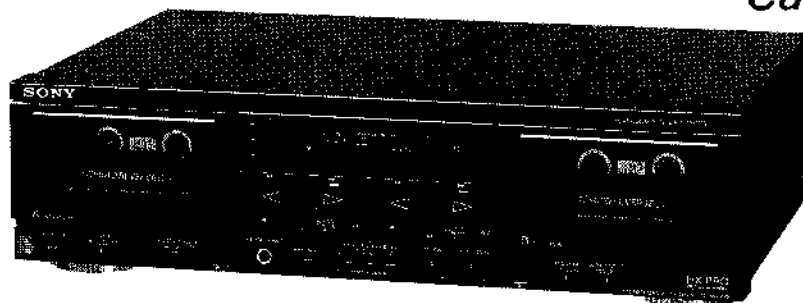


# TC-WR10ES/WR810

## SERVICE MANUAL

*US Model*  
TC-WR10ES/WR810  
*Canadian Model*  
*AEP Model*  
*UK Model*  
*E Model*  
TC-WR810




Dolby noise reduction manufactured under license from  
Dolby Laboratories Licensing Corporation.  
"DOLBY" and the double-D symbol  are trademarks of  
Dolby Laboratories Licensing Corporation.

PHOTO : TC-WR810

Model Name Using Similar Mechanism	New Mechanism
Tape Transport Mechanism Type	WR10ES, WR810 : except for US Model TCM-170RB12 WR810 : US Model TCM-170RB14

### SPECIFICATIONS

#### Recording system

4-track 2-channel stereo

#### Fast winding time

Approx. 90sec.(with HF-60 cassette)

#### Bias

AC Bias

#### Signal-to-noise ratio (NAB, at peak level)

Cassette	Dolby NR switch		
	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-ES)	58dB	65dB	71dB
TYPE II (Sony UX-S)	57dB	64dB	70dB
TYPE I (Sony HF-S)	54dB	61dB	67dB

#### Total harmonic distortion

1.0% (with Sony METAL-ES cassettes)

#### Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-ES)	20-20,000Hz ( $\pm 3$ dB) (WR10ES, WR810: except for US Model)
	30-18,000Hz ( $\pm 3$ dB) (WR810: US Model)
	30-15,000Hz (0VU recording)
TYPE II cassette (Sony UX-S)	30-17,000Hz ( $\pm 3$ dB)
TYPE I cassette (Sony HF-S)	30-15,000Hz ( $\pm 3$ dB)

#### Wow and flutter 0.09% WRMS (NAB)

#### Inputs

Line inputs (phono jacks)	Sensitivity	77.5mV ( $-20$ dB)
	Input impedance	50k ohms

#### Outputs

Line outputs (phono jacks)	Rated output level	0.44V ( $-5$ dB) at a load impedance 47kohms
	Load impedance	Over 10kohms
Headphone output (stereo phone jack)	Output level	$-28$ dB at 8ohms (WR10ES, WR810: except for US Model)
		0-0.3mW at a load impedance of 32ohms (WR810:US Model)

#### General

##### Power requirements

US, Canadian Model : 120V AC, 60Hz

AEP Model : 220V AC, 50/60Hz

UK Model : 240V AC, 50/60Hz

E Model : 120-220-240V AC adjustable, 50/60Hz

##### Power consumption

30watts

##### Dimensions

Approx. 430×118×275mm (w/h/d)  
(17×4 ×10 inches)

including projecting parts and controls

##### Weight

Approx. 4.6kg (10 lbs 3 oz)

##### Supplied accessory

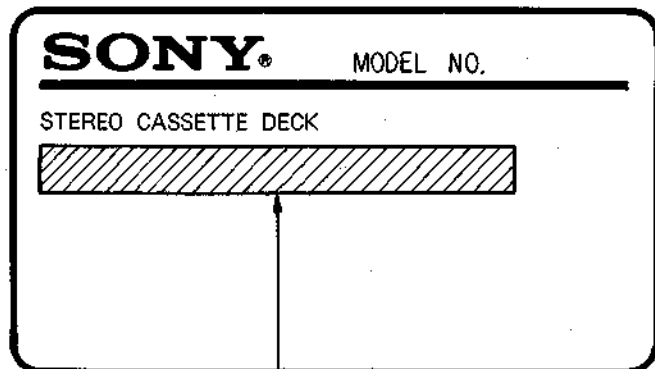
Audio connecting cord (2)



**STEREO CASSETTE DECK**  
**SONY®**

<u>Section</u>	<u>Title</u>	<u>Page</u>
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**—MODEL IDENTIFICATION—**  
(Specification Label)



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

**SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  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.

**SAFETY CHECK-OUT**

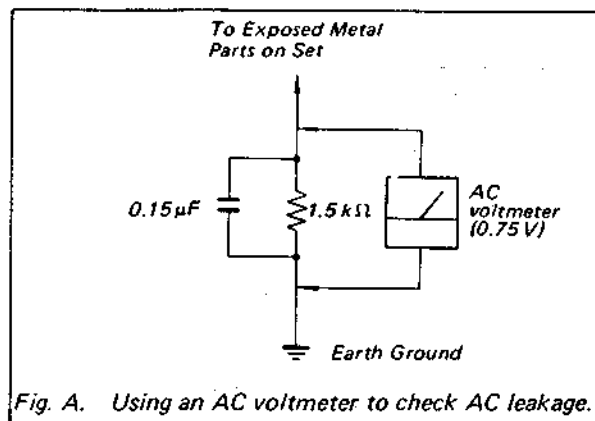
After correcting the original service problem, perform the following safety check before releasing the set to the customer:

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)

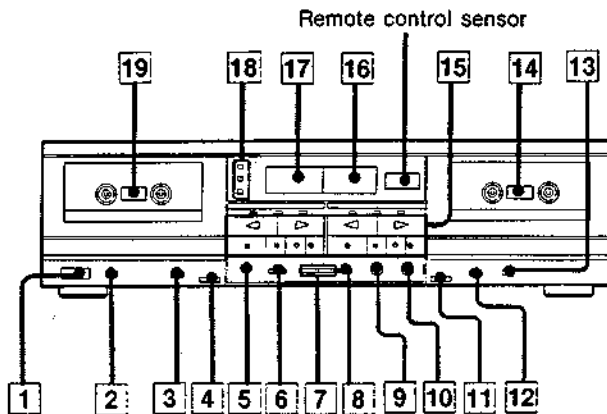


**ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  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

### Front Panel Parts Identification



- 1** POWER switch
- 2** TIMER switch
- 3** DIR (direction) MODE selector
- 4** ▲ (eject) button (deck A)
- 5** PHONES jack (stereo phone jack)
- 6** AMS (Automatic music sensor)/BLANK SKIP button and indicator
- 7** SYNCHRO DUBBING buttons and indicators  
HIGH SPEED/NORMAL SPEED
- 8** A + B REC (record) button and indicator
- 9** BALANCE control  
Adjusts the right-left balance during recording.
- 10** REC LEVEL (recording level) control

- 11** ▲ (eject) button (deck B)
- 12** DOLBY NR switch
- 13** MPX FILTER switch
- 14** Cassette holder (deck B)
- 15** Tape operation buttons and direction mode indicators

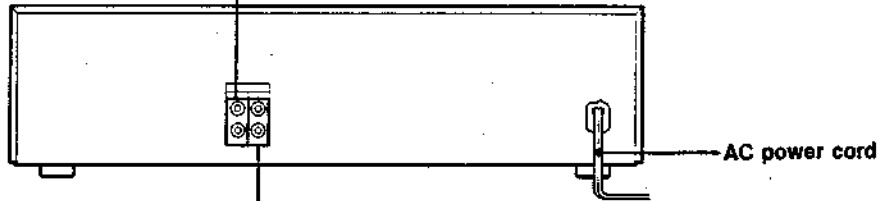
- ◀◀ (leftward fast winding) button
- ▶▶ (rightward fast winding) button
- ▶ (forward play) button
- ◀ (reverse play) button
- (stop) button
- || (pause) button and indicator
- REC MUTE (record muting) button
- REC (record) button and indicator

- 16** PEAK LEVEL METER
- 17** DIGITAL COUNTER
- 18** COUNTER buttons  
RESET button/MEMORY button A/B button
- 19** Cassette holder (deck A)

# Connections

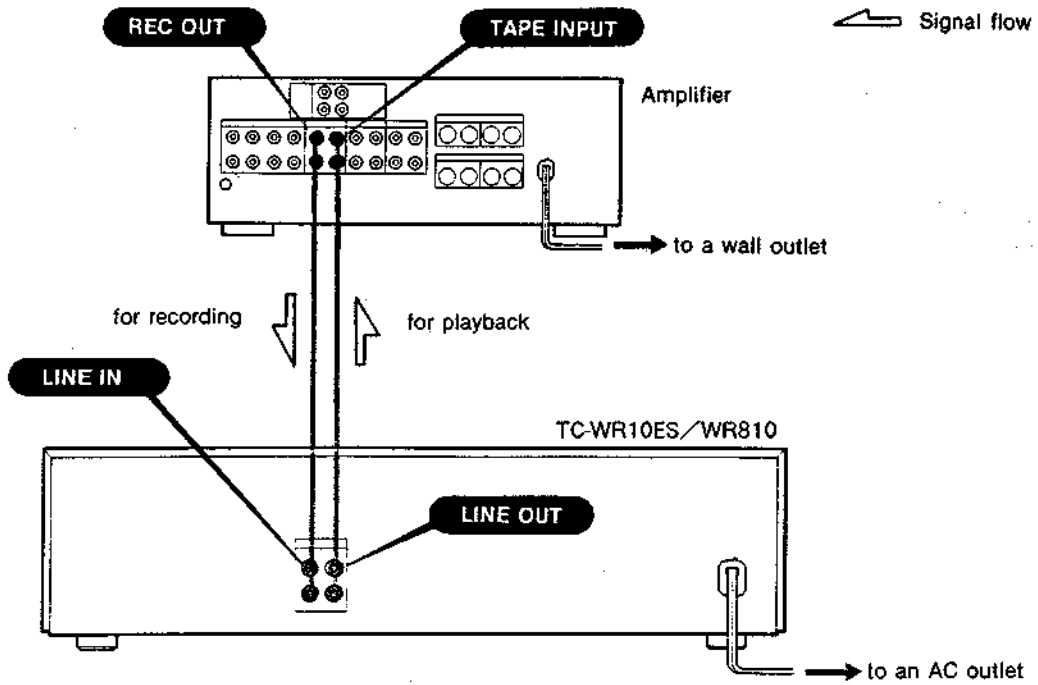
## Rear Panel Parts Identification

**LINE IN (line input) jacks (phono jacks)**  
 Connect to the tape outputs (recording outputs) of an amplifier for tape recording.



**LINE OUT (line output) jacks (phono jacks)**  
 Connect to the tape inputs of an amplifier for playback.

## Basic Connection

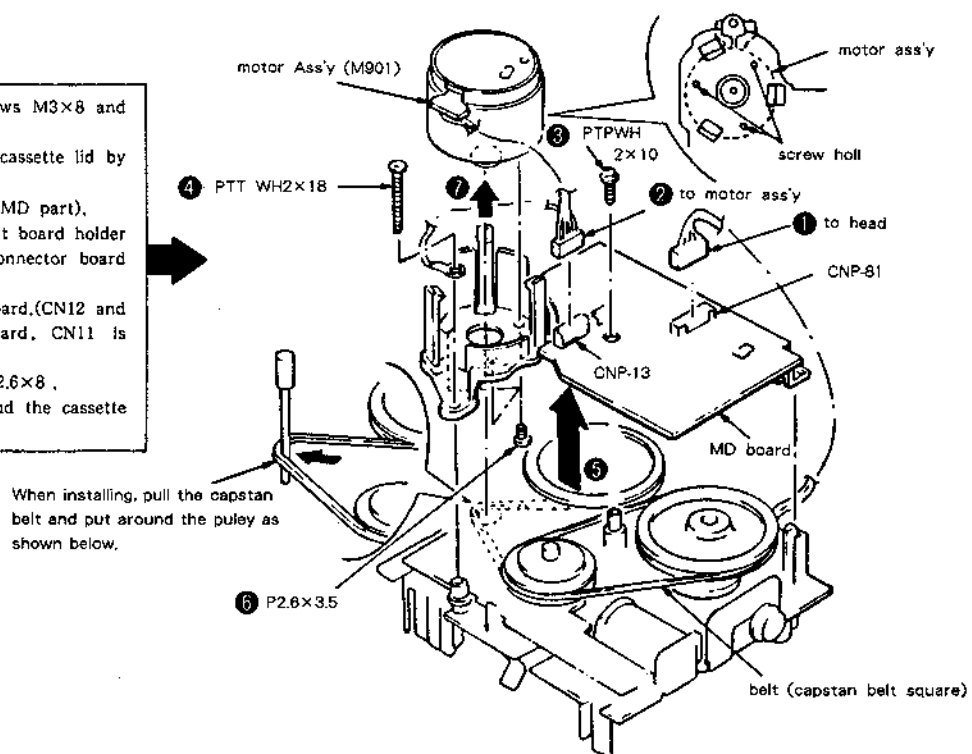


## SECTION 2 DISASSEMBLY

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

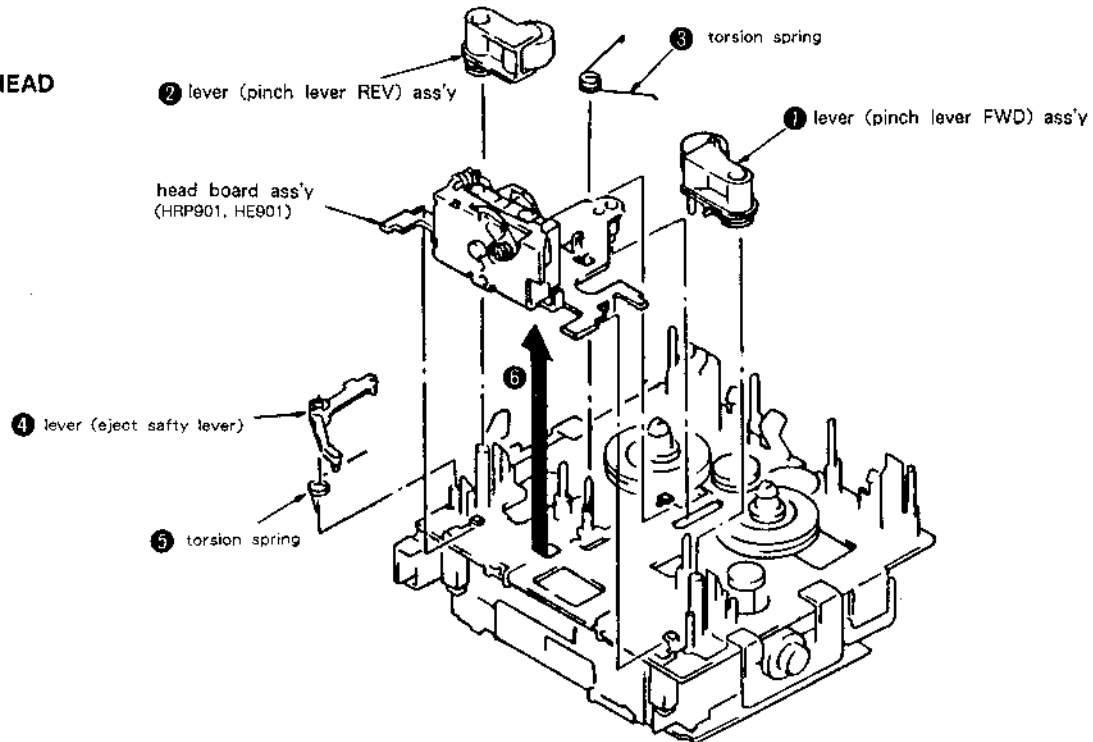
### MOTOR

- 1 Unscrew the four case attachment screws M3×8 and remove the upper case.
- 2 Press the eject button and remove the cassette lid by sliding it upward.
- 3 Remove the front panel assembly (incl. MD part).
- 4 Remove the connector and printed circuit board holder from the MD board, and remove the connector board and HXPRO board.
- 5 Remove the connectors of the main board. (CN12 and CN82 are connected to the MD board, CN11 is connected to the leaf SW board.)
- 6 Unscrew four MD attachment screws B2.6×8.
- 7 Remove the cassette holder assembly, and the cassette holding plate in that order.



When installing, pull the capstan belt and put around the pulley as shown below.

### HEAD



## SECTION 3 ADJUSTMENTS

### 3-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
  - record/playback head
  - erase head
  - capstan
  - pinch roller
  - rubber belts
  - idler
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed in the rated power supply voltage unless otherwise noted.

#### Torque Measurement

Torque	Torque meter	Motor reading
FWD	CQ-102C	27 to 75g · cm (0.38 to 1.04 oz · inch)
FWD Back tension	CQ-102C	1 to 10g · cm (0.014 to 0.13 oz · inch)
REV	CQ-102RC	27 to 75g · cm (0.38 to 1.04 oz · inch)
REV Back tension	CQ-102RC	1 to 10g · cm (0.014 to 0.13 oz · inch)
FF, REW	CQ-201B	95 to 165g · cm (1.33 to 2.29 oz · inch)

### 3-2. ELECTRICAL ADJUSTMENT

Note: The adjustment should be performed in the order given in the service manual. As a rule, adjustment about playback should be performed before adjustment about recording.

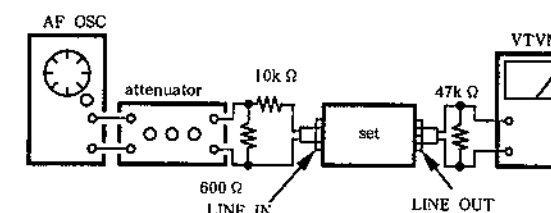
The adjustments should be performed for both L-CH and R-CH.

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

DOLBY NR switch : OFF  
 DIRECTION switch :   
 TIMER switch : OFF  
 MPX FILTER switch : OFF

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

#### - Record Mode -



#### Standard input Level

input terminal	LINE IN
source impedance	10k Ω
input level	0.25V (-10dB)

#### Standard Output Level

output terminal	LINE OUT
load impedance	47k Ω
output level	0.44V (-5dB)

#### Test tape

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

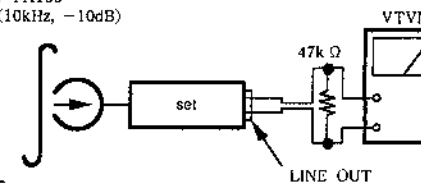
#### Record/Playback Head Azimuth Adjustment

DECK A DECK B

#### Procedure :

1. Mode : FWD playback

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



2. Turn levels screw 1dB.



3. Phase Mode :

test tape  
 P-4-A100  
 (10kHz)

4. Set in  
 5. After compou

Adjustment

# SECTION 3 ADJUSTMENTS

## 3.2. ELECTRICAL ADJUSTMENT

**Note :** The adjustment should be performed in the order given in the service manual. As a rule, adjustment about playback should be performed before adjustment about recording.

The adjustments should be performed for both L-CH and R-CH.

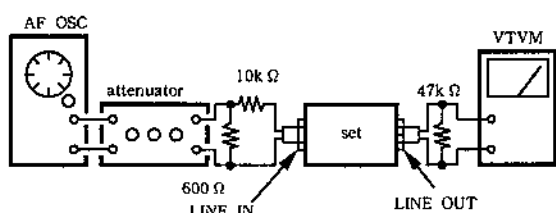
- Switches and controls should be set as follows unless otherwise specified.

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

- Standard Record :

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

### -Record Mode-



### Standard Input Level

input terminal	LINE IN
source impedance	10k $\Omega$
input level	0.25V (-10dB)

### Standard Output Level

output terminal	LINE OUT
load impedance	47k $\Omega$
output level	0.44V (-5dB)

### Test tape

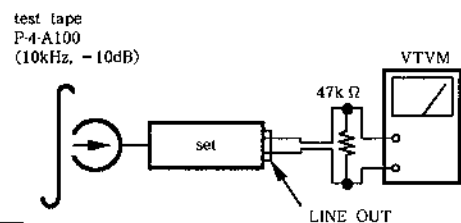
Type	Signal	Used for
P-4-A100	10kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

### Record/Playback Head Azimuth Adjustment

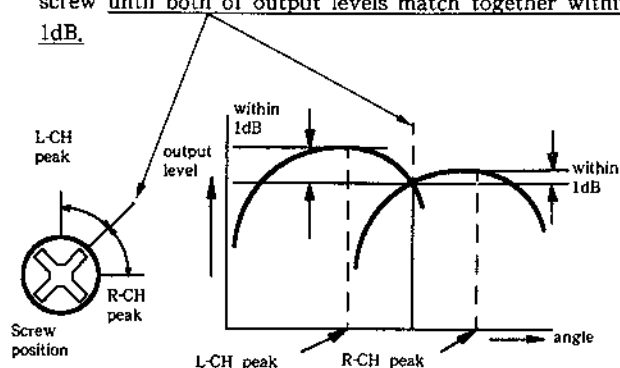
**DECK A** **DECK B**

#### Procedure :

- Mode : FWD playback

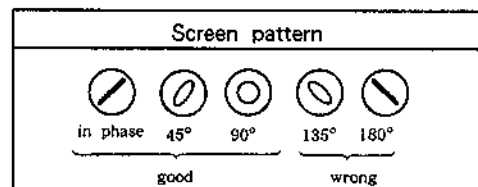
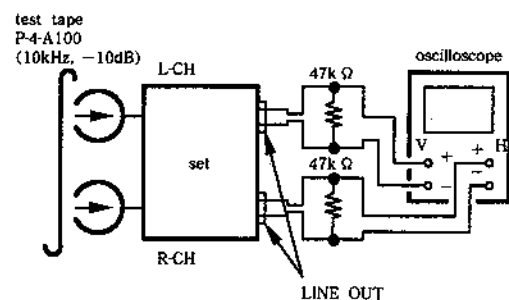


- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



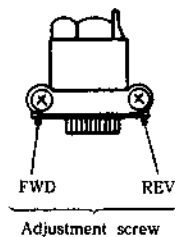
- Phase Check

Mode : playback



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

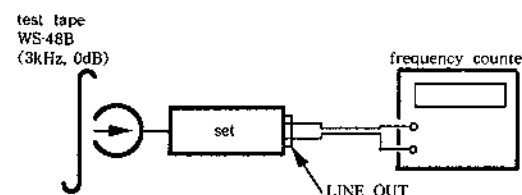
**Adjustment Location :** Record/Playback head



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

#### Procedure :

Mode : playback



Perform high speed adjustment before normal speed adjustment

(high speed adjustment)

- Short test pin TP801 on audio system control board.
- Set to FWD playback mode.
- Keep on pressing the HIGH SPEED DUBBING switch.
- Adjust the variable resistor (H) on rear side of motor M901 so that the frequency counter reading becomes  $6,000 \pm 20$ Hz.
- After adjustment, disconnect TP801 shorted in step 1.

(normal speed adjustment)

- Set to FWD playback mode.
- Adjust the variable resistor (L) on the rear side of motor M901 so that the frequency counter reading becomes  $3,000 \pm 10$ Hz.

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%.

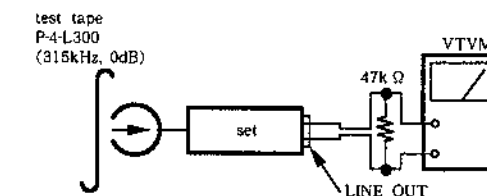
#### Adjustment Location :

motor rear side (both A and B deck)

### Playback Level Adjustment **DECK A** **DECK B**

#### Procedure :

Mode : playback



Adjust RV41 (L-CH), RV61 (R-CH) so that the reading on VTVM meets the adjustment limits below.

#### Adjustment Limits :

LINE OUT level :  $-5 \pm 0.5$ dB (0.42-0.46V)

Level difference between channels : less than 0.5dB

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

**Adjustment Location :** MD board

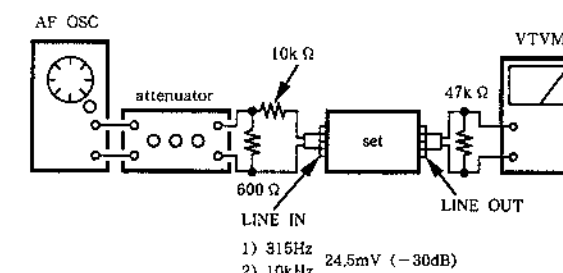
### Record Bias Adjustment **DECK A** **DECK B**

#### Setting :

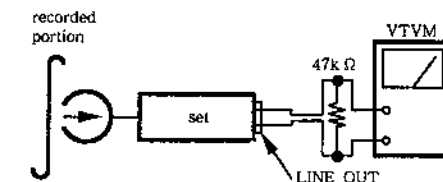
REC LEVEL control : Standard Record (See page 6.)  
 test pin TP801 : short

#### Procedure :

- Mode : record



- Mode : playback

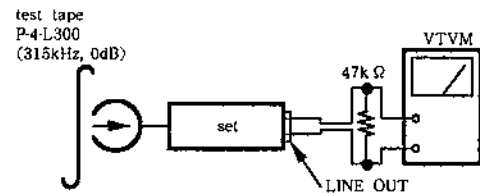


Playback the signal recorded in step 1. Confirm that the 10kHz playback output is  $0 \pm 0.5$ dB relative to the 315Hz output. If necessary, adjust RV42 (L-CH), RV62 (R-CH) and repeat the steps given above.

**Adjustment Location :** HX PRO board

**Playback Level Adjustment DECK A DECK B**

**Procedure :**  
Mode : playback



Adjust RV41 (L-CH), RV61 (R-CH) so that the reading on VTVM meets the adjustmeny limits below.

**Ajustment Limits :**

LINE OUT level :  $-5 \pm 0.5\text{dB}$  (0.42-0.46V)

Level difference between channels : less than 0.5dB

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

**Adjustment Location :** MD board

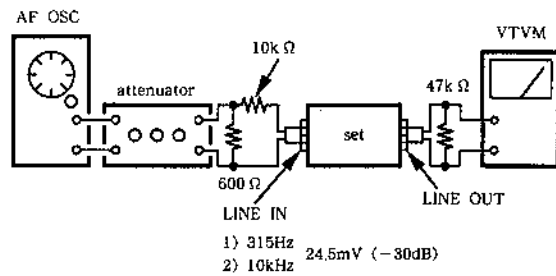
**Record Bias Adjustment DECK A DECK B**

**Setting :**

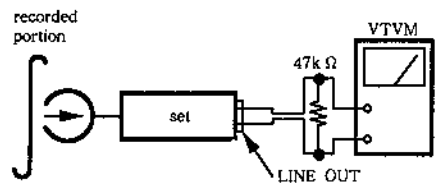
REC LEVEL control : Standard Record (See page 6.)  
test pin TP801 : short

**Procedure :**

1. Mode : record



2. Mode : playback



Playback the signal recorded in step 1.  
Confirm that the 10kHz playback output is  $0 \pm 0.5\text{dB}$  relative to the 315Hz output. If necessary, adjust RV42 (L-CH), RV62 (R-CH) and repeat the steps given above.

**Adjustment Location :** HX PRO board

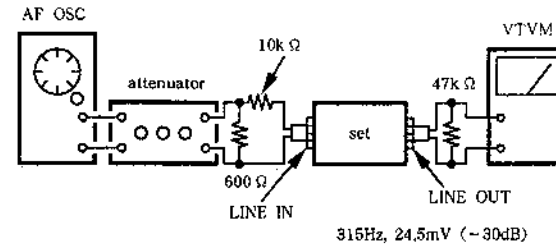
**Record Level Adjustment DECK A DECK B**

**Setting :**

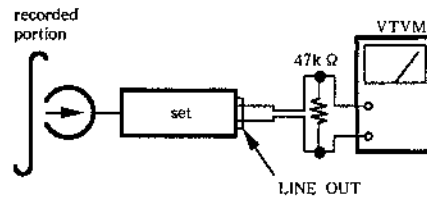
REC LEVEL control : Standard Record (See page 6.)  
test pin TP801 : short

**Procedure :**

1. Mode : record



2. Mode : playback



3. Playback the signal recorded in step 1.  
Confirm that the signal level is within the adjustment limits below. If necessary, adjust DECK A : RV101 (L-CH), RV201 (R-CH) DECK B : RV102 (L-CH), RV202 (R-CH) and repeat the step1-2.

**Adjustment Limits :**  $-25\text{dB} \pm 0.5\text{dB}$  (42-46mV)

**Adjustment Location :** audio system control board (component side)

**Quick Reverse Sensitivity Adjustment DECK A DECK B**

**Conditions :**

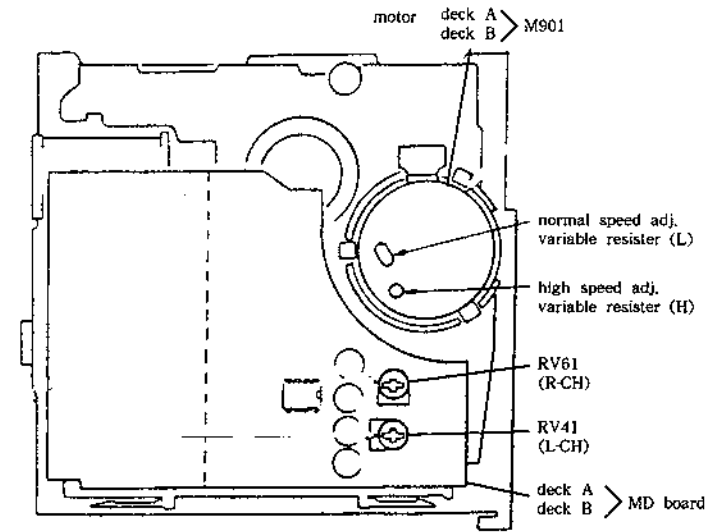
DIRECTION MODE switch :  $\rightleftarrows$

**Adjustment Procedure :**

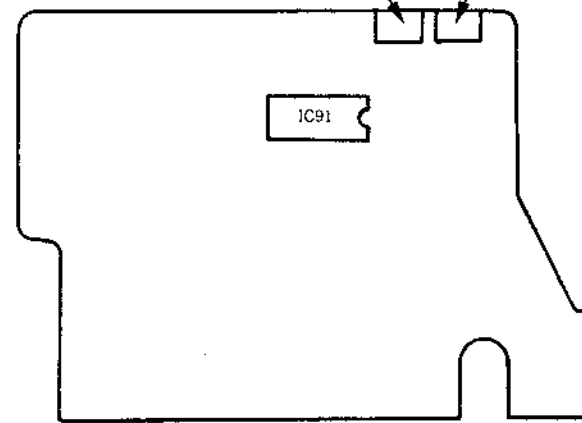
1. Connect the oscilloscope to test point TP802.
2. Load C-120 tape cassette and playback the leading portion in FWD mode.
3. Adjust the RV801 (DECK A), RV802 (DECK B) for  $4 \pm 0.5\text{V}$  reading on the oscilloscope.
4. Playback C-120 tape cassette in FWD mode again.
5. Confirm that the reading on the oscilloscope is "L" level at the magnetic portion of the tape.
6. Confirm that the tape cassette stops around the tape end (border of the leading and the magnetic portions).

**Adjustment Location :** audio system control board (component side)

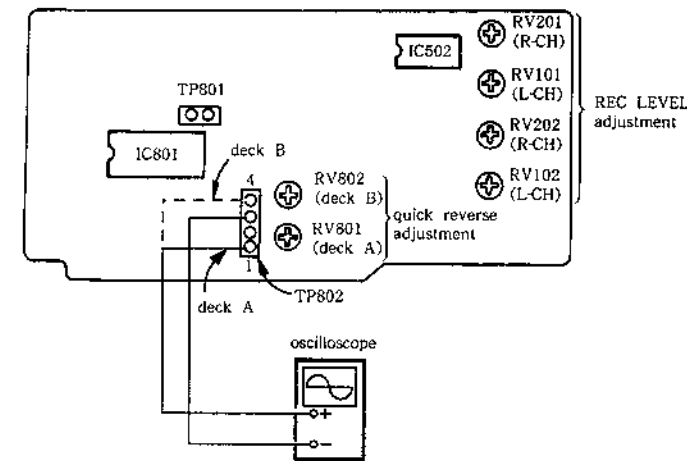
-Adjustment Parts Location Diagrams-



**HX PRO board (component side)**



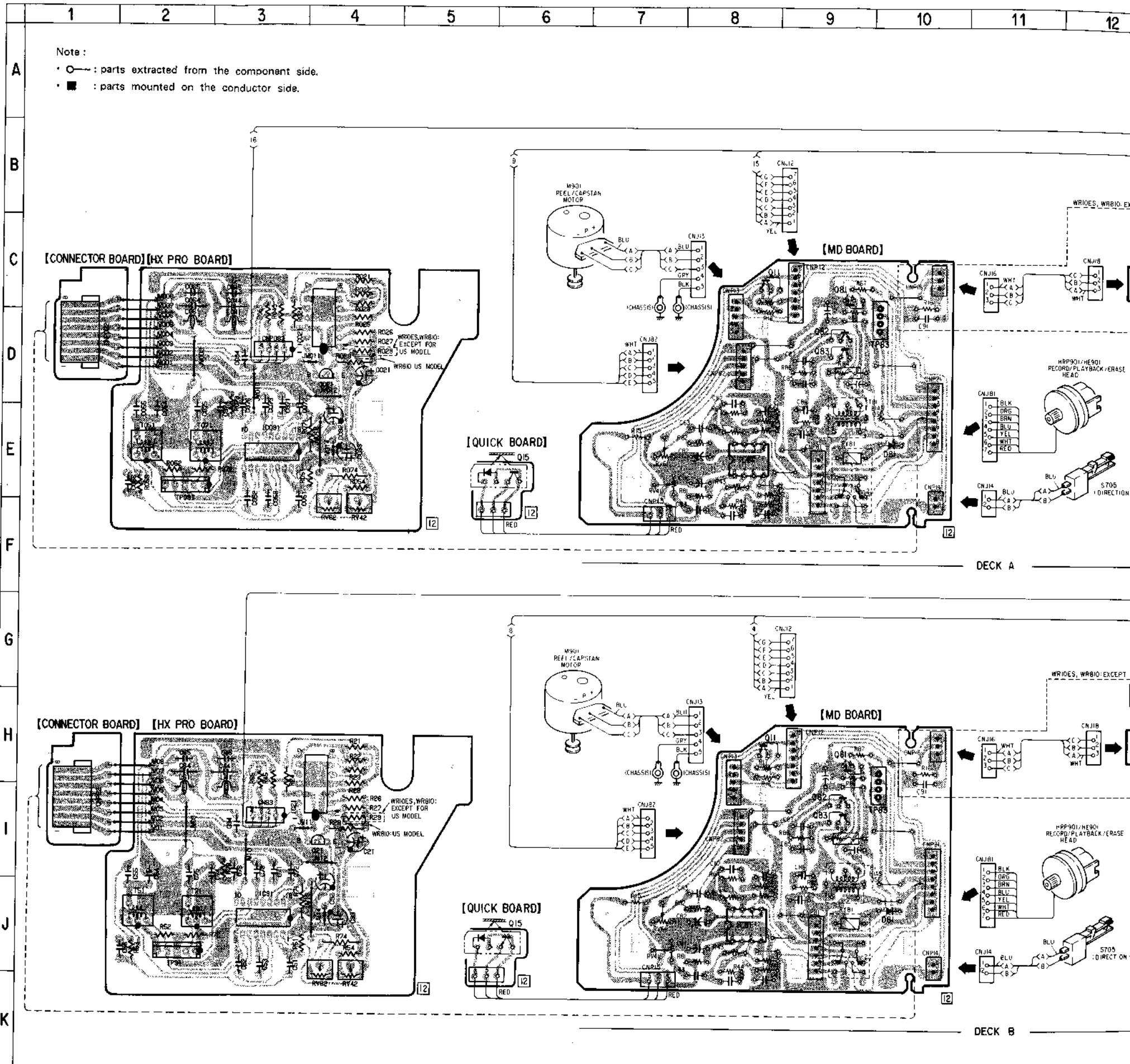
**audio system control board (component side)**



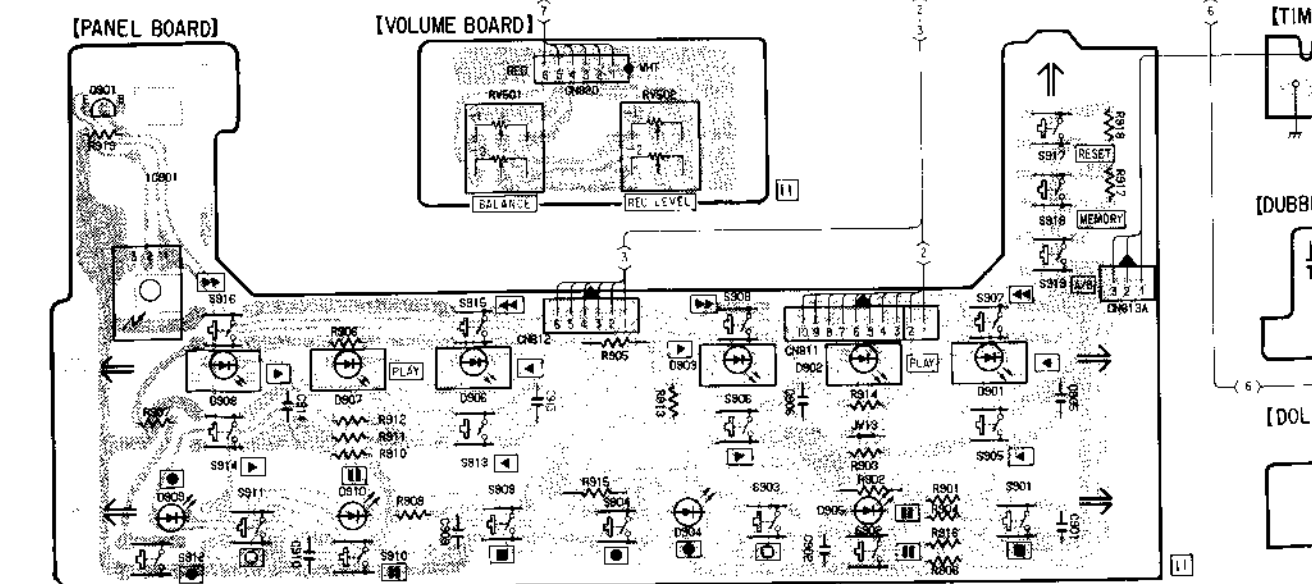
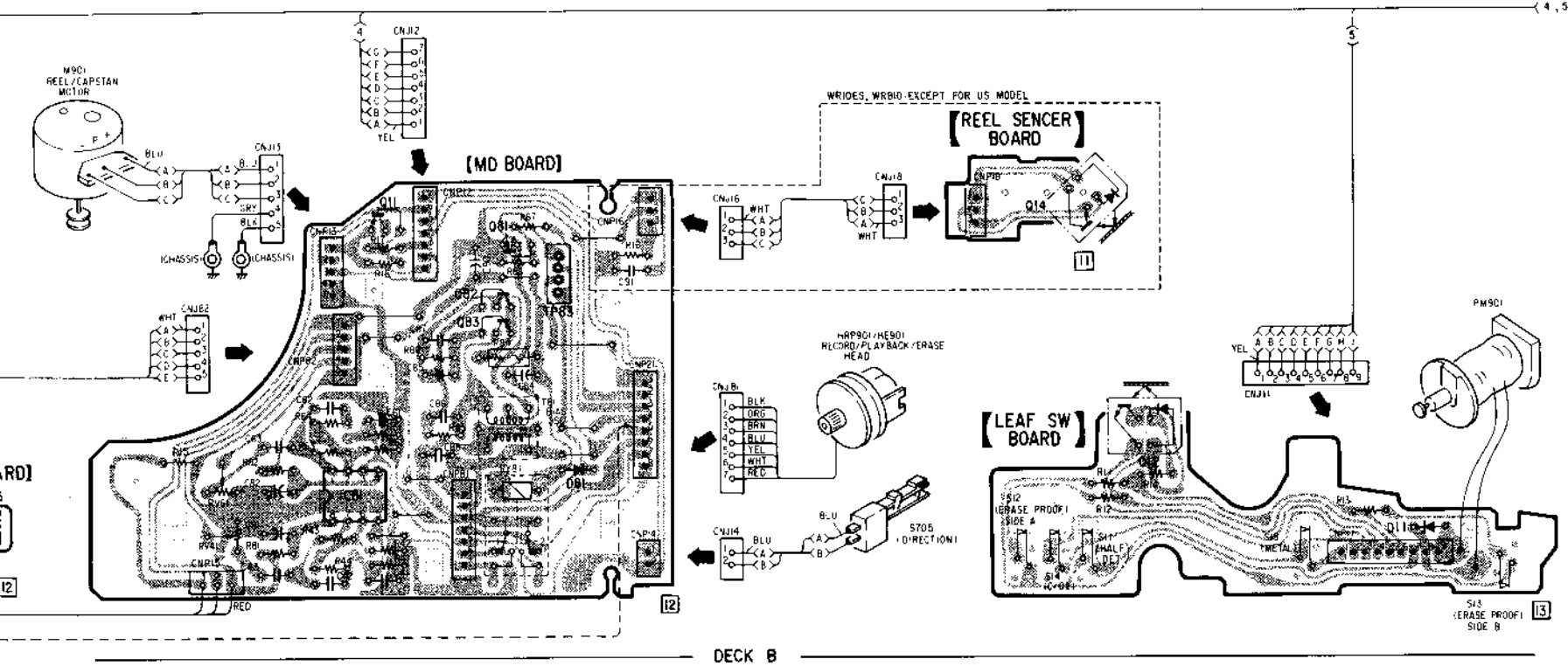
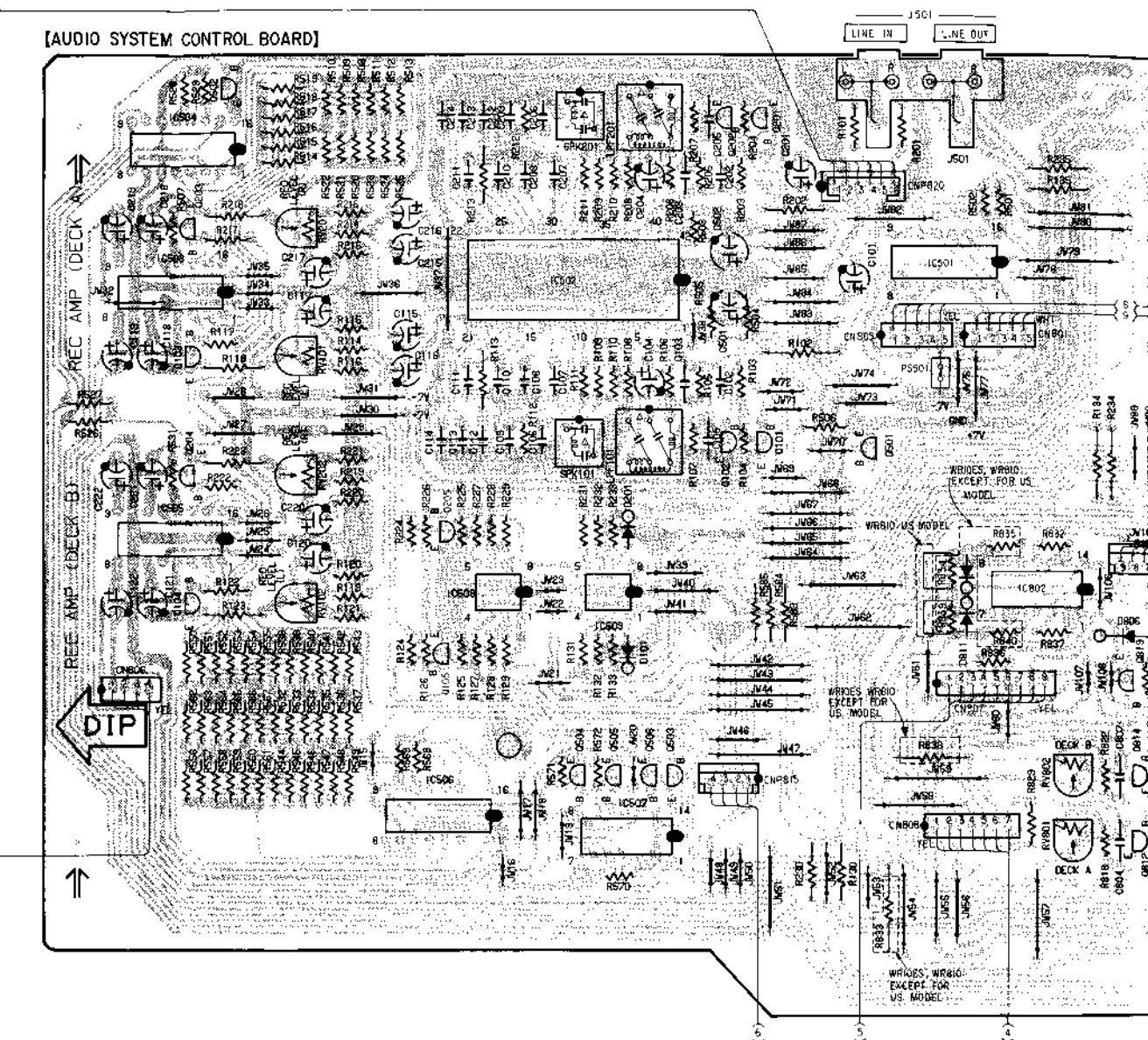
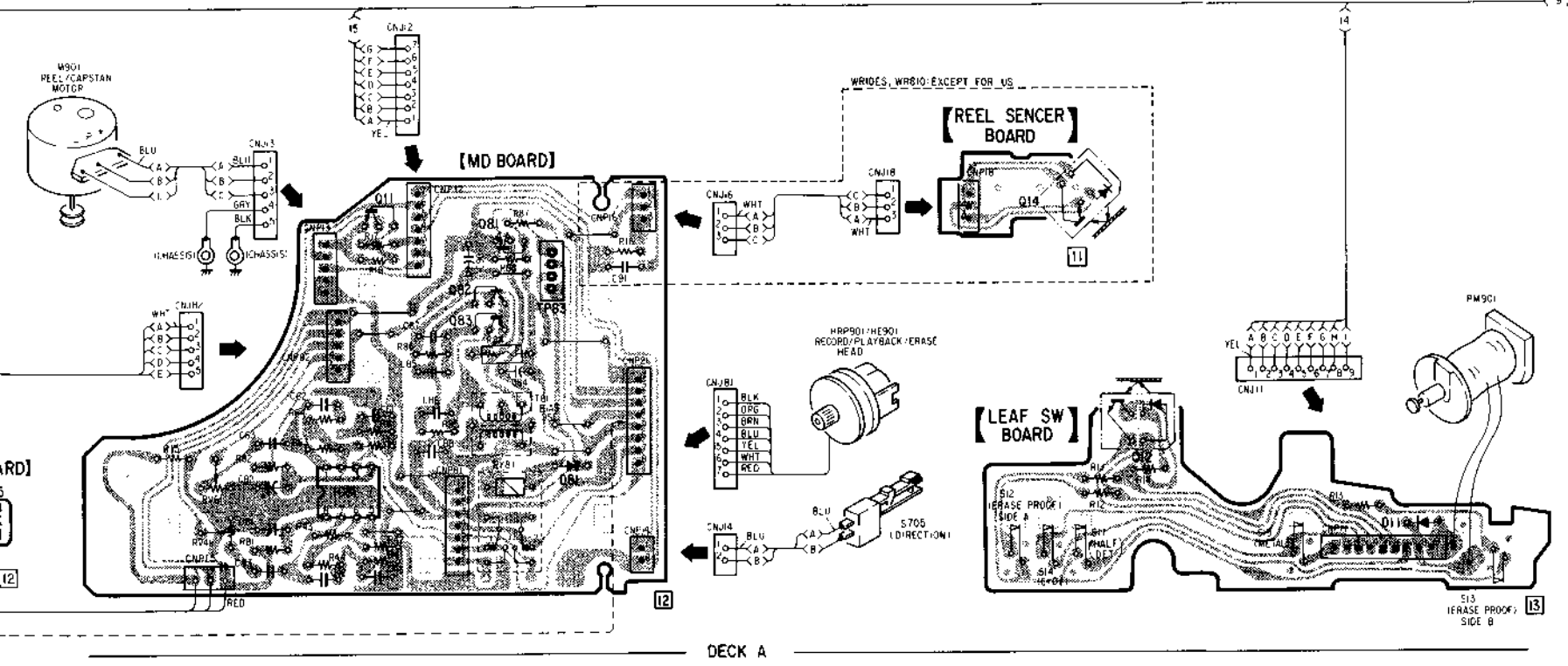
**SECTION 4  
DIAGRAMS**

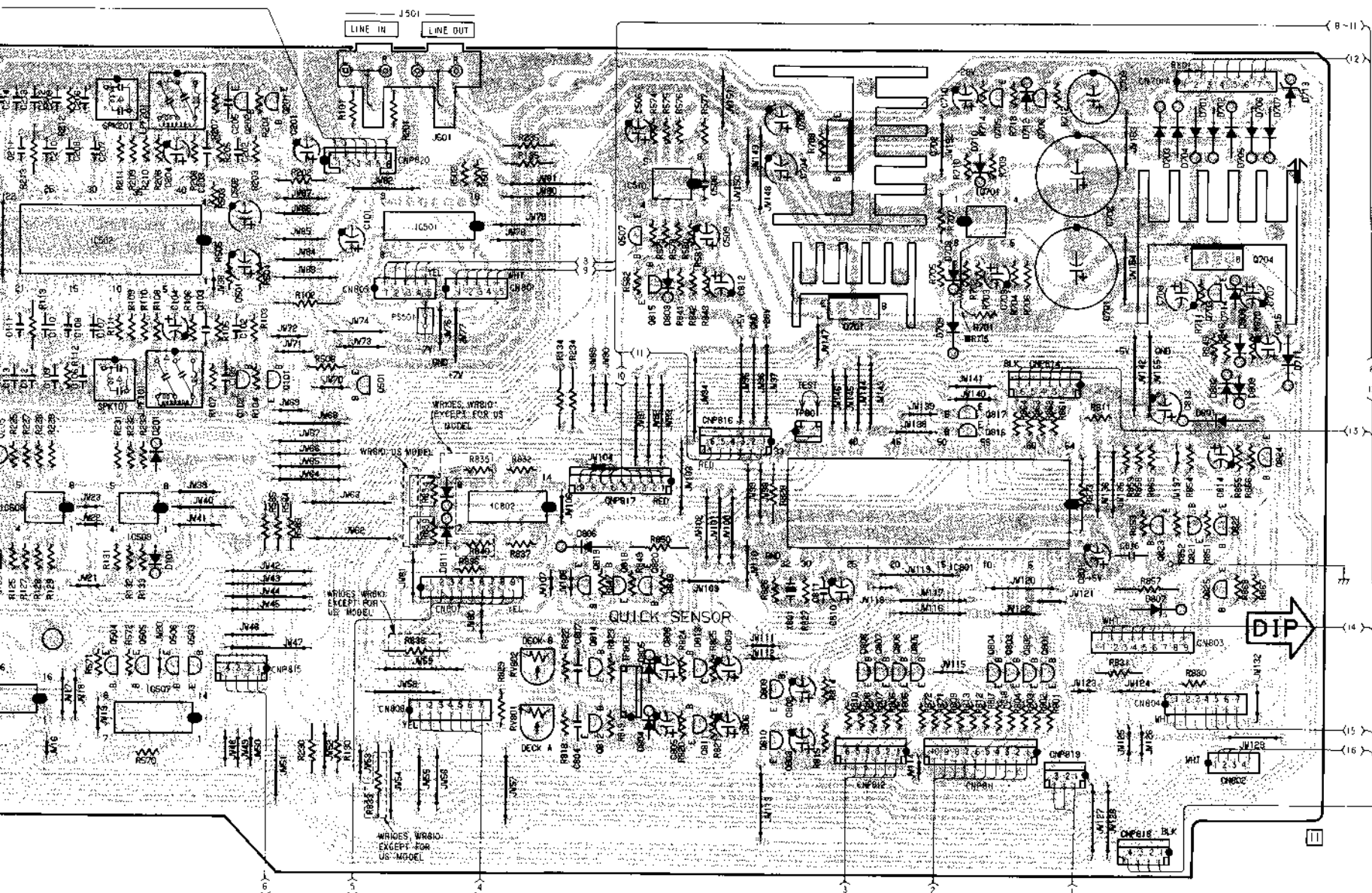
**● SEMICONDUCTOR LOCATION**

Ref. No.	Location	Ref. No.	Location
<b>DECK A</b>			
D11	E-15	IC501	C-23
D81	E-10	IC502	C-21
		IC503	C-18
IC21	D-3	IC504	B-18
IC81	E-8	IC505	D-18
IC91	E-3		
		IC506	F-20
Q11	C-8	IC507	F-21
Q12	E-14	IC508	E-20
Q14	C-13	IC509	E-21
Q15	E-6	IC510	B-25
Q21	D-4		
		IC701	C-28
Q81	C-9	IC801	E-27
Q82	D-9	IC901	I-19
Q83	D-9	IC951	J-30
<b>DECK B</b>			
D11	J-15	Q101	D-22
D81	J-10	Q102	D-22
		Q103	C-18
		Q104	E-18
		Q105	E-20
IC21	I-3	Q201	B-21
IC81	J-8	Q202	B-21
IC91	J-3	Q203	B-18
Q11	H-8	Q204	D-18
Q12	J-14	Q205	D-20
Q14	H-13		
Q15	J-6	Q501	D-23
Q21	I-4	Q502	A-18
		Q503	F-21
Q81	H-9	Q504	F-21
Q82	I-9	Q505	F-21
Q83	I-9		
		Q506	F-21
D101	E-21	Q507	C-25
D201	D-21	Q701	C-27
D701	B-29	Q702	B-27
D702	B-29	Q703	C-29
D703	B-29		
		Q704	C-29
		Q705	B-28
D704	B-29	Q706	B-28
D705	B-29	Q801	F-28
D706	B-30	Q802	F-28
D707	B-30		
D708	C-27	Q803	F-28
		Q804	F-28
D709	C-27	Q805	F-27
D710	B-28	Q806	F-27
D711	D-30	Q807	F-27
D712	B-28		
D713	B-30	Q808	F-27
		Q809	F-26
D714	C-30	Q810	E-26
D801	D-29	Q811	F-25
D802	D-29	Q812	F-25
D803	C-25		
D804	F-25	Q813	F-25
		Q814	F-25
D805	F-25	Q815	C-25
D806	E-24	Q816	D-27
D807	F-29	Q817	D-27
D808	D-30		
D809	D-30	Q818	E-25
		Q819	E-24
D810	E-23	Q820	E-25
Q811	E-23	Q821	E-29
D901	J-23	Q822	E-29
D902	J-22		
D903	J-21	Q823	E-29
		Q824	D-30
D904	K-21	Q825	E-29
D905	K-22	Q901	H-17
D906	J-20	Q951	J-32
D907	J-19		
D908	J-18	Q952	K-32
D909	K-18	Q953	K-31
D910	K-19	Q954	I-29
D931	J-25	Q955	I-29
D932	J-26		
D933	J-26		
D934	J-27		
D951	J-31		
D952	K-30		

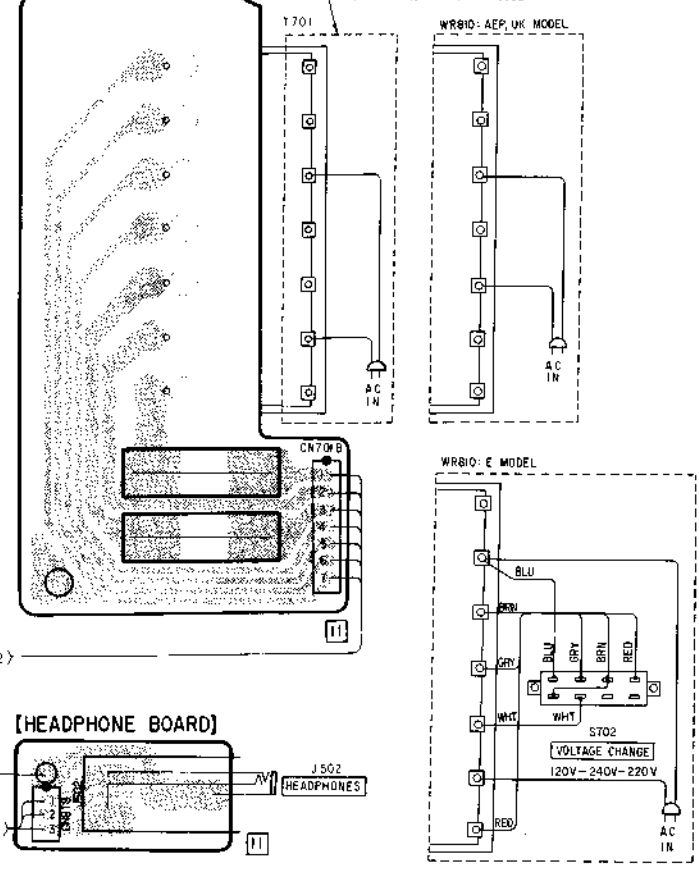








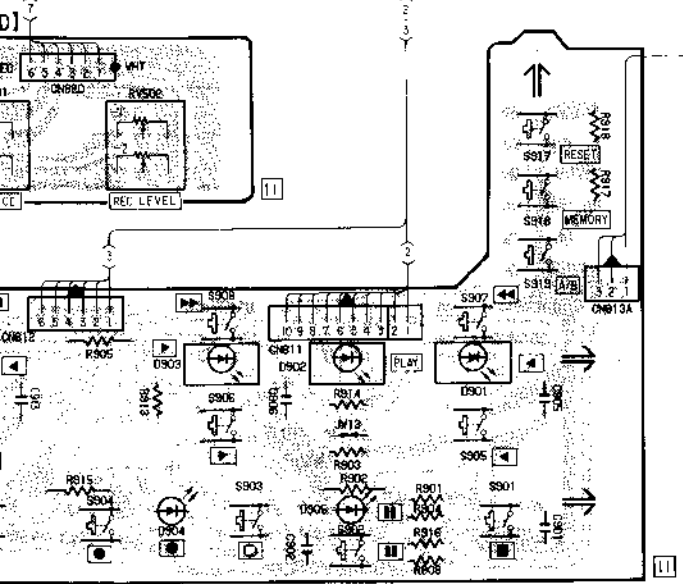
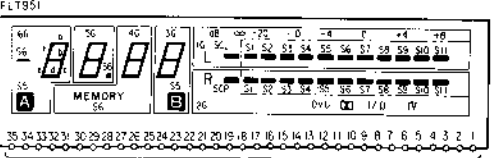
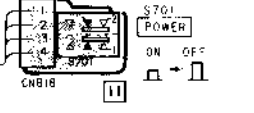
**[POWER TRANSFORMER BOARD]**



**[HEADPHONE BOARD]**



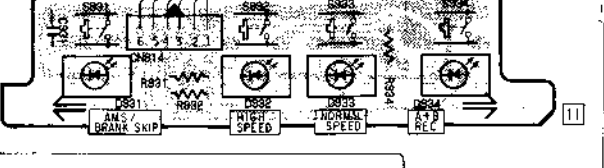
**[POWER SWITCH BOARD]**



**[TIMER DIRECTION BOARD]**

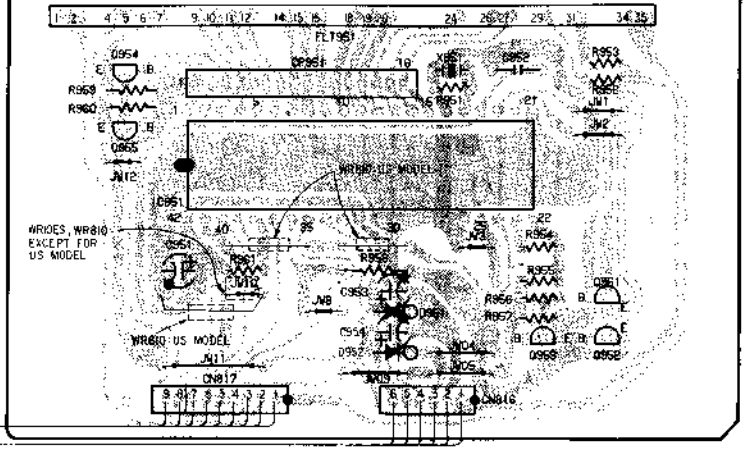


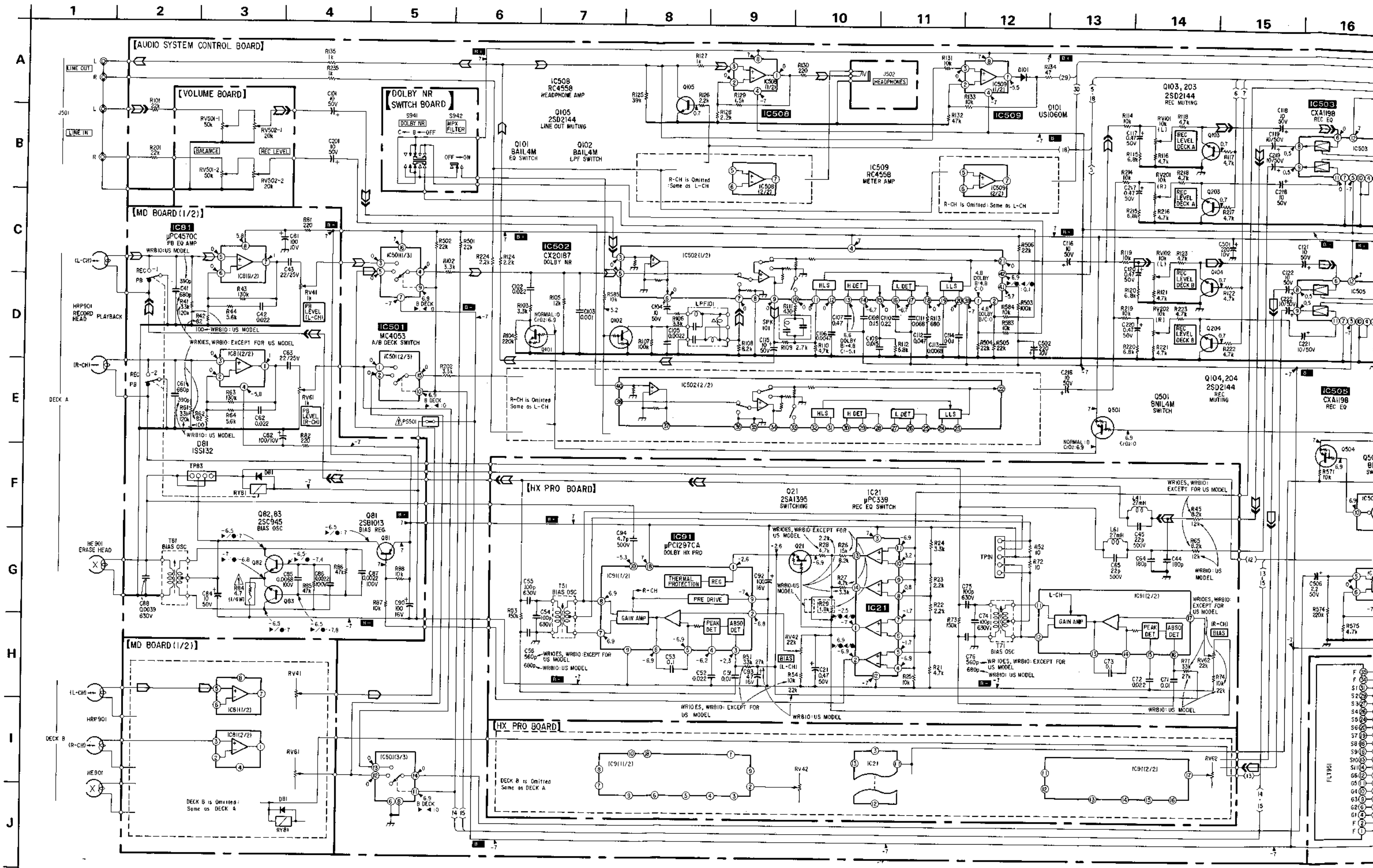
**[DUBBING BOARD]**

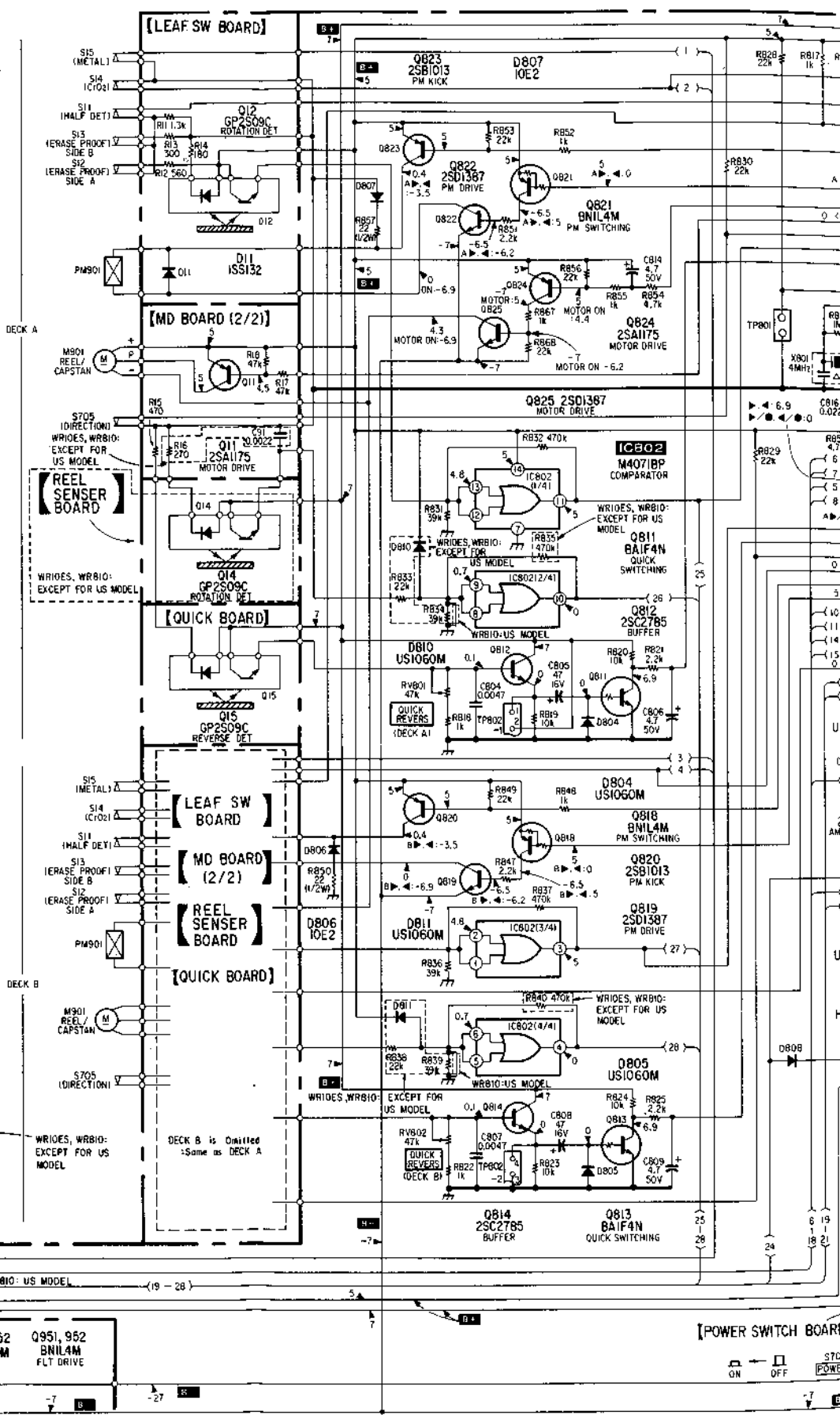
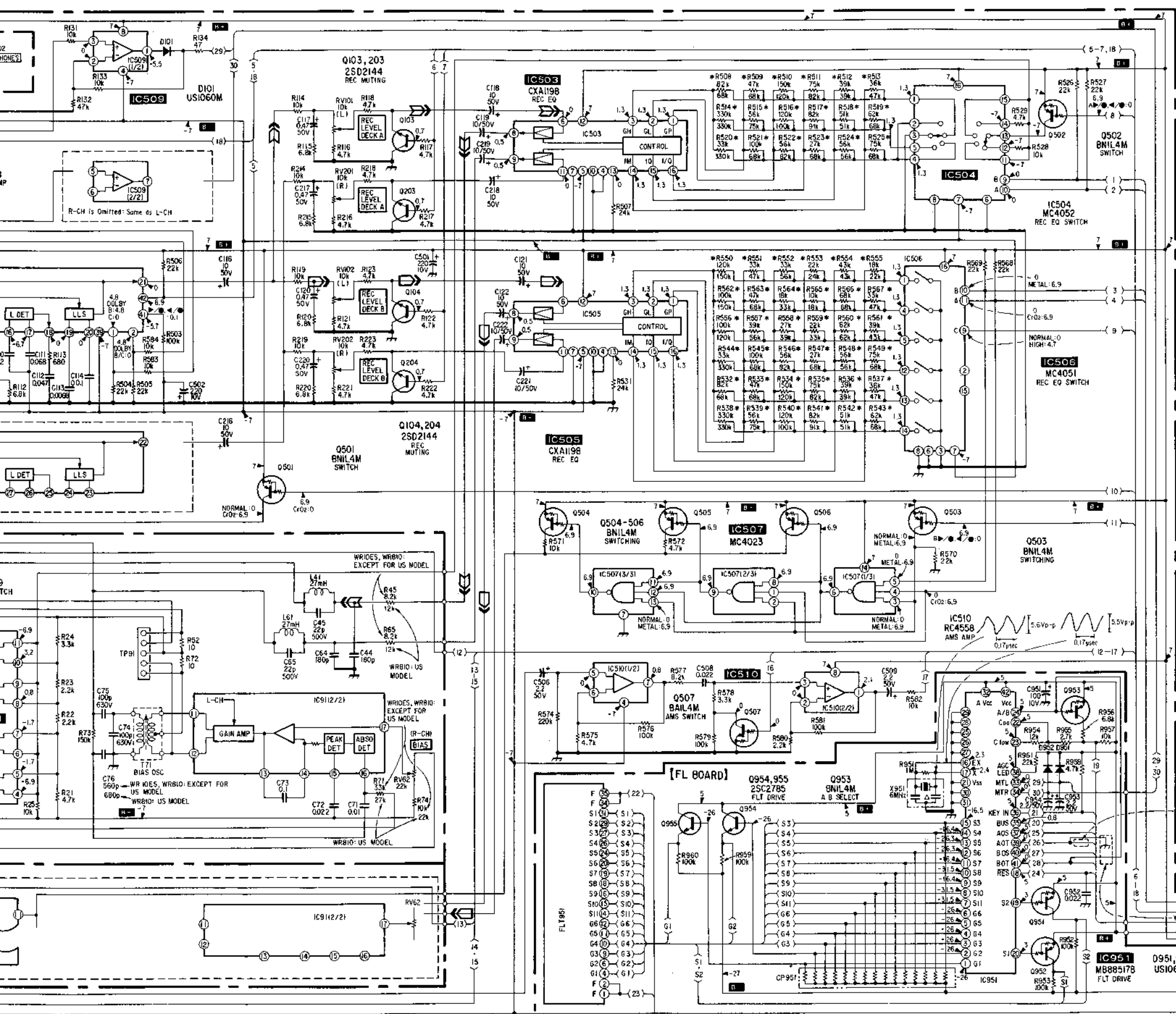


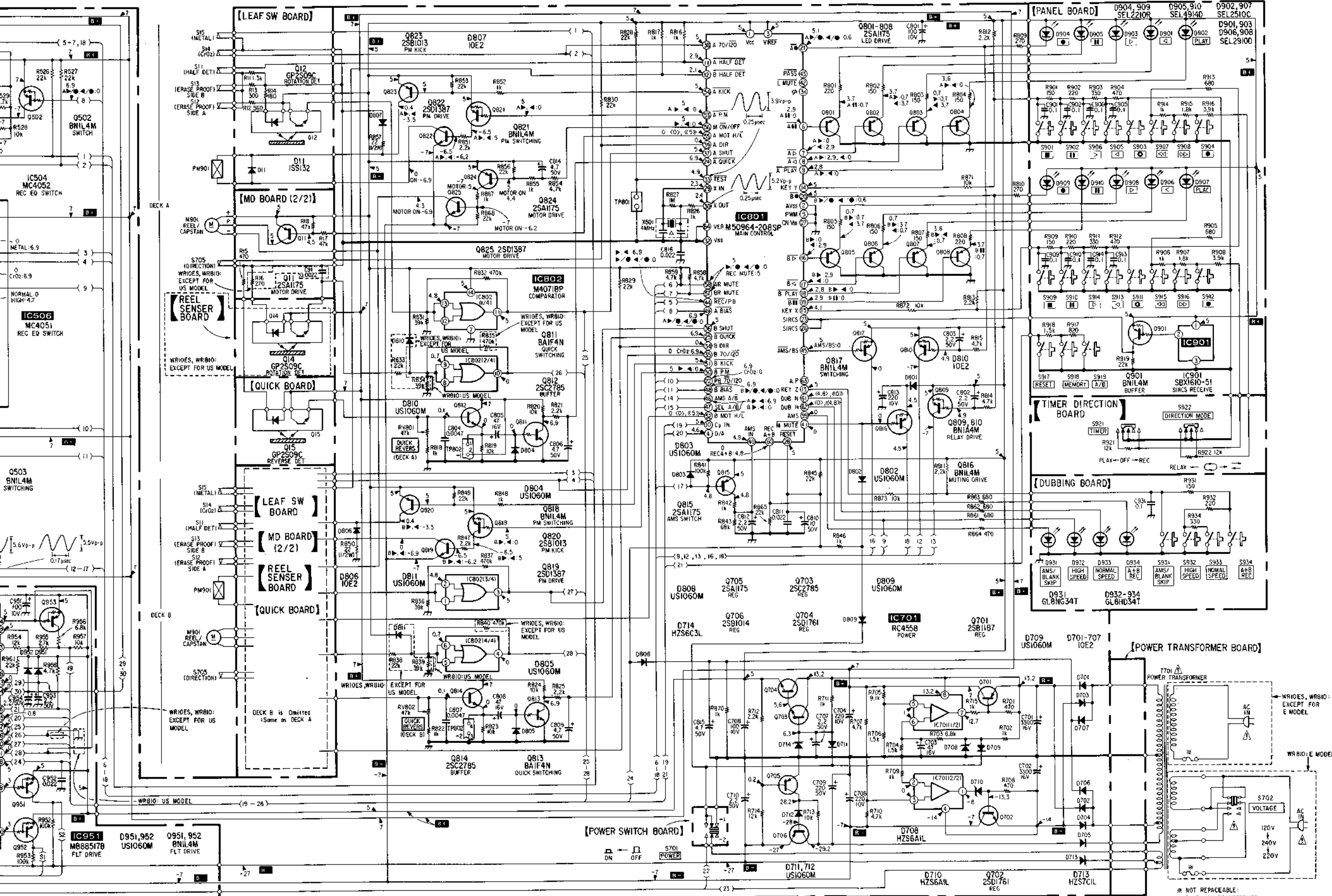
**[DOLBY NR SWITCH BOARD]**

**[FL BOARD]**

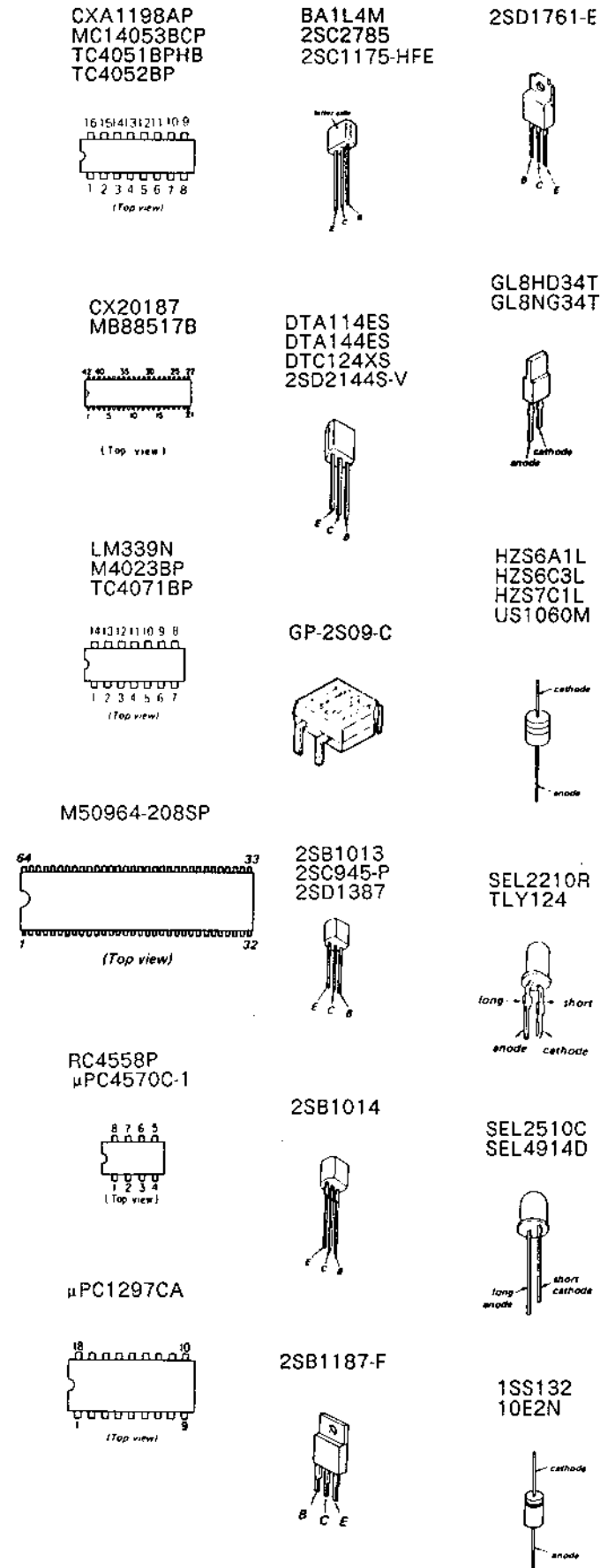




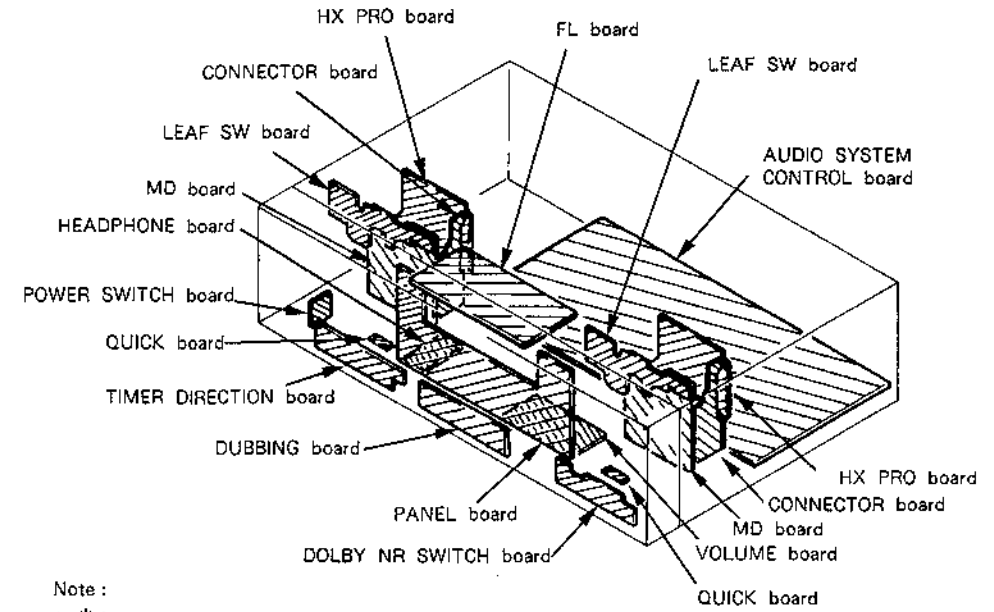




4.3. SEMICONDUCTOR LEAD LAYOUTS



4.4. CIRCUIT BOARDS LOCATION



Note:

- \* \* : R508-R525, R532-R567

82k ← UPPER COLUMN: WR10ES,  
WR810: except for US model  
68k ← LOWER COLUMN: WR810: US model

- All capacitors are in μF unless otherwise noted. pF: μμF
- 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ⊞ : fusible resistor.

<p><b>Note:</b> The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p><b>Note:</b> 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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- B+ : B+ Line
- B- : B- Line
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.  
no mark : STOP
- < > : NORMAL SPEED DUBBING  
< > : HIGH SPEED DUBBING
- ▶ : FWD ◀ : REV ■ : STOP
- ▶▶ : FF ◀◀ : REW ● : REC
- Voltages are taken with a VOM (Input impedance 10MΩ). 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.
- Signal path.  
◁ ▷ : PB (DECK A)  
◁ ▷ : REC (DECK A)  
◁ ▷ : PB (DECK B)  
◁ ▷ : REC (DECK B)

## SECTION 5 EXPLODED VIEWS

### 4-5. M50964-206SP (IC801)

No.	PIN NAME	SIGNAL	I/O	FUNCTION
1	Vcc			Power supply pin
2	AVss			Ground pin
3	VREF			Power supply pin
4	D/A	C μ OUT	O	Data output to microcomputer of counter
5	PWM			Not used
6	P63	A II	O	Output for LED (L: light on)
7	P62	A ▷	O	Output for LED (L: light on)
8	P61	A ◁	O	Output for LED (L: light on)
9	P60	A PLAY	O	Output for LED (L: light on)
10	AN7	C μ IN	I	Data input from microcomputer of counter
11	AN6	A HALF DET	I	Detect the tab for recording proof on the deck A (L: tab being H: tab removed)
12	AN5	B HALF DET	I	Detect the tab for recording proof on the deck B (L: tab being H: tab removed)
13	AN4	KEY Z	I	Input from operation switches.
14	AN3	KEY Y	I	Input from operation switches.
15	AN2	KEY X	I	Input from operation switches.
16	P41	B ▷	O	Output for LED (L: light on)
17	P40	B ◁	O	Output for LED (L: light on)
18	P37	B PLAY	O	Output for LED (L: light on)
19	P36	B II	O	Output for LED (L: light on)
20	P35	B ●	O	Output for LED (L: light on)
21	P34	A ●	O	Output for LED (L: light on)
22	P33	PB	O	Output for playback equalizer switching to 70 μS.
23	P32/INT2	SIRCS	I	SIRCS signal is input
24	P31	A QUICK	O	Output for quick reverse to deck A
25	P30	B QUICK	O	Output for quick reverse to deck B
26	INT1	SIRCS	I	SIRCS signal is input
27	CN Vss			Ground pin
28	RESET		I	Reset signal is input
29	X IN		I	4.00MHz oscillation signal is input
30	X OUT		O	4.00MHz oscillation signal is output
31	φ			Not used
32	Vss			Ground pin
33	P57	TEST	I	Input for test mode
34	P56	B DIR	I	Input from direction switch of deck B
35	P55	B 70/120	I	Input from 70/120 μS switch of deck B
36	P54	B SHUT	I	Rotation detect of reel table of deck B (the mechanism is shut off after one second from no signal change)
37	P53	A SHUT	I	Rotation detect of reel table of deck A (the mechanism is shut off after one second from no signal change)
38	P52	A 70/120	I	Input from 70/120 μS switch of deck A
39	P51	A DIR	I	Input from direction switch of deck A
40	P50	AMS IN	I	AMS signal is input
41	P17	M MUTE	O	Output for meter muting (L: muting)
42	P16	L MUTE	O	Output for line muting (not used)

No.	PIN NAME	SIGNAL	I/O	FUNCTION
43	P15	PASS	O	Output for switching pass amp (not used)
44	P14	REC/PB	O	Output to switch record/playback (L: record)
45	P13	AMS/BS	O	Output to switch characteristic of AMS/BS amp
46	P12	AMS A/B	O	Output to switch deck A or deck B of AMS/BS amp (L: deck B)
47	P11	SEL A/B	O	Output to switch deck A or deck B of AMS/BS amp (L: deck B)
48	P10	B BIAS	O	Output for switching record bias of deck B
49	P07	A BIAS	O	Output for switching record bias of deck A
50	P06	B PM	O	Output to hold the solenoid of deck B
51	P05	B KICK	O	Output to kick the solenoid of deck B
52	P04	BM H/L	O	Output to switch high speed/normal speed of capstan motor on deck B (H: high speed dubbing or FF/REW)
53	P03	A PM	O	Output to hold the solenoid of deck A
54	P02	A KICK	O	Output to kick the solenoid of deck A
55	P01	AM H/L	O	Output to switch high speed/normal speed of capstan motor on deck A (H: high speed dubbing or FF/REW)
56	P00	M ON/OFF	O	Output for ON/OFF of capstan motor (H: STOP)
57	P27	B R MUTE	O	Output to mute record signal of deck B (H: muting)
58	P26	A R MUTE	O	Output to mute record signal of deck A (H: muting)
59	P25	AMS	O	Output for LED (H: light on)
60	P24	REC A+B	O	Output for LED (H: light on)
61	P23	DUB N	O	Output for LED (H: light on)
62	P22	DUB H	O	Output for LED (H: light on)
63	P21	A.P	O	Not used
64	P20	VER	I	Terminal of Version setting (this set is L)

### TEST MODE

This set is into TEST MODE according to make L of 33 pin.

1. Source monitor  
Cancel the muting of line signal while recording.
2. High speed playback  
Keep on pressing HIGH SPEED (DUBBING) button and the set playback in high speed while recording.
3. RECORD MEMORY STOP  
In advance, set the DIRECTION MODE switch to and the set playback after going back to point of starting record by each operation .
4. LED display of slide switch  
Display the switch positions DIRECTION MODE switch and TIMER switch by LED while deck B is in II mode.

switch	position	LED
DIRECTION MODE		deck A ◁ deck A PLAY deck A ▷
TIMER	REC OFF PLAY	deck B ◁ deck B PLAY deck B ▷

5. AGC gain check  
AGC gain is maximum in recording with DIRECTION MODE switch to .

### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example: (RED) ... KNOB, BALANCE (WHITE)

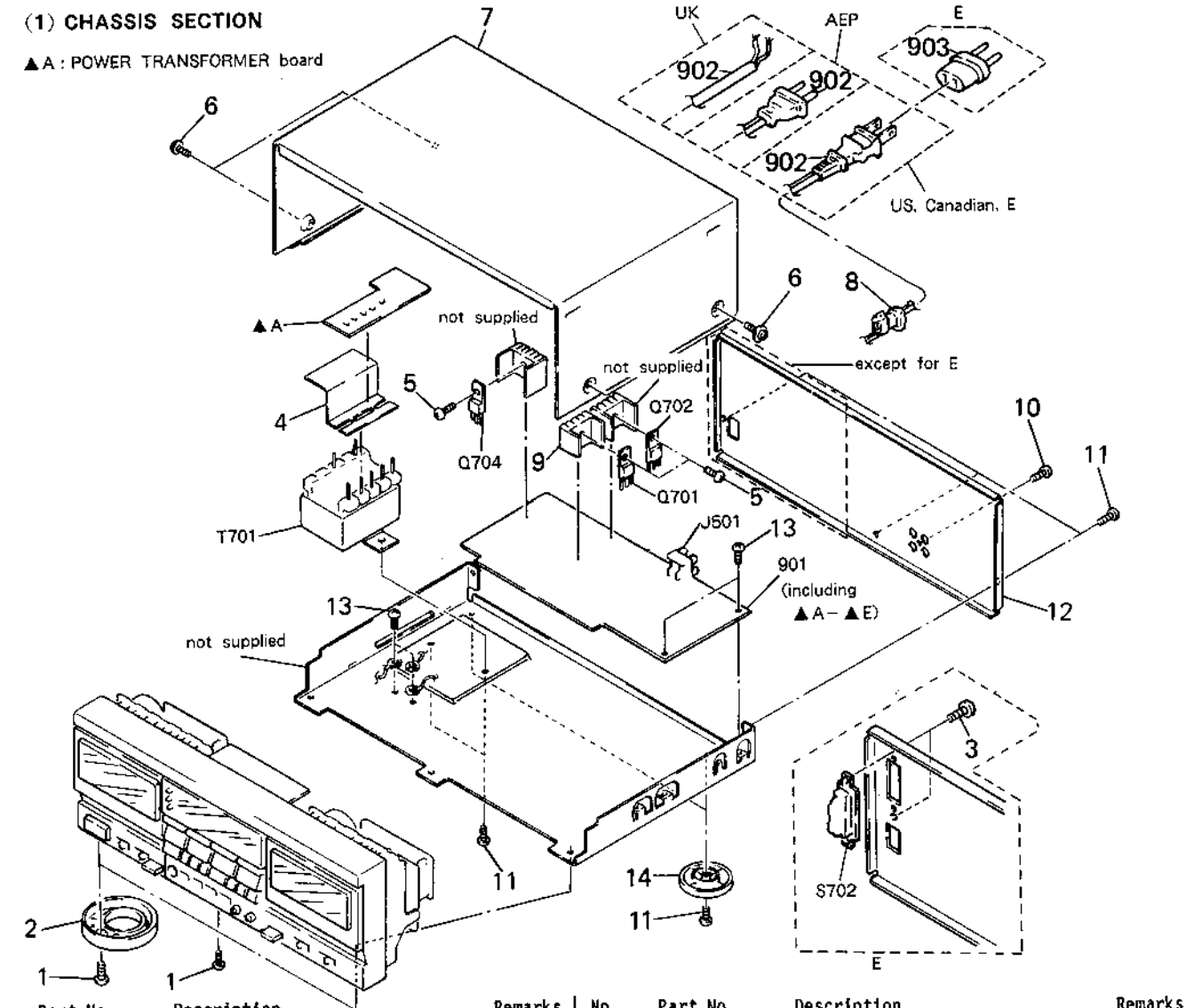
↑ Cabinet's Color      ↑ Parts' Color

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.

### (1) CHASSIS SECTION

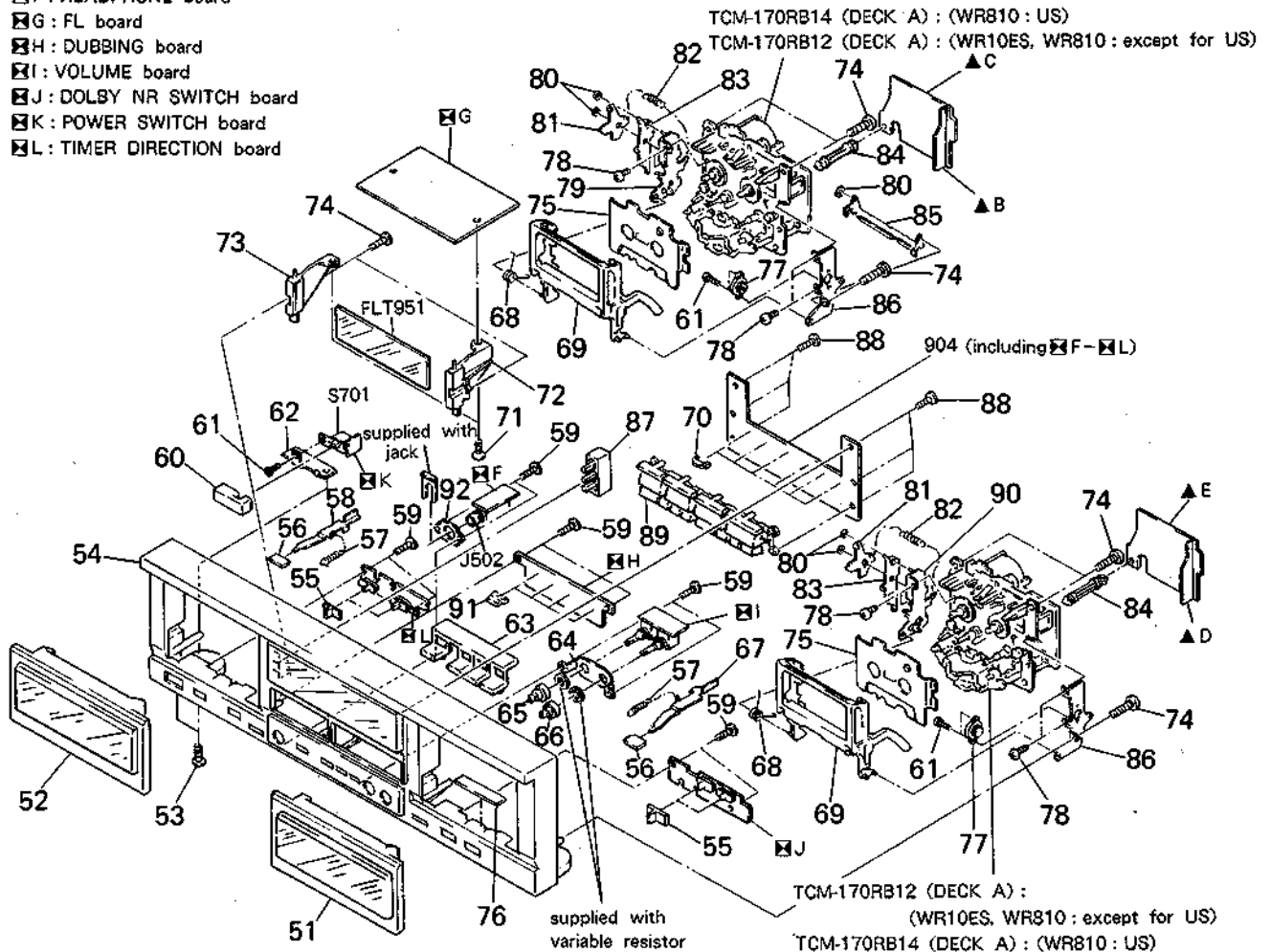
▲ A: POWER TRANSFORMER board



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	7-682-549-04	SCREW +BVTT 3X10 (S)		13	7-685-871-01	SCREW +BVTT 3X6	
2	3-332-580-01	(WR10ES,WR810:AEP,UK)...COVER (FOOT)		14	X-4885-935-1	(WR10ES,WR810:AEP,UK)...FOOT ASSY	
	3-332-580-11	(WR810:US,Canadian,E)...COVER (FOOT)			X-4911-201-1	(WR810:US,Canadian,E)...FOOT ASSY	
3	7-685-534-19	SCREW +BTP 2.6X8 TYPE 2 N-S		901	*A-2006-095-A	(WR10ES,WR810:EXCEPT FOR US)	...MOUNTED PCB, SYSTEM CONTROL
4	*3-337-136-11	COVER, TRANSFORMER SAFETY			*A-2006-110-A	(WR810:US)...MOUNTED PCB, SYSTEM CONTROL	
5	7-685-645-79	SCREW +BVTP 3X6 TYPE2		902	▲1-551-188-XX	(E)...CORD, POWER	
6	3-704-366-01	SCREW (CASE) (M3X8)			▲1-551-506-XX	(US,Canadian)...CORD, POWER	
7	3-332-578-71	CASE			▲1-555-795-00	(AEP)...CORD, POWER, EULO PLUG	
8	3-703-244-00	(AEP,UK)...BUSHING (2104), CORD			▲1-556-035-00	(UK)...CORD, POWER	
	3-703-571-00	(US,Canadian,E)		903	▲1-526-565-00	(E)...AC PLUG ADAPTOR	
		...BUSHING (S)(4516), CORD			J501	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)
9	*4-363-146-21	HEAT SINK, V.OUT		Q701	8-729-920-91	TRANSISTOR 2S81187-F	
10	7-621-849-00	SCREW, TAPPING		Q702	8-729-808-76	TRANSISTOR 2SD1761-E	
11	7-682-548-04	SCREW +BVTT 3X8 (S)		Q704	8-729-808-76	TRANSISTOR 2SD1761-E	
12	*3-349-035-21	(AEP)...PANEL, BACK		S702	▲1-570-307-11	(E)...SWITCH, VOLTAGE CHANGE (VOLTAGE)	
	*3-349-035-31	(E)...PANEL, BACK			▲1-449-460-11	(AEP,UK)...TRANSFORMER, POWER	
	*3-349-035-61	(WR10ES)...PANEL, BACK		T701	▲1-449-461-11	(E)...TRANSFORMER, POWER	
	*3-349-035-41	(WR810:US,Canadian)...PANEL, BACK		T701	▲1-449-614-11	(US,Canadian)...TRANSFORMER, POWER	
	*3-349-035-71	(UK)...PANEL, BACK					

## (2) FRONT PANEL SECTION

- ▲B: CONNECTOR board (DECK A)
- ▲C: HX PRO board (DECK A)
- ▲D: CONNECTOR board (DECK B)
- ▲E: HX PRO board (DECK B)
- ☒F: HEADPHONE board
- ☒G: FL board
- ☒H: DUBBING board
- ☒I: VOLUME board
- ☒J: DOLBY NR SWITCH board
- ☒K: POWER SWITCH board
- ☒L: TIMER DIRECTION board



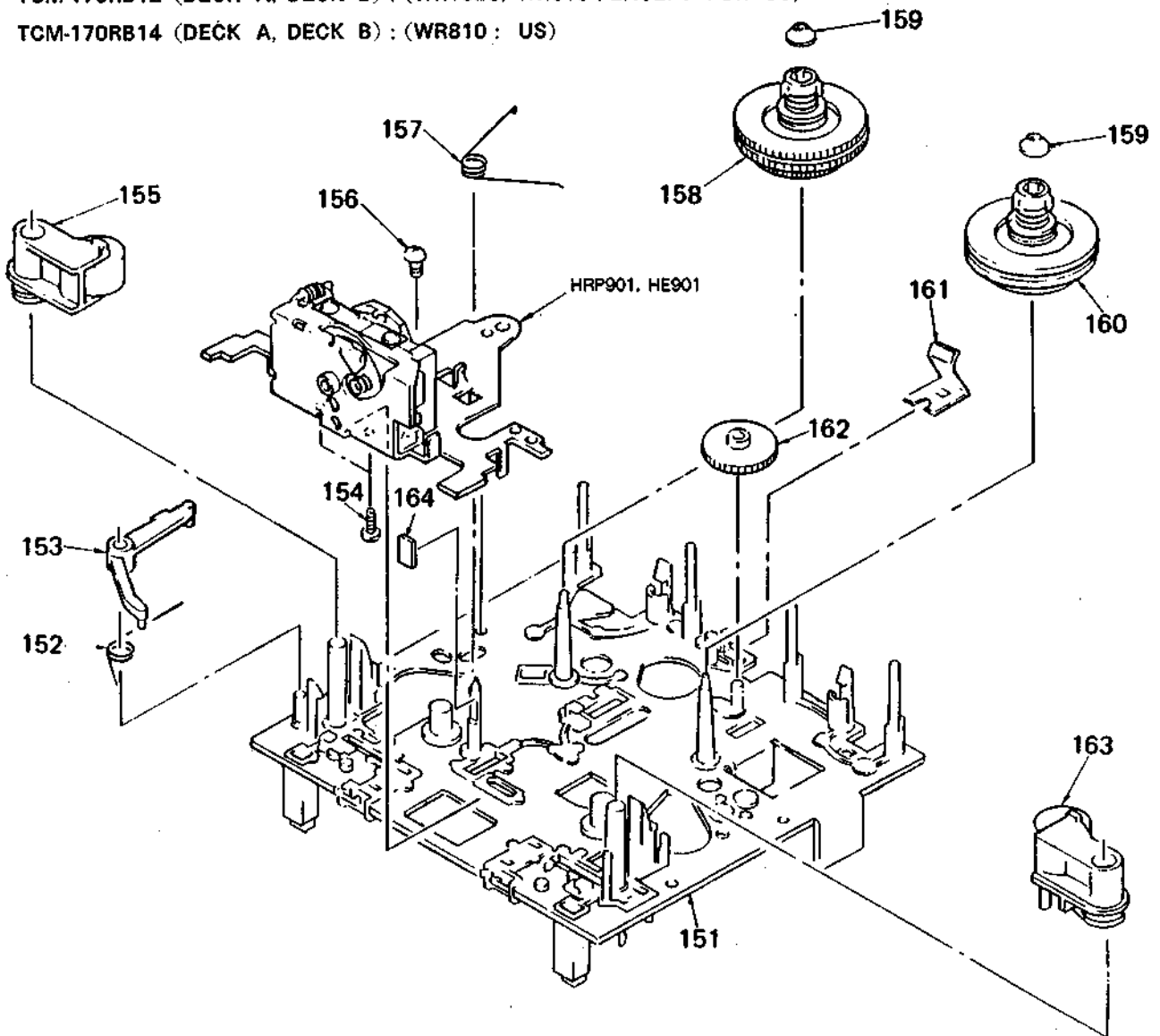
No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	X-3340-144-1	(WR10ES).....LID (B) ASSY, CASSETTE		69	X-3332-482-1	HOLDER ASSY, CASSETTE	
	X-3340-168-1	(WR810:US)....LID (B) ASSY, CASSETTE		70	*3-346-339-01	HOLDER	
	X-3340-170-1	(WR810:EXCEPT FOR US)		71	4-812-134-00	RIVET NYLON, 3.5	
		...LID (B) ASSY, CASSETTE		72	*3-343-607-01	HOLDER (RIGHT), FL TUBE	
52	X-3340-134-1	(WR810:EXCEPT FOR US)		73	*3-343-608-01	HOLDER (LEFT), FL TUBE	
		...LID (A) ASSY, CASSETTE		74	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
	X-3340-143-1	(WR10ES).....LID (A) ASSY, CASSETTE		75	*3-340-123-01	RETAINER, CASSETTE	
	X-3340-167-1	(WR810:US)....LID (A) ASSY, CASSETTE		76	3-831-441-XX	CUSHION (B), CABINET	
53	7-621-775-10	SCREW +B 2.6X4		77	3-319-224-31	DAMPER, SMALL	
54	X-3340-160-2	(WR10ES).....PANEL ASSY, FRONT		78	7-621-770-87	SCREW +BVTT 2.6X5 (S)	
	X-3340-169-1	(WR810:US).....PANEL ASSY, FRONT		79	*X-3332-486-1	BRACKET ASSY (A)	
	X-3340-171-1	(WR810:AEP,UK,E)...PANEL ASSY, FRONT		80	3-558-708-21	WASHER, STOPPER	
	X-3340-172-1	(WR810:Canadian)...PANEL ASSY, FRONT		81	*3-343-449-01	LEVER (LOCK LEVER)	
55	3-323-415-41	KNOB, SWITCH TIMER		82	3-312-432-00	SPRING, TENSION	
56	3-340-188-01	BUTTON (EJECT)		83	*3-346-306-01	LEVER (EJECT)	
57	4-885-182-11	SPRING, TENSION		84	*3-682-419-21	HOLDER, P.C.B	
58	*3-340-193-01	SLIDER (EJECT LEFT)		85	*3-346-307-01	JOINT	
59	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S		86	*3-346-305-01	BRACKET (DAMPER)	
60	3-340-168-01	BUTTON (POWER SW)		87	3-346-309-01	BUTTON (COUNTER)	
61	7-621-255-15	SCREW +P 2X3		88	7-685-135-19	SCREW +BTP 2.6X10 TYPE2 N-S	
62	*3-340-178-01	BRACKET (POWER SW)		89	X-3340-135-1	BUTTON ASSY, CONTROL	
63	*3-346-308-01	BUTTON (DUBBING)		90	*X-3332-487-1	BRACKET ASSY (B)	
64	*3-340-196-01	BRACKET (VOLUME)		91	*3-337-108-01	HOLDER, LED	
65	3-304-929-11	KNOB, HEADPHONE		92	*3-346-303-01	BRACKET (HEADPHONE)	
66	3-304-929-21	KNOB, HEADPHONE		904	*1-630-291-11	PC BOARD, PANEL	
67	*3-340-194-01	SLIDER (EJECT RIGHT)		FLT951	1-519-447-11	INDICATOR TUBE, FLUORESCENT	
68	3-346-336-01	SPRING, TORSION		J502	1-507-796-71	JACK (HEADPHONES)	
				S701	1-553-336-21	SWITCH, PUSH	



(3) MECHANISM SECTION 1

TCM-170RB12 (DECK A, DECK B) : (WR10ES, WR810 : EXCEPT FOR US)

TCM-170RB14 (DECK A, DECK B) : (WR810 : US)



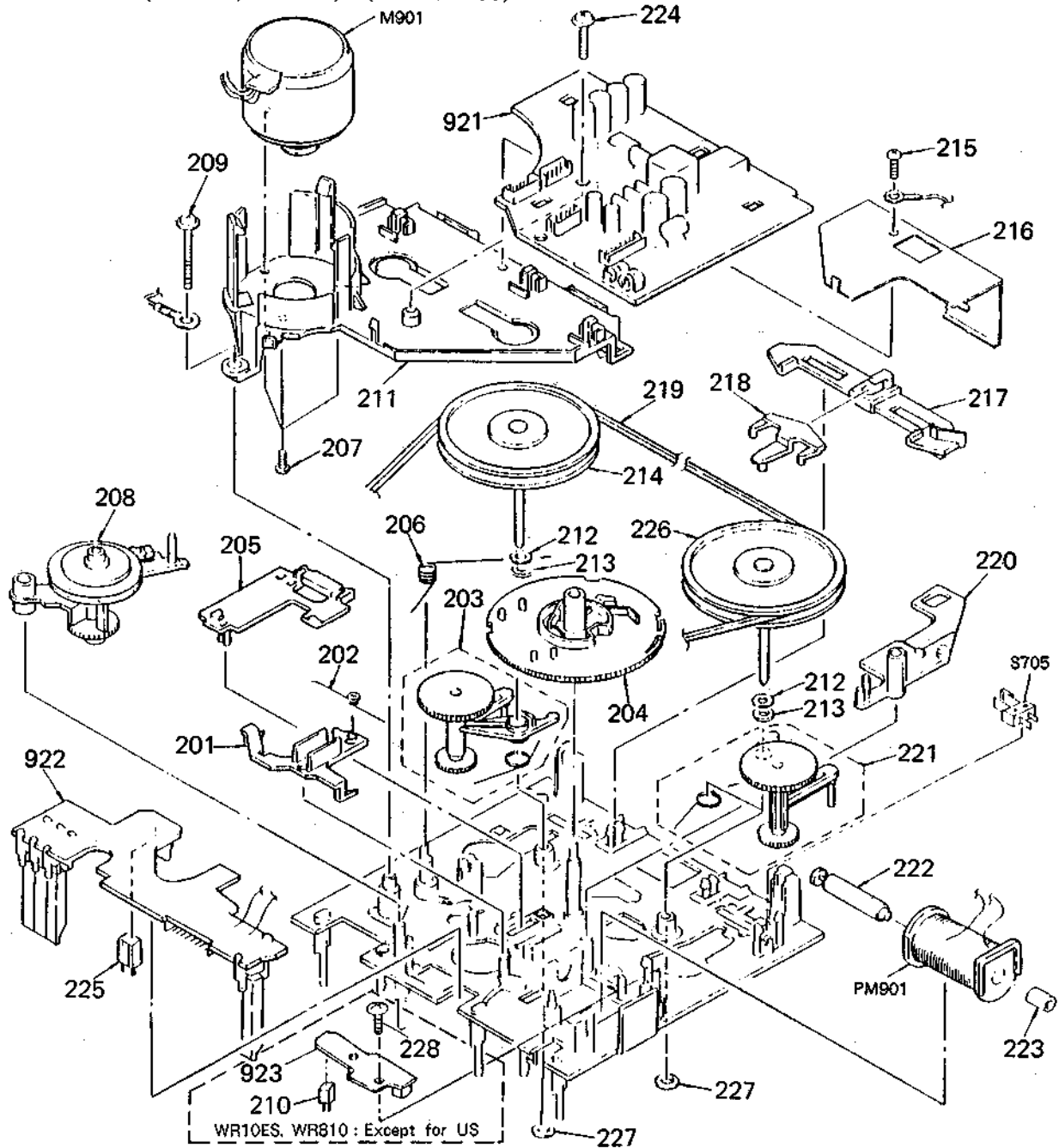
No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
151	*X-3343-418-1	CHASSIS ASSY, MECHANICAL		161	3-343-420-01	SPRING, LEAF	
152	3-343-477-01	SPRING, TORSION (EJECT SAFETY)		162	3-343-411-01	GEAR (FF GEAR)	
153	*3-343-476-01	LEVER (EJECT SAFETY LEVER)		163	X-3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
154	7-685-102-19	SCREW +P 2X4 NON-SLIT TYPE 2		164	*3-343-481-01	(WR10ES,WR810:EXCEPT FOR US) ...SHEET (REFLECTOR)	
155	X-3343-403-1	LEVER (PINCH LEVER REV) ASSY					
156	7-621-773-86	SCREW +BVTT 2.6X4 (S)		HE901	A-2108-043-C	(WR10ES,WR810:EXCEPT FOR US) ...CHASSIS ASSY, HEAD	
157	3-343-401-01	SPRING, TORSION		HRP901			
158	X-3343-415-1	TABEL (REV) ASSY, REEL		HE901	A-2108-044-C	(WR810)....CHASSIS ASSY, HEAD	
159	3-343-439-01	CAP (REEL TABLE)		HRP901			
160	X-3343-401-1	TABEL ASSY, REEL					

# TC-WR10ES/WR810

## (4) MECHANISM SECTION 2

TCM-170RB12 (DECK A, DECK B) : (WR10ES, WR810 : EXCEPT FOR US)

TCM-170RB14 (DECK A, DECK B) : (WR810 : US)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	3-343-453-01	SLIDER (BRAKE PLATE)		219	3-343-426-02	BELT (CAPSTAN BELT SQUARE)	
202	3-343-429-01	SPRING, TORSION		220	3-343-493-01	LEVER (PM LEVER)	
203	X-3343-406-1	LEVER (TU ARM REV) ASSY		221	X-3343-405-1	LEVER (TU ARM FWD) ASSY	
204	3-343-470-01	GEAR (CAM GEAR)		222	*3-343-425-01	ARBOR (MOVABLE IRON ARBOR), IRON	
205	*3-343-461-01	SLIDER		223	*3-343-424-01	ARBOR (FIXED IRON ARBOR), IRON	
206	3-343-430-01	SPRING, TORSION		224	3-343-404-01	SCREW (PTPWH 2X10)	
207	7-627-556-28	SCREW +P 2.6X3.5		225	*3-343-419-01	HOLDER (S SENSOR A)	
208	X-3343-414-1	LAVER (FR ARM) ASSY		226	X-3343-431-1	FLYWHEEL (REV) COMPLETE ASSY	
209	3-343-403-01	SCREW (PTTWH 2X18)		227	3-343-473-01	WASHER, NYLON	
210	*3-343-491-01	(WR10ES,WR810:EXCEPT FOR US) ...HOLDER (S SENSOR B)		228	7-685-103-19	(WR10ES,WR810:EXCEPT FOR US) ...SCREW + PTPWH (2X5)	
211	*X-3343-407-1	BASE (THRUST RETAINER) ASSY		921	*1-629-211-11	PC BOARD, MD (B)	
212	4-605-835-11	WASHER (2.6), POLYSLIDER		922	*1-624-148-11	PC BOARD, LEAF SW	
213	3-307-482-00	WASHER, LUMILER		923	*1-628-656-11	(WR10ES,WR810:EXCEPT FOR US) ...PC BOARD, REEL SENSOR	
214	X-3343-429-1	FLYWHEEL COMPLETE ASSY					
215	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT		M901	X-3343-408-1	MOTOR ASSY	
216	3-343-480-01	PLATE, SHIELD		PM901	1-454-456-11	SOLENOID, PLUNGER	
217	*3-343-457-01	SLIDER (REVERSE SLIDER)		S705	1-571-028-11	SWITCH, LEAF (REC SW)	
218	3-343-462-01	LEVER					

## SECTION 6 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.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**

MF:  $\mu$ F, PF:  $\mu$  $\mu$ F.

**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**

- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**

In each case, U:  $\mu$ , for example:  
 UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,  
 UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

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

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

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description			
901	*A-2006-095-A	(WR10ES,WR810:EXCEPT FOR US) ...MOUNTED PCB, SYSTEM CONTROL	C81	1-124-443-00	ELECT	100MF	20%	10V
	*A-2006-110-A	(WR810:US)...MOUNTED PCB, SYSTEM CONTROL	C82	1-124-443-00	ELECT	100MF	20%	10V
			C84	1-123-875-11	ELECT	10MF	20%	50V
902	$\Delta$ 1-551-188-XX	(E)....CORD, POWER	C85	1-130-856-00	FILM	0.0068MF	5%	100V
	$\Delta$ 1-551-506-XX	(US,Canadian)...CORD, POWER	C86	1-136-230-00	FILM	0.0022MF	5%	100V
	$\Delta$ 1-555-795-00	(AEP)...CORD, POWER, EULO PLUG	C87	1-136-230-00	FILM	0.0022MF	5%	100V
	$\Delta$ 1-556-035-00	(UK)....CORD, POWER	C88	1-136-558-11	FILM	0.0039MF	5%	630V
903	$\Delta$ 1-526-565-00	(E)....AC PLUG ADAPTOR	C90	1-126-101-11	ELECT	100MF	20%	16V
904	*1-630-291-11	PC BOARD, PANEL	C91	1-161-375-00	(WR10ES,WR810:EXCEPT FOR US) ...CERAMIC	0.0022MF	30%	16V
921	*1-629-211-11	PC BOARD, MD (B)						
922	*1-624-148-11	PC BOARD, LEAF SW	C92	1-126-101-11	ELECT	100MF	20%	16V
923	*1-628-656-11	(WR10ES,WR810:EXCEPT FOR US) ...PC BOARD, REEL SENSOR	C93	1-124-477-11	ELECT	47MF	20%	16V
			C94	1-107-046-00	MICA	4.7PF	0.5PF	500V
C21	1-124-902-00	ELECT	0.47MF	20%	50V			
C41	1-110-342-11	(WR810:US)...MYLAR	390PF	5%	50V			
C41	1-130-469-00	(WR10ES,WR810:EXCEPT FOR US) ...MYLAR	680PF	5%	50V			
C42	1-136-157-00	FILM	0.022MF	5%	50V			
C43	1-124-282-00	ELECT	22MF	20%	25V			
C44	1-162-285-31	CERAMIC	180PF	10%	50V			
C45	1-107-210-00	MICA	22PF	5%	500V			
C51	1-136-153-00	FILM	0.01MF	5%	50V			
C52	1-136-157-00	FILM	0.022MF	5%	50V			
C53	1-136-165-00	FILM	0.1MF	5%	50V			
C54	1-136-433-11	FILM	100PF	5%	630V			
C55	1-136-433-11	FILM	100PF	5%	630V			
C56	1-130-468-00	(WR10ES,WR810:EXCEPT FOR US) ...MYLAR	560PF	5%	50V			
C56	1-130-469-00	(WR810:US)...MYLAR	680PF	5%	50V			
C61	1-110-342-11	(WR810:US)...MYLAR	390PF	5%	50V			
C61	1-130-469-00	(WR10ES,WR810:EXCEPT FOR US) ...MYLAR	680PF	5%	50V			
C62	1-136-157-00	FILM	0.022MF	5%	50V			
C63	1-124-282-00	ELECT	22MF	20%	25V			
C64	1-162-285-31	CERAMIC	180PF	10%	50V			
C65	1-107-210-00	MICA	22PF	5%	500V			
C71	1-136-153-00	FILM	0.01MF	5%	50V			
C72	1-136-157-00	FILM	0.022MF	5%	50V			
C73	1-136-165-00	FILM	0.1MF	5%	50V			
C74	1-136-433-11	FILM	100PF	5%	630V			
C75	1-136-433-11	FILM	100PF	5%	630V			
C76	1-130-468-00	(WR10ES,WR810:EXCEPT FOR US) ...MYLAR	560PF	5%	50V			
C76	1-130-469-00	(WR810:US)...MYLAR	680PF	5%	50V			
			C81	1-124-443-00	ELECT	100MF	20%	10V
			C82	1-124-443-00	ELECT	100MF	20%	10V
			C84	1-123-875-11	ELECT	10MF	20%	50V
			C85	1-130-856-00	FILM	0.0068MF	5%	100V
			C86	1-136-230-00	FILM	0.0022MF	5%	100V
			C87	1-136-230-00	FILM	0.0022MF	5%	100V
			C88	1-136-558-11	FILM	0.0039MF	5%	630V
			C90	1-126-101-11	ELECT	100MF	20%	16V
			C91	1-161-375-00	(WR10ES,WR810:EXCEPT FOR US) ...CERAMIC	0.0022MF	30%	16V
			C92	1-126-101-11	ELECT	100MF	20%	16V
			C93	1-124-477-11	ELECT	47MF	20%	16V
			C94	1-107-046-00	MICA	4.7PF	0.5PF	500V
			C101	1-123-875-11	ELECT	10MF	20%	50V
			C102	1-136-157-00	FILM	0.022MF	5%	50V
			C103	1-162-294-31	CERAMIC	0.001MF	10%	50V
			C104	1-123-875-11	ELECT	10MF	20%	50V
			C105	1-161-375-00	CERAMIC	0.0022MF	30%	16V
			C106	1-130-479-00	MYLAR	0.0047MF	5%	50V
			C107	1-136-173-00	FILM	0.47MF	5%	50V
			C108	1-136-167-00	FILM	0.15MF	5%	50V
			C109	1-136-155-00	FILM	0.015MF	5%	50V
			C110	1-136-169-00	FILM	0.22MF	5%	50V
			C111	1-136-163-00	FILM	0.068MF	5%	50V
			C112	1-136-161-00	FILM	0.047MF	5%	50V
			C113	1-130-481-00	MYLAR	0.0068MF	5%	50V
			C114	1-136-153-00	FILM	0.01MF	5%	50V
			C115	1-123-875-11	ELECT	10MF	20%	50V
			C116	1-123-875-11	ELECT	10MF	20%	50V
			C117	1-124-902-00	ELECT	0.47MF	20%	50V
			C118	1-123-875-11	ELECT	10MF	20%	50V
			C119	1-123-875-11	ELECT	10MF	20%	50V
			C120	1-124-902-00	ELECT	0.47MF	20%	50V
			C121	1-123-875-11	ELECT	10MF	20%	50V
			C122	1-123-875-11	ELECT	10MF	20%	50V
			C201	1-123-875-11	ELECT	10MF	20%	50V
			C202	1-136-157-00	FILM	0.022MF	5%	50V
			C203	1-162-294-31	CERAMIC	0.001MF	10%	50V
			C204	1-123-875-11	ELECT	10MF	20%	50V
			C205	1-161-375-00	CERAMIC	0.0022MF	30%	16V
			C206	1-130-479-00	MYLAR	0.0047MF	5%	50V
			C207	1-136-173-00	FILM	0.47MF	5%	50V
			C208	1-136-167-00	FILM	0.15MF	5%	50V
			C209	1-136-155-00	FILM	0.015MF	5%	50V
			C210	1-136-169-00	FILM	0.22MF	5%	50V
			C211	1-136-163-00	FILM	0.068MF	5%	50V

TC-WR10ES/WR810

Ref.No.	Part No.	Description				
C212	1-136-161-00	FILM	0.047MF	5%	50V	
C213	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C214	1-136-153-00	FILM	0.01MF	5%	50V	
C215	1-123-875-11	ELECT	10MF	20%	50V	
C216	1-123-875-11	ELECT	10MF	20%	50V	
C217	1-124-902-00	ELECT	0.47MF	20%	50V	
C218	1-123-875-11	ELECT	10MF	20%	50V	
C219	1-123-875-11	ELECT	10MF	20%	50V	
C220	1-124-902-00	ELECT	0.47MF	20%	50V	
C221	1-123-875-11	ELECT	10MF	20%	50V	
C222	1-123-875-11	ELECT	10MF	20%	50V	
C501	1-126-176-11	ELECT	220MF	20%	10V	
C502	1-126-176-11	ELECT	220MF	20%	10V	
C506	1-124-925-11	ELECT	2.2MF	20%	50V	
C508	1-161-494-00	CERAMIC	0.022MF		25V	
C509	1-124-925-11	ELECT	2.2MF	20%	50V	
C701	1-124-887-00	ELECT	3300MF	20%	16V	
C702	1-124-887-00	ELECT	3300MF	20%	16V	
C703	1-124-477-11	ELECT	47MF	20%	16V	
C704	1-126-176-11	ELECT	220MF	20%	10V	
C706	1-126-176-11	ELECT	220MF	20%	10V	
C707	1-124-925-11	ELECT	2.2MF	20%	50V	
C708	1-124-443-00	ELECT	100MF	20%	10V	
C709	1-124-911-11	ELECT	220MF	20%	50V	
C710	1-124-925-11	ELECT	2.2MF	20%	50V	
C801	1-124-443-00	ELECT	100MF	20%	10V	
C802	1-124-925-11	ELECT	2.2MF	20%	50V	
C803	1-124-925-11	ELECT	2.2MF	20%	50V	
C804	1-161-377-00	CERAMIC	0.0047MF	30%	16V	
C805	1-124-477-11	ELECT	47MF	20%	16V	
C806	1-124-927-11	ELECT	4.7MF	20%	50V	
C807	1-161-377-00	CERAMIC	0.0047MF	30%	16V	
C808	1-124-477-11	ELECT	47MF	20%	16V	
C809	1-124-927-11	ELECT	4.7MF	20%	50V	
C810	1-123-875-11	ELECT	10MF	20%	50V	
C811	1-161-494-00	CERAMIC	0.022MF		25V	
C812	1-124-925-11	ELECT	2.2MF	20%	50V	
C813	1-126-176-11	ELECT	220MF	20%	10V	
C814	1-124-927-11	ELECT	4.7MF	20%	50V	
C815	1-124-927-11	ELECT	4.7MF	20%	50V	
C816	1-161-494-00	CERAMIC	0.022MF		25V	
C901	1-164-159-11	CERAMIC	0.1MF		50V	
C902	1-164-159-11	CERAMIC	0.1MF		50V	
C905	1-164-159-11	CERAMIC	0.1MF		50V	
C906	1-164-159-11	CERAMIC	0.1MF		50V	
C909	1-164-159-11	CERAMIC	0.1MF		50V	
C910	1-164-159-11	CERAMIC	0.1MF		50V	
C913	1-164-159-11	CERAMIC	0.1MF		50V	
C914	1-164-159-11	CERAMIC	0.1MF		50V	
C931	1-164-159-11	CERAMIC	0.1MF		50V	
C951	1-124-443-00	ELECT	100MF	20%	10V	
C952	1-161-494-00	CERAMIC	0.022MF		25V	
C953	1-124-925-11	ELECT	2.2MF	20%	50V	
C954	1-124-925-11	ELECT	2.2MF	20%	50V	
CNP11	*1-506-615-11	PIN, CONNECTOR 9P				
CNP12	*1-564-341-11	(WR10ES,WR810:EXCEPT FOR US) ...PIN, CONNECTOR 7P				
CNP12	*1-564-340-00	(WR810:US)...PIN, CONNECTOR 6P				
CNP13	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P				
CNP14	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P				
CNP15	*1-564-506-11	PLUG, CONNECTOR 3P				
CNP16	*1-564-337-00	(WR10ES,WR810:EXCEPT FOR US)...PIN, CONNECTOR 3P				
CNP18	*1-564-496-11	(WR10ES,WR810:EXCEPT FOR US)...PIN, CONNECTOR 3P				

Ref.No.	Part No.	Description
CNP21	*1-565-344-11	PIN, CONNECTOR (PC BOARD) 8P
CNP22	*1-565-347-11	SOCKET, CONNECTOR (PC BOARD) 8P
CNP81	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P
CNP82	*1-564-339-00	PIN, CONNECTOR 5P
CNP83	*1-564-338-00	PIN, CONNECTOR 4P
CNP811	*1-564-666-11	PIN, CONNECTOR 10P
CNP812	*1-564-340-00	PIN, CONNECTOR 6P
CNP814	*1-564-340-61	PIN, CONNECTOR 6P
CNP815	*1-564-338-00	PIN, CONNECTOR 4P
CNP816	*1-564-340-71	PIN, CONNECTOR 6P
CNP817	*1-506-503-71	PIN, CONNECTOR 9P
CNP818	*1-564-338-61	PIN, CONNECTOR 4P
CNP819	*1-564-337-00	PIN, CONNECTOR 3P
CNP820	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P
CP951	1-233-167-11	COMPOSITION CIRCUIT BLOCK
D11	8-719-107-94	DIODE 1SS132
D81	8-719-107-94	DIODE 1SS132
D101	8-719-000-26	DIODE US1060M
D201	8-719-000-26	DIODE US1060M
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	8-719-000-26	DIODE US1060M
D710	8-719-933-33	DIODE HZS6A1L
D711	8-719-000-26	DIODE US1060M
D712	8-719-000-26	DIODE US1060M
D713	8-719-933-49	DIODE HZS7C1L
D714	8-719-933-41	DIODE HZS6C3L
D801	8-719-200-77	DIODE 10E2N
D802	8-719-000-26	DIODE US1060M
D803	8-719-000-26	DIODE US1060M
D804	8-719-000-26	DIODE US1060M
D805	8-719-000-26	DIODE US1060M
D806	8-719-200-77	DIODE 10E2N
D807	8-719-200-77	DIODE 10E2N
D808	8-719-000-26	DIODE US1060M
D809	8-719-000-26	DIODE US1060M
D810	8-719-000-26	(WR10ES,WR810:EXCEPT FOR US) ....DIODE US1060M
D811	8-719-000-26	(WR10ES,WR810:EXCEPT FOR US) ....DIODE US1060M
D901	8-719-812-42	DIODE TLY124
D902	8-719-303-00	DIODE SEL2510C
D903	8-719-812-42	DIODE TLY124
D904	8-719-300-71	DIODE SEL2210R
D905	8-719-303-84	DIODE SEL4914D
D906	8-719-812-42	DIODE TLY124
D907	8-719-303-00	DIODE SEL2510C
D908	8-719-812-42	DIODE TLY124
D909	8-719-300-71	DIODE SEL2210R
D910	8-719-303-84	DIODE SEL4914D
D931	8-719-948-81	DIODE GL8NG34T
D932	8-719-948-79	DIODE GL8HD34T
D933	8-719-948-79	DIODE GL8HD34T
D934	8-719-948-79	DIODE GL8NG34T
D951	8-719-000-26	DIODE US1060M
D952	8-719-000-26	DIODE US1060M

Ref.No.	Part No.	Description
FLT951	1-519-447-11	INDICATOR TUBE, FLUORESCENT
HE901	A-2108-043-C	(WR10ES,WR810:EXCEPT FOR US) ...CHASSIS ASSY, HEAD
HRP901		
HE901	A-2108-044-C	(WR810)....CHASSIS ASSY, HEAD
HRP901		
IC21	8-759-984-03	IC LM339N
IC81	8-759-111-44	IC UPC4570C-1
IC91	8-759-106-56	IC UPC1297CA
IC501	8-759-040-53	IC MC14053BCP
IC502	8-752-018-70	IC CX20187
IC503	8-752-033-61	IC CXA1198AP
IC504	8-759-240-52	IC TC40528P
IC505	8-752-033-61	IC CXA1198AP
IC506	8-759-208-06	IC TC4051BPHB
IC507	8-759-601-23	IC M4023BP
IC508	8-759-945-58	IC RC4558P
IC509	8-759-945-58	IC RC4558P
IC510	8-759-945-58	IC RC4558P
IC701	8-759-945-58	IC RC4558P
IC801	8-759-633-23	IC M50964-208SP
IC802	8-759-240-71	IC TC4071BP
IC901	8-741-161-00	IC SBX1610-51
IC951	8-759-983-68	IC M888517B-1023N
J501	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)
J502	1-507-796-71	JACK (HEADPHONES)
L41	1-410-780-11	INDUCTOR 27MMH
L61	1-410-780-11	INDUCTOR 27MMH
LPF101	1-236-475-11	FILTER, LOW PASS
LPF201	1-236-475-11	FILTER, LOW PASS
M901	X-3343-408-1	MOTOR ASSY
PM901	1-454-456-11	SOLENOID, PLUNGER
PS501	1-532-685-00	LINK, IC(0.8A)
Q11	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q12	8-719-939-23	TRANSISTOR GP2S09-C
Q14	8-719-939-23	(WR10ES,WR810:EXCEPT FOR US) ...TRANSISTOR GP2S09-C
Q15	8-719-939-23	TRANSISTOR GP2S09-C
Q21	8-729-900-65	TRANSISTOR DTA144ES
Q81	8-729-116-57	TRANSISTOR 2SB1013
Q82	8-729-194-57	TRANSISTOR 2SC945-P
Q83	8-729-194-57	TRANSISTOR 2SC945-P
Q101	8-729-115-77	TRANSISTOR BAIL4M
Q102	8-729-115-77	TRANSISTOR BAIL4M
Q103	8-729-922-37	TRANSISTOR 2SD2144S
Q104	8-729-922-37	TRANSISTOR 2SD2144S
Q105	8-729-922-37	TRANSISTOR 2SD2144S
Q201	8-729-115-77	TRANSISTOR BAIL4M
Q202	8-729-115-77	TRANSISTOR BAIL4M
Q203	8-729-922-37	TRANSISTOR 2SD2144S
Q204	8-729-922-37	TRANSISTOR 2SD2144S
Q205	8-729-922-37	TRANSISTOR 2SD2144S
Q501	8-729-900-65	TRANSISTOR DTA144ES
Q502	8-729-900-65	TRANSISTOR DTA144ES
Q503	8-729-900-65	TRANSISTOR DTA144ES
Q504	8-729-900-65	TRANSISTOR DTA144ES

Ref.No.	Part No.	Description
Q505	8-729-900-65	TRANSISTOR DTA144ES
Q506	8-729-900-65	TRANSISTOR DTA144ES
Q507	8-729-115-77	TRANSISTOR BAIL4M
Q701	8-729-920-91	TRANSISTOR 2SB1187-F
Q702	8-729-808-76	TRANSISTOR 2SD1761-E
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q704	8-729-808-76	TRANSISTOR 2SD1761-E
Q705	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q706	8-729-802-22	TRANSISTOR 2SB1014
Q801	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q802	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q803	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q804	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q805	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q806	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q807	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q808	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q809	8-729-900-61	TRANSISTOR DTA114ES
Q810	8-729-900-61	TRANSISTOR DTA114ES
Q811	8-729-900-83	TRANSISTOR DTC124XS
Q812	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q813	8-729-900-83	TRANSISTOR DTC124XS
Q814	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q815	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q816	8-729-900-65	TRANSISTOR DTA144ES
Q817	8-729-900-65	TRANSISTOR DTA144ES
Q818	8-729-900-65	TRANSISTOR DTA144ES
Q819	8-729-801-93	TRANSISTOR 2SD1387
Q820	8-729-116-57	TRANSISTOR 2SB1013
Q821	8-729-900-65	TRANSISTOR DTA144ES
Q822	8-729-801-93	TRANSISTOR 2SD1387
Q823	8-729-116-57	TRANSISTOR 2SB1013
Q824	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q825	8-729-801-93	TRANSISTOR 2SD1387
Q901	8-729-900-65	TRANSISTOR DTA144ES
Q951	8-729-900-65	TRANSISTOR DTA144ES
Q952	8-729-900-65	TRANSISTOR DTA144ES
Q953	8-729-900-65	TRANSISTOR DTA144ES
Q954	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q955	8-729-119-78	TRANSISTOR 2SC2785-HFE
R11	1-247-834-11	CARBON 1.3K 5% 1/4W
R12	1-249-414-11	CARBON 560 5% 1/4W
R13	1-247-818-11	CARBON 300 5% 1/4W
R14	1-249-408-11	CARBON 180 5% 1/4W
R15	1-249-413-11	CARBON 470 5% 1/4W
R16	1-249-410-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON 270 5% 1/4W
R17	1-249-437-11	CARBON 47K 5% 1/4W
R18	1-249-437-11	CARBON 47K 5% 1/4W
R21	1-249-425-11	CARBON 4.7K 5% 1/4W
R22	1-249-421-11	CARBON 2.2K 5% 1/4W
R23	1-249-421-11	CARBON 2.2K 5% 1/4W
R24	1-249-423-11	CARBON 3.3K 5% 1/4W
R25	1-249-429-11	CARBON 10K 5% 1/4W
R26	1-249-428-11	(WR810:US)....CARBON 8.2K 5% 1/4W
R26	1-249-431-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON 15K 5% 1/4W

# TC-WR10ES/WR810

Ref.No.	Part No.	Description				
R27	1-249-423-11	(WR810:US)....CARBON	3.3K	5%	1/4W	
R27	1-249-425-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	4.7K	5%	1/4W	
R28	1-249-421-11	(WR810:US)....CARBON	2.2K	5%	1/4W	
R28	1-249-425-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	4.7K	5%	1/4W	
R29	1-249-420-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	1.8K	5%	1/4W	
R41	1-247-881-00	(WR810:US)....CARBON	120K	5%	1/4W	
R41	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	33K	5%	1/4W	
R42	1-249-404-00	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	82	5%	1/4W	
R42	1-249-405-11	(WR810:US)....CARBON	100	5%	1/4W	
R43	1-247-882-11	CARBON	130K	5%	1/4W	
R44	1-249-426-11	CARBON	5.6K	5%	1/4W	
R45	1-249-428-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	8.2K	5%	1/4W	
R45	1-249-430-11	(WR810:US)....CARBON	12K	5%	1/4W	
R51	1-249-434-11	(WR810:US)....CARBON	27K	5%	1/4W	
R51	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	33K	5%	1/4W	
R52	1-249-393-11	CARBON	10	5%	1/4W	
R53	1-247-883-00	CARBON	150K	5%	1/4W	
R54	1-249-429-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	10K	5%	1/4W	
R54	1-249-433-11	(WR810:US)....CARBON	22K	5%	1/4W	
R61	1-247-881-00	(WR810:US)....CARBON	120K	5%	1/4W	
R61	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	33K	5%	1/4W	
R62	1-249-404-00	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	82	5%	1/4W	
R62	1-249-405-11	(WR810:US)....CARBON	100	5%	1/4W	
R63	1-247-882-11	CARBON	130K	5%	1/4W	
R64	1-249-426-11	CARBON	5.6K	5%	1/4W	
R65	1-249-428-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	8.2K	5%	1/4W	
R65	1-249-430-11	(WR810:US)....CARBON	12K	5%	1/4W	
R71	1-249-434-11	(WR810:US)....CARBON	27K	5%	1/4W	
R71	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	33K	5%	1/4W	
R72	1-249-393-11	CARBON	10	5%	1/4W	
R73	1-247-883-00	CARBON	150K	5%	1/4W	
R74	1-249-433-11	(WR810:US)....CARBON	22K	5%	1/4W	
R74	1-249-429-11	(WR10ES,WR810:EXCEPT FOR US)				
		...CARBON	10K	5%	1/4W	
R81	1-249-409-11	CARBON	220	5%	1/4W	
R82	1-249-409-11	CARBON	220	5%	1/4W	
R84	△ 1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R85	1-249-437-11	CARBON	47K	5%	1/4W	
R86	1-249-437-11	CARBON	47K	5%	1/4W	
R87	1-249-429-11	CARBON	10K	5%	1/4W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R101	1-249-433-11	CARBON	22K	5%	1/4W	
R102	1-249-423-11	CARBON	3.3K	5%	1/4W	

Ref.No.	Part No.	Description				
R103	1-249-423-11	CARBON	3.3K	5%	1/4W	
R104	1-247-887-00	CARBON	220K	5%	1/4W	
R105	1-249-430-11	CARBON	12K	5%	1/4W	
R106	1-249-423-11	CARBON	3.3K	5%	1/4W	
R107	1-249-441-11	CARBON	100K	5%	1/4W	
R108	1-249-428-11	CARBON	8.2K	5%	1/4W	
R109	1-249-422-11	CARBON	2.7K	5%	1/4W	
R110	1-249-425-11	CARBON	4.7K	5%	1/4W	
R111	1-247-822-11	CARBON	430	5%	1/4W	
R112	1-249-427-11	CARBON	6.8K	5%	1/4W	
R113	1-249-415-11	CARBON	680	5%	1/4W	
R114	1-249-429-11	CARBON	10K	5%	1/4W	
R115	1-249-427-11	CARBON	6.8K	5%	1/4W	
R116	1-249-425-11	CARBON	4.7K	5%	1/4W	
R117	1-249-425-11	CARBON	4.7K	5%	1/4W	
R118	1-249-425-11	CARBON	4.7K	5%	1/4W	
R119	1-249-429-11	CARBON	10K	5%	1/4W	
R120	1-249-427-11	CARBON	6.8K	5%	1/4W	
R121	1-249-425-11	CARBON	4.7K	5%	1/4W	
R122	1-249-425-11	CARBON	4.7K	5%	1/4W	
R123	1-249-425-11	CARBON	4.7K	5%	1/4W	
R124	1-249-421-11	CARBON	2.2K	5%	1/4W	
R125	1-249-436-11	CARBON	39K	5%	1/4W	
R126	1-249-421-11	CARBON	2.2K	5%	1/4W	
R127	1-249-417-11	CARBON	1K	5%	1/4W	
R128	1-249-421-11	CARBON	2.2K	5%	1/4W	
R129	1-249-419-11	CARBON	1.5K	5%	1/4W	
R130	1-249-409-11	CARBON	220	5%	1/4W	
R131	1-249-429-11	CARBON	10K	5%	1/4W	
R132	1-249-437-11	CARBON	47K	5%	1/4W	
R133	1-249-429-11	CARBON	10K	5%	1/4W	
R134	1-249-401-11	CARBON	47	5%	1/4W	
R135	1-249-417-11	CARBON	1K	5%	1/4W	
R201	1-249-433-11	CARBON	22K	5%	1/4W	
R202	1-249-423-11	CARBON	3.3K	5%	1/4W	
R203	1-249-423-11	CARBON	3.3K	5%	1/4W	
R204	1-247-887-00	CARBON	220K	5%	1/4W	
R205	1-249-430-11	CARBON	12K	5%	1/4W	
R206	1-249-423-11	CARBON	3.3K	5%	1/4W	
R207	1-249-441-11	CARBON	100K	5%	1/4W	
R208	1-249-428-11	CARBON	8.2K	5%	1/4W	
R209	1-249-422-11	CARBON	2.7K	5%	1/4W	
R210	1-249-425-11	CARBON	4.7K	5%	1/4W	
R211	1-247-822-11	CARBON	430	5%	1/4W	
R212	1-249-427-11	CARBON	6.8K	5%	1/4W	
R213	1-249-415-11	CARBON	680	5%	1/4W	
R214	1-249-429-11	CARBON	10K	5%	1/4W	
R215	1-249-427-11	CARBON	6.8K	5%	1/4W	
R216	1-249-425-11	CARBON	4.7K	5%	1/4W	
R217	1-249-425-11	CARBON	4.7K	5%	1/4W	
R218	1-249-425-11	CARBON	4.7K	5%	1/4W	
R219	1-249-429-11	CARBON	10K	5%	1/4W	
R220	1-249-427-11	CARBON	6.8K	5%	1/4W	
R221	1-249-425-11	CARBON	4.7K	5%	1/4W	
R222	1-249-425-11	CARBON	4.7K	5%	1/4W	
R223	1-249-425-11	CARBON	4.7K	5%	1/4W	
R224	1-249-421-11	CARBON	2.2K	5%	1/4W	

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

**Note:**  
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				
R225	1-249-436-11	CARBON	39K	5%	1/4W	
R226	1-249-421-11	CARBON	2.2K	5%	1/4W	
R227	1-249-417-11	CARBON	1K	5%	1/4W	
R228	1-249-421-11	CARBON	2.2K	5%	1/4W	
R229	1-249-419-11	CARBON	1.5K	5%	1/4W	
R230	1-249-409-11	CARBON	220	5%	1/4W	
R231	1-249-429-11	CARBON	10K	5%	1/4W	
R232	1-249-437-11	CARBON	47K	5%	1/4W	
R233	1-249-429-11	CARBON	10K	5%	1/4W	
R234	1-249-401-11	CARBON	47	5%	1/4W	
R235	1-249-417-11	CARBON	1K	5%	1/4W	
R501	1-249-433-11	CARBON	22K	5%	1/4W	
R502	1-249-433-11	CARBON	22K	5%	1/4W	
R503	1-215-469-00	METAL	100K	1%	1/6W	
R504	1-249-433-11	CARBON	22K	5%	1/4W	
R505	1-249-433-11	CARBON	22K	5%	1/4W	
R506	1-249-433-11	CARBON	22K	5%	1/4W	
R507	1-247-864-11	CARBON	24K	5%	1/4W	
R508	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R508	1-249-440-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	82K	5%	1/4W	
R509	1-249-437-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	47K	5%	1/4W	
R509	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R510	1-247-881-00	(WR810:US)....CARBON	120K	5%	1/4W	
R510	1-247-883-00	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	150K	5%	1/4W	
R511	1-247-876-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	75K	5%	1/4W	
R511	1-249-440-11	(WR810:US)....CARBON	82K	5%	1/4W	
R512	1-249-436-11	CARBON	39K	5%	1/4W	
R513	1-247-868-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	36K	5%	1/4W	
R513	1-249-437-11	(WR810:US)....CARBON	47K	5%	1/4W	
R514	1-247-891-00	CARBON	330K	5%	1/4W	
R515	1-247-876-11	(WR810:US)....CARBON	75K	5%	1/4W	
R515	1-249-438-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	56K	5%	1/4W	
R516	1-247-881-00	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	120K	5%	1/4W	
R516	1-249-441-11	(WR810:US)....CARBON	100K	5%	1/4W	
R517	1-247-878-00	(WR810:US)....CARBON	91K	5%	1/4W	
R517	1-249-440-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	82K	5%	1/4W	
R518	1-247-872-11	CARBON	51K	5%	1/4W	
R519	1-247-874-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	62K	5%	1/4W	
R519	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R520	1-247-891-00	(WR810:US)....CARBON	330K	5%	1/4W	
R520	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	33K	5%	1/4W	
R521	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R521	1-249-441-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	100K	5%	1/4W	
R522	1-249-440-11	(WR810:US)....CARBON	82K	5%	1/4W	
R522	1-249-438-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	56K	5%	1/4W	

Ref.No.	Part No.	Description				
R523	1-249-434-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	27K	5%	1/4W	
R523	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R524	1-249-438-11	CARBON	56K	5%	1/4W	
R525	1-247-876-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	75K	5%	1/4W	
R525	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R526	1-249-433-11	CARBON	22K	5%	1/4W	
R527	1-249-433-11	CARBON	22K	5%	1/4W	
R528	1-249-429-11	CARBON	10K	5%	1/4W	
R529	1-249-425-11	CARBON	4.7K	5%	1/4W	
R531	1-247-864-11	CARBON	24K	5%	1/4W	
R532	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R532	1-249-440-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	82K	5%	1/4W	
R533	1-249-437-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	47K	5%	1/4W	
R533	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R534	1-247-881-00	(WR810:US)....CARBON	120K	5%	1/4W	
R534	1-247-883-00	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	150K	5%	1/4W	
R535	1-247-876-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	75K	5%	1/4W	
R535	1-249-440-11	(WR810:US)....CARBON	82K	5%	1/4W	
R536	1-249-436-11	CARBON	39K	5%	1/4W	
R537	1-247-868-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	36K	5%	1/4W	
R537	1-249-437-11	(WR810:US)....CARBON	47K	5%	1/4W	
R538	1-247-891-00	CARBON	330K	5%	1/4W	
R539	1-247-876-11	(WR810:US)....CARBON	75K	5%	1/4W	
R539	1-249-438-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	56K	5%	1/4W	
R540	1-247-881-00	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	120K	5%	1/4W	
R540	1-249-441-11	(WR810:US)....CARBON	100K	5%	1/4W	
R541	1-247-878-00	(WR810:US)....CARBON	91K	5%	1/4W	
R541	1-249-440-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	82K	5%	1/4W	
R542	1-247-872-11	CARBON	51K	5%	1/4W	
R543	1-247-874-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	62K	5%	1/4W	
R543	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R544	1-247-891-00	(WR810:US)....CARBON	330K	5%	1/4W	
R544	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	33K	5%	1/4W	
R545	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R545	1-249-441-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	100K	5%	1/4W	
R546	1-249-438-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	56K	5%	1/4W	
R546	1-249-440-11	(WR810:US)....CARBON	82K	5%	1/4W	
R547	1-249-434-11	(WR10ES,WR810:EXCEPT FOR US) ...CARBON	27K	5%	1/4W	
R547	1-249-439-11	(WR810:US)....CARBON	68K	5%	1/4W	
R548	1-249-438-11	CARBON	56K	5%	1/4W	

TC-WR10ES/WR810

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description				
R549	1-247-876-11	(WR10ES,WR810:EXCEPT FOR US)	R572	1-249-425-11	CARBON	4.7K	5%	1/4W	
		...CARBON 75K	R574	1-247-887-00	CARBON	220K	5%	1/4W	
R549	1-249-439-11	(WR810:US)....CARBON 68K	R575	1-249-425-11	CARBON	4.7K	5%	1/4W	
R550	1-247-881-00	(WR10ES,WR810:EXCEPT FOR US)	R576	1-249-441-11	CARBON	100K	5%	1/4W	
		...CARBON 120K	R577	1-249-428-11	CARBON	8.2K	5%	1/4W	
R550	1-247-883-00	(WR810:US)....CARBON 150K	R578	1-249-423-11	CARBON	3.3K	5%	1/4W	
R551	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)	R579	1-249-441-11	CARBON	100K	5%	1/4W	
		...CARBON 33K	R580	1-249-421-11	CARBON	2.2K	5%	1/4W	
R551	1-249-437-11	(WR810:US)....CARBON 47K	R581	1-249-441-11	CARBON	100K	5%	1/4W	
R552	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)	R582	1-249-429-11	CARBON	10K	5%	1/4W	
		...CARBON 33K	R583	1-249-429-11	CARBON	10K	5%	1/4W	
R552	1-249-438-11	(WR810:US)....CARBON 56K	R584	1-249-429-11	CARBON	10K	5%	1/4W	
R553	1-247-864-11	(WR810:US)....CARBON 24K	R585	1-249-429-11	CARBON	10K	5%	1/4W	
R553	1-249-433-11	(WR10ES,WR810:EXCEPT FOR US)	R701	1-249-413-11	CARBON	470	5%	1/4W	
		...CARBON 22K	R702	1-249-417-11	CARBON	1K	5%	1/4W	
R554	1-247-870-11	CARBON 43K	R703	1-249-427-11	CARBON	6.8K	5%	1/4W	
R555	1-249-432-11	(WR10ES,WR810:EXCEPT FOR US)	R704	1-249-419-11	CARBON	1.5K	5%	1/4W	
		...CARBON 18K	R705	1-247-854-11	CARBON	9.1K	5%	1/4W	
R555	1-249-433-11	(WR810:US)....CARBON 22K	R706	1-249-419-11	CARBON	1.5K	5%	1/4W	
R556	1-247-881-00	(WR810:US)....CARBON 120K	R707	1-249-425-11	CARBON	4.7K	5%	1/4W	
R556	1-249-441-11	(WR10ES,WR810:EXCEPT FOR US)	R708	1-249-413-11	CARBON	470	5%	1/4W	
		...CARBON 100K	R709	1-249-417-11	CARBON	1K	5%	1/4W	
R557	1-249-436-11	(WR10ES,WR810:EXCEPT FOR US)	R710	1-249-425-11	CARBON	4.7K	5%	1/4W	
		...CARBON 39K	R711	1-249-417-11	CARBON	1K	5%	1/4W	
R557	1-249-438-11	(WR810:US)....CARBON 56K	R712	1-249-421-11	CARBON	2.2K	5%	1/4W	
R558	1-249-434-11	(WR10ES,WR810:EXCEPT FOR US)	R713	1-249-429-11	CARBON	10K	5%	1/4W	
		...CARBON 27K	R714	1-249-430-11	CARBON	12K	5%	1/4W	
R558	1-249-436-11	(WR810:US)....CARBON 39K	R715	1-249-417-11	CARBON	1K	5%	1/4W	
R559	1-249-433-11	(WR10ES,WR810:EXCEPT FOR US)	R801	1-249-409-11	CARBON	220	5%	1/4W	
		...CARBON 22K	R802	1-249-407-11	CARBON	150	5%	1/4W	
R559	1-249-435-11	(WR810:US)....CARBON 33K	R803	1-249-407-11	CARBON	150	5%	1/4W	
R560	1-247-874-11	CARBON 62K	R804	1-249-407-11	CARBON	150	5%	1/4W	
R561	1-247-870-00	(WR810:US)....CARBON 43K	R805	1-249-407-11	CARBON	150	5%	1/4W	
R561	1-249-436-11	(WR10ES,WR810:EXCEPT FOR US)	R806	1-249-407-11	CARBON	150	5%	1/4W	
		...CARBON 39K	R807	1-249-407-11	CARBON	150	5%	1/4W	
R562	1-247-883-00	(WR810:US)....CARBON 150K	R808	1-249-409-11	CARBON	220	5%	1/4W	
R562	1-249-441-11	(WR10ES,WR810:EXCEPT FOR US)	R809	1-249-410-11	CARBON	270	5%	1/4W	
		...CARBON 100K	R810	1-249-410-11	CARBON	270	5%	1/4W	
R563	1-249-437-11	(WR10ES,WR810:EXCEPT FOR US)	R811	1-249-421-11	CARBON	2.2K	5%	1/4W	
		...CARBON 47K	R812	1-249-421-11	CARBON	2.2K	5%	1/4W	
R563	1-249-439-11	(WR810:US)....CARBON 68K	R813	1-249-421-11	CARBON	2.2K	5%	1/4W	
R564	1-249-432-11	(WR10ES,WR810:EXCEPT FOR US)	R814	1-249-425-11	CARBON	4.7K	5%	1/4W	
		...CARBON 18K	R815	1-249-425-11	CARBON	4.7K	5%	1/4W	
R564	1-249-435-11	(WR810:US)....CARBON 33K	R816	1-249-417-11	CARBON	1K	5%	1/4W	
R565	1-249-429-11	(WR10ES,WR810:EXCEPT FOR US)	R817	1-249-417-11	CARBON	1K	5%	1/4W	
		...CARBON 10K	R818	1-249-417-11	CARBON	1K	5%	1/4W	
R565	1-249-432-11	(WR810:US)....CARBON 18K	R819	1-249-429-11	CARBON	10K	5%	1/4W	
R566	1-249-439-11	CARBON 68K	R820	1-249-429-11	CARBON	10K	5%	1/4W	
R567	1-249-435-11	(WR10ES,WR810:EXCEPT FOR US)	R821	1-249-421-11	CARBON	2.2K	5%	1/4W	
		...CARBON 33K	R822	1-249-417-11	CARBON	1K	5%	1/4W	
R567	1-249-437-11	(WR810:US)....CARBON 47K	R823	1-249-429-11	CARBON	10K	5%	1/4W	
R568	1-249-433-11	CARBON 22K	R824	1-249-429-11	CARBON	10K	5%	1/4W	
R569	1-249-433-11	CARBON 22K	R825	1-249-421-11	CARBON	2.2K	5%	1/4W	
R570	1-249-433-11	CARBON 22K	R826	1-249-417-11	CARBON	1K	5%	1/4W	
R571	1-249-429-11	CARBON 10K	R827	1-247-903-00	CARBON	1M	5%	1/4W	
			R828	1-249-433-11	CARBON	22K	5%	1/4W	
			R829	1-249-433-11	CARBON	22K	5%	1/4W	
			R830	1-249-433-11	CARBON	22K	5%	1/4W	



Ref.No.	Part No.	Description			
R831	1-249-436-11	CARBON	39K	5%	1/4W
R832	1-247-895-00	CARBON	470K	5%	1/4W
R833	1-249-433-11	(WR10ES,WR810:EXCEPT FOR US) ....CARBON	22K	5%	1/4W
R834	1-249-436-11	(WR10ES,WR810:EXCEPT FOR US) ....CARBON	39K	5%	1/4W
R835	1-247-895-00	(WR10ES,WR810:EXCEPT FOR US) ....CARBON	470K	5%	1/4W
R836	1-249-436-11	CARBON	39K	5%	1/4W
R837	1-247-895-00	CARBON	470K	5%	1/4W
R838	1-249-433-11	(WR10ES,WR810:EXCEPT FOR US) ....CARBON	22K	5%	1/4W
R839	1-249-436-11	(WR10ES,WR810:EXCEPT FOR US) ....CARBON	39K	5%	1/4W
R840	1-247-895-00	(WR10ES,WR810:EXCEPT FOR US) ....CARBON	470K	5%	1/4W
R841	1-249-441-11	CARBON	100K	5%	1/4W
R842	1-249-417-11	CARBON	1K	5%	1/4W
R843	1-249-439-11	CARBON	68K	5%	1/4W
R845	1-249-433-11	CARBON	22K	5%	1/4W
R846	1-249-417-11	CARBON	1K	5%	1/4W
R847	1-249-421-11	CARBON	2.2K	5%	1/4W
R848	1-249-417-11	CARBON	1K	5%	1/4W
R849	1-249-433-11	CARBON	22K	5%	1/4W
R850	1-247-731-11	CARBON	22	5%	1/2W
R851	1-249-421-11	CARBON	2.2K	5%	1/4W
R852	1-249-417-11	CARBON	1K	5%	1/4W
R853	1-249-433-11	CARBON	22K	5%	1/4W
R854	1-249-425-11	CARBON	4.7K	5%	1/4W
R855	1-249-417-11	CARBON	1K	5%	1/4W
R856	1-249-433-11	CARBON	22K	5%	1/4W
R857	1-247-731-11	CARBON	22	5%	1/2W
R858	1-249-425-11	CARBON	4.7K	5%	1/4W
R859	1-249-425-11	CARBON	4.7K	5%	1/4W
R861	1-249-415-11	CARBON	680	5%	1/4W
R862	1-249-415-11	CARBON	680	5%	1/4W
R863	1-249-415-11	CARBON	680	5%	1/4W
R864	1-249-413-11	CARBON	470	5%	1/4W
R865	1-249-433-11	CARBON	22K	5%	1/4W
R867	1-249-417-11	CARBON	1K	5%	1/4W
R868	1-249-433-11	CARBON	22K	5%	1/4W
R870	1-249-417-11	CARBON	1K	5%	1/4W
R871	1-249-429-11	CARBON	10K	5%	1/4W
R872	1-249-429-11	CARBON	10K	5%	1/4W
R873	1-249-429-11	CARBON	10K	5%	1/4W
R901	1-249-407-11	CARBON	150	5%	1/4W
R902	1-249-409-11	CARBON	220	5%	1/4W
R903	1-249-411-11	CARBON	330	5%	1/4W
R904	1-249-413-11	CARBON	470	5%	1/4W
R905	1-249-415-11	CARBON	680	5%	1/4W
R906	1-249-417-11	CARBON	1K	5%	1/4W
R907	1-249-420-11	CARBON	1.8K	5%	1/4W
R908	1-249-424-11	CARBON	3.9K	5%	1/4W
R909	1-249-407-11	CARBON	150	5%	1/4W
R910	1-249-409-11	CARBON	220	5%	1/4W
R911	1-249-411-11	CARBON	330	5%	1/4W
R912	1-249-413-11	CARBON	470	5%	1/4W
R913	1-249-415-11	CARBON	680	5%	1/4W
R914	1-249-417-11	CARBON	1K	5%	1/4W

Ref.No.	Part No.	Description			
R915	1-249-420-11	CARBON	1.8K	5%	1/4W
R916	1-249-424-11	CARBON	3.9K	5%	1/4W
R917	1-249-416-11	CARBON	820	5%	1/4W
R918	1-249-419-11	CARBON	1.5K	5%	1/4W
R919	1-249-433-11	CARBON	22K	5%	1/4W
R921	1-249-430-11	CARBON	12K	5%	1/4W
R922	1-249-430-11	CARBON	12K	5%	1/4W
R931	1-249-407-11	CARBON	150	5%	1/4W
R932	1-249-409-11	CARBON	220	5%	1/4W
R934	1-249-411-11	CARBON	330	5%	1/4W
R951	1-247-903-00	CARBON	1M	5%	1/4W
R952	1-249-441-11	CARBON	100K	5%	1/4W
R953	1-249-441-11	CARBON	100K	5%	1/4W
R954	1-249-430-11	CARBON	12K	5%	1/4W
R955	1-249-422-11	CARBON	2.7K	5%	1/4W
R956	1-249-427-11	CARBON	6.8K	5%	1/4W
R957	1-249-429-11	CARBON	10K	5%	1/4W
R958	1-249-425-11	CARBON	4.7K	5%	1/4W
R959	1-249-441-11	CARBON	100K	5%	1/4W
R960	1-249-441-11	CARBON	100K	5%	1/4W
R961	1-249-433-11	CARBON	22K	5%	1/4W
RV41	1-228-990-00	RES, ADJ, CARBON	1K		(PB LEVEL L)
RV42	1-230-497-11	RES, ADJ, CARBON	22K		(REC BIAS L)
RV61	1-228-990-00	RES, ADJ, CARBON	1K		(PB LEVEL R)
RV62	1-230-497-11	RES, ADJ, CARBON	22K		(REC BIAS R)
RV101	1-228-994-00	RES, ADJ, CARBON	10K		(REC LEVEL L:A)
RV102	1-228-994-00	RES, ADJ, CARBON	10K		(REC LEVEL L:B)
RV201	1-228-994-00	RES, ADJ, CARBON	10K		(REC LEVEL R:A)
RV202	1-228-994-00	RES, ADJ, CARBON	10K		(REC LEVEL R:B)
RV501	1-238-138-11	RES, VAR, CARBON	50K/50K		(BALANCE)
RV502	1-238-139-11	RES, VAR, CARBON	20K/20K		(REC LEVEL)
RV801	1-228-996-00	RES, ADJ, CARBON	47K		(QUICK REVERS:A)
RV802	1-228-996-00	RES, ADJ, CARBON	47K		(QUICK REVERS:B)
RY81	1-515-614-11	RELAY			
S11	1-571-281-21	SWITCH, LEAF (HALF DET)			
S12	1-571-281-21	SWITCH, LEAF (ERASE PROOF:SIDE A)			
S13	1-571-281-21	SWITCH, LEAF (ERASE PROOF:SIDE B)			
S14	1-571-281-21	SWITCH, LEAF (CrO2)			
S15	1-571-281-21	SWITCH, LEAF (METAL)			
S701	1-553-336-21	SWITCH, PUSH (POWER)			
S702	1-570-307-11	SWITCH, VOLTAGE CHANGE (VOLTAGE)			
S705	1-571-028-11	SWITCH, LEAF (REC SW)			
S901	1-554-303-21	SWITCH, KEY BOARD (STOP:A)			
S902	1-554-303-21	SWITCH, KEY BOARD (PAUSE:A)			
S903	1-554-303-21	SWITCH, KEY BOARD (REC MUTE:A)			
S904	1-554-303-21	SWITCH, KEY BOARD (REC:A)			
S905	1-554-303-21	SWITCH, KEY BOARD (REV:A)			
S906	1-554-303-21	SWITCH, KEY BOARD (FWD:A)			
S907	1-554-303-21	SWITCH, KEY BOARD (REW:A)			
S908	1-554-303-21	SWITCH, KEY BOARD (FF:A)			
S909	1-554-303-21	SWITCH, KEY BOARD (STOP:B)			
S910	1-554-303-21	SWITCH, KEY BOARD (PAUSE:B)			
S911	1-554-303-21	SWITCH, KEY BOARD (REC MUTE:B)			
S912	1-554-303-21	SWITCH, KEY BOARD (REC:B)			
S913	1-554-303-21	SWITCH, KEY BOARD (REV:B)			

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

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



# TC-WR10ES/WR810

Ref.No.	Part No.	Description
S914	1-554-303-21	SWITCH, KEY BOARD (FWD:B)
S915	1-554-303-21	SWITCH, KEY BOARD (REW:B)
S916	1-554-303-21	SWITCH, KEY BOARD (FF:B)
S917	1-554-303-21	SWITCH, KEY BOARD (RESET)
S918	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S919	1-554-303-21	SWITCH, KEY BOARD (A/B)
S921	1-570-837-11	SWITCH, SLIDE (TIMER)
S922	1-570-837-11	SWITCH, SLIDE (DIRECTION MODE)
S931	1-554-303-21	SWITCH, KEY BOARD (AMS/BLANK SKIP)
S932	1-554-303-21	SWITCH, KEY BOARD (HIGH SPEED)
S933	1-554-303-21	SWITCH, KEY BOARD (NORMAL SPEED)
S934	1-554-303-21	SWITCH, KEY BOARD (A+B REC)
S941	1-570-837-11	SWITCH, SLIDE (DOLBY NR)
S942	1-570-849-11	SWITCH, SLIDE (MPX FILTER)
SPK101	1-235-186-00	ENCAPSULATED COMPONENT
SPK201	1-235-186-00	ENCAPSULATED COMPONENT
T51	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T71	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T81	1-433-336-11	TRANSFORMER, BIAS OSCILLATION
T701	△ 1-449-460-11	(WR810:AEP,UK)...TRANSFORMER, POWER
T701	△ 1-449-461-11	(WR810:E).....TRANSFORMER, POWER
T701	△ 1-449-614-11	(WR10ES,WR810:US,Canadian) ...TRANSFORMER, POWER
TP83	*1-564-338-00	PIN, CONNECTOR 4P
TP91	*1-564-508-11	PLUG, CONNECTOR 5P
TP801	*1-564-505-11	PLUG, CONNECTOR 2P (TEST)
TP802	*1-564-507-11	PLUG, CONNECTOR 4P (QUICK)
X801	1-567-686-11	OSCILLATOR, CERAMIC (4MHz)
X951	1-567-771-11	VIBRATOR, CERAMIC (6MHz)


## ACCESSORY & PACKING MATERIAL

1-559-533-11	CORD, CONNECTION
1-463-974-11	(WR810:AEP,UK,E) ...REMOTE COMMANDER (RM-900W)
*3-349-028-21	(WR810)...INDIVIDUAL CARTON
3-349-028-31	(WR10ES)...INDIVIDUAL CARTON
*3-349-029-01	CUSHION
3-703-450-01	INSTRUCTION
3-750-133-11	(WR810:Canadian,AEP,UK,E) ...MANUAL, INSTRUCTION
3-750-133-21	(WR810:US).....MANUAL, INSTRUCTION
3-750-133-41	(WR810:AEP).....MANUAL, INSTRUCTION
3-750-133-51	(WR810:West Germany)...MANUAL, INSTRUCTION
3-750-209-21	(WR10ES).....MANUAL, INSTRUCTION

### Note:

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### Note:

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