

TC-WR690/WR790

SERVICE MANUAL

US Model
Canadian Model
AEP Model

UK Model

TC-WR690/WR790

E Model

TC-WR690

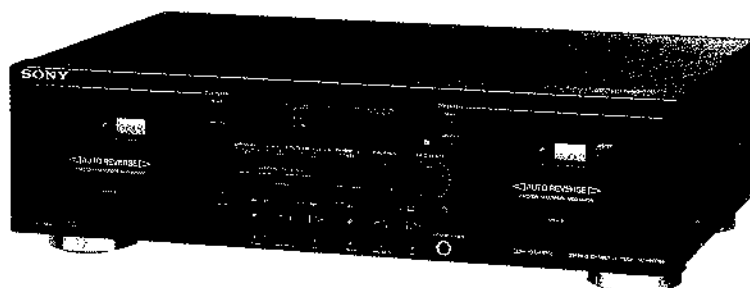


Photo: TC-WR790

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-Select/S)	Type II (Sony UX-S)	Type I (Sony HF-S)
	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 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)

Cassette Model	Type IV cassette (Sony Metal-Select/S)	Type II cassette (Sony UX-S)	Type I cassette (Sony HF-S)
TC-WR 690	30 - 18,000 Hz (±3 dB, IEC) 30 - 13,000 Hz [±3 dB (-4 dB) recording]	30 - 16,000 Hz (±3 dB, IEC)	30 - 15,000 Hz (±3 dB, IEC)
TC-WR 790	30 - 19,000 Hz (±3 dB, IEC) 30 - 13,000 Hz [±3 dB (-4dB) recording]	30 - 18,000 Hz (±3 dB, IEC)	30 - 16,000 Hz (±3 dB, IEC)

Model Name Using Similar Mechanism	TC-WR521/WR590
Tape Transport Mechanism Type	DECK A TCM-190RB12CJ
	DECK B TCM-190RB12CJ

Wow and flutter ±0.13% W.Peak (IEC)
0.07% W.RMS (NAB)
±0.18% 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	1 mW at a load impedance of 32 ohms

General

Power requirements US, Canadian model:
120V AC, 60Hz
UK model:
240V AC (or 220V AC adjustable by Sony personnel), 50/60Hz
AEP, Germany model:
220-230V AC, (or 240V AC adjustable by Sony personnel), 50/60Hz
E model:
120, 220, or 240V AC adjustable, 50/60Hz

—Continued on next page—

STEREO CASSETTE DECK
SONY®



Power consumption	30 W
Dimensions	Approx. 430 × 123 × 285 mm (w/h/d) (17 × 4 ⁷ / ₈ × 11 ¹ / ₄ inches) including projecting parts and controls
Weight	Approx. 4.5 kg (9 lbs 15 oz) (TC- WR690) Approx. 4.6 kg (10 lbs 3 oz) (TC- WR790)

Supplied accessories

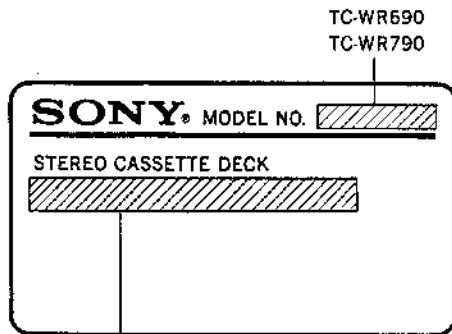
Audio connecting cords (2)

Design and specifications are subject to change without notice.

Note

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

—MODEL IDENTIFICATION— (Specification Label)



US, Canadian model: AC 120V 60Hz 30W
 AEP, Germany model: AC 220—230V~50/60Hz
 UK model: AC 240V~50/60Hz
 E model: AC 120, 220, 240V~50/60Hz 30W

Features

For higher quality recording/playback

- **The Dolby HX PRO* system** which improves the linearity of the tape's high-range response during recording.
- **B and C type Dolby NR* systems** which reduce tape noise.
- **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 (TC-WR790 only).

For your convenience

- **Automatic tape type detection** during playback and recording.
- **The Multi-AMS and Memory Play functions** which provide easy access to a desired selection.
- **A relay function** for long recording and playback.
- **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 (TC-WR790 only).

For easier operation

- **Twin easy-to read digital counters** which show the elapsed recording or playing time on each deck.
- 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 $\square\square$ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Differences between the models

This instruction manual covers the TC-WR690 and TC-WR790. The TC-WR790 has the following features which are not in the TC-WR690.

- Independent B and C type Dolby NR* systems on each deck
- A dubbing level control

Note: All illustrations in this manual show the TC-WR790.

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)

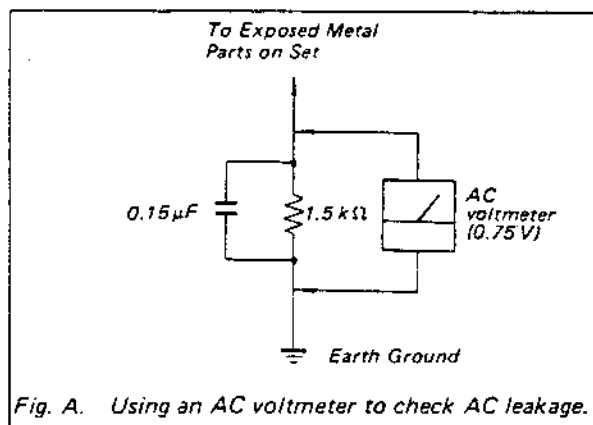


Fig. A. Using an AC voltmeter to check AC leakage.

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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!

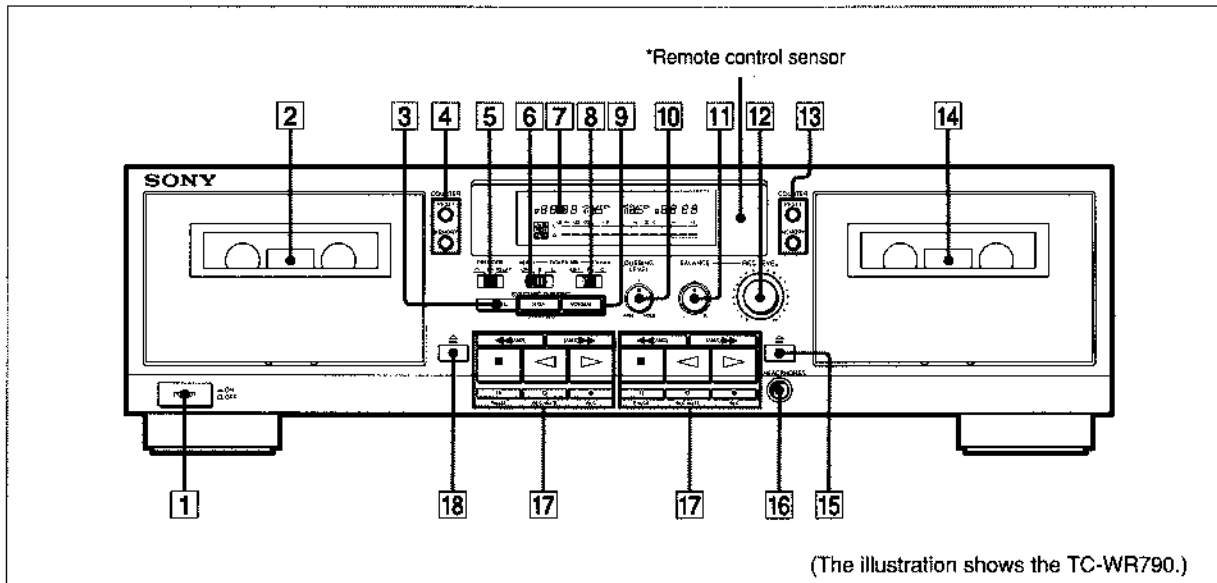
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

**SECTION 1
GENERAL**

This section is extracted from instruction manual.

1-1. IDENTIFYING THE PARTS

Front Panel



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

- 1 POWER switch
- 2 Deck A
- 3 A+B REC (simultaneous recording) button (page 15)
- 4 COUNTER buttons (deck A) (page 11)
RESET button
MEMORY button
- 5 DIR (direction) MODE switch (pages 7, 8, 12, 15, 16 and 18)
- 6 DOLBY NR (Dolby noise reduction) switch (TC-WR790: for deck A only; TC-WR690: for decks A and B) (pages 7, 8, 12, 15, 16 and 18)
- 7 Display panel
- 8 DOLBY NR (Dolby noise reduction) switch (deck B) (TC-WR790 only) (pages 7, 8, 12, 15, 16 and 18)
- 9 SYNCHRO DUBBING buttons (page 18)
HIGH speed button
NORMAL speed button
- 10 DUBBING LEVEL control (TC-WR790 only) (page 18)
- 11 BALANCE control (page 12)
- 12 REC (recording) LEVEL control (pages 12 and 13)
- 13 COUNTER buttons (deck B) (page 11)
RESET button
MEMORY button
- 14 Deck B

- 15 ▲ (eject) button (deck B)
- 16 HEADPHONES jack (stereo phone jack)
- 17 Tape operation buttons
◀◀ (leftward fast winding) (Multi-AMS**) button
▶▶ (rightward fast winding) (Multi-AMS**) button
■ (stop) button
◀ (reverse play) button
▶ (forward play) button
|| PAUSE button
○ REC MUTE (record muting) button (page 17)
● REC (recording) button
- 18 ▲ (eject) button (deck A)

***Remote control sensor**

You can remotely control this cassette deck with:

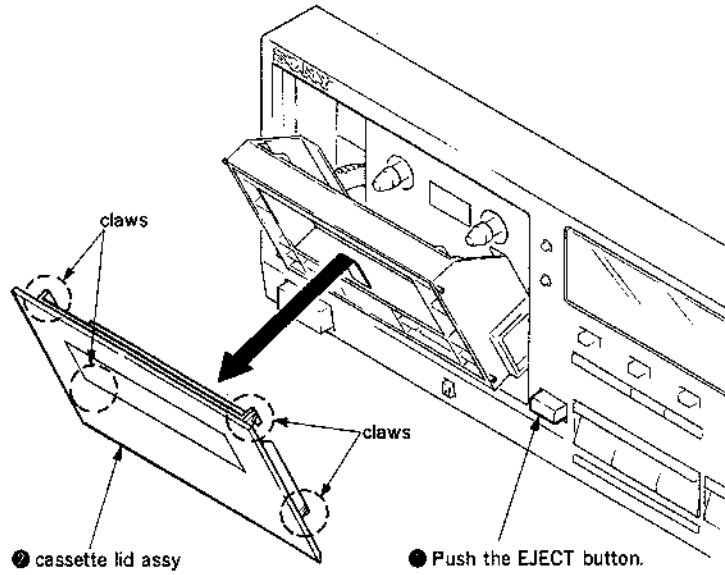
- A remote commander that came with a Sony amplifier or receiver if it has the mark and cassette deck control capability.
- Any optional Sony remote commander with the mark and cassette deck control capability.

**AMS is an abbreviation for Automatic Music Sensor.

SECTION 2 DISASSEMBLY

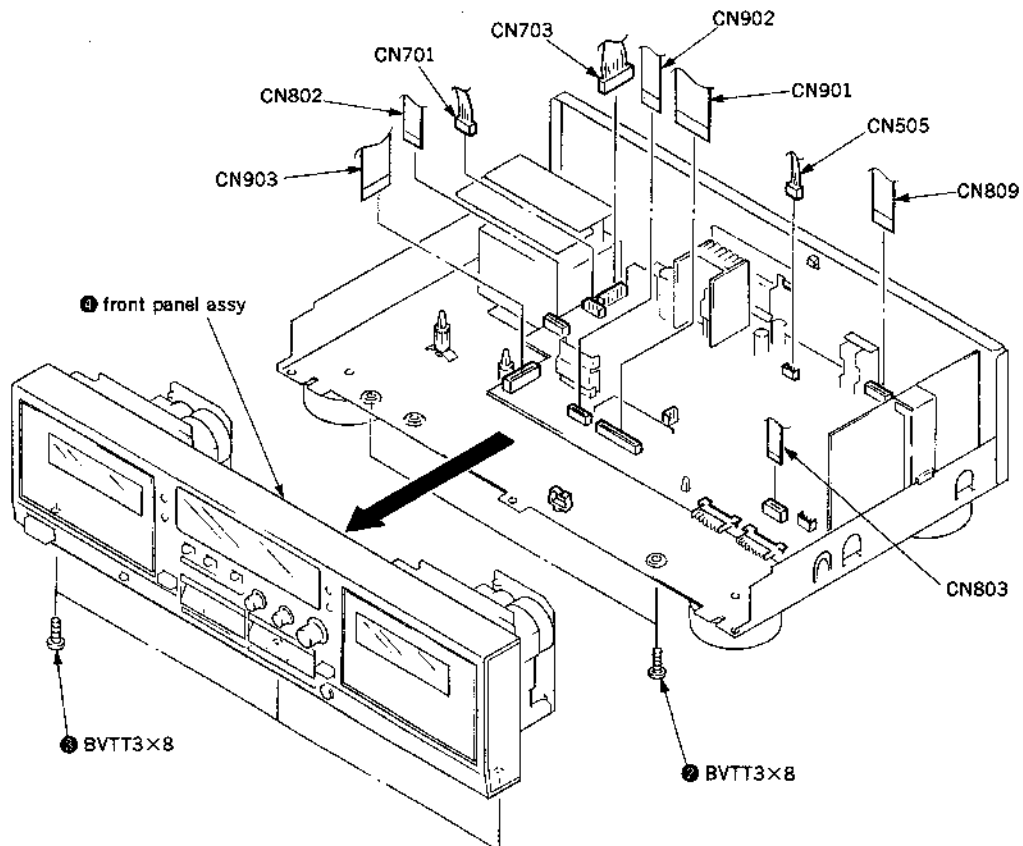
Note : Follow the disassembly procedure in the numerical order given.

2-1. CASSETTE LID ASSY

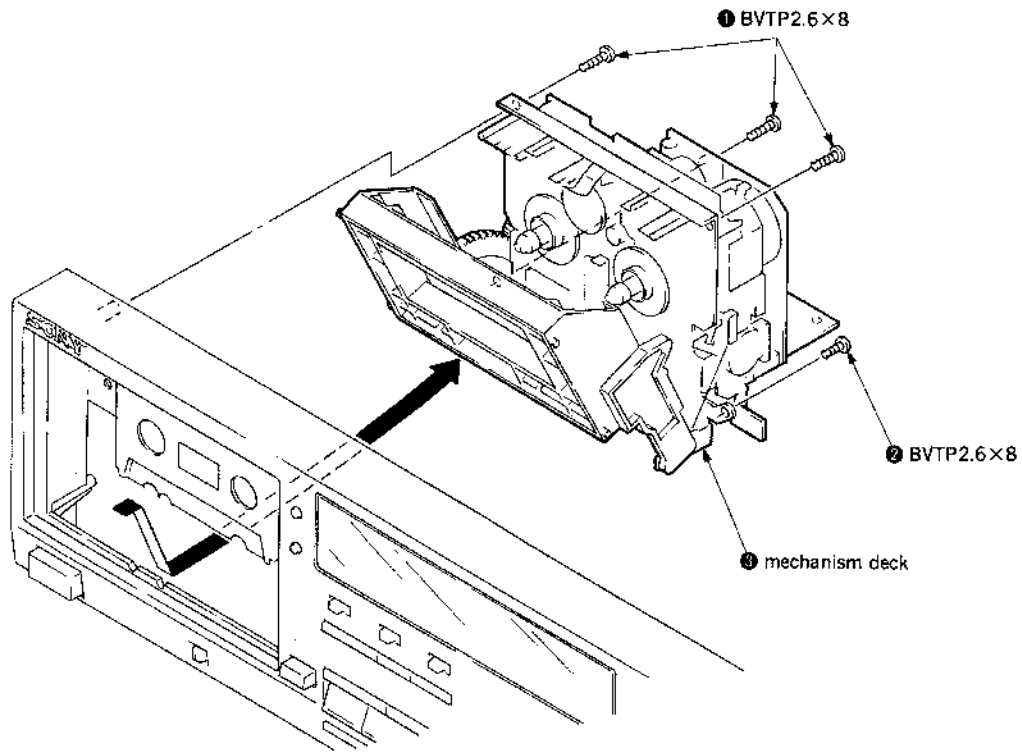


2-2. FRONT PANEL ASSY

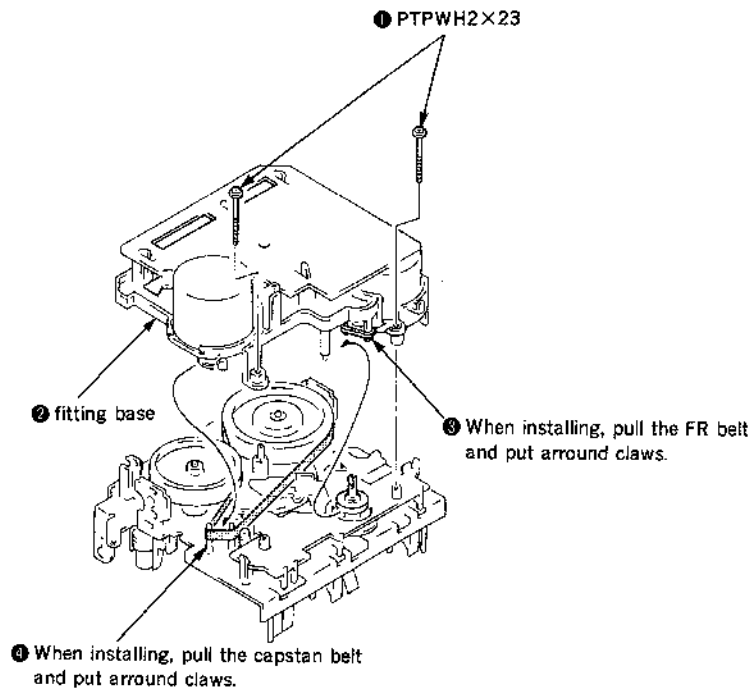
① Remove the connectors.



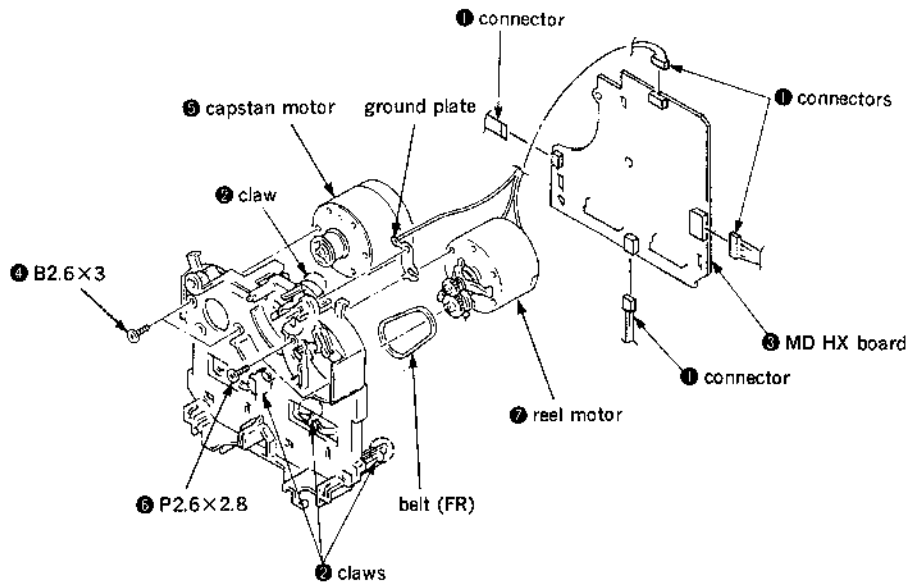
2-3. MECHANISM DECK



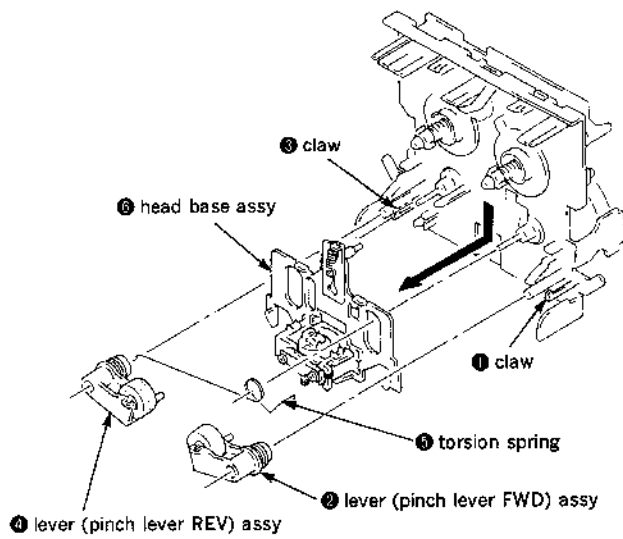
2-4. CAPSTAN MOTOR, REEL MOTOR (1)



2-5. CAPSTAN MOTOR, REEL MOTOR (2)



2-6. HEAD, PINCH ROLLER



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab :
 - record/playback/erase head pinch roller
 - rubber belts idlers
 - capstan
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

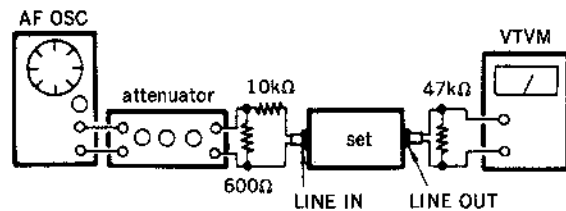
Torque	Torque meter	Meter reading
Forward	CQ-102C	30 to 65g·cm (0.42 to 0.90 oz·inch)
Forward back tension	CQ-102C	1 to 6g·cm (0.014 to 0.08 oz·inch)
Reverse	CQ-102RC	30 to 65g·cm (0.42 to 0.90 oz·inch)
Reverse back tension	CQ-102RC	1 to 6g·cm (0.014 to 0.08 oz·inch)
Forward, Reverse	CQ-201B	70 to 120g·cm (0.98 to 1.67 oz·inch)

SECTION 4 ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustment should be performed in the publication.
(Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
 - Switch position
DOLBY NR switch : OFF
DIR MODE switch : \neq
 - 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	10kΩ
input signal level	0.25V (-10dB)

Standard Output Level

Output terminal	LINE OUT
load impedance	47kΩ
output signal level	0.44V (-5dB)

Test Tape

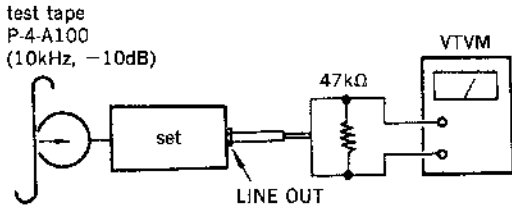
Tape	Contents	Use
P-4-A100	10kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

Record/Playback Head Azimuth Adjustment

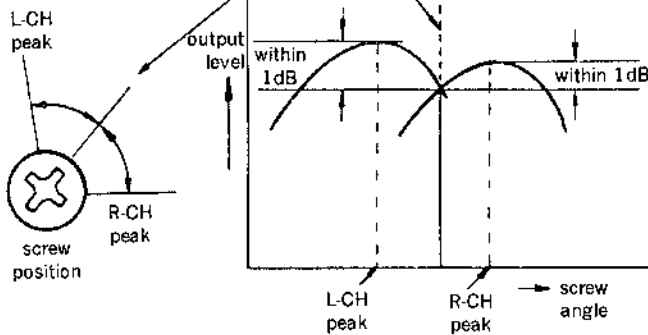
DECK A **DECK B**

Procedure :

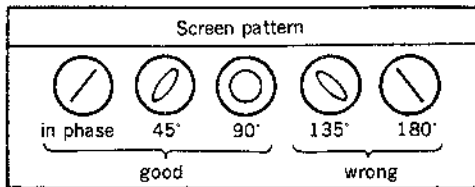
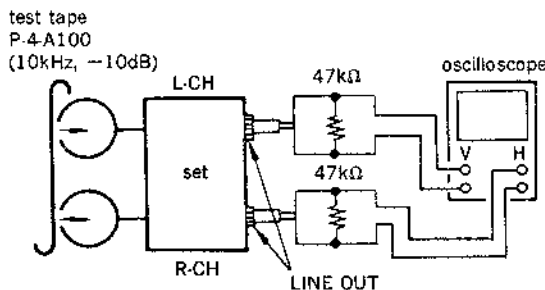
1. Reverse Playback Mode



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.

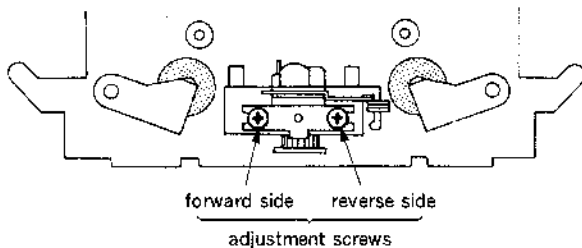


3. Playback Mode



4. Change the forward 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—

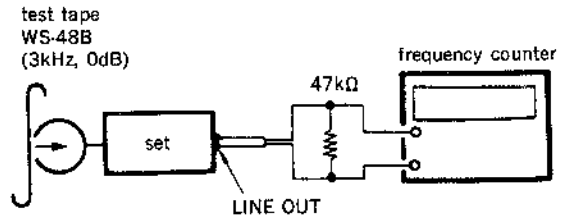


Tape Speed Adjustment **DECK A** **DECK B**

Perform high speed adjustment before normal speed adjustment.

Procedure :

—Forward Playback Mode—



(high speed adjustment)

1. Short the connector TP1 (pins ① and ②). (test mode)
2. Keep on pressing the SYNCHRO DUBBING HIGH switch.
3. Adjust each RV72 so that the frequency counter reading becomes within adjustment limits of $6,000 \pm 20\text{Hz}$ on both of deck A and deck B.
4. Change the reverse playback mode and repeat the steps 2 and 3.

(normal speed adjustment)

5. After adjustment, open the connector TP1.
6. Keep on pressing the SYNCHRO DUBBING NORM switch.
7. Adjust each RV71 so that the frequency counter reading becomes within adjustment limits of $3,000 \pm 10\text{Hz}$ on both of deck A and deck B.
8. Change the reverse playback mode and repeat the steps 6 and 7.

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

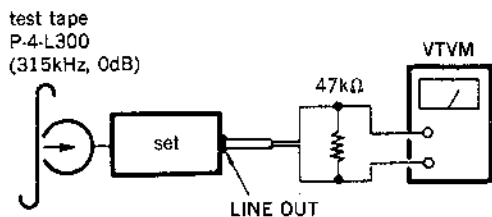
Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

Adjustment Location : MD HX board

Playback Level Adjustment DECK A DECK B

Procedure :

—Forward Playback Mode—



Adjust each RV11 (L-CH) and RV21 (R-CH) so that the VTVM reading becomes within adjustment limits below on both of deck A and deck B.

Adjustment Limits :

LINE OUT level : $-7.7 \pm 0.5\text{dB}$ (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.

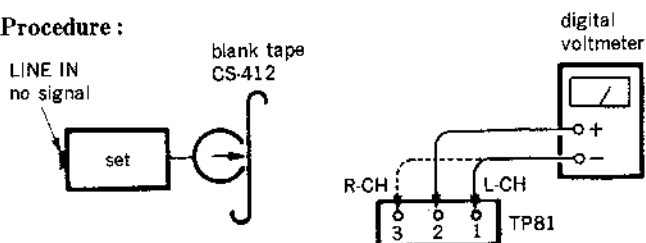
Adjustment Location : MD HX board

Bias Consumption Current Adjustment

DECK A DECK B

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

Procedure :



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

Adjustment Location : MD HX board

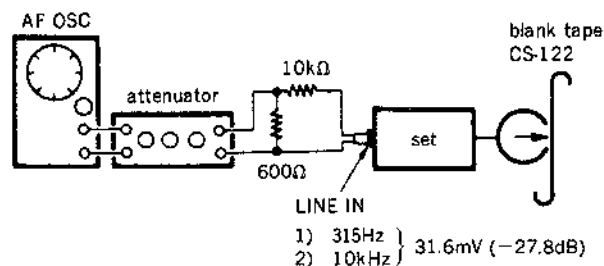
Record Bias Adjustment DECK A DECK B

Setting :

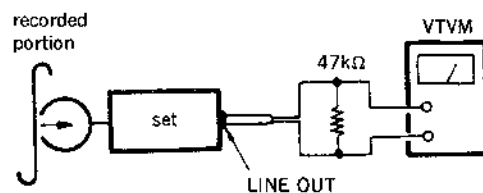
REC LEVEL control : standard record position (Refer to page 8.)

Procedure :

1. Record Mode



2. Playback Mode



3. Playback the signal recorded in step 1, and confirm that the 10kHz playback output level is VTVM reading becomes within adjustment limits below relative to the 315Hz output.
4. If the adjustment limits are not satisfied, adjust each RV81 (L-CH) and RV91 (R-CH) so that the VTVM reading becomes within adjustment limits below.

Adjustment Limits :

10kHz playback output

relative to the 315Hz output : $0 \pm 0.5\text{dB}$

(0.732 to 0.821V)

Adjustment Location : MD HX board

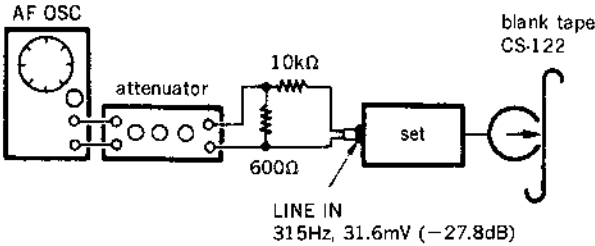
Record Level Adjustment **DECK A** **DECK B**

Setting :

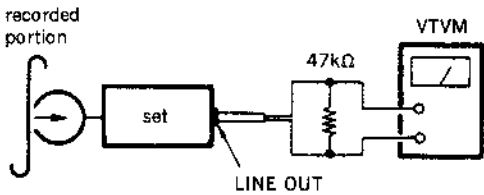
REC LEVEL control : standard record position (Refer to page 8.)

Procedure :

1. Record Mode



2. Playback Mode



(deck A)

3. Playback the signal recorded in step 1, and confirm that the playback output level is VTVM reading becomes within adjustment limits below.
4. If the adjustment limits are not satisfied, adjust each RV301 (L-CH) and RV401 (R-CH) so that the VTVM reading becomes within adjustment limits below.

(deck B)

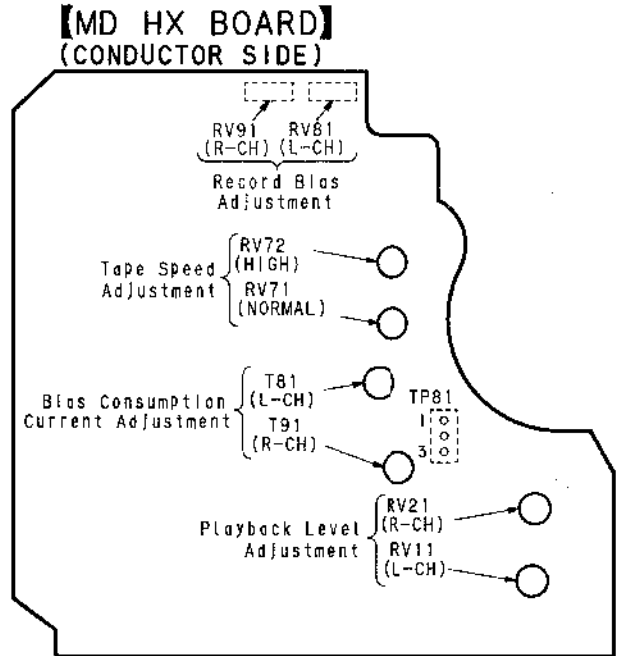
5. Similarly, playback the signal recorded in step 1, and confirm that the playback output level is VTVM reading becomes within adjustment limits below.
6. If the adjustment limits are not satisfied, adjust each RV351 (L-CH) and RV451 (R-CH) so that the VTVM reading becomes within adjustment limits below.

Adjustment Limits :

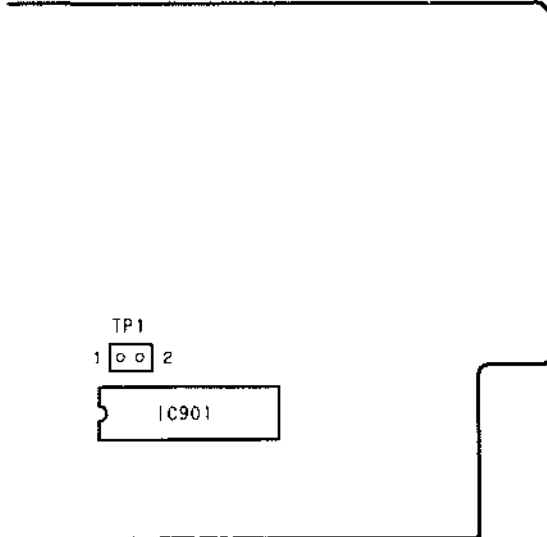
315Hz playback output level : $-27.7 \pm 0.5\text{dB}$ (30.2 to 33.8mV)

Adjustment Location : EQ board

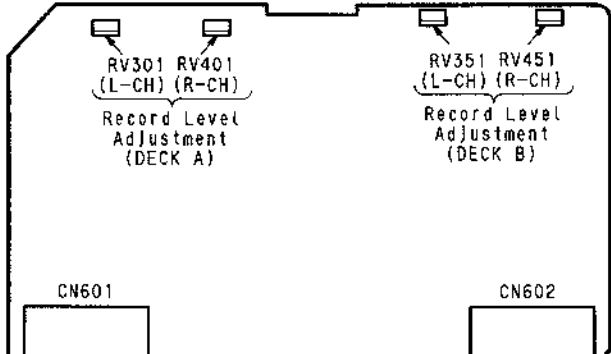
Adjustment Location :



SYSTEM CONTROL BOARD (COMPONENT SIDE)

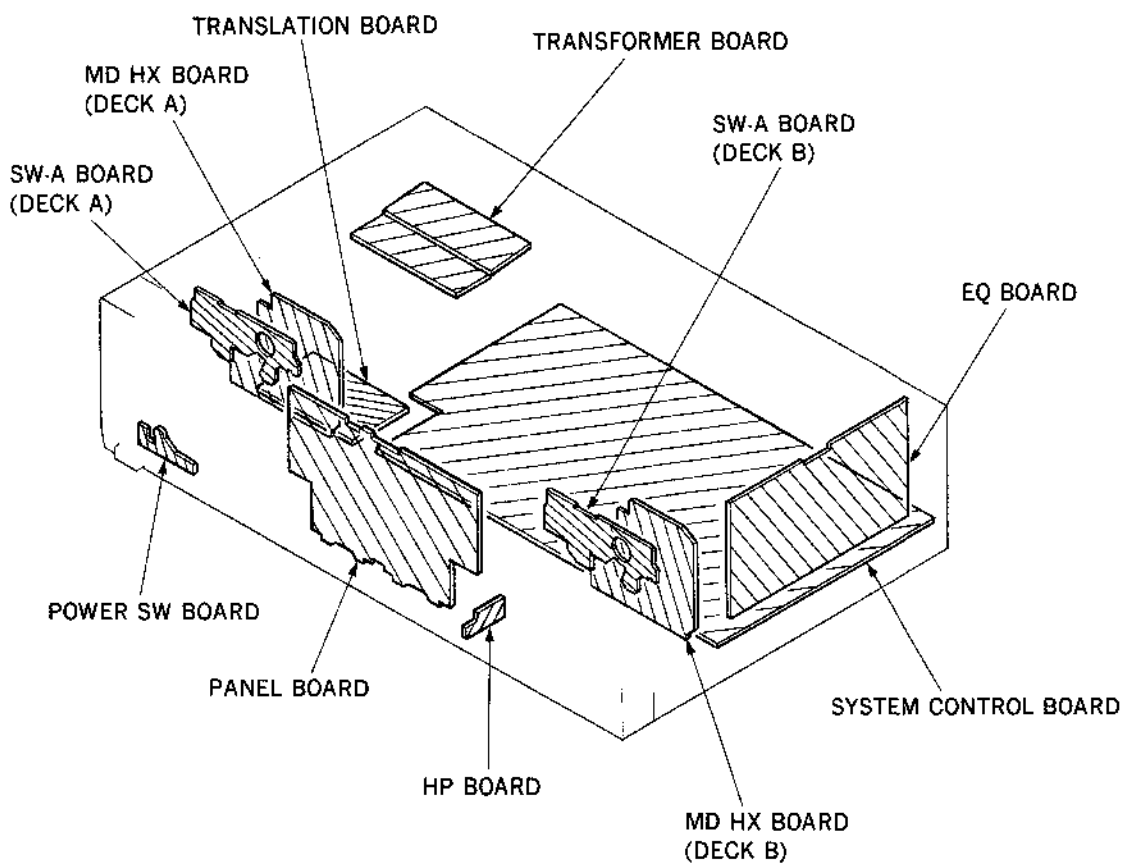


EQ BOARD (COMPONENT SIDE)

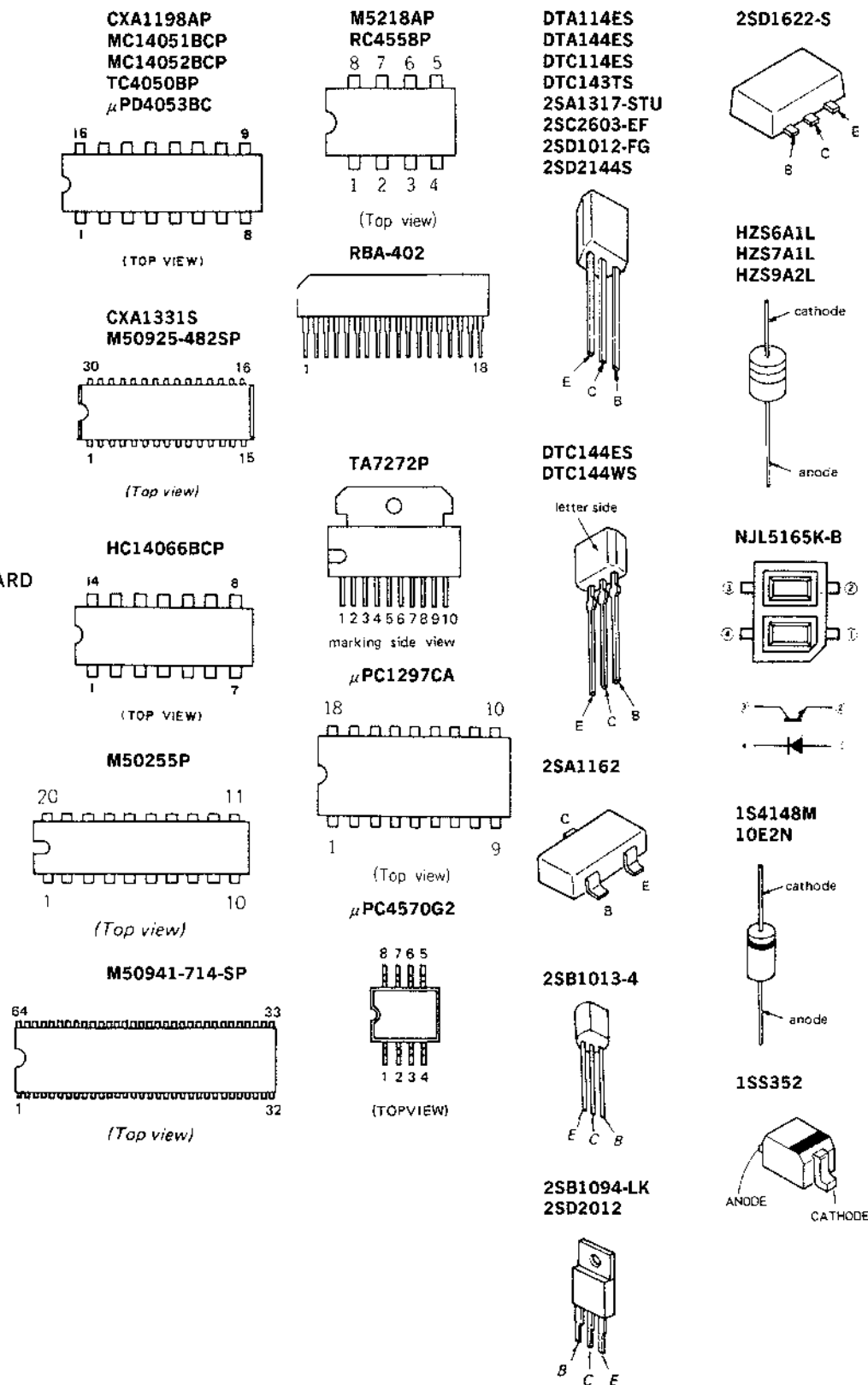


**SECTION 5
DIAGRAMS**

5-1. CIRCUIT BOARDS LOCATION



5-2. SEMICONDUCTOR LEAD LAYOUTS



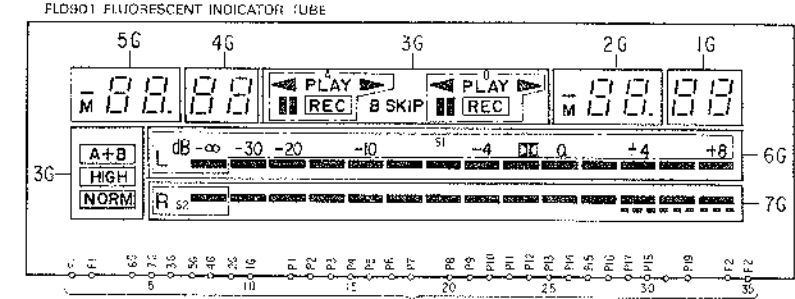
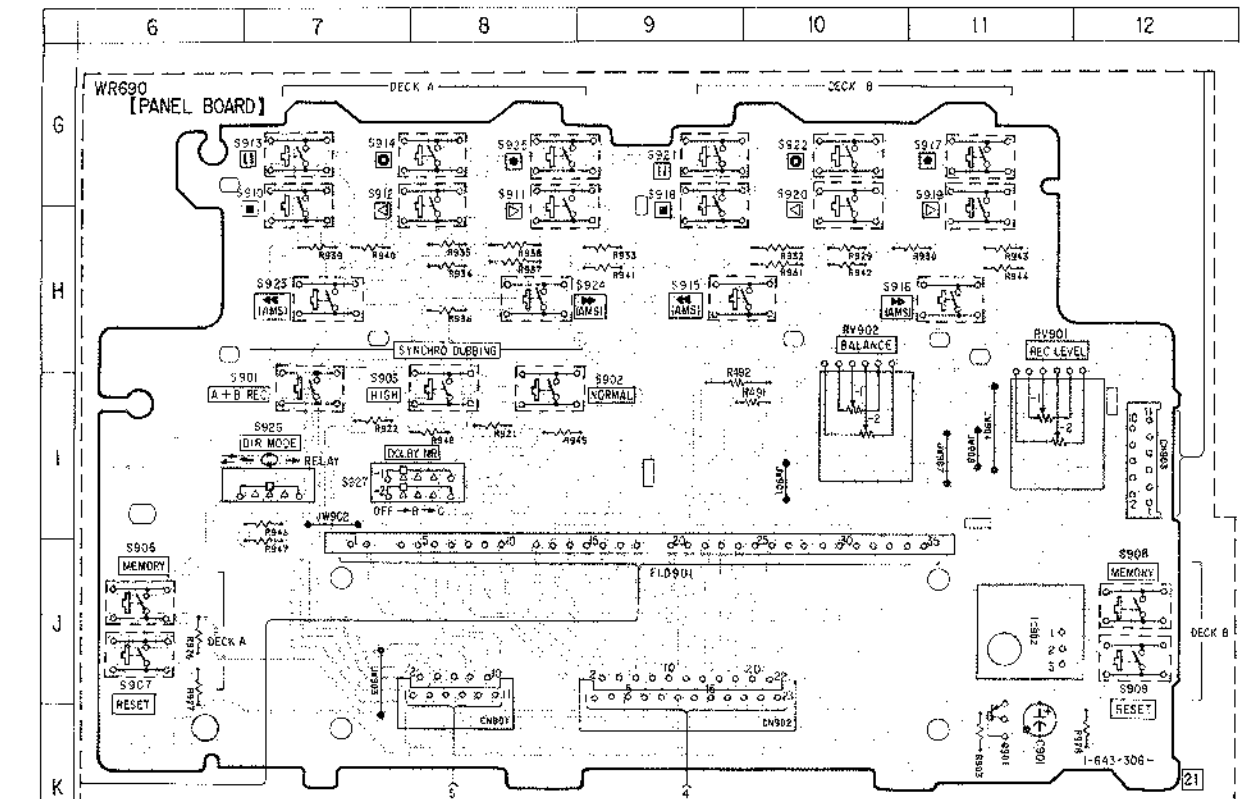
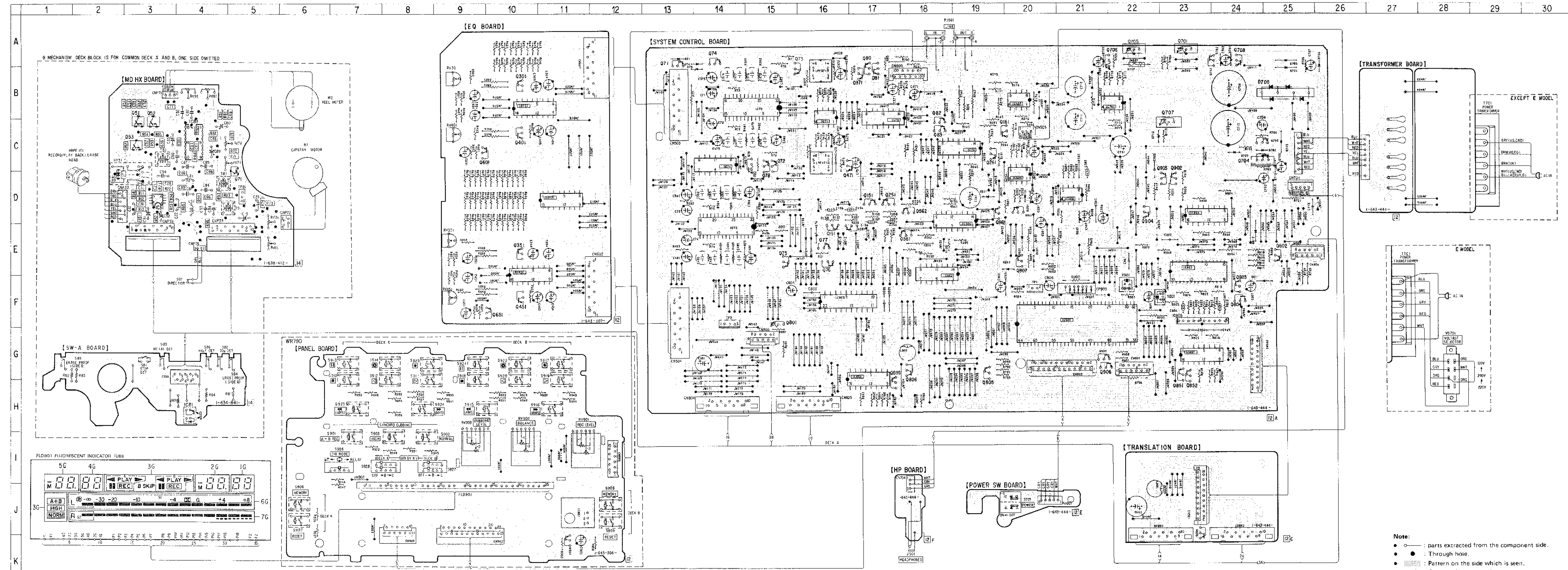
• Semiconductor Location EXCEPT MD HX BOARD

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D71	A-13	IC506	D-19	Q161	C-19	Q898	J-23
D72	E-16	IC507	B-20	Q231	E-17	Q899	H-17
D73	B-14	IC508	D-21	Q251	D-17	Q901	K-11
D74	A-14	IC509	D-20	Q261	C-19	Q902	D-23
D75	E-16	IC601	B-10	Q301	B-10	Q903	D-23
D76	E-16	IC602	E-10	Q351	E-10	Q904	D-22
D191	C-20	IC603	D-11	Q371	B-17	Q905	G-21
D291	D-20	IC701	B-21	Q401	C-10	Q906	G-21
D561	D-19	IC802	E-23	Q451	F-10		
D601	E-20	IC803	F-16	Q471	C-16		
D602	E-20	IC804	D-23	Q561	E-18		
D701	A-24	IC805	F-23	Q562	D-18		
D702	C-24	IC806	G-17	Q601	C-9		
D703	C-25	IC807	G-23	Q651	F-10		
D704	B-25	IC862	F-18	Q701	A-23		
D705	A-25	IC901	F-21	Q702	A-23		
D706	A-25	IC902	J-11	Q703	C-24		
D708	B-25			Q704	C-24		
D709	A-21	Q71	A-13	Q705	A-22		
D712	C-22	Q72	C-15	Q706	A-21		
D713	C-25	Q73	A-15	Q707	C-23		
D720	C-24	Q74	A-14	Q708	A-24		
D801	E-20	Q75	E-15	Q801	F-15		
D811	F-24	Q76	E-16	Q802	E-25		
D812	E-24	Q77	E-16	Q803	F-24		
		Q78	C-15	Q804	F-24		
IC71	B-16	Q79	C-15	Q805	G-19		
IC72	B-15	Q80	B-17	Q806	G-18		
IC73	E-14	Q81	B-17	Q807	E-20		
IC74	C-14	Q82	C-18	Q851	G-23		
IC75	B-17	Q83	C-18	Q852	G-23		
IC76	C-19	Q131	E-16	Q861	D-20		
IC81	H-4	Q151	D-17	Q862	D-19		

• MD HX BOARD

Ref. No.	Location
D31	D-2
IC31	D-3
IC81	C-4
Q51	B-3
Q52	B-3
Q53	C-3
Q71	D-5

5-3. PRINTED WIRING BOARDS • Refer to Page 13 for Semiconductor Lead Layouts.

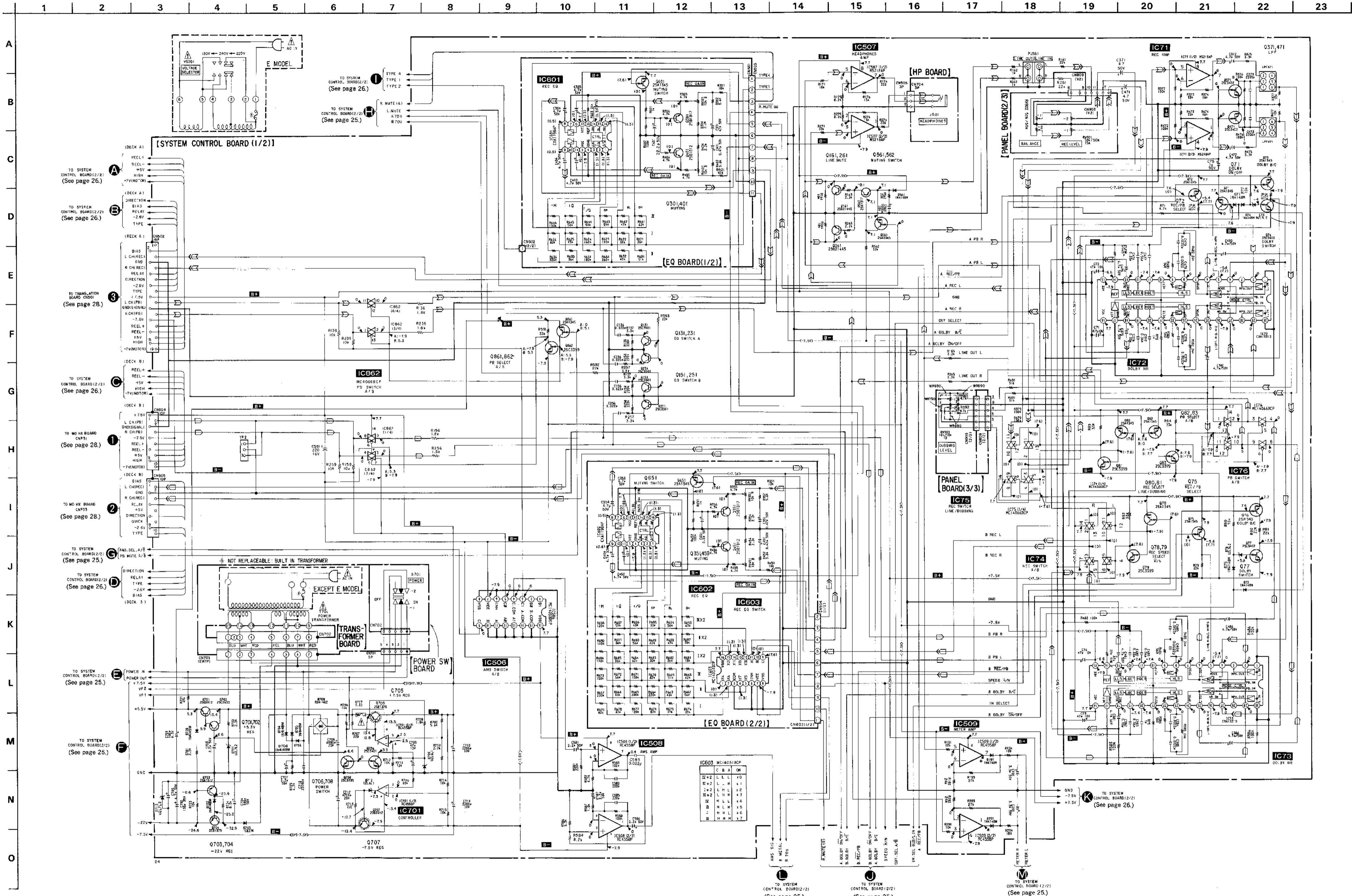


Note:

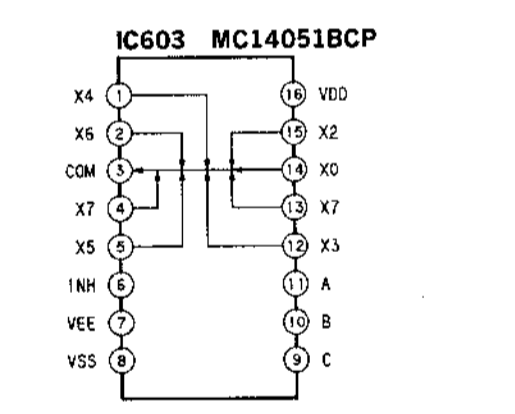
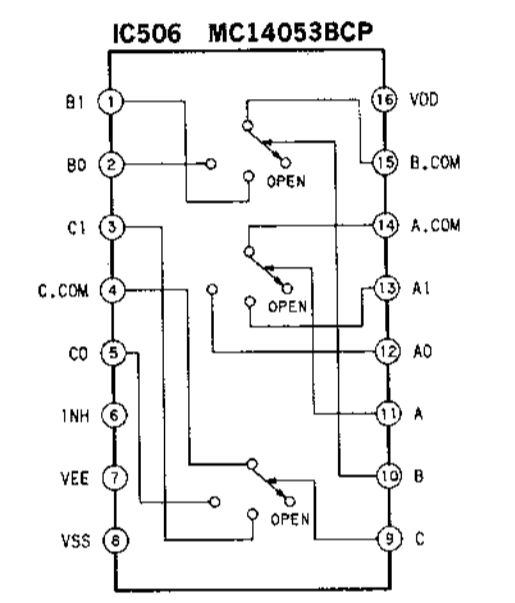
- : parts extracted from the component side.
- : Through hole.
- ▨ : Pattern on the side which is seen.

 I-643-444

5-4. SCHEMATIC DIAGRAM—AUDIO SECTION—



• IC Block Diagrams

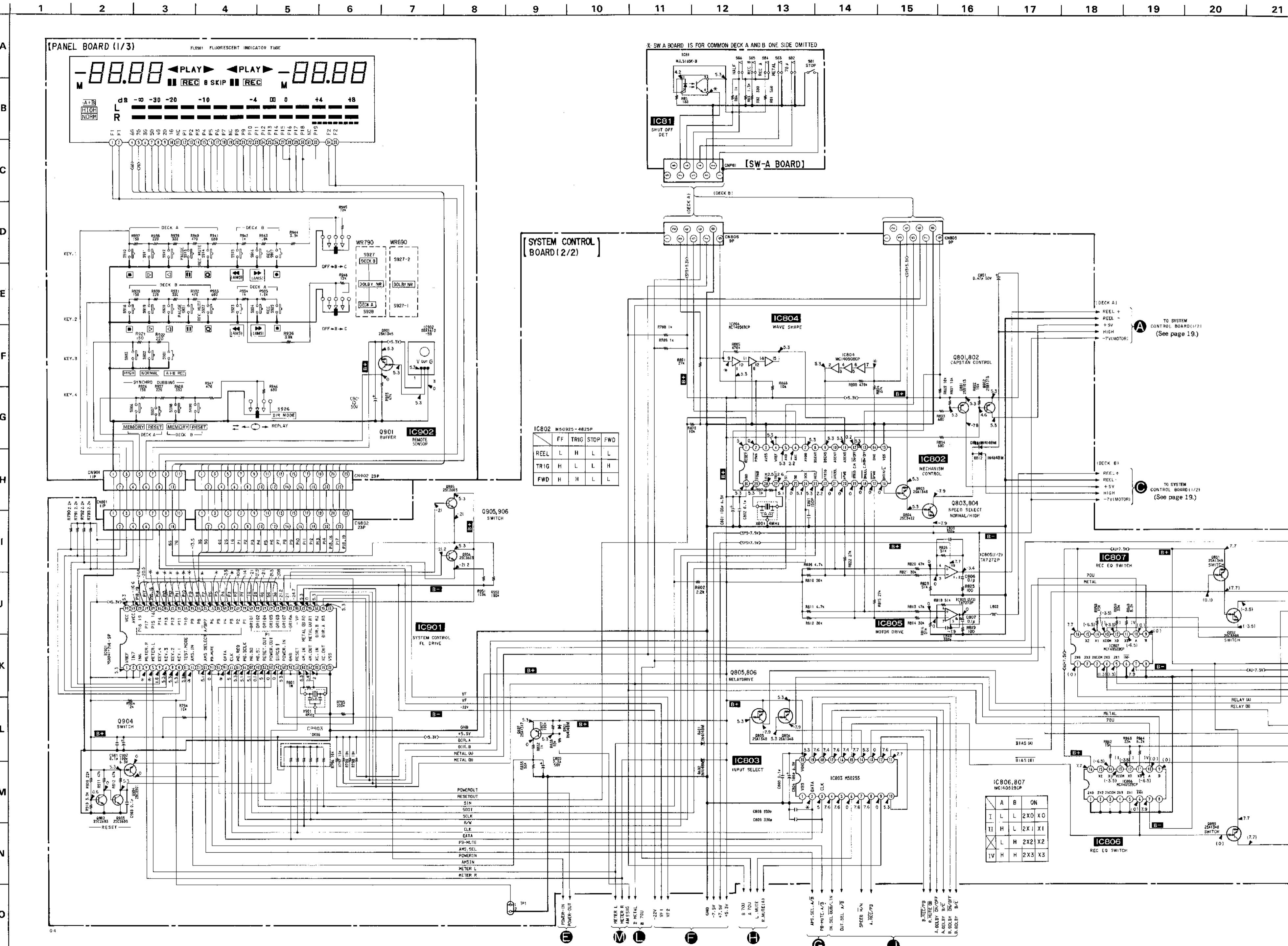


Note:
 • All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
 • All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
 • --- : fusible resistor.

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

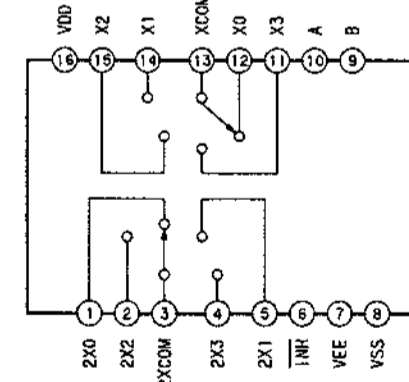
Note:
 Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- adjustment for repair.
- Voltage is dc with respect to ground under no-signal conditions.
 no mark: PLAY
 (): REC
 A: DECK A
 B: DECK B
- Voltages are taken with a VOM (Input Impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 --- : PB (DECK A)
 --- : REC (DECK A)
 --- : PB (DECK B)
 --- : REC (DECK B)



• IC Block Diagram

IC806, 807 MC14052BCP



- Note:**
- 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 $\frac{1}{2}W$ or less unless otherwise specified.
 - Δ : internal component.
 - Voltage is dc with respect to ground under no-signal conditions.
 - no mark: PLAY
 - (): REC
 - * : Impossible measurement point
 - Voltages are taken with a VOM (input impedance $10M\Omega$). Voltage variations may be noted due to normal production tolerances.

SECTION 6 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -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)

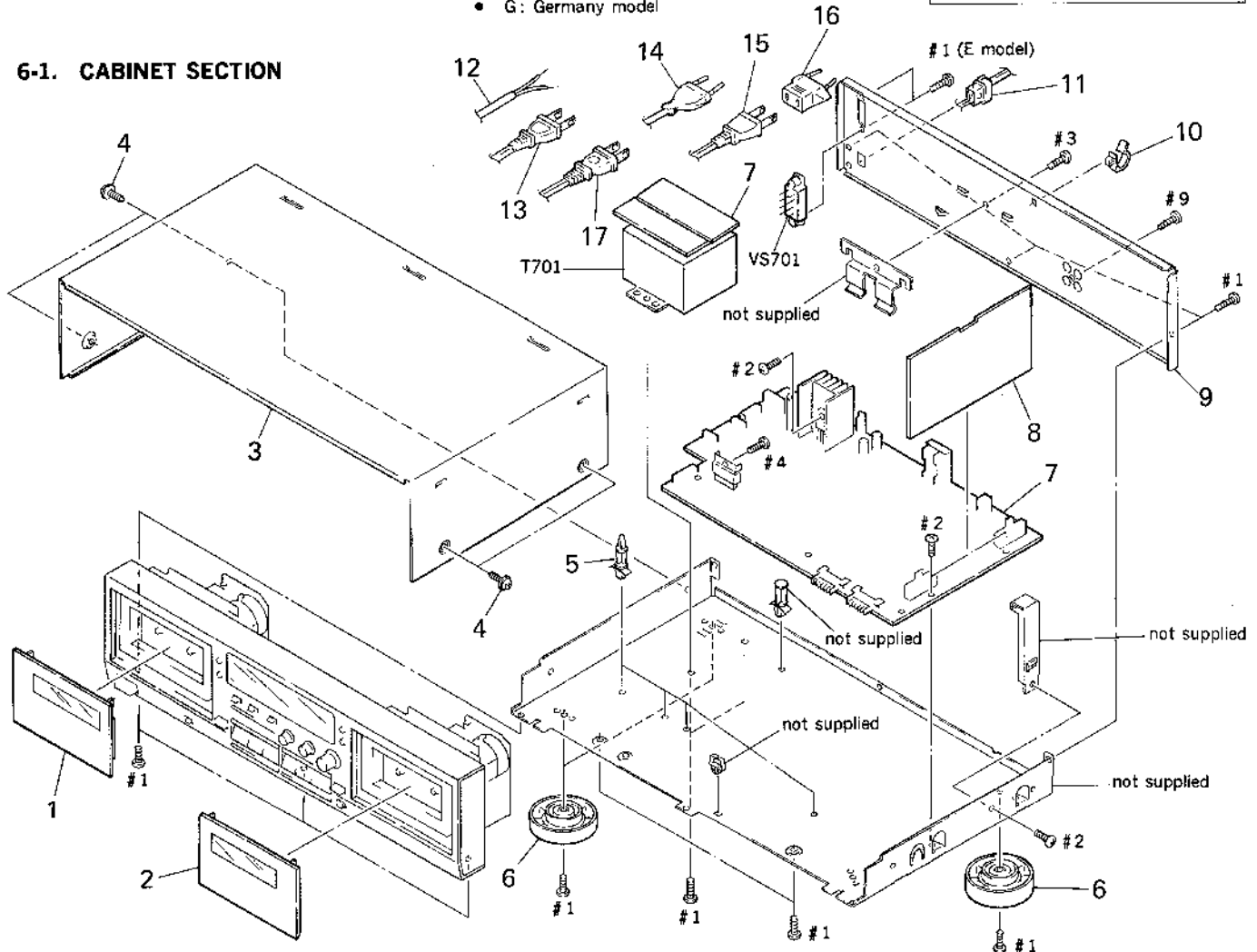
Parts Color Cabinet's Color

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

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.

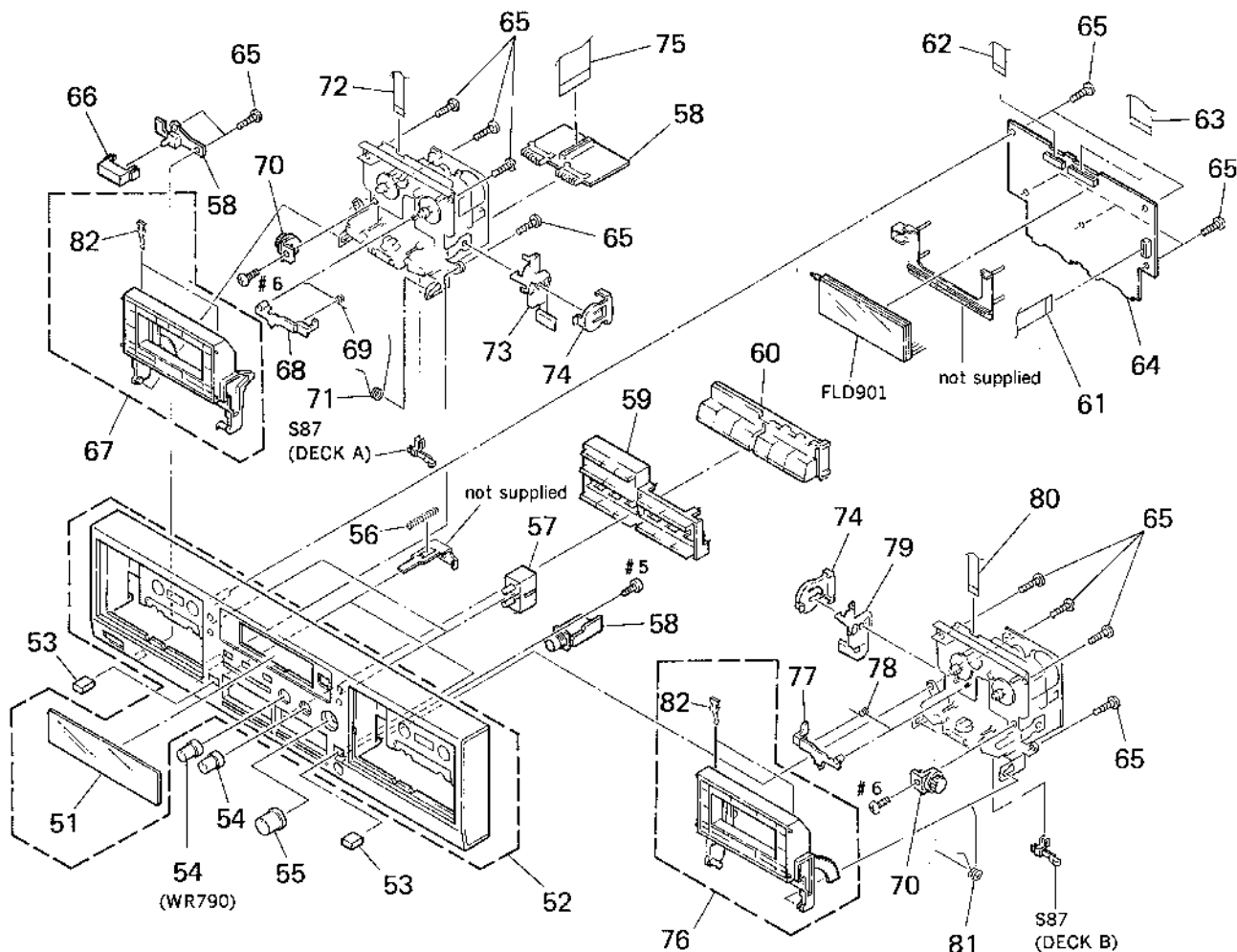
6-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	X-3364-740-1	LID (A) ASSY, CASSETTE	
2	X-3364-741-1	LID (B) ASSY, CASSETTE	
3	3-332-578-61	CASE	
4	3-704-366-01	SCREW (CASE) (M3X8)	
* 5	3-346-265-11	HOLDER, PC BOARD	
6	4-943-148-32	FOOT (F58175SW) (US, Canadian)	
6	4-943-148-42	FOOT (F58175 SW) (AEP, UK, E, G)	
* 7	A-2006-827-A	SYSTEM CONTROL BOARD, COMPLETE	
* 8	A-2006-752-A	PANEL BOARD, COMPLETE (WR790)	
* 8	A-2006-834-A	PANEL BOARD, COMPLETE (WR690)	
* 9	3-377-351-01	PANEL, BACK (WR690:US, Canadian)	
* 9	3-377-351-11	PANEL, BACK (WR690:G)	
* 9	3-377-351-21	PANEL, BACK (WR690:AEP)	
* 9	3-377-351-31	PANEL, BACK (WR690:UK)	
* 9	3-377-351-41	PANEL, BACK (WR690:E)	
* 9	3-377-352-11	PANEL, BACK (WR790:US, Canadian)	

Ref. No.	Part No.	Description	Remark
* 9	3-377-352-21	PANEL, BACK (WR790:G)	
* 9	3-377-352-31	PANEL, BACK (WR790:AEP)	
* 9	3-377-352-41	PANEL, BACK (WR790:UK)	
* 10	4-949-235-01	HOOK	
11	3-703-244-00	BUSHING (2104), CORD (Canadian, AEP, UK, G)	
* 11	3-703-571-11	BUSHING (S) (4516), CORD (US, E)	
	1-556-035-00	CORD, POWER (UK)	
	1-558-945-11	CORD, POWER (POLAR SPT-1) (US)	
	1-555-795-00	CORD, POWER, EULO PLUG (AEP, G)	
	1-551-188-XX	CORD, POWER (E)	
	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
	1-590-836-31	CORD, POWER (Canadian)	
	T701	1-450-863-11 TRANSFORMER, POWER (E)	
	T701	1-450-869-11 TRANSFORMER, POWER (US, Canadian)	
	T701	1-450-870-11 TRANSFORMER, POWER (AEP, UK, G)	
	VS701	1-692-155-11 SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR) (E)	

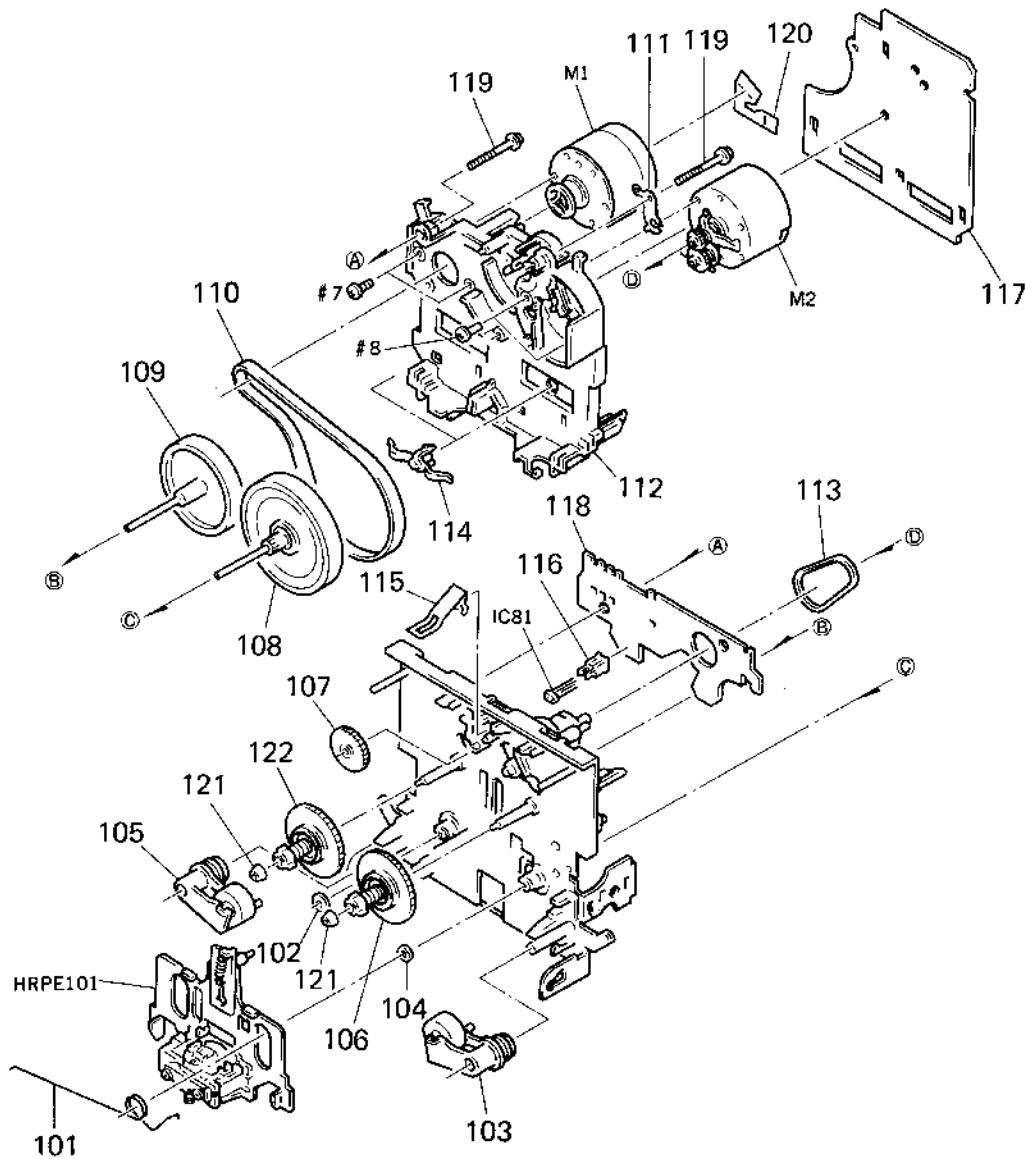
6-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-377-335-01	WINDOW (M) (AEP, UK, E, G)	
51	3-377-335-11	WINDOW (M) (US, Canadian)	
52	X-3364-750-1	PANEL ASSY, FRONT (WR690:US, Canadian)	
52	X-3364-751-1	PANEL ASSY, FRONT (WR690:AEP, UK, E, G)	
52	X-3364-763-1	PANEL ASSY, FRONT (WR790:US, Canadian)	
52	X-3364-764-1	PANEL ASSY, FRONT (WR790:AEP, UK, G)	
53	3-377-328-01	BUTTON (EJECT)	
54	3-367-431-01	KNOB (BAL)	
55	3-377-334-01	KNOB (REC)	
56	3-359-906-01	SPRING, COMPRESSION	
57	3-377-329-11	BUTTON (COUNTER)	
* 58	A-2006-827-A	SYSTEM CONTROL BOARD, COMPLETE	
59	3-377-342-01	BUTTON (WR)	
60	3-377-339-01	BUTTON (FR)	
61	1 690-815-11	WIRE, SHIELD (FLAT TYPE) (11CORE)	
62	1-690-911-11	WIRE (FLAT TYPE) (11 CORE)	
63	1-690-910-11	WIRE (FLAT TYPE) (23 CORE)	
* 64	A-2006-752-A	PANEL BOARD, COMPLETE (WR790)	
* 64	A-2006-834-A	PANEL BOARD, COMPLETE (WR690)	
65	4-951-620-01	SCREW (2. 6X8), +BVT	

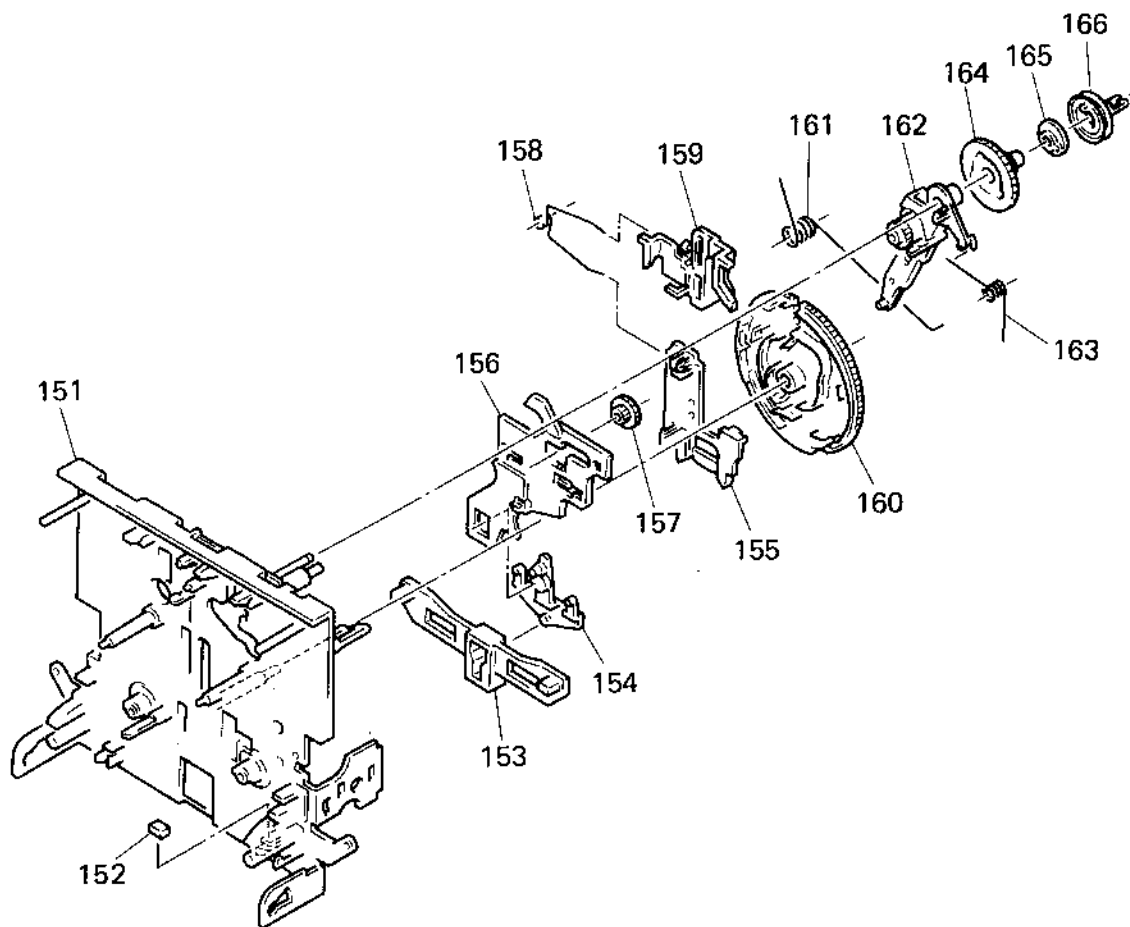
Ref. No.	Part No.	Description	Remark
66	3-354-932-01	BUTTON (POWER)	
67	X-3340-195-1	HOLDER (R) ASSY, CASSETTE	
68	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
69	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
70	3 354-963-01	DAMPER	
71	3-354-960-01	SPRING (LOADING R), TORSION	
72	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
* 73	3-354-954-01	LEVER (LOCK LEVER R)	
74	3-354-957-01	JOINT (LOCK LEVER)	
75	1-690-422-11	WIRE, FLAT TYPE (19 CORE)	
76	X-3340-194-1	HOLDER (L) ASSY, CASSETTE	
77	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
78	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
* 79	3 354-953-01	LEVER (LOCK LEVER L)	
80	1-690-906-21	WIRE (FLAT TYPE) (9 CORE)	
81	3-354-959-01	SPRING (LOADING L), TORSION	
82	3-308-823 11	SPRING	
FLD901	1-519-712-11	INDICATOR TUBE, FLUORESCENT	
S87	1 572-393-11	SWITCH, LEAF (DIRECTION)	

6-3. MECHANISM SECTION (1)
(DECK, A,B : TCM-190RB12CJ)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-359-455-01	SPRING, TORSION		114	3-575-321-00	RETAINER, THRUST, CAPSTAN	
102	3-356-714-01	WASHER		115	3-359-430-01	SPRING (CASSETTE RETAINER), LEAF	
103	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY		116	3-343-419-01	HOLDER (S SENSOR A)	
104	3-356-713-01	WASHER		* 117	A 2006 828 A MD HX BOARD, COMPLETE		
105	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY		* 118	1-634-841-14	SW-A BOARD	
106	X-3359-404-1	TABLE ASSY, REEL		119	3-359-414-01	SCREW (+PTPW 2X23)	
107	3-359-424-01	GEAR (REV GEAR)		120	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
108	X-3364-554-1	FLYWHEEL (FWD) ASSY		121	3-362-308-01	CAP (REEL)	
109	X-3359-410-1	FLYWHEEL (REV) ASSY		122	X-3362-078-1	TABLE ASSY (B), REEL	
110	3-359-417-01	BELT (FLAT), CAPSTAN		HRPE101A-2003-838	A BASE ASSY, HEAD (REC/PB/ERASE)		
111	3-359-450-01	PLATE, GROUND		IC81	8-719-710-03	DIODE NJL5165K-B	
* 112	3-359-436-01	BASE (THRUST RETAINER), FITTING		M1	X-3359-417-1	MOTOR ASSY (CAPSTAN)	
113	3-359-466-01	BELT (FR), SQUARE		M2	X-3363-501-1	MOTOR (REEL MOTOR) ASSY	

6-4. MECHANISM SECTION (2)
(DECK A, B : TCM-190RB12CJ)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	X-3359-415-1	CHASSIS ASSY, MECHANICAL		159	3-359-429-01	SLIDER (BRAKE PLATE)	
152	3-359-469-01	SPACER		160	3-359-420-01	GEAR (CAM GEAR)	
* 153	3-359-425-01	SLIDER (REVERSE SLIDER)		161	3-359-456-01	SPRING (TRIGGER SPRING), TORSTON	
154	3-359-426-01	LEVER (REVERSE LEVER)		162	X-3359-405-1	LEVER (FR ARM) ASSY	
* 155	3-359-427-01	SLIDER (LEVERSE SLIDER)		163	3-359-453-01	SPRING (FR ARM), TORSTON	
* 156	3-359-415-01	SLIDER (TRIGGER SLIDER)		164	3-359-419-01	GEAR (FR GEAR)	
157	3-359-448-01	GEAR (TRIGGER)		165	3-359-421-01	CLUTCH (REEL DISK)	
158	3-359-454-01	SPRING, TORSTON		166	3-359-418-01	PULLEY (FR PULLEY)	

SECTION 7 ELECTRICAL PARTS LIST

MD HX

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 and -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
- G: Germany model

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

Ref. No.	Part No.	Description	Remark		Ref. No.	Part No.	Description	Remark
*	A-2006-828-A	MD HX BOARD, COMPLETE *****			C97	1-136-273-91	FILM 75PF 5%	630V
		< CAPACITOR >			C98	1-163-003-11	CERAMIC CHIP 330PF 10%	50V
C11	1-163-131-00	CERAMIC CHIP 390PF 5%	50V		C99	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C12	1-136-157-00	FILM 0.022uF 5%	50V				< CONNECTOR >	
C13	1-124-234-00	ELECT 22uF 20%	16V		* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD 10P	
C18	1-163-117-00	CERAMIC CHIP 100PF 5%	50V		* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P	
C21	1-163-131-00	CERAMIC CHIP 390PF 5%	50V		* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD 10P	
C22	1-136-157-00	FILM 0.022uF 5%	50V		* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P	
C23	1-124-234-00	ELECT 22uF 20%	16V		* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P	
C28	1-163-117-00	CERAMIC CHIP 100PF 5%	50V		* CNP75	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P	
C31	1-124-234-00	ELECT 22uF 20%	16V				< DIODE >	
C32	1-124-234-00	ELECT 22uF 20%	16V		D31	8-719-016-74	DIODE 1SS352	
C33	1-124-234-00	ELECT 22uF 20%	16V				< IC >	
C51	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V		IC31	8-759-106-02	IC uPC4570G2	
C52	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V		IC81	8-759-106-56	IC uPC1297CA	
C53	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V				< COIL >	
C54	1-136-601-11	FILM 0.01uF 5%	630V		L81	1-410-780-11	INDUCTOR 27mH	
C56	1-164-505-11	CERAMIC CHIP 2.2uF	16V		L91	1-410-780-11	INDUCTOR 27mH	
C57	1-164-346-11	CERAMIC CHIP 1uF	16V				< TRANSISTOR >	
C71	1-164-346-11	CERAMIC CHIP 1uF	16V		Q51	8-729-808-01	TRANSISTOR 2SD1622-S	
C80	1-124-234-00	ELECT 22uF 20%	16V		Q52	8-729-808-01	TRANSISTOR 2SD1622-S	
C81	1-164-232-11	CERAMIC CHIP 0.01uF	50V		Q53	8-729-808-01	TRANSISTOR 2SD1622-S	
C82	1-136-157-00	FILM 0.022uF 5%	50V		Q71	8-729-216-22	TRANSISTOR 2SA1162	
C83	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V				< RESISTOR >	
C84	1-136-478-11	FILM 470PF 5%	630V		R11	1-216-099-00	METAL CHIP 120K 5%	1/10W
C85	1-136-433-11	FILM 100PF 5%	630V		R12	1-216-025-00	METAL CHIP 100 5%	1/10W
C86	1-163-143-00	CERAMIC CHIP 0.0012uF 5%	50V		R13	1-216-100-00	METAL GLAZE 130K 5%	1/10W
C87	1-136-273-91	FILM 75PF 5%	630V		R14	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
C88	1-163-003-11	CERAMIC CHIP 330PF 10%	50V		R21	1-216-099-00	METAL CHIP 120K 5%	1/10W
C89	1-124-234-00	ELECT 22uF 20%	16V		R22	1-216-025-00	METAL CHIP 100 5%	1/10W
C90	1-107-045-00	MICA 3.9PF	500V		R23	1-216-100-00	METAL GLAZE 130K 5%	1/10W
C91	1-164-232-11	CERAMIC CHIP 0.01uF	50V		R24	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
C92	1-136-157-00	FILM 0.022uF 5%	50V		R31	1-216-033-00	METAL CHIP 220 5%	1/10W
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					

MD HX

PANEL

Ref. No.	Part No.	Description	Remark		
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
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			
RV21	1-241-627-11	RES. ADJ. CARBON 1K			
RV71	1-241-630-11	RES. ADJ. CARBON 10K			
RV72	1-241-630-11	RES. ADJ. CARBON 10K			
RV81	1-241-122-11	RES. ADJ. CARBON 22K			
RV91	1-241-122-11	RES. ADJ. CARBON 22K			
< RELAY >					
RY31	1-515-726-11	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			

Ref. No.	Part No.	Description	Remark		
*	A-2006-834-A	PANEL BOARD, COMPLETE (WR690)			
*	A-2006-752-A	PANEL BOARD, COMPLETE (WR790)			

< CAPACITOR >					
C301	1-124-902-00	ELECT	0.47uF	20%	50V
C303	1-124-927-11	ELECT	4.7uF	20%	100V
C304	1-124-927-11	ELECT	4.7uF	20%	100V
C351	1-124-902-00	ELECT	0.47uF	20%	50V
C353	1-124-927-11	ELECT	4.7uF	20%	100V
C354	1-124-927-11	ELECT	4.7uF	20%	100V
C401	1-124-902-00	ELECT	0.47uF	20%	50V
C403	1-124-927-11	ELECT	4.7uF	20%	100V
C404	1-124-927-11	ELECT	4.7uF	20%	100V
C451	1-124-902-00	ELECT	0.47uF	20%	50V
C453	1-124-927-11	ELECT	4.7uF	20%	100V
C454	1-124-927-11	ELECT	4.7uF	20%	100V
C601	1-124-925-11	ELECT	2.2uF	20%	100V
C651	1-124-925-11	ELECT	2.2uF	20%	100V
C901	1-124-907-11	ELECT	10uF	20%	50V
< CONNECTOR >					
* CN601	1-573-979-11	CONNECTOR, BOARD TO BOARD 11P			
* CN602	1-573-979-11	CONNECTOR, BOARD TO BOARD 11P			
* CN901	1-568-854-11	SOCKET, CONNECTOR 11P			
* CN902	1-568-865-11	SOCKET, CONNECTOR 23P			
* CN903	1-568-830-11	SOCKET, CONNECTOR 11P			
< FLUORESCENT INDICATOR >					
FLD901	1-519-712-11	INDICATOR TUBE, FLUORESCENT			
< IC >					
IC601	8-752-060-64	IC CXA1198AP			
IC602	8-752-060-64	IC CXA1198AP			
IC603	8-759-000-47	IC MC14051BCP			
IC902	8-741-100-48	IC SBX1610-59			
< TRANSISTOR >					
Q301	8-729-821-31	TRANSISTOR 2SD1012-FG			
Q351	8-729-821-31	TRANSISTOR 2SD1012-FG			
Q401	8-729-821-31	TRANSISTOR 2SD1012-FG			
Q451	8-729-821-31	TRANSISTOR 2SD1012-FG			
Q601	8-729-900-65	TRANSISTOR DTA144ES			
Q651	8-729-900-65	TRANSISTOR DTA144ES			
Q901	8-729-900-65	TRANSISTOR DTA144ES			
< RESISTOR >					
R301	1-249-429-11	CARBON	10K	5%	1/4W
R302	1-249-426-11	CARBON	5.6K	5%	1/4W

PANEL

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R304	1-249-421-11	CARBON	2.2K	5%	1/4W	R667	1-247-887-00	CARBON	220K	5%	1/4W
R305	1-249-425-11	CARBON	4.7K	5%	1/4W	R668	1-247-874-11	CARBON	62K	5%	1/4W
R306	1-249-425-11	CARBON	4.7K	5%	1/4W	R669	1-247-872-11	CARBON	51K	5%	1/4W
R351	1-249-429-11	CARBON	10K	5%	1/4W	R670	1-249-440-11	CARBON	82K	5%	1/4W
R352	1-249-426-11	CARBON	5.6K	5%	1/4W	R671	1-249-441-11	CARBON	100K	5%	1/4W
R354	1-249-421-11	CARBON	2.2K	5%	1/4W	R672	1-249-438-11	CARBON	56K	5%	1/4W
R355	1-249-425-11	CARBON	4.7K	5%	1/4W	R673	1-247-883-00	CARBON	150K	5%	1/4W
R356	1-249-425-11	CARBON	4.7K	5%	1/4W	R674	1-249-435-11	CARBON	33K	5%	1/4W
R392	1-249-425-11	CARBON	4.7K	5%	1/4W (WR690)	R675	1-249-435-11	CARBON	33K	5%	1/4W
R401	1-249-429-11	CARBON	10K	5%	1/4W	R676	1-249-440-11	CARBON	82K	5%	1/4W
R402	1-249-426-11	CARBON	5.6K	5%	1/4W	R677	1-247-885-00	CARBON	180K	5%	1/4W
R404	1-249-421-11	CARBON	2.2K	5%	1/4W	R678	1-249-437-11	CARBON	47K	5%	1/4W
R405	1-249-425-11	CARBON	4.7K	5%	1/4W	R679	1-249-440-11	CARBON	82K	5%	1/4W
R406	1-249-425-11	CARBON	4.7K	5%	1/4W	R681	1-249-432-11	CARBON	18K	5%	1/4W
R451	1-249-429-11	CARBON	10K	5%	1/4W	R682	1-247-868-11	CARBON	36K	5%	1/4W
R452	1-249-426-11	CARBON	5.6K	5%	1/4W	R683	1-247-866-11	CARBON	30K	5%	1/4W
R454	1-249-421-11	CARBON	2.2K	5%	1/4W	R684	1-247-874-11	CARBON	62K	5%	1/4W
R455	1-249-425-11	CARBON	4.7K	5%	1/4W	R685	1-247-868-11	CARBON	36K	5%	1/4W
R456	1-249-425-11	CARBON	4.7K	5%	1/4W	R686	1-247-880-11	CARBON	110K	5%	1/4W
R492	1-249-425-11	CARBON	4.7K	5%	1/4W (WR690)	R687	1-249-436-11	CARBON	39K	5%	1/4W
R601	1-249-417-11	CARBON	1K	5%	1/4W	R688	1-249-437-11	CARBON	47K	5%	1/4W
R602	1-249-441-11	CARBON	100K	5%	1/4W	R689	1-247-874-11	CARBON	62K	5%	1/4W
R603	1-215-454-00	METAL	24K	1%	1/6W	R690	1-249-438-11	CARBON	56K	5%	1/4W
R621	1-247-868-11	CARBON	36K	5%	1/4W	R691	1-247-868-11	CARBON	36K	5%	1/4W
R622	1-249-435-11	CARBON	33K	5%	1/4W	R692	1-247-880-11	CARBON	110K	5%	1/4W
R623	1-247-880-11	CARBON	110K	5%	1/4W	R693	1-247-870-11	CARBON	43K	5%	1/4W
R624	1-247-884-11	CARBON	160K	5%	1/4W	R694	1-249-438-11	CARBON	56K	5%	1/4W
R625	1-247-870-11	CARBON	43K	5%	1/4W	R695	1-249-435-11	CARBON	33K	5%	1/4W
R626	1-249-440-11	CARBON	82K	5%	1/4W	R696	1-247-870-11	CARBON	43K	5%	1/4W
R631	1-247-872-11	CARBON	51K	5%	1/4W	R697	1-247-872-11	CARBON	51K	5%	1/4W
R632	1-247-870-11	CARBON	43K	5%	1/4W	R698	1-247-881-00	CARBON	120K	5%	1/4W
R633	1-247-892-11	CARBON	360K	5%	1/4W	R903	1-249-437-11	CARBON	47K	5%	1/4W
R634	1-247-885-00	CARBON	180K	5%	1/4W	R921	1-249-407-11	CARBON	150	5%	1/4W
R635	1-247-868-11	CARBON	36K	5%	1/4W	R922	1-249-409-11	CARBON	220	5%	1/4W
R636	1-247-891-00	CARBON	330K	5%	1/4W	R926	1-249-407-11	CARBON	150	5%	1/4W
R641	1-247-874-11	CARBON	62K	5%	1/4W	R927	1-249-409-11	CARBON	220	5%	1/4W
R642	1-249-437-11	CARBON	47K	5%	1/4W	R928	1-249-411-11	CARBON	330	5%	1/4W
R643	1-247-878-00	CARBON	91K	5%	1/4W	R929	1-249-407-11	CARBON	150	5%	1/4W
R644	1-247-878-00	CARBON	91K	5%	1/4W	R930	1-249-409-11	CARBON	220	5%	1/4W
R645	1-249-438-11	CARBON	56K	5%	1/4W	R931	1-249-411-11	CARBON	330	5%	1/4W
R646	1-247-883-00	CARBON	150K	5%	1/4W	R932	1-249-413-11	CARBON	470	5%	1/4W
R651	1-249-417-11	CARBON	1K	5%	1/4W	R933	1-249-415-11	CARBON	680	5%	1/4W
R652	1-249-441-11	CARBON	100K	5%	1/4W	R934	1-249-417-11	CARBON	1K	5%	1/4W
R653	1-215-454-00	METAL	24K	1%	1/6W	R935	1-249-420-11	CARBON	1.8K	5%	1/4W
R662	1-249-438-11	CARBON	56K	5%	1/4W	R936	1-249-424-11	CARBON	3.9K	5%	1/4W
R663	1-247-870-11	CARBON	43K	5%	1/4W	R937	1-249-407-11	CARBON	150	5%	1/4W
R664	1-247-887-00	CARBON	220K	5%	1/4W	R938	1-249-409-11	CARBON	220	5%	1/4W
R665	1-247-886-11	CARBON	200K	5%	1/4W	R939	1-249-411-11	CARBON	330	5%	1/4W
R666	1-249-436-11	CARBON	39K	5%	1/4W	R940	1-249-413-11	CARBON	470	5%	1/4W

PANEL

SW-A

SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark
R941	1-249-415-11	CARBON	680 5% 1/4W
R942	1-249-417-11	CARBON	1K 5% 1/4W
R943	1-249-420-11	CARBON	1.8K 5% 1/4W
R944	1-249-424-11	CARBON	3.9K 5% 1/4W
R945	1-249-430-11	CARBON	12K 5% 1/4W
R946	1-249-415-11	CARBON	680 5% 1/4W
R947	1-249-413-11	CARBON	470 5% 1/4W
R948	1-249-430-11	CARBON	12K 5% 1/4W
< VARIABLE RESISTOR >			
RV301	1-241-136-11	RES, ADJ, CARBON 10K	
RV351	1-241-136-11	RES, ADJ, CARBON 10K	
RV401	1-241-136-11	RES, ADJ, CARBON 10K	
RV451	1-241-136-11	RES, ADJ, CARBON 10K	
RV901	1-241-133-11	RES, VAR, CARBON 50K/50K (REC LEVEL)	
RV902	1-241-901-11	RES, VAR, CARBON 50K/50K (BALANCE)	
RV903	1-241-878-11	RES, VAR, CARBON 10K/10K (DUBBING LEVEL) (WR790)	
< SWITCH >			
S901	1-554-303-21	SWITCH, TACTILE (A+B REC)	
S902	1-554-303-21	SWITCH, TACTILE (NORMAL)	
S903	1-554-303-21	SWITCH, TACTILE (HIGH)	
S906	1-554-303-21	SWITCH, TACTILE (DECK A:MEMORY)	
S907	1-554-303-21	SWITCH, TACTILE (DECK A:RESET)	
S908	1-554-303-21	SWITCH, TACTILE (DECK B:MEMORY)	
S909	1-554-303-21	SWITCH, TACTILE (DECK B:RESET)	
S910	1-554-303-21	SWITCH, TACTILE (DECK A:■)	
S911	1-554-303-21	SWITCH, TACTILE (DECK A:▷)	
S912	1-554-303-21	SWITCH, TACTILE (DECK A:◁)	
S913	1-554-303-21	SWITCH, TACTILE (DECK A:■)	
S914	1-554-303-21	SWITCH, TACTILE (DECK A:○)	
S915	1-554-303-21	SWITCH, TACTILE (DECK B:◀(AMS))	
S916	1-554-303-21	SWITCH, TACTILE (DECK B:▶(AMS))	
S917	1-554-303-21	SWITCH, TACTILE (DECK B:●)	
S918	1-554-303-21	SWITCH, TACTILE (DECK B:■)	
S919	1-554-303-21	SWITCH, TACTILE (DECK B:▷)	
S920	1-554-303-21	SWITCH, TACTILE (DECK B:◁)	
S921	1-554-303-21	SWITCH, TACTILE (DECK B:■)	
S922	1-554-303-21	SWITCH, TACTILE (DECK B:○)	
S923	1-554-303-21	SWITCH, TACTILE (DECK A:◀(AMS))	
S924	1-554-303-21	SWITCH, TACTILE (DECK A:▶(AMS))	
S925	1-554-303-21	SWITCH, TACTILE (DECK A:●)	
S926	1-692-126-11	SWITCH, SLIDE (DIR MODE)	
S927	1-692-126-11	SWITCH, SLIDE (DECK B:DOLBY NR)	
S928	1-692-126-11	SWITCH, SLIDE (DECK A:DOLBY NR) (WR790)	

Ref. No.	Part No.	Description	Remark
*	1-534-841-14	SW-A BOARD	*****
	3-343-419-01	HOLDER (S SENSER A)	
< CONNECTOR >			
* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P	
< DIODE >			
YC81	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 (70u)	
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-2006-827-A	SYSTEM CONTROL BOARD, COMPLETE	*****
*	1-562-327-00	SOCKET, CONNECTOR 3P	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
	7-682-547-04	SCREW +BVTT 3X6 (S)	
< CAPACITOR >			
C71	1-124-126-00	ELECT	47uF 20% 10V
C72	1-124-126-00	ELECT	47uF 20% 10V
C73	1-124-126-00	ELECT	47uF 20% 10V
C74	1-124-126-00	ELECT	47uF 20% 10V
C75	1-124-903-11	ELECT	1uF 20% 50V
C136	1-136-157-00	FILM	0.022uF 5% 50V
C156	1-136-157-00	FILM	0.022uF 5% 50V
C191	1-123-382-00	ELECT	3.3uF 20% 100V
C236	1-136-157-00	FILM	0.022uF 5% 50V
C256	1-136-157-00	FILM	0.022uF 5% 50V
C291	1-123-382-00	ELECT	3.3uF 20% 100V
C371	1-124-927-11	ELECT	4.7uF 20% 100V
C372	1-124-927-11	ELECT	4.7uF 20% 100V
C373	1-161-375-00	CERAMIC	0.0022uF 20% 50V
C375	1-124-927-11	ELECT	4.7uF 20% 100V

SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q902	8-729-620-05	TRANSISTOR 2SC2603-EF		R259	1-249-429-11	CARBON 10K 5%	1/4W
Q903	8-729-620-05	TRANSISTOR 2SC2603-EF		R261	1-249-433-11	CARBON 22K 5%	1/4W
Q904	8-729-900-74	TRANSISTOR DTC143TS		R262	1-249-417-11	CARBON 1K 5%	1/4W
Q905	8-729-620-05	TRANSISTOR 2SC2603-EF		R263	1-249-421-11	CARBON 2.2K 5%	1/4W
Q906	8-729-620-05	TRANSISTOR 2SC2603-EF		R264	1-249-432-11	CARBON 18K 5%	1/4W
< RESISTOR >							
R71	1-249-425-11	CARBON 4.7K 5%	1/4W	R265	1-249-421-11	CARBON 2.2K 5%	1/4W
R72	1-215-455-00	METAL 27K 1%	1/6W	R271	1-249-429-11	CARBON 10K 5%	1/4W
R73	1-249-417-11	CARBON 1K 5%	1/4W	R274	1-249-409-11	CARBON 220 5%	1/4W
R74	1-215-455-00	METAL 27K 1%	1/6W	R275	1-249-428-11	CARBON 8.2K 5%	1/4W
R75	1-249-417-11	CARBON 1K 5%	1/4W	R276	1-249-431-11	CARBON 15K 5%	1/4W
R76	1-249-433-11	CARBON 22K 5%	1/4W	R291	1-249-429-11	CARBON 10K 5%	1/4W
R77	1-249-429-11	CARBON 10K 5%	1/4W	R292	1-247-864-11	CARBON 24K 5%	1/4W
R78	1-249-433-11	CARBON 22K 5%	1/4W	R293	1-249-434-11	CARBON 27K 5%	1/4W
R79	1-249-433-11	CARBON 22K 5%	1/4W	R294	1-249-408-11	CARBON 180 5%	1/4W
R80	1-249-429-11	CARBON 10K 5%	1/4W	R372	1-249-441-11	CARBON 100K 5%	1/4W
R81	1-249-433-11	CARBON 22K 5%	1/4W	R373	1-249-435-11	CARBON 33K 5%	1/4W
R82	1-249-435-11	CARBON 33K 5%	1/4W	R374	1-249-432-11	CARBON 18K 5%	1/4W
R83	1-249-435-11	CARBON 33K 5%	1/4W	R375	1-249-423-11	CARBON 3.3K 5%	1/4W
R84	1-249-435-11	CARBON 33K 5%	1/4W	R376	1-249-441-11	CARBON 100K 5%	1/4W
R136	1-249-420-11	CARBON 1.8K 5%	1/4W	R377	1-249-429-11	CARBON 10K 5%	1/4W
R137	1-249-423-11	CARBON 3.3K 5%	1/4W	R379	1-249-441-11	CARBON 100K 5%	1/4W
R138	1-247-887-00	CARBON 220K 5%	1/4W	R381	1-249-414-11	CARBON 560 5%	1/4W
R139	1-249-429-11	CARBON 10K 5%	1/4W	R382	1-247-864-11	CARBON 24K 5%	1/4W
R156	1-249-420-11	CARBON 1.8K 5%	1/4W	R383	1-249-441-11	CARBON 100K 5%	1/4W
R157	1-249-423-11	CARBON 3.3K 5%	1/4W	R384	1-249-414-11	CARBON 560 5%	1/4W
R158	1-247-887-00	CARBON 220K 5%	1/4W	R385	1-247-864-11	CARBON 24K 5%	1/4W
R159	1-249-429-11	CARBON 10K 5%	1/4W	R386	1-249-441-11	CARBON 100K 5%	1/4W
R161	1-249-433-11	CARBON 22K 5%	1/4W	R391	1-247-872-11	CARBON 51K 5%	1/4W
R162	1-249-417-11	CARBON 1K 5%	1/4W	R472	1-249-441-11	CARBON 100K 5%	1/4W
R163	1-249-421-11	CARBON 2.2K 5%	1/4W	R473	1-249-435-11	CARBON 33K 5%	1/4W
R164	1-249-432-11	CARBON 18K 5%	1/4W	R474	1-249-432-11	CARBON 18K 5%	1/4W
R165	1-249-421-11	CARBON 2.2K 5%	1/4W	R475	1-249-423-11	CARBON 3.3K 5%	1/4W
R171	1-249-429-11	CARBON 10K 5%	1/4W	R476	1-249-441-11	CARBON 100K 5%	1/4W
R174	1-249-409-11	CARBON 220 5%	1/4W	R477	1-249-429-11	CARBON 10K 5%	1/4W
R175	1-249-428-11	CARBON 8.2K 5%	1/4W	R479	1-249-441-11	CARBON 100K 5%	1/4W
R176	1-249-431-11	CARBON 15K 5%	1/4W	R481	1-249-414-11	CARBON 560 5%	1/4W
R191	1-249-429-11	CARBON 10K 5%	1/4W	R482	1-247-864-11	CARBON 24K 5%	1/4W
R192	1-247-864-11	CARBON 24K 5%	1/4W	R483	1-249-441-11	CARBON 100K 5%	1/4W
R193	1-249-434-11	CARBON 27K 5%	1/4W	R484	1-249-414-11	CARBON 560 5%	1/4W
R194	1-249-408-11	CARBON 180 5%	1/4W	R485	1-247-864-11	CARBON 24K 5%	1/4W
R236	1-249-420-11	CARBON 1.8K 5%	1/4W	R486	1-249-441-11	CARBON 100K 5%	1/4W
R237	1-249-423-11	CARBON 3.3K 5%	1/4W	R491	1-247-872-11	CARBON 51K 5%	1/4W
R238	1-247-887-00	CARBON 220K 5%	1/4W	R561	1-249-409-11	CARBON 220 5%	1/4W
R239	1-249-429-11	CARBON 10K 5%	1/4W	R562	1-249-433-11	CARBON 22K 5%	1/4W
R256	1-249-420-11	CARBON 1.8K 5%	1/4W	R581	1-247-887-00	CARBON 220K 5%	1/4W
R257	1-249-423-11	CARBON 3.3K 5%	1/4W	R582	1-249-425-11	CARBON 4.7K 5%	1/4W
R258	1-247-887-00	CARBON 220K 5%	1/4W	R583	1-249-441-11	CARBON 100K 5%	1/4W
				R584	1-249-428-11	CARBON 8.2K 5%	1/4W
				R586	1-249-423-11	CARBON 3.3K 5%	1/4W

SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R587	1-249-417-11	CARBON	1K 5% 1/4W	R819	1-249-405-11	CARBON	100 5% 1/4W
R588	1-249-441-11	CARBON	100K 5% 1/4W	R820	1-249-437-11	CARBON	47K 5% 1/4W
R591	1-249-435-11	CARBON	33K 5% 1/4W	R821	1-247-866-11	CARBON	30K 5% 1/4W
R592	1-249-433-11	CARBON	22K 5% 1/4W	R822	1-249-434-11	CARBON	27K 5% 1/4W
R593	1-249-433-11	CARBON	22K 5% 1/4W	R823	1-247-872-11	CARBON	51K 5% 1/4W
R701	1-249-421-11	CARBON	2.2K 5% 1/4W	R825	1-249-405-11	CARBON	100 5% 1/4W
R702	1-249-421-11	CARBON	2.2K 5% 1/4W	R826	1-247-872-11	CARBON	51K 5% 1/4W
R703	1-249-429-11	CARBON	10K 5% 1/4W	R827	1-249-441-11	CARBON	100K 5% 1/4W
R704	1-249-428-11	CARBON	8.2K 5% 1/4W	R828	1-249-429-11	CARBON	10K 5% 1/4W
R705	1-249-425-11	CARBON	4.7K 5% 1/4W	R832	1-249-417-11	CARBON	1K 5% 1/4W
R706	1-249-429-11	CARBON	10K 5% 1/4W	R833	1-249-438-11	CARBON	56K 5% 1/4W
R707	1-249-409-11	CARBON	220 5% 1/4W	R858	1-249-431-11	CARBON	15K 5% 1/4W
R708	1-249-420-11	CARBON	1.8K 5% 1/4W	R859	1-249-435-11	CARBON	33K 5% 1/4W
R709	1-249-426-11	CARBON	5.6K 5% 1/4W	R860	1-249-428-11	CARBON	8.2K 5% 1/4W
R710	1-249-422-11	CARBON	2.7K 5% 1/4W	R862	1-249-431-11	CARBON	15K 5% 1/4W
R711	1-249-430-11	CARBON	12K 5% 1/4W	R863	1-249-435-11	CARBON	33K 5% 1/4W
R712	1-249-429-11	CARBON	10K 5% 1/4W	R864	1-249-428-11	CARBON	8.2K 5% 1/4W
R713	1-249-409-11	CARBON	220 5% 1/4W	R868	1-249-429-11	CARBON	10K 5% 1/4W
R714	1-249-429-11	CARBON	10K 5% 1/4W	R869	1-249-429-11	CARBON	10K 5% 1/4W
R715	1-249-429-11	CARBON	10K 5% 1/4W	R870	1-249-429-11	CARBON	10K 5% 1/4W
R716	1-249-429-11	CARBON	10K 5% 1/4W	R874	1-247-903-00	CARBON	1M 5% 1/4W
△R717	1-219-136-11	FUSIBLE	0.22 10% 1/4W	R891	1-249-429-11	CARBON	10K 5% 1/4W
R721	1-249-437-11	CARBON	47K 5% 1/4W	R892	1-249-429-11	CARBON	10K 5% 1/4W
R768	1-249-417-11	CARBON	1K 5% 1/4W	R893	1-249-415-11	CARBON	680 5% 1/4W
R789	1-249-417-11	CARBON	1K 5% 1/4W	R894	1-249-415-11	CARBON	680 5% 1/4W
R790	1-249-421-11	CARBON	2.2K 5% 1/4W	R901	1-247-903-00	CARBON	1M 5% 1/4W
R791	1-249-421-11	CARBON	2.2K 5% 1/4W	R904	1-249-430-11	CARBON	12K 5% 1/4W
R792	1-249-421-11	CARBON	2.2K 5% 1/4W	R909	1-249-433-11	CARBON	22K 5% 1/4W
R793	1-249-421-11	CARBON	2.2K 5% 1/4W	R910	1-249-424-11	CARBON	3.9K 5% 1/4W
R794	1-249-429-11	CARBON	10K 5% 1/4W	R911	1-249-437-11	CARBON	47K 5% 1/4W
R795	1-247-887-00	CARBON	220K 5% 1/4W	R912	1-249-437-11	CARBON	47K 5% 1/4W
R796	1-249-429-11	CARBON	10K 5% 1/4W	R951	1-249-441-11	CARBON	100K 5% 1/4W
R797	1-249-429-11	CARBON	10K 5% 1/4W	R952	1-249-441-11	CARBON	100K 5% 1/4W
R798	1-249-429-11	CARBON	10K 5% 1/4W			< SWITCH >	
R799	1-249-429-11	CARBON	10K 5% 1/4W	S701	1-554-118-00	SWITCH, PUSH (1 KEY) (POWER)	
R801	1-249-434-11	CARBON	27K 5% 1/4W			< TEST PIN >	
R802	1-249-421-11	CARBON	2.2K 5% 1/4W	* TP1	1-564-505-11	PLUG, CONNECTOR 2P	
R804	1-249-434-11	CARBON	27K 5% 1/4W	* TP2	1-564-506-11	PLUG, CONNECTOR 3P	
R805	1-247-895-00	CARBON	470K 5% 1/4W			< VIBRATOR >	
R808	1-247-895-00	CARBON	470K 5% 1/4W	X801	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	
R809	1-249-425-11	CARBON	4.7K 5% 1/4W	X901	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	
R810	1-247-862-11	CARBON	20K 5% 1/4W			*****	
R811	1-249-425-11	CARBON	4.7K 5% 1/4W				
R812	1-247-862-11	CARBON	20K 5% 1/4W				
R813	1-249-437-11	CARBON	47K 5% 1/4W				
R814	1-247-866-11	CARBON	30K 5% 1/4W				
R815	1-249-434-11	CARBON	27K 5% 1/4W				
R816	1-247-872-11	CARBON	51K 5% 1/4W				
R818	1-247-872-11	CARBON	51K 5% 1/4W				

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
MISCELLANEOUS *****			
△12	1-556-035-00	CORD, POWER (UK)	
△13	1-558-945-11	CORD, POWER (POLAR SPT-1) (US)	
△14	1-555-795-00	CORD, POWER, EULO PLUG (AEP, G)	
△15	1-551-188-XX	CORD, POWER (E)	
△16	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
△17	1-590-836-31	CORD, POWER (Canadian)	
61	1-690-915-11	WIRE, SHIELD (FLAT TYPE) (11 CORE)	
62	1-690-911-11	WIRE (FLAT TYPE) (11 CORE)	
63	1-690-910-11	WIRE (FLAT TYPE) (23 CORE)	
72	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
75	1-690-422-11	WIRE, FLAT TYPE (19 CORE)	
80	1-690-906-21	WIRE (FLAT TYPE) (9 CORE)	
120	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
HRPE101A-2003-838-A		BASE ASSY, HEAD (REC/PB/ERASE)	
M1	X-3359-417-1	MOTOR ASSY (CAPSTAN)	
M2	X-3363-501-1	MOTOR (REEL MOTOR) ASSY	
△T701	1-450-863-11	TRANSFORMER, POWER (E)	
△T701	1-450-869-11	TRANSFORMER, POWER (US, Canadian)	
△T701	1-450-870-11	TRANSFORMER, POWER (AEP, UK, G)	
△VS701	1-692-155-11	SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR) (E)	

ACCESSORIES & PACKING MATERIALS

	1-465-738-11	REMOTE COMMANDER (US, Canadian)	
	1-558-271-11	CORD, CONNECTION	
	2-181-754-01	COVER, BATTERY (US, Canadian)	
*	3-366-701-81	INDIVIDUAL CARTON (WR790)	
*	3-366-701-91	INDIVIDUAL CARTON (WR690)	
*	3-376-446-01	CUSHION	
	3-754-780-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (Canadian, AEP, E)	
	3-754-780-21	MANUAL, INSTRUCTION (ENGLISH) (US, UK)	
	3-754-780-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH) (AEP)	
	3-754-780-51	MANUAL, INSTRUCTION (GERMAN) (G)	
	3-754-780-61	MANUAL, INSTRUCTION (CHINESE) (E)	
	3-755-288-11	MANUAL, INSTRUCTION (RM) (US, Canadian)	
	9-910-999-33	INSTRUCTION (WR690:US)	

Ref. No.	Part No.	Description	Remark
***** HARDWARE LIST *****			
#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-682-547-04	SCREW +BVTT 3X6 (S)	
#3	7-682-547-09	SCREW +BVTT 3X6 (S)	
#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#5	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
#6	7-621-773-95	SCREW +BVTT 2.6X6 (S)	
#7	7-621-775-00	SCREW +B 2.6X3	
#8	7-627-556-08	SCREW +P 2.6X2.8	
#9	7-621-849-00	SCREW (BV/RING)	

<p>The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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TC-WR690/WR790

SONY[®] SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

TC-WR690/WR790

SUPPLEMENT-1

File this supplement with the Service Manual.

E Model

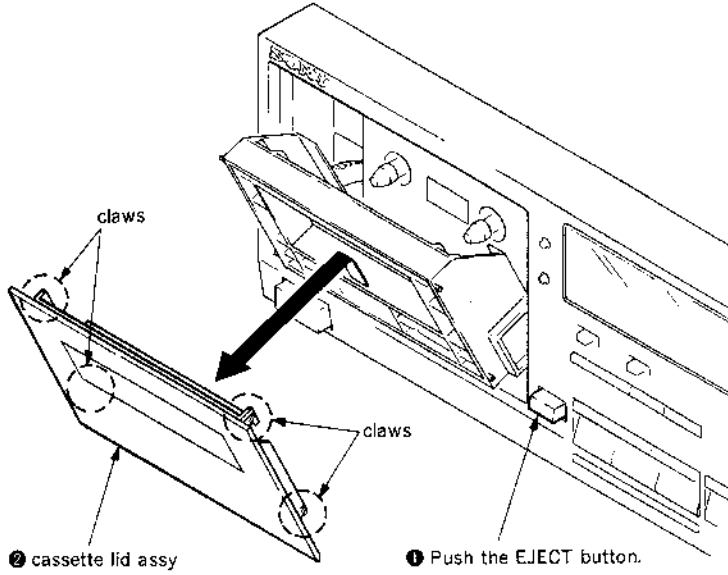
TC-WR690

- This supplement updates the TC-WR690 service manual to including production changes.
- The next page as follow change from those in TC-WR690 service manual.

DISASSEMBLY

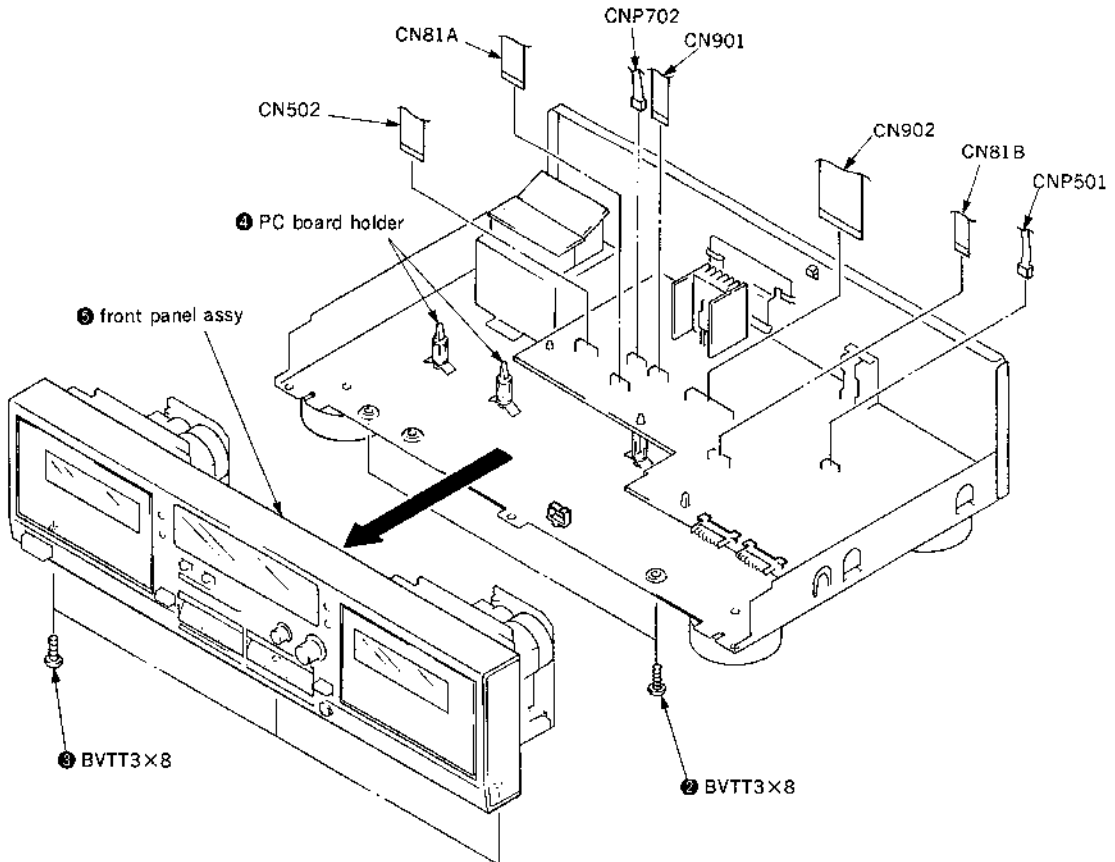
Note : Follow the disassembly procedure in the numerical order given.

2-1. CASSETTE LID ASSY



2-2. FRONT PANEL ASSY

① Remove the connectors.



ELECTRICAL ADJUSTMENT

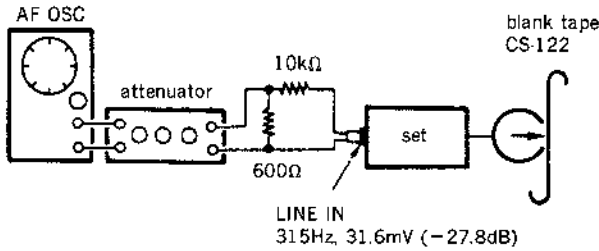
Record Level Adjustment **DECK A** **DECK B**

Setting :

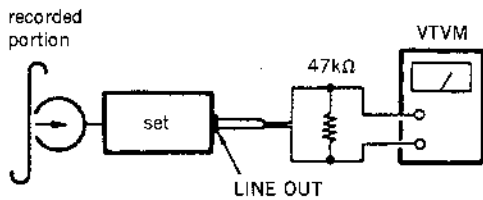
REC LEVEL control : standard record position (Refer to page 8.)

Procedure :

1. Record Mode



2. Playback Mode



(deck A)

3. Playback the signal recorded in step 1, and confirm that the playback output level is VTVM reading becomes within adjustment limits below.
4. If the adjustment limits are not satisfied, adjust each RV102 (L-CH) and RV202 (R-CH) so that the VTVM reading becomes within adjustment limits below.

(deck B)

5. Similarly, playback the signal recorded in step 1, and confirm that the playback output level is VTVM reading becomes within adjustment limits below.
6. If the adjustment limits are not satisfied, adjust each RV101 (L-CH) and RV201 (R-CH) so that the VTVM reading becomes within adjustment limits below.

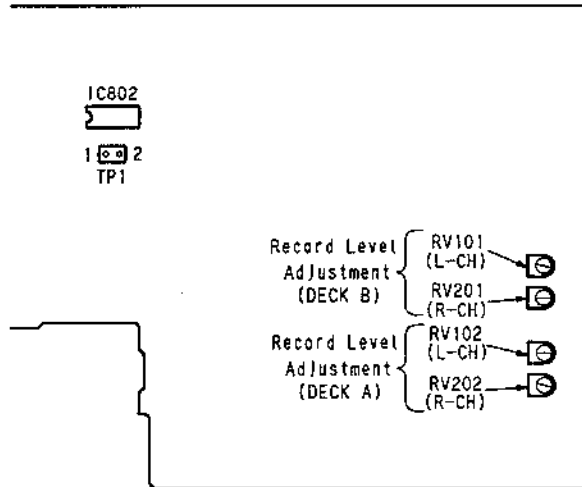
Adjustment Limits :

315Hz playback output level : $-27.7 \pm 0.5\text{dB}$ (30.2 to 33.8mV)

Adjustment Location : System control board

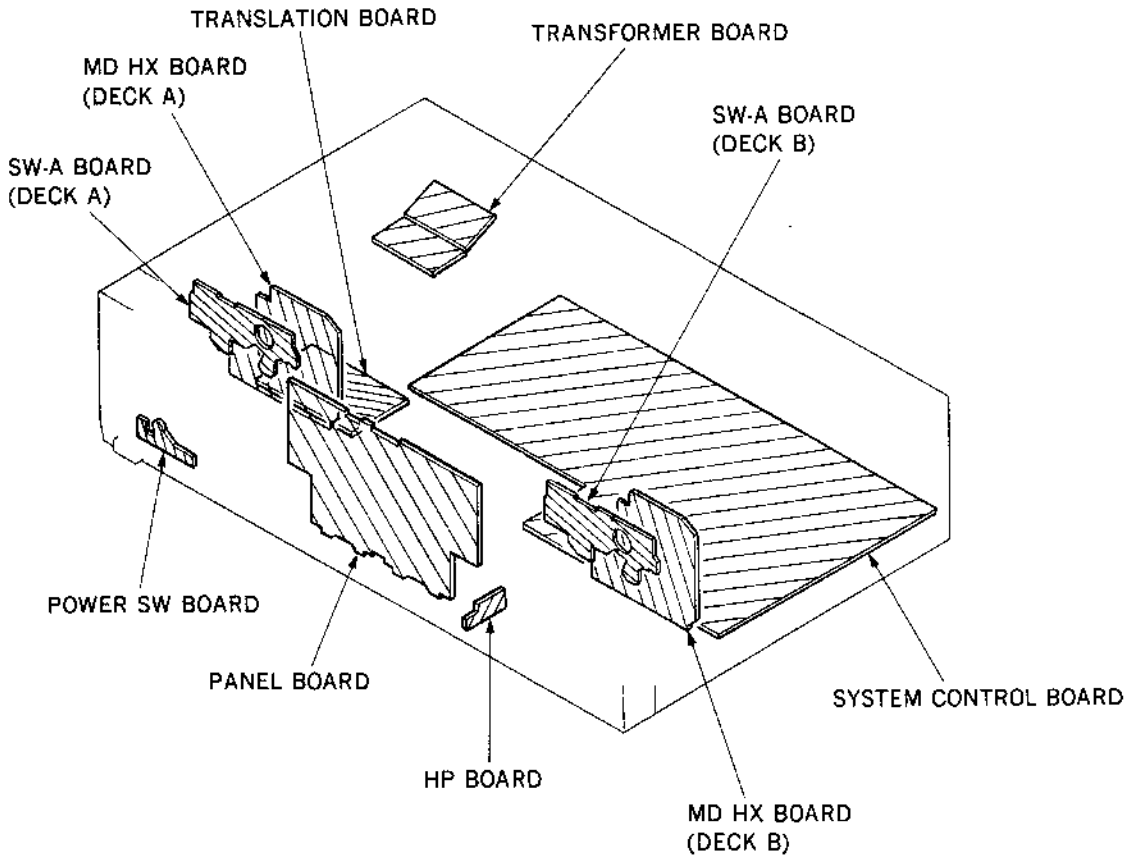
Adjustment Location :

[SYSTEM CONTROL BOARD]
(COMPONENT SIDE)



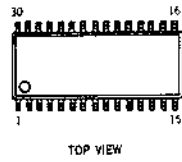
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION

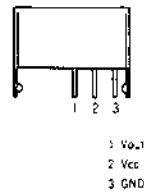


5-2. SEMICONDUCTOR LEAD LAYOUTS

CXA1331M



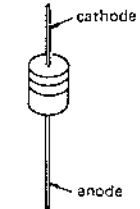
SBX1610-59



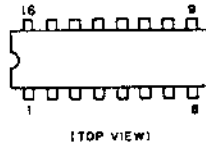
**DTC144ES
DTC144WS**
letter side



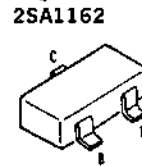
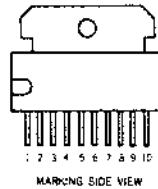
**HZS6A1L
UZL-7H1
UZL-7L2**



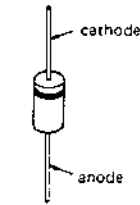
**CXA1578P
MC14052BCP**



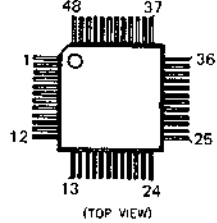
TA7272P



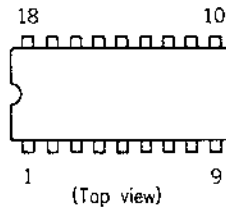
**IN4148M
10E2N**



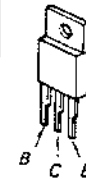
CXA1599Q



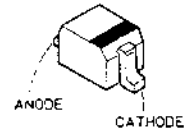
μPC1297CA



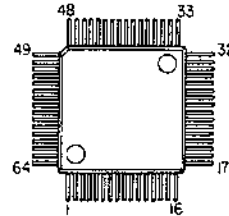
**2SB1094-LK
2SD1406-YGR
2SD2012**



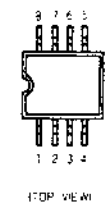
1SS352



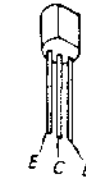
LC866012A-5193



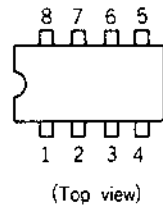
μPC4570G2



**2SB1116A-L
2SD1387-3**



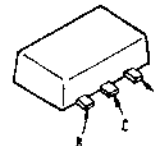
**M5218AP
μPC4558C**



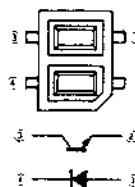
**DTA114ES
DTA144ES
DTC114ES
DTC143TS
2SA1317-STU
25C2603-EF**



2SD1622-S

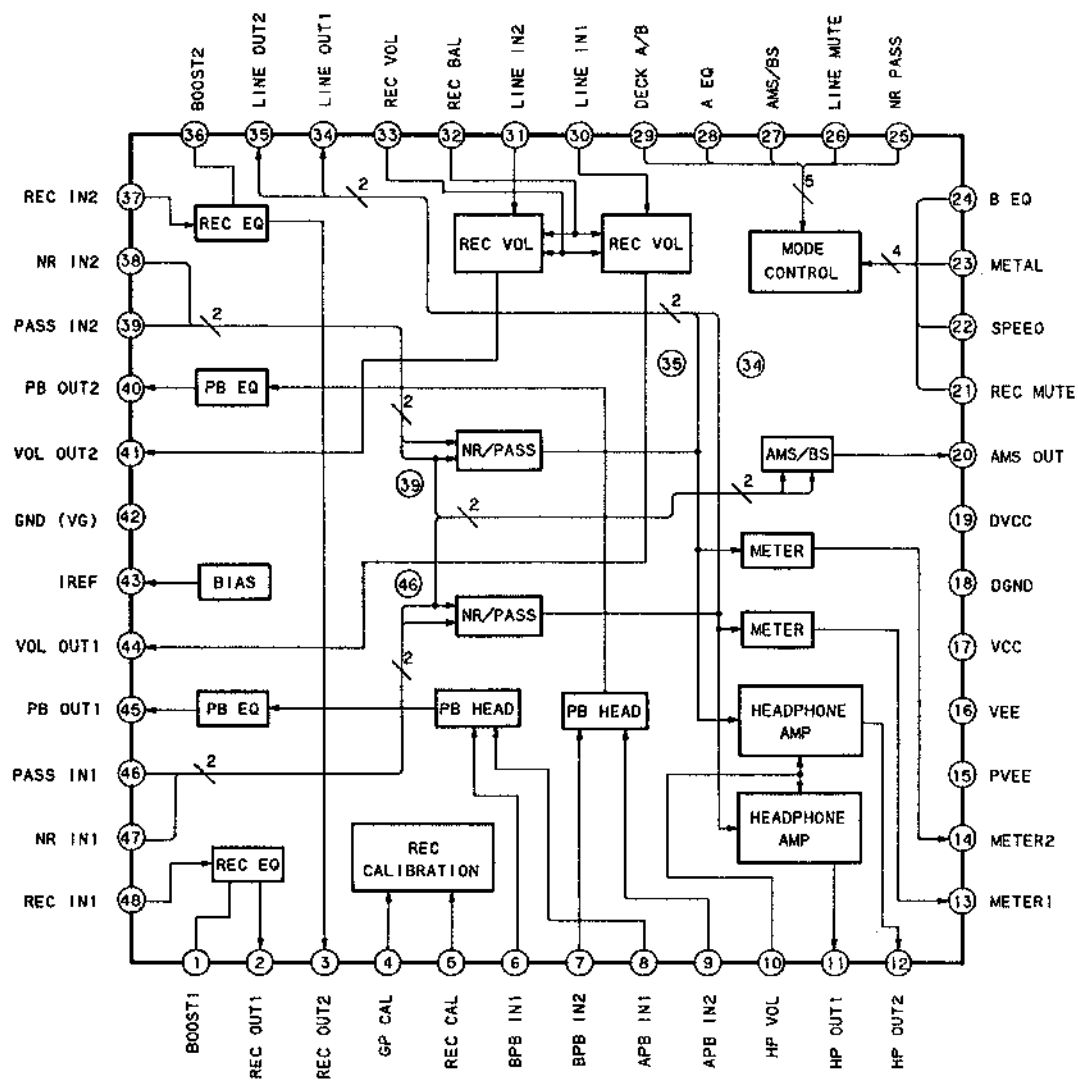


NJL5165K-B

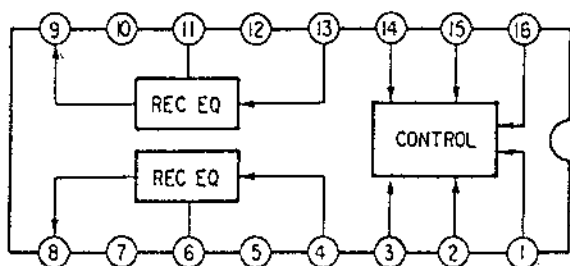


• IC Block Diagrams

IC502 CXA1599Q



IC503 CXA1578P



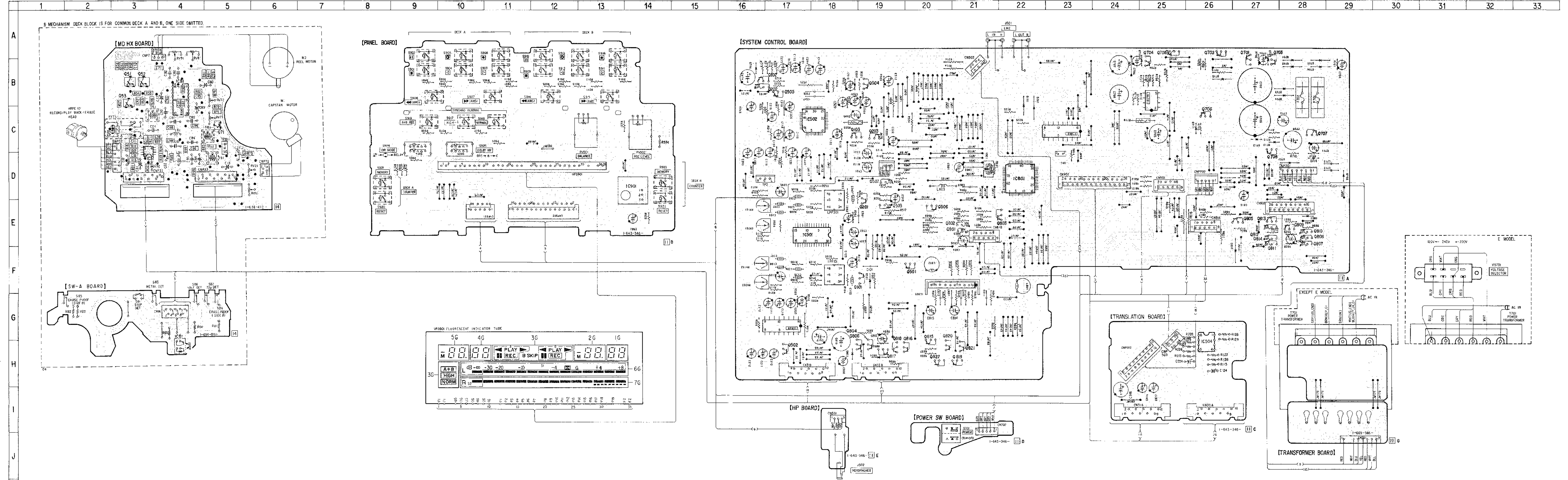
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D31	C-2	Q101	F-18
D101	B-22	Q102	B-17
D201	B-22	Q103	C-18
D501	F-19	Q201	E-19
D502	B-18	Q202	B-17
D701	B-28	Q203	C-19
D702	B-28	Q501	F-20
D703	B-27	Q502	H-17
D704	B-27	Q503	E-19
D705	B-28	Q504	B-19
D706	B-28	Q505	B-17
D707	D-27	Q506	E-20
D708	D-29	Q507	D-19
D709	A-27	Q701	A-27
D710	A-24	Q702	A-26
D711	C-26	Q703	A-27
D712	C-27	Q704	A-25
D713	C-27	Q705	A-25
D714	D-28	Q706	C-26
D715	B-26	Q707	C-28
D716	B-16	Q708	D-27
D801	F-26	Q801	E-20
D802	H-18	Q802	E-20
D803	E-29	Q803	E-21
D804	H-19	Q804	G-18
		Q805	E-27
IC31	D-3	Q806	G-18
IC81	B-4	Q807	E-28
(IC81)	G-4	Q808	E-28
IC501	E-17	Q809	E-28
IC502	C-17	Q810	E-28
IC503	C-17	Q811	F-27
IC504	H-26	Q812	E-27
IC701	B-25	Q813	E-27
IC801	D-22	Q814	E-27
IC802	C-23	Q815	G-20
IC803	G-20	Q816	G-19
IC901	D-14	Q817	H-19
		Q818	G-19
Q51	B-3	Q819	H-21
Q52	B-3	Q820	G-20
Q53	B-3	Q821	H-21
Q71	C-5	Q822	H-20

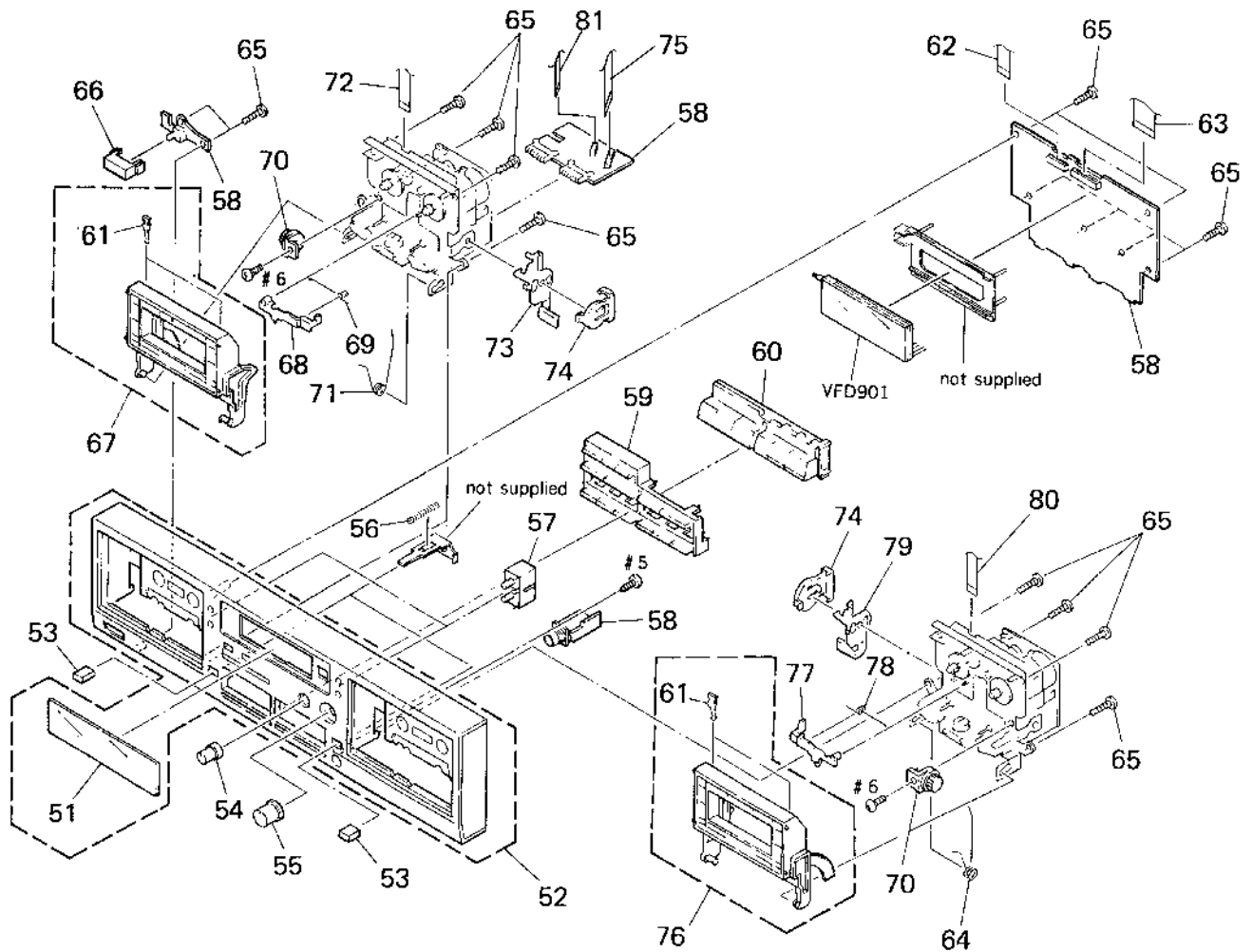
(): SW-A Board

- Note:
- : parts extracted from the component side.
 - : Through hole.
 - ▨ : Pattern on the side which is seen.

5-3. PRINTED WIRING BOARDS • Refer to Page 5 for Semiconductor Lead Layouts.



6-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-377-335-01	WINDOW (M) (AEP, Germany, UK, E)	
51	3-377-335-11	WINDOW (M) (US, Canadian)	
52	X-3364-750-1	PANEL ASSY, FRONT (US, Canadian)	
52	X-3364-751-1	PANEL ASSY, FRONT (AEP, Germany, UK, E)	
53	3-377-328-01	BUTTON (EJECT)	
54	3-367-431-01	KNOB (BAL)	
55	3-377-334-01	KNOB (REC)	
56	3-382-382-01	SPRING, COMPRESSION	
57	3-377-329-11	BUTTON (COUNTER)	
* 58	A-2006-738-A	SYSTEM CONTROL BOARD, COMPLETE	
59	3-377-342-01	BUTTON (WR)	
60	3-377-339-01	BUTTON (FR)	
61	3-308-823-11	SPRING	
62	1-575-905-31	WIRE, FLAT TYPE (9 CORE)	
63	1-690-908-11	WIRE (FLAT TYPE) (27 CORE)	
64	3-354-959-01	SPRING (LOADING L.), TORSION	
65	4-951-620-01	SCREW (2. 6X8), +BVTP	

Ref. No.	Part No.	Description	Remark
66	3-354-932-01	BUTTON (POWER)	
67	X-3340-195-1	HOLDER (R) ASSY, CASSETTE	
68	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
69	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
70	3-354-963-01	DAMPER	
71	3-354-960-01	SPRING (LOADING R.), TORSION	
72	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
* 73	3-354-954-01	LEVER (LOCK LEVER R)	
74	3-354-957-01	JOINT (LOCK LEVER)	
75	1-574-724-11	WIRE, FLAT TYPE (17 CORE)	
76	X-3340-194-1	HOLDER (L) ASSY, CASSETTE	
77	3-354-955-01	LEVER (EJ SAFTY LEVER L.)	
78	3-354-961-01	SPRING (EJ SAFTY SPRING L.)	
* 79	3-354-953-01	LEVER (LOCK LEVER L.)	
80	1-690-909-11	WIRE (FLAT TYPE) (9 CORE)	
81	1-696-981-11	WIRE (FLAT TYPE) (5 CORE)	
VFD901	1-519-712-11	INDICATOR TUBE, FLUORESCENT	

ELECTRICAL PARTS LIST

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 and -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

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

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark		
*	A-2006-828-A	MD HX BOARD, COMPLETE *****			
< 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
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

Ref. No.	Part No.	Description	Remark		
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
< CONNECTOR >					
* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD	10P		
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD)	7P		
* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD	10P		
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE)	3P		
* CNP72	1-580-411-11	SOCKET, CONNECTOR	4P		
< 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		
< 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

MD HX

SW-A

SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark
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
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	
RV21	1-241-627-11	RES. ADJ. CARBON 1K	
RV71	1-241-630-11	RES. ADJ. CARBON 10K	
RV72	1-241-630-11	RES. ADJ. CARBON 10K	
RV81	1-241-122-11	RES. ADJ. CARBON 22K	
RV91	1-241-122-11	RES. ADJ. CARBON 22K	
		< 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	

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 F
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 F
R85	1-249-408-11	CARBON	180 5% 1/4W F
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP)	
S82	1-571-281-21	SWITCH, LEAF (70EQ)	
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-2006-738-A	SYSTEM CONTROL BOARD, COMPLETE	

*	1-533-213-31	HOLDER, FUSE	
*	1-562-327-00	SOCKET, CONNECTOR 3P	
	7-685 646-79	SCREW +BVTP 3X8 TYPE2 SLIT	
	7-682-547-04	SCREW +BVTT 3X6 (S)	
		< CAPACITOR >	
C101	1-162-294-31	CERAMIC	0.001uF 10% 50V
C102	1-130-476-00	MYLAR	0.0027uF 5% 50V
C103	1-124-927-11	ELECT	4.7uF 20% 100V
C104	1-124-903-11	ELECT	1uF 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	1-124-925-11	ELECT	2.2uF 20% 100V
C111	1-124-902-00	ELECT	0.47uF 20% 50V
C112	1-124-903-11	ELECT	1uF 20% 50V
C113	1-124-925-11	ELECT	2.2uF 20% 100V
C114	1-124-925-11	ELECT	2.2uF 20% 100V

SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< RESISTOR >				R219	1-249-441-11	CARBON	100K 5% 1/4W
R101	1-249-432-11	CARBON	18K 5% 1/4W	R220	1-249-439-11	CARBON	58K 5% 1/4W
R102	1-247-838-00	CARBON	2K 5% 1/4W	R221	1-249-421-11	CARBON	2.2K 5% 1/4W F
R103	1-249-423-11	CARBON	3.3K 5% 1/4W F	R222	1-249-429-11	CARBON	10K 5% 1/4W
R104	1-249-441-11	CARBON	100K 5% 1/4W	R223	1-247-850-11	CARBON	6.2K 5% 1/4W
R105	1-247-834-11	CARBON	1.3K 5% 1/4W	R224	1-249-437-11	CARBON	47K 5% 1/4W
R106	1-249-429-11	CARBON	10K 5% 1/4W	R225	1-249-417-11	CARBON	1K 5% 1/4W F
R107	1-247-856-00	CARBON	11K 5% 1/4W	R226	1-247-887-00	CARBON	220K 5% 1/4W
R108	1-247-864-11	CARBON	24K 5% 1/4W	R227	1-249-441-11	CARBON	100K 5% 1/4W
R109	1-249-414-11	CARBON	560 5% 1/4W F	R228	1-247-874-11	CARBON	62K 5% 1/4W
R110	1-249-429-11	CARBON	10K 5% 1/4W	R229	1-249-435-11	CARBON	33K 5% 1/4W
R111	1-249-421-11	CARBON	2.2K 5% 1/4W F	R501	1-249-434-11	CARBON	27K 5% 1/4W
R112	1-249-429-11	CARBON	10K 5% 1/4W	R502	1-249-426-11	CARBON	5.6K 5% 1/4W
R113	1-249-421-11	CARBON	2.2K 5% 1/4W F	R503	1-249-429-11	CARBON	10K 5% 1/4W
R114	1-247-864-11	CARBON	24K 5% 1/4W	R504	1-215-455-00	METAL	27K 1% 1/6W
R115	1-249-433-11	CARBON	22K 5% 1/4W	R505	1-249-417-11	CARBON	1K 5% 1/4W F
R116	1-249-441-11	CARBON	100K 5% 1/4W	R506	1-215-455-00	METAL	27K 1% 1/6W
R117	1-249-417-11	CARBON	1K 5% 1/4W F	R507	1-249-413-11	CARBON	470 5% 1/4W F
R118	1-249-409-11	CARBON	220 5% 1/4W F	R508	1-249-429-11	CARBON	10K 5% 1/4W
R119	1-249-441-11	CARBON	100K 5% 1/4W	R509	1-247-862-11	CARBON	20K 5% 1/4W
R120	1-249-439-11	CARBON	68K 5% 1/4W	R510	1-249-429-11	CARBON	10K 5% 1/4W
R121	1-249-421-11	CARBON	2.2K 5% 1/4W F	R511	1-249-429-11	CARBON	10K 5% 1/4W
R122	1-249-429-11	CARBON	10K 5% 1/4W	R512	1-215-455-00	METAL	27K 1% 1/6W
R123	1-247-850-11	CARBON	6.2K 5% 1/4W	R516	1-249-429-11	CARBON	10K 5% 1/4W
R124	1-249-437-11	CARBON	47K 5% 1/4W	R517	1-249-432-11	CARBON	18K 5% 1/4W
R125	1-249-417-11	CARBON	1K 5% 1/4W F	R518	1-249-430-11	CARBON	12K 5% 1/4W
R126	1-247-887-00	CARBON	220K 5% 1/4W	R519	1-249-413-11	CARBON	470 5% 1/4W F
R127	1-249-441-11	CARBON	100K 5% 1/4W	R520	1-249-429-11	CARBON	10K 5% 1/4W
R128	1-247-874-11	CARBON	62K 5% 1/4W	R521	1-249-429-11	CARBON	10K 5% 1/4W
R129	1-249-435-11	CARBON	33K 5% 1/4W	R522	1-249-441-11	CARBON	100K 5% 1/4W
R201	1-249-432-11	CARBON	18K 5% 1/4W	R523	1-249-417-11	CARBON	1K 5% 1/4W F
R202	1-247-838-00	CARBON	2K 5% 1/4W	R524	1-247-866-11	CARBON	30K 5% 1/4W
R203	1-249-423-11	CARBON	3.3K 5% 1/4W F	R525	1-249-437-11	CARBON	47K 5% 1/4W
R204	1-249-441-11	CARBON	100K 5% 1/4W	R527	1-247-834-11	CARBON	1.3K 5% 1/4W
R205	1-247-834-11	CARBON	1.3K 5% 1/4W	R528	1-249-437-11	CARBON	47K 5% 1/4W
R206	1-249-429-11	CARBON	10K 5% 1/4W	R529	1-249-417-11	CARBON	1K 5% 1/4W F
R207	1-247-856-00	CARBON	11K 5% 1/4W	R530	1-247-862-11	CARBON	20K 5% 1/4W
R208	1-247-864-11	CARBON	24K 5% 1/4W	R531	1-249-429-11	CARBON	10K 5% 1/4W
R209	1-249-414-11	CARBON	560 5% 1/4W F	R532	1-249-433-11	CARBON	22K 5% 1/4W F
R210	1-249-429-11	CARBON	10K 5% 1/4W	△R533	1-212-863-00	FUSIBLE	18 5% 1/4W F
R211	1-249-421-11	CARBON	2.2K 5% 1/4W F	R534	1-249-434-11	CARBON	27K 5% 1/4W
R212	1-249-429-11	CARBON	10K 5% 1/4W	R701	1-249-425-11	CARBON	4.7K 5% 1/4W F
R213	1-249-421-11	CARBON	2.2K 5% 1/4W F	R702	1-249-425-11	CARBON	4.7K 5% 1/4W F
R214	1-247-864-11	CARBON	24K 5% 1/4W	R703	1-249-437-11	CARBON	47K 5% 1/4W
R215	1-249-433-11	CARBON	22K 5% 1/4W	R704	1-249-425-11	CARBON	4.7K 5% 1/4W F
R216	1-249-441-11	CARBON	100K 5% 1/4W	R705	1-249-425-11	CARBON	4.7K 5% 1/4W F
R217	1-249-417-11	CARBON	1K 5% 1/4W F	R706	1-249-427-11	CARBON	6.8K 5% 1/4W F
R218	1-249-409-11	CARBON	220 5% 1/4W F	R707	1-249-419-11	CARBON	1.5K 5% 1/4W F
				R708	1-249-429-11	CARBON	10K 5% 1/4W

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SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark
S905	1-554-303-21	SWITCH, TACTILE (DECK A: ●)	
S906	1-554-303-21	SWITCH, TACTILE (DECK A: ◀)	
S907	1-554-303-21	SWITCH, TACTILE (DECK A: ▶)	
S908	1-554-303-21	SWITCH, TACTILE (DECK A: ●)	
S909	1-554-303-21	SWITCH, TACTILE (DECK B: ■)	
S910	1-554-303-21	SWITCH, TACTILE (DECK B: ■)	
S911	1-554-303-21	SWITCH, TACTILE (DECK B: ▷)	
S912	1-554-303-21	SWITCH, TACTILE (DECK B: ◁)	
S913	1-554-303-21	SWITCH, TACTILE (DECK B: ●)	
S914	1-554-303-21	SWITCH, TACTILE (DECK B: ◀)	
S915	1-554-303-21	SWITCH, TACTILE (DECK B: ▶)	
S916	1-554-303-21	SWITCH, TACTILE (DECK B: ●)	
S917	1-554-303-21	SWITCH, TACTILE (HIGH)	
S918	1-554-303-21	SWITCH, TACTILE (NORMAL)	
S919	1-554-303-21	SWITCH, TACTILE (A+B REC)	
S920	1-554-303-21	SWITCH, TACTILE (DECK A: RESET)	
S921	1-554-303-21	SWITCH, TACTILE (DECK A: MEMORY)	
S922	1-554-303-21	SWITCH, TACTILE (DECK B: RESET)	
S923	1-554-303-21	SWITCH, TACTILE (DECK B: MEMORY)	
S924	1-692-126-11	SWITCH, SLIDE (DIR MODE)	
S925	1-692-126-11	SWITCH, SLIDE (DOLBY NR)	
		< TEST PIN >	
* TP1	1-564-505-11	PLUG, CONNECTOR 2P	
* TP2	1-564-506-11	PLUG, CONNECTOR 3P	
		< FLUORESCENT INDICATOR >	
VFD901	1-519-712-11	INDICATOR TUBE, FLUORESCENT	
		< VIBRATOR >	
X801	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	

△12	1-556-035-00	CORD, POWER (UK)	
△13	1-558-945-11	CORD, POWER (POLAR. SPT-1) (US)	
△14	1-555-795-00	CORD, POWER, EULO PLUG (AEP, Germany)	
△15	1-551-188-XX	CORD, POWER (E)	
△16	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
△17	1-590-836-31	CORD, POWER (Canadian)	
62	1-575-905-31	WIRE, FLAT TYPE (9 CORE)	
63	1-690-908-11	WIRE (FLAT TYPE) (27 CORE)	
72	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
75	1-574-724-11	WIRE, FLAT TYPE (17 CORE)	
80	1-690-909-11	WIRE (FLAT TYPE) (9 CORE)	
81	1-696-981-11	WIRE (FLAT TYPE) (5 CORE)	
120	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
△F701	1-532-259-00	FUSE, TIME-LAG 1.6A (AEP, Germany, UK, E)	
△F701	1-532-742-11	FUSE, GLASS TUBE 1.6A (US, Canadian)	
△F702	1-532-259-00	FUSE, TIME-LAG 1.6A (AEP, Germany, UK, E)	
△F702	1-532-742-11	FUSE, GLASS TUBE 1.6A (US, Canadian)	
HRPE101A-2003-838-A		BASE ASSY, HEAD (REC/PB/ERASE)	
M1	X-3359-417-A	MOTOR ASSY (CAPSTAN)	
M2	X-3363-501-A	MOTOR (REEL MOTOR) ASSY	
△T701	1-450-863-11	TRANSFORMER, POWER (E)	
△T701	1-450-869-11	TRANSFORMER, POWER (US, Canadian)	
△T701	1-450-870-11	TRANSFORMER, POWER (AEP, Germany, UK)	
△VS701	1-692-155-11	SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR) (E)	

ACCESSORIES & PACKING MATERIALS

	1-465-738-11	REMOTE COMMANDER (RMJ-903) (US, Canadian)
	1-558-271-11	CORD, CONNECTION
	1-696-170-11	CORD, CONNECTION
	2-181-754-01	COVER, BATTERY (US, Canadian)
*	3-366-701-91	INDIVIDUAL CARTON
*	3-376-446-01	CUSHION
	3-754-780-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (Canadian, AEP, E)
	3-754-780-21	MANUAL, INSTRUCTION (ENGLISH) (US, UK)
	3-754-780-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH) (AEP)
	3-754-780-51	MANUAL, INSTRUCTION (GERMAN) (Germany)
	3-754-780-61	MANUAL, INSTRUCTION (CHINESE) (E)
	3-755-288-11	MANUAL, INSTRUCTION (RM) (US, Canadian)

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Ref. No.	Part No.	Description	Remark
***** HARDWARE LIST *****			
#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-682-547-04	SCREW +BVTT 3X6 (S)	
#3	7-682-547-09	SCREW +BVTT 3X6 (S)	
#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 SLIT	
#5	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
#6	7-621-773-95	SCREW +BVTT 2.6X6 (S)	
#7	7-621-775-00	SCREW +B 2.6X3	
#8	7-627-556-08	SCREW +P 2.6X2.8	
#9	7-621-849-00	SCREW (BV/RING)	