
S923	1-554-118-00	SWITCH, PUSH (1 KEY) (MPX FILTER)				
		< TEST PIN >				
* TP801	1-564-505-11	PLUG, CONNECTOR 2P				
		< CRYSTAL >				
X801	1-579-175-11	VIBRATOR, CERAMIC				
**********						
		MISCELLANEOUS				
		**********				
1	1-751-099-11	WIRE (FLAT TYPE) (13 CORE)				
2	1-575-781-11	WIRE, FLAT TYPE (9 CORE)				
3	1-751-100-11	WIRE (FLAT TYPE) (33 CORE)				

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
⚠8	1-558-945-21	CORD, POWER (POLAR. SPT-1) (US, Canadian)	
⚠8	1-575-651-21	CORD, POWER (AEP)	
63	1-751-100-11	WIRE (FLAT TYPE) (33 CORE)	
67	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
72	1-751-099-11	WIRE (FLAT TYPE) (13 CORE)	
103	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
FL901	1-517-173-11	INDICATOR TUBE, FLUORESCENT	
HE101	A-2003-838-F	BASE ASSY, HEAD (ERASE)	
HRP101	A-2003-838-F	BASE ASSY, HEAD (PLAYBACK/RECORD)	
M1	X-3365-377-1	MOTOR ASSY, CAPSTAN	
M2	X-3363-501-1	MOTOR ASSY, REEL	
⚠T701	1-423-634-11	TRANSFORMER, POWER (AEP)	
⚠T701	1-423-635-11	TRANSFORMER, POWER (US, Canadian)	

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ACCESSORIES & PACKING MATERIALS

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	1-558-271-11	CORD, CONNECTION	
	1-558-271-11	CORD, CONNECTION	
	1-696-170-11	CORD, CONNECTION	
*	3-350-830-01	CUSHION (US, Canadian)	
*	3-350-830-01	CUSHION (AEP)	
*	3-388-323-81	INDIVIDUAL CARTON (US, Canadian)	
*	3-388-323-81	INDIVIDUAL CARTON (AEP)	
	3-756-690-11	MANUAL, INSTRUCTION (Canadian, AEP) (ENGLISH/FRENCH/SPANISH/PORTUGUESE)	
	3-756-690-21	MANUAL, INSTRUCTION (US) (ENGLISH)	
	3-756-690-41	MANUAL, INSTRUCTION (AEP) (GERMAN/DUTCH/SWEDISH/ITALIAN)	
	3-756-690-61	MANUAL, INSTRUCTION (AEP)	

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HARDWARE RIST

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#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-682-547-09	SCREW +BVTT 3X6 (S)	
#3	7-621-849-00	SCREW (BV/RING)	
#4	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
#5	7-621-773-95	SCREW +BVTT 2.6X6 (S)	
#6	7-621-775-00	SCREW +B 2.6X3	
#7	7-627-556-08	SCREW +P 2.6X2.8	

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