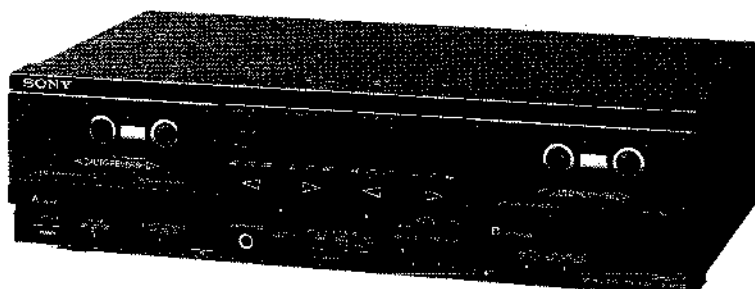


# TC-WR800

## SERVICE MANUAL

*AEP Model*



Model Name Using Similar Mechanism	New Mechanism	
Tape Transport Mechanism Type	deck A	TCM-170RA2
	deck B	TCM-170RB4

### SPECIFICATIONS

Recording system 4-track 2-channel stereo  
 Fast-forward and rewind time Approx. 90 sec. (with C-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)	58 dB	65 dB	71 dB
TYPE II (Sony UX-S)	57 dB	64 dB	70 dB
TYPE I (Sony HF-S)	54 dB	61 dB	67 dB

Total harmonic distortion 1.0 % (with Sony METAL-ES cassettes)

Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-ES)	30-18,000 Hz ( $\pm 3$ dB, DIN) 30-15,000 Hz (0VU recording $\pm 3$ dB)
TYPE II cassette (Sony UX-S)	30-17,000 Hz ( $\pm 3$ dB, DIN)
TYPE I cassette (Sony HF-S)	30-15,000 Hz ( $\pm 3$ dB, DIN)

Wow and flutter 0.09% WRMS (NAB),  $\pm 0.19$  W Peak (DIN)


#### Inputs

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

#### Outputs

Line outputs (phono jacks)	Rated output level	0.44 V (-5 dB) at a load impedance 47 k ohms
	Load impedance	Over 10 k ohms
Headphone output (stereo phone jack)	Output level	-28 dB at 8 ohms

- Continued on page 2 -

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

**STEREO CASSETTE DECK**  
**SONY®**



**General**

Power requirements 220 V AC, 50/60 Hz  
 Power consumption 25 W  
 Dimensions Approx. 430×118×255 mm (w/h/d)  
 (17×4¾×10 inches)  
 including projecting parts and controls  
 Weight Approx. 4.6 kg (10 lbs 3 oz)

**Supplied accessories**

Audio connecting cord (2)  
 Remote control cord (4-pin) (1)



**FEATURES**

- **B and C type Dolby NR\* system** reduces tape hiss noise.
- **Relay function** for long playback
- **Two-speed synchro dubbing:** normal and high (double-speed)
- **AMS and blank skip functions** provide easy access to a desired selection.
- **Easy-to-read digital tape counter** equipped with memory function (for decks A and B)
- **Handy remote control operation** (with the optional Sony RM-88 wireless remote control unit)

**TABLE OF CONTENTS**

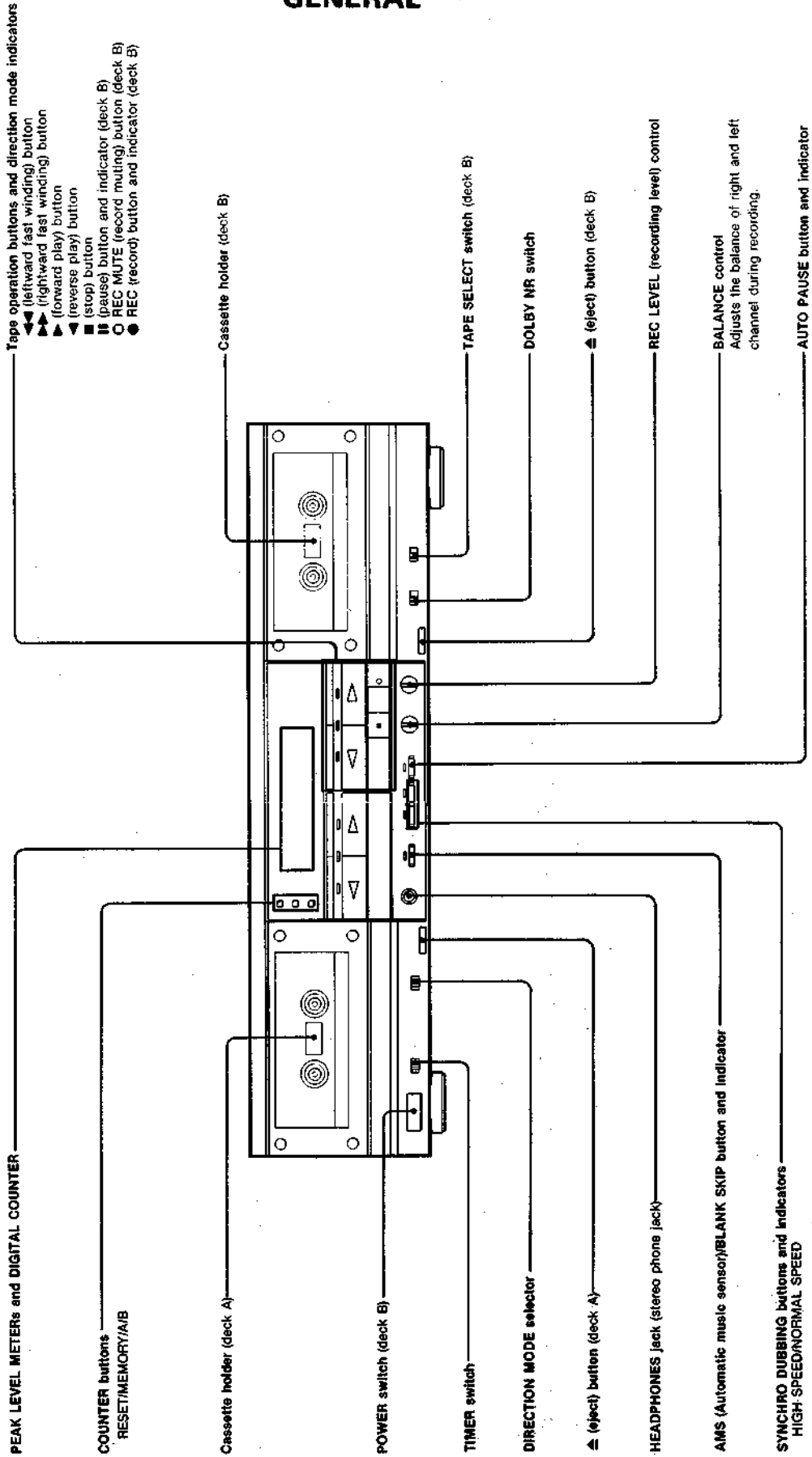
<u>Section</u>	<u>Title</u>	<u>Page</u>
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**SAFETY-RELATED COMPONENT WARNING!!**

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.

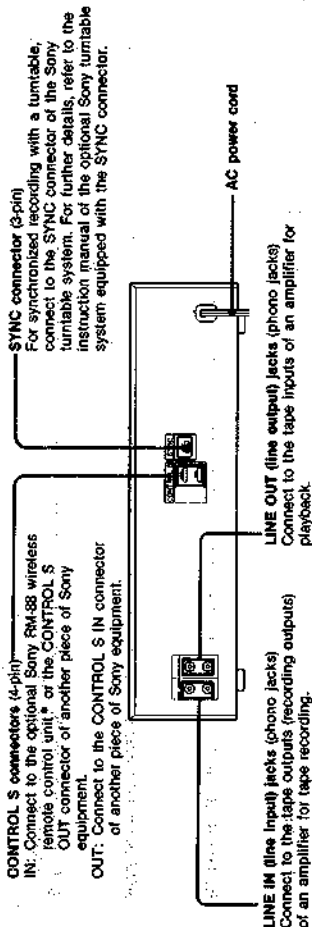
SECTION 1  
GENERAL

LOCATION AND FUNCTION OF CONTROLS



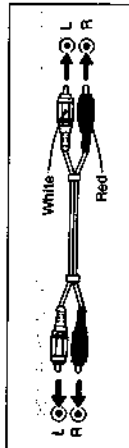
**CONNECTIONS**

**Parts Identification of the Rear Panel**



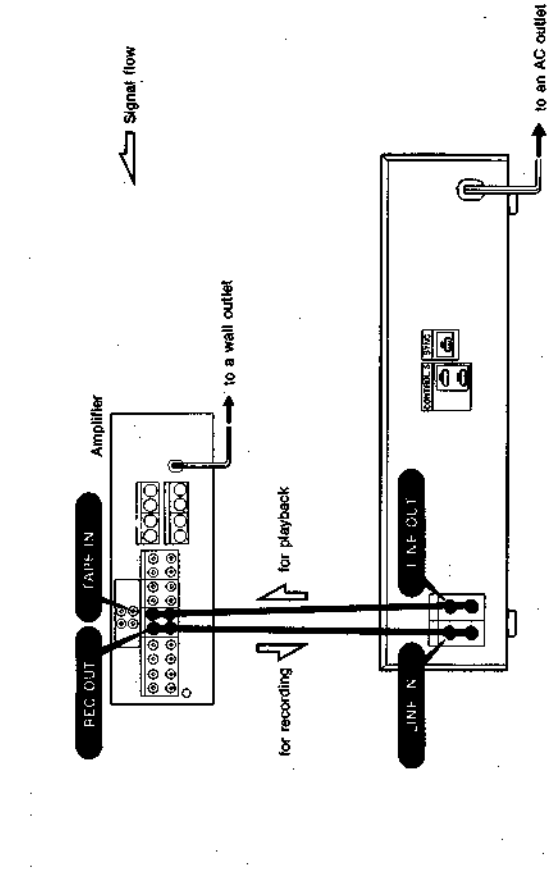
**Notes on Connections**

- Turn off the power to all equipment before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.

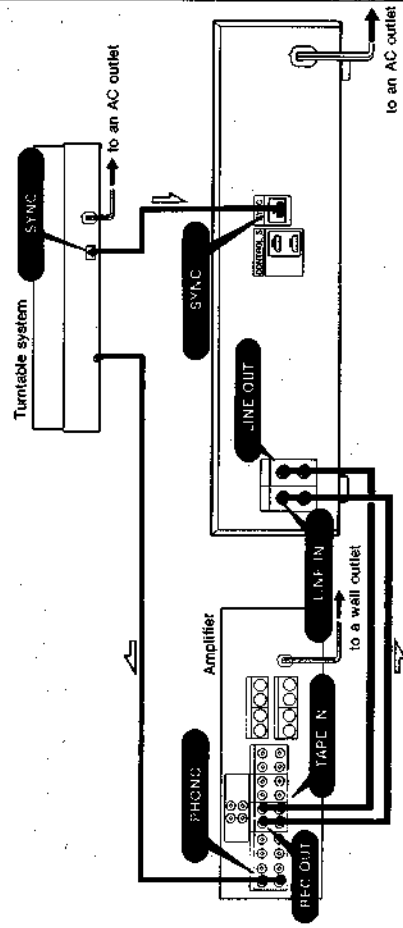


- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pick-up.

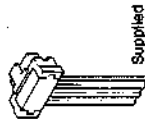
**Basic connection**



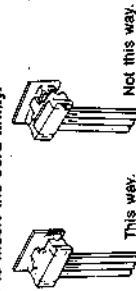
**Connection for synchronized operation with a turntable system**



Remote control cord (4-pin)

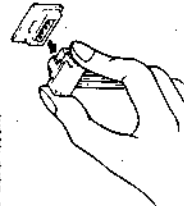


Be sure to insert the cord firmly.



Not this way.

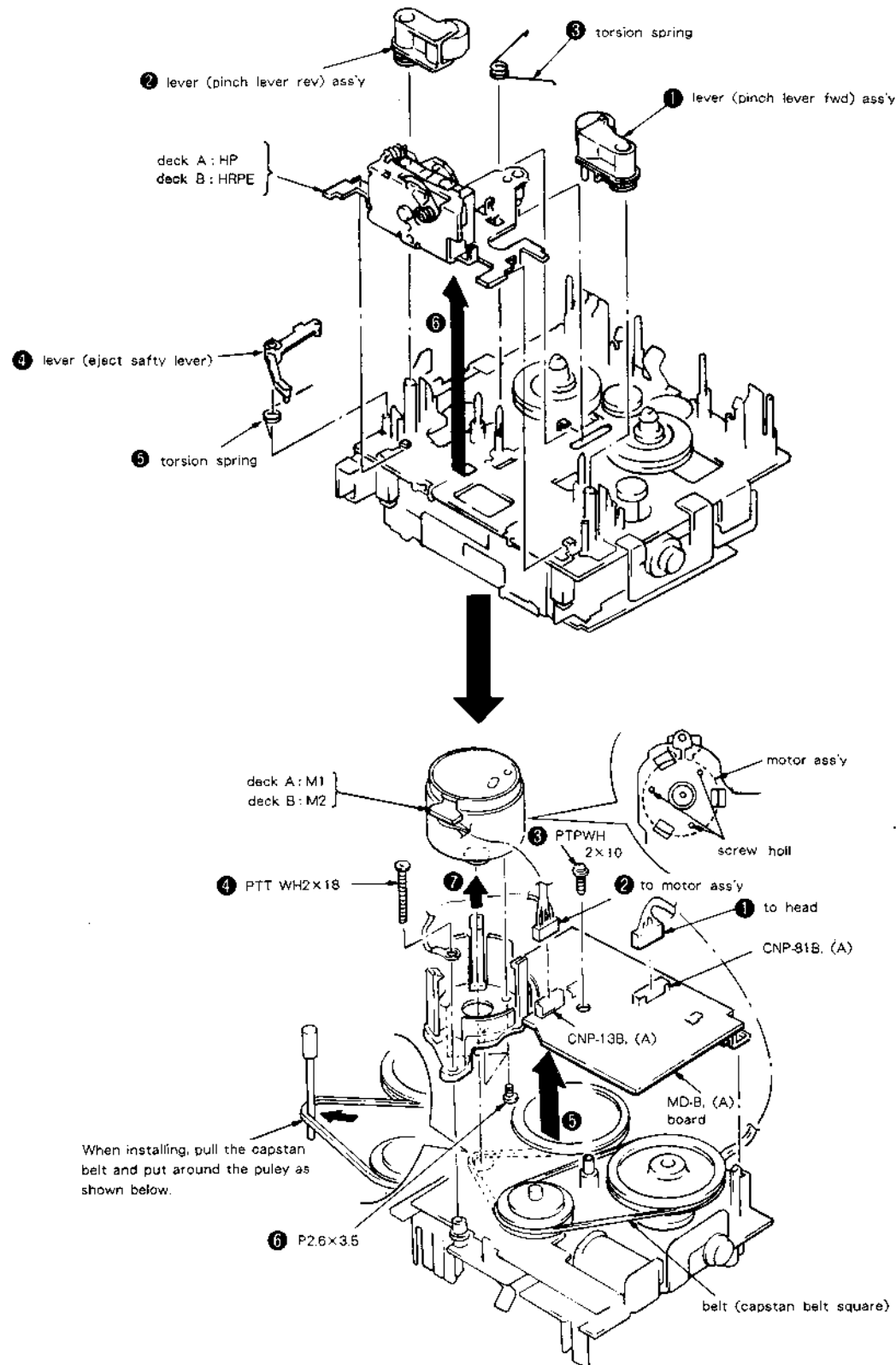
To disconnect the cord, pull out the connector. Do not pull the cord itself.



\* The remote control unit functions only on the deck in which the cassette is inserted. If both decks are loaded, the unit controls only the deck B.

## SECTION 2 DISASSEMBLY

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



## SECTION 3 ADJUSTMENTS

### 3-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:
  - record/playback head
  - erase head
  - capstan
  - pinch roller
  - rubber belts
  - idler
- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.

#### Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	27 to 75g · cm (0.40 to 1.13 oz · inch)
FWD Back tension	CQ-102C	1 to 10g · cm (0.015 to 0.15 oz · inch)
REV	CQ-102RC	27 to 75g · cm (0.40 to 1.13 oz · inch)
REV Back tension	CQ-102RC	1 to 10g · cm (0.015 to 0.15 oz · inch)
FF, REW	CQ-201B	95 to 165g · cm (1.43 to 2.48 oz · inch)

### 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in the service manual.

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

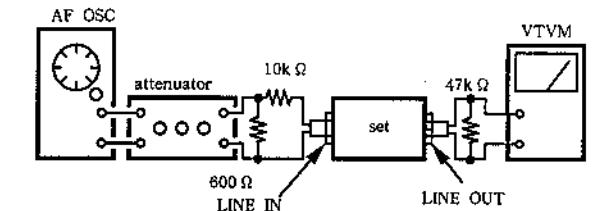
Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch : OFF  
 TAPE SELECT switch : TYPE I  
 DIRECTION switch :   
 TIMER 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

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

#### Standard Output Level

	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

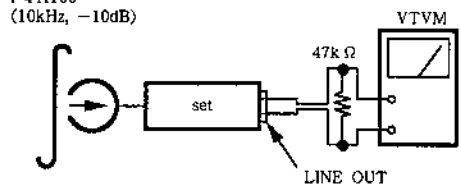
#### Record/Playback Head Azimuth Adjustment

DECK A DECK B

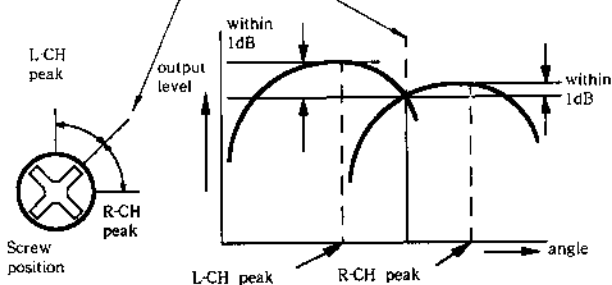
Procedure :

- Mode : FWD playback

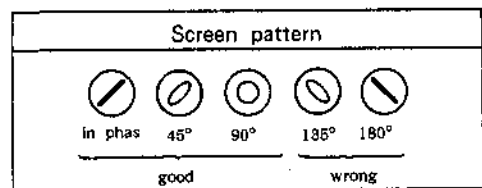
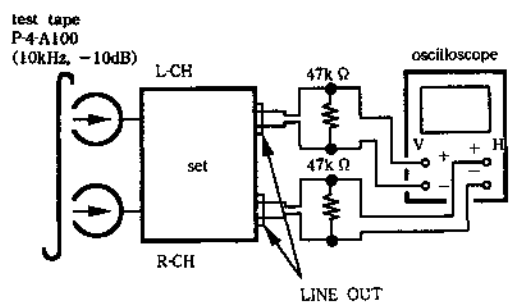
test tape  
 P-4-A100  
 (10kHz, -10dB)



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

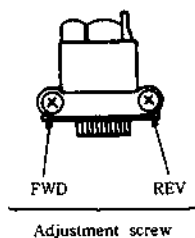


- Phase Check  
Mode : playback



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

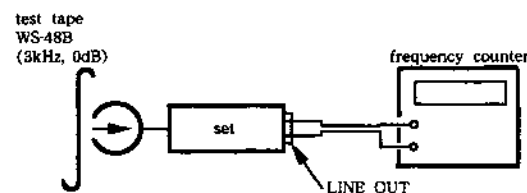
Adjustment Location : Record/Playback head



**Tape Speed Adjustment** DECK A DECK B

**Procedure :**

Mode : FWD playback



Perform high speed adjustment before normal speed adjustment

Play back the test tape WS-48B and adjust to meet the specifications below.

**Specifications :**

speed	deck	Adjustment part	variable resistor of motor	test pin CN701	frequency counter reading
high	A	M1	(H)	short	5,920±60Hz
	B	M2	(H)		
normal	A	M1	(L)	open	2,960±30Hz
	B	M2	(L)		

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%.

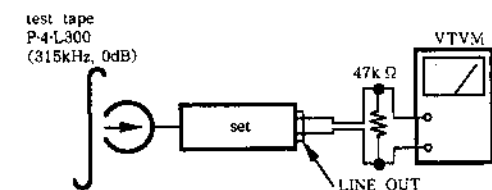
**Adjustment Location :**

deck A : motor (M1) rear side  
deck B : motor (M2) rear side

**Playback Level Adjustment** DECK A DECK B

**Procedure :**

Mode : playback



Adjust deck A : RV41A(L-CH), RV61A(R-CH) and deck B : RV41B(L-CH), RV61B(R-CH) so that the reading on VTVM meets the specification below.

**Specification :**

LINE OUT level :  $-5 \pm 0.8\text{dB}$  (0.4-0.48dB)

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 : audio system control board

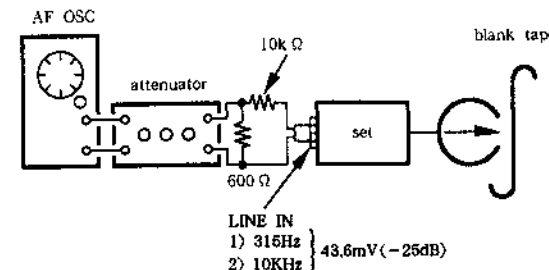
**Record Bias Adjustment** DECK B

**Setting :**

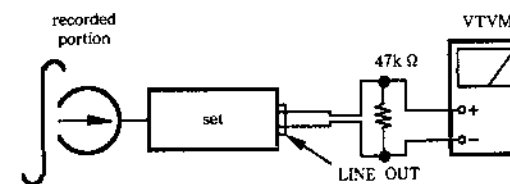
REC LEVEL control : standard record (See page 6.)

**Procedure :**

- Mode : record



- Mode : playback



Confirm that the 10kHz playback output is  $0 \pm 0.5\text{dB}$  relative to the 315Hz output. If necessary, adjust CT41(L-CH), CT61(R-CH) and repeat the steps given above.

Adjustment Location : MD-B board

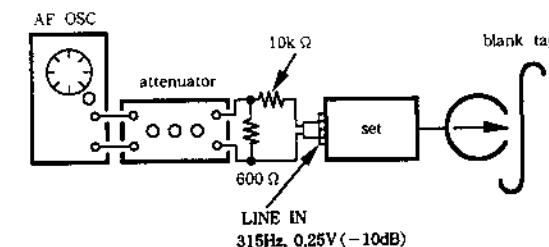
**Record Level Adjustment** DECK B

**Setting :**

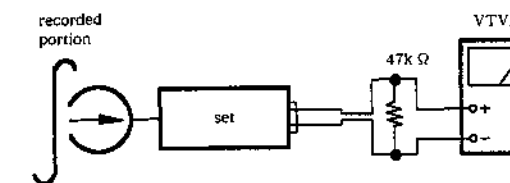
REC LEVEL control : standard record (See page 6.)

**Procedure :**

- Mode : record



- Mode : playback



- Play back the signal recorded in step 1. Confirm that the signal level is within the specification below. If necessary, adjust RV101(L-CH), RV201(R-CH) and repeat the step1-3.

Specification : LINE OUT level :  $-5\text{dB} \pm 0.8\text{dB}$  (0.4-0.48V)

Adjustment Location : audio system control board

**Quick Reverse Sensitivity Adjustment** DECK B

**Conditions :**

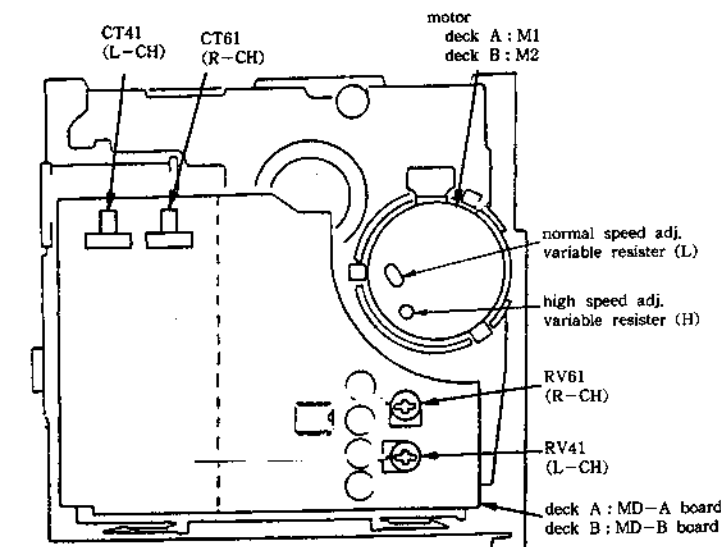
DIRECTION MODE switch :  $\rightleftarrows$

**Adjustment Procedure :**

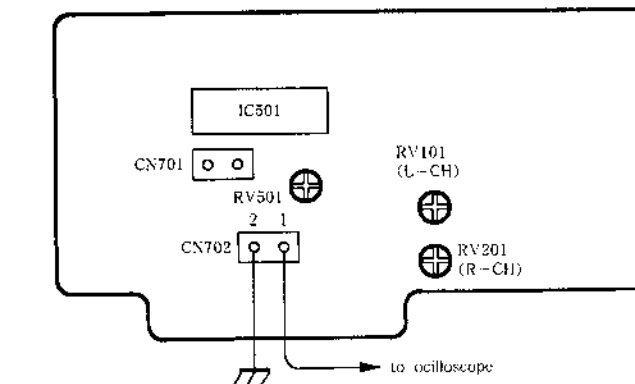
- Connect the oscilloscope to test point CN702.
- Load C-120 tape cassette and playback the leading portion in FWD mode.
- Adjust the RV501 for  $4.5 \pm 1\text{V}$  reading on the oscilloscope.
- Play back C-120 tape cassette in FWD mode again.
- Confirm that the reading on the oscilloscope is "L" level at the magnetic portion of the tape.
- Confirm that the tape cassette stops around the tape end (border of the leading and the magnetic portions).

Adjustment Location : audio system control board

**-Adjustment Parts Location Diagrams-**

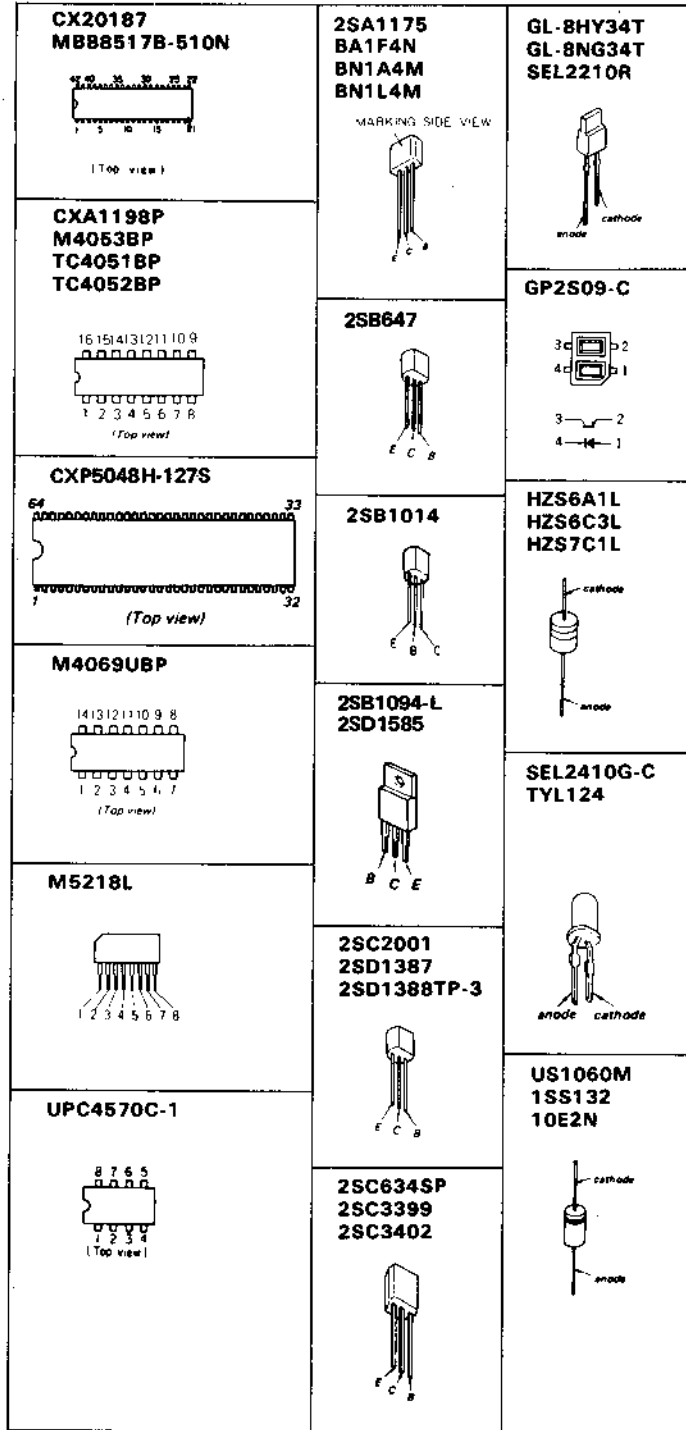


audio system control board



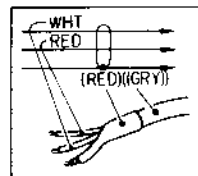
# DIAGRAMS SECTION 4

## 4-1. SEMICONDUCTOR LEAD LAYOUT



### Note on Printed Wiring Boards:

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

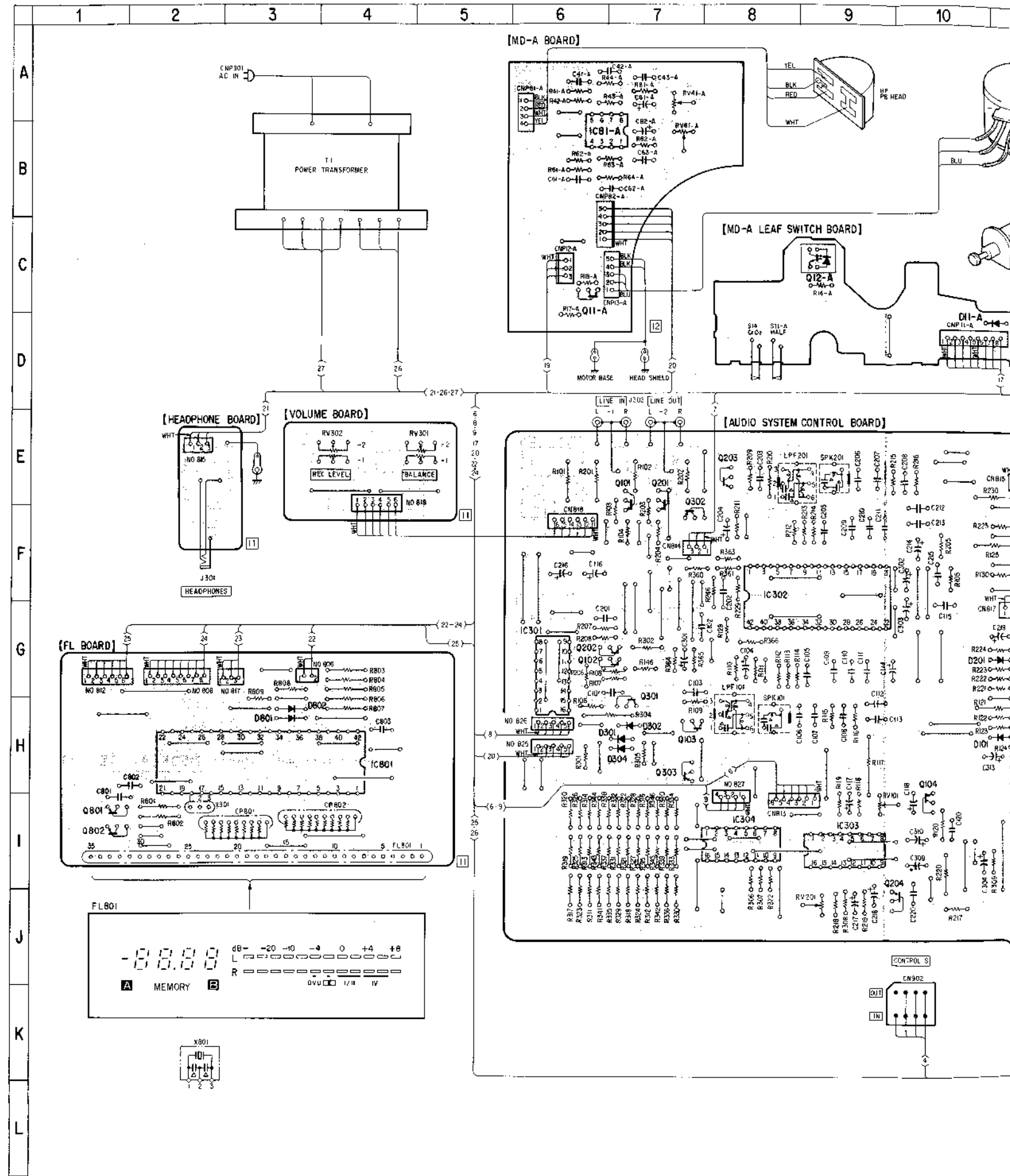


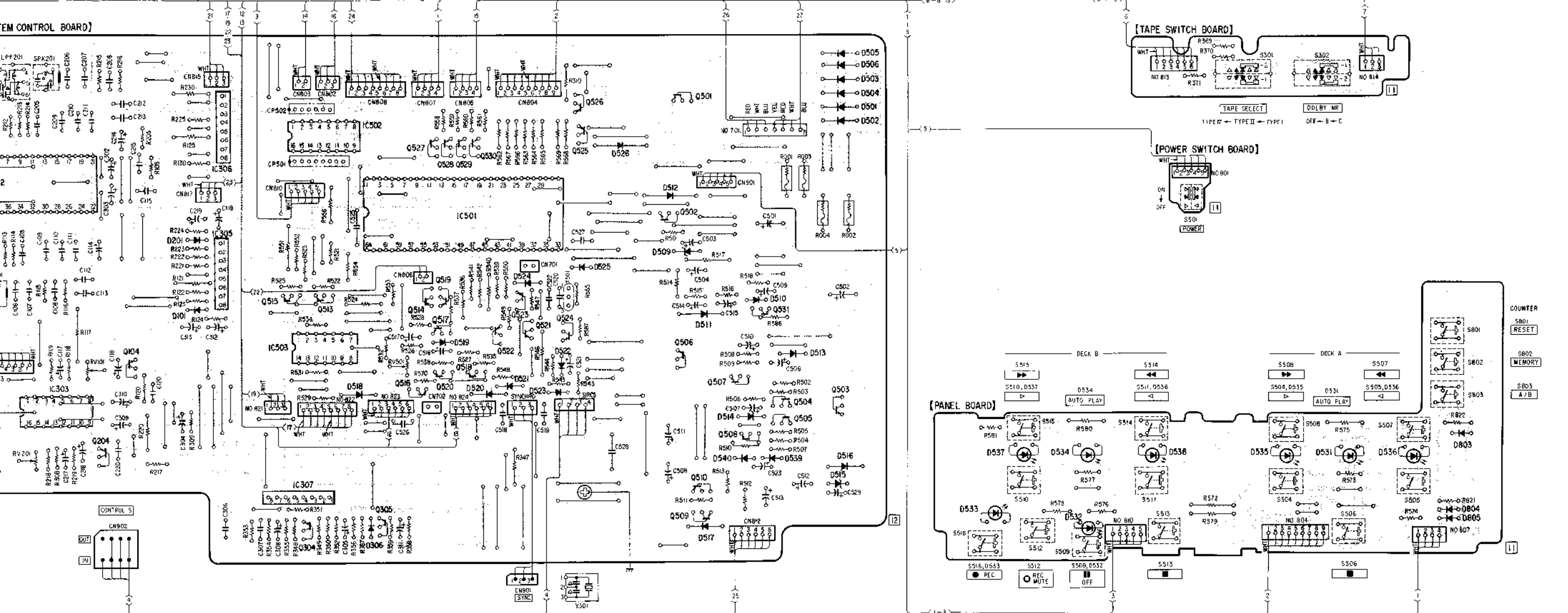
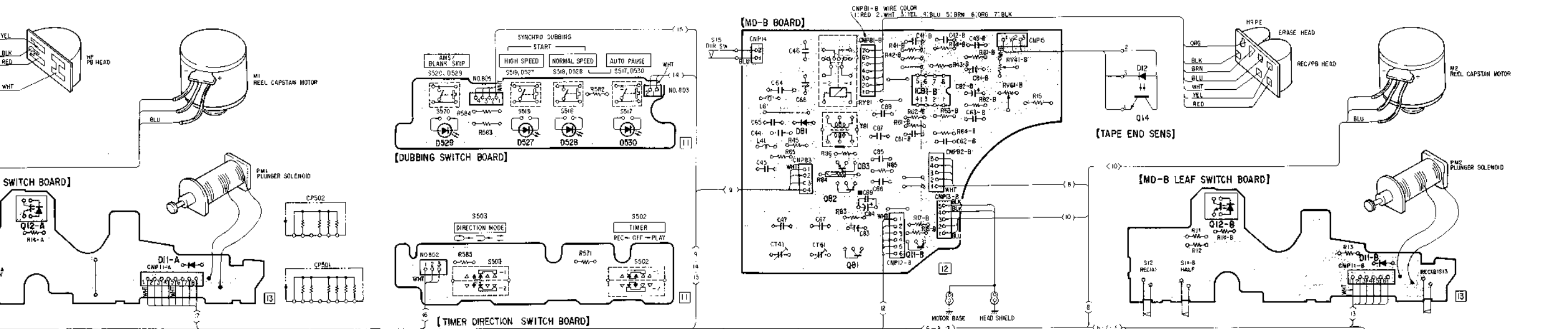
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : indicates side identified with part number.
- : parts mounted on the conductor side.

## SEMICONDUCTOR LOCATION

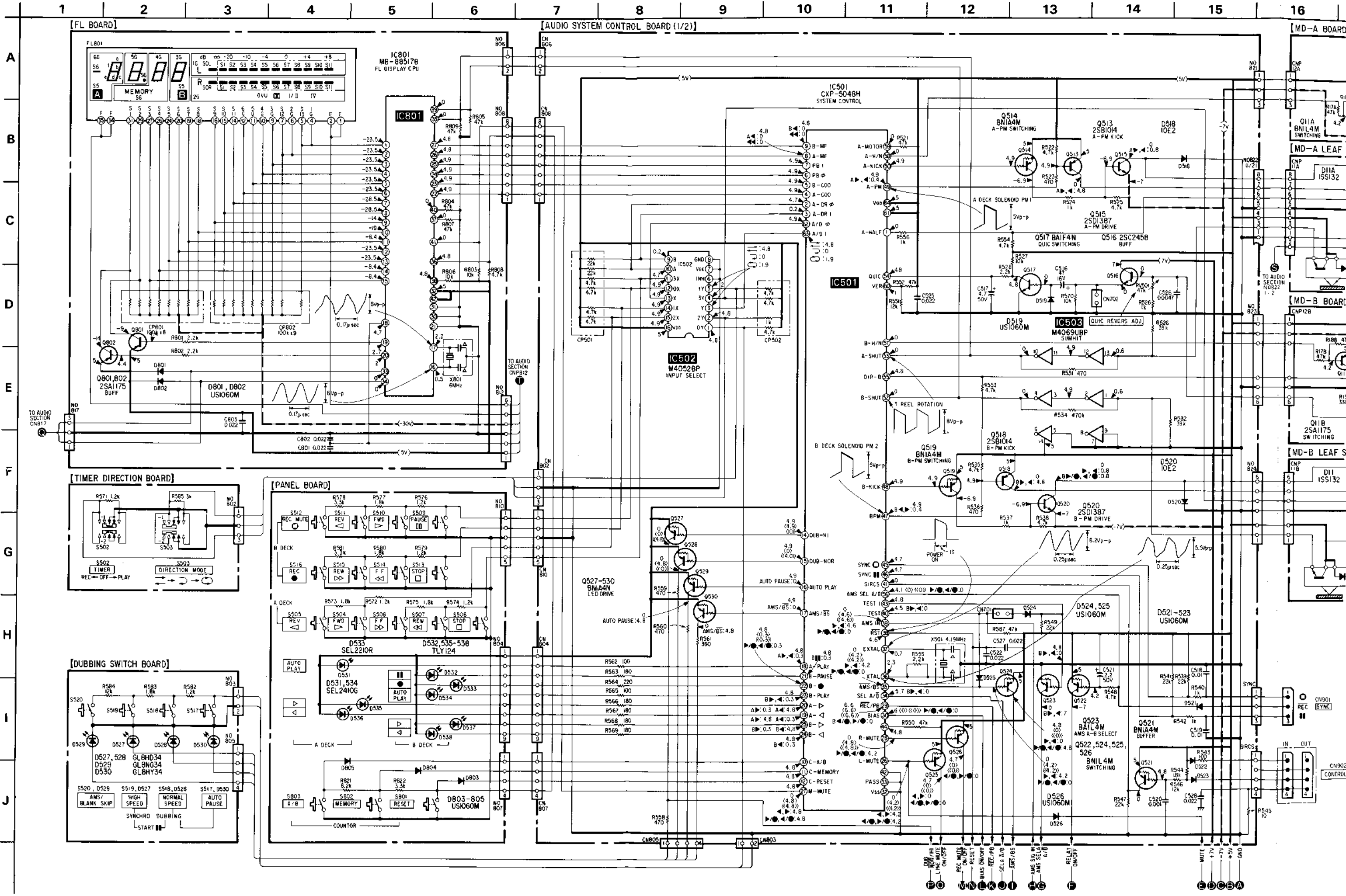
Ref. No.	Location	Ref. No.	Location
D11A	D-11	IC307	J-12
D11B	D-24	IC501	G-14
D12	A-22	IC502	F-12
D81	B-18	IC503	H-12
D101	H-11	IC801	H-3
D201	G-11	Q11A	C-8
D301	H-7	Q11B	C-19
D302	H-7	Q12A	C-9
D304	H-7	Q12B	C-22
D306	J-13	Q14	B-22
D501	F-18	Q81B	C-18
D502	F-18	Q82B	C-18
D503	E-18	Q83B	B-18
D504	E-18	Q101	E-7
D505	E-18	Q102	G-7
D506	E-18	Q103	H-7
D509	G-16	Q104	I-10
D510	H-17	Q201	E-7
D511	H-16	Q202	G-7
D512	G-16	Q203	E-8
D513	H-18	Q204	J-10
D514	I-17	Q301	H-7
D515	J-18	Q302	F-7
D516	J-18	Q303	H-7
D517	J-16	Q304	J-13
D518	I-12	Q305	J-13
D519	H-13	Q501	E-16
D520	I-14	Q502	G-16
D521	I-14	Q503	I-18
D522	I-15	Q504	I-17
D523	I-15		
D524	H-14	Q505	I-17
D525	G-15	Q506	H-16
D526	F-15	Q507	I-17
D527	B-14	Q508	I-17
D528	B-15	Q509	J-16
D529	B-14	Q510	J-16
D530	B-16	Q513	H-12
		Q514	H-13
D531	J-24	Q515	H-12
D532	J-21	Q516	I-13
D533	J-20		
D534	J-21	Q517	H-13
D535	J-23	Q518	I-14
		Q519	H-13
D536	J-25	Q520	I-13
D537	J-20	Q521	H-14
D538	J-22		
D539	J-17	Q522	H-14
D540	J-17	Q523	H-14
		Q524	H-15
		Q525	F-15
		Q526	F-15
D801	H-3	Q527	F-13
D802	H-3	Q528	F-14
D803	I-25	Q529	F-14
D804	J-25	Q530	F-14
D805	J-25	Q531	H-17
IC81A	B-6	Q801	I-1
IC81B	B-19	Q802	I-1
IC301	G-6		
IC302	F-9		
IC303	I-9		
IC304	I-8		
IC305	G-11		
IC308	F-11		

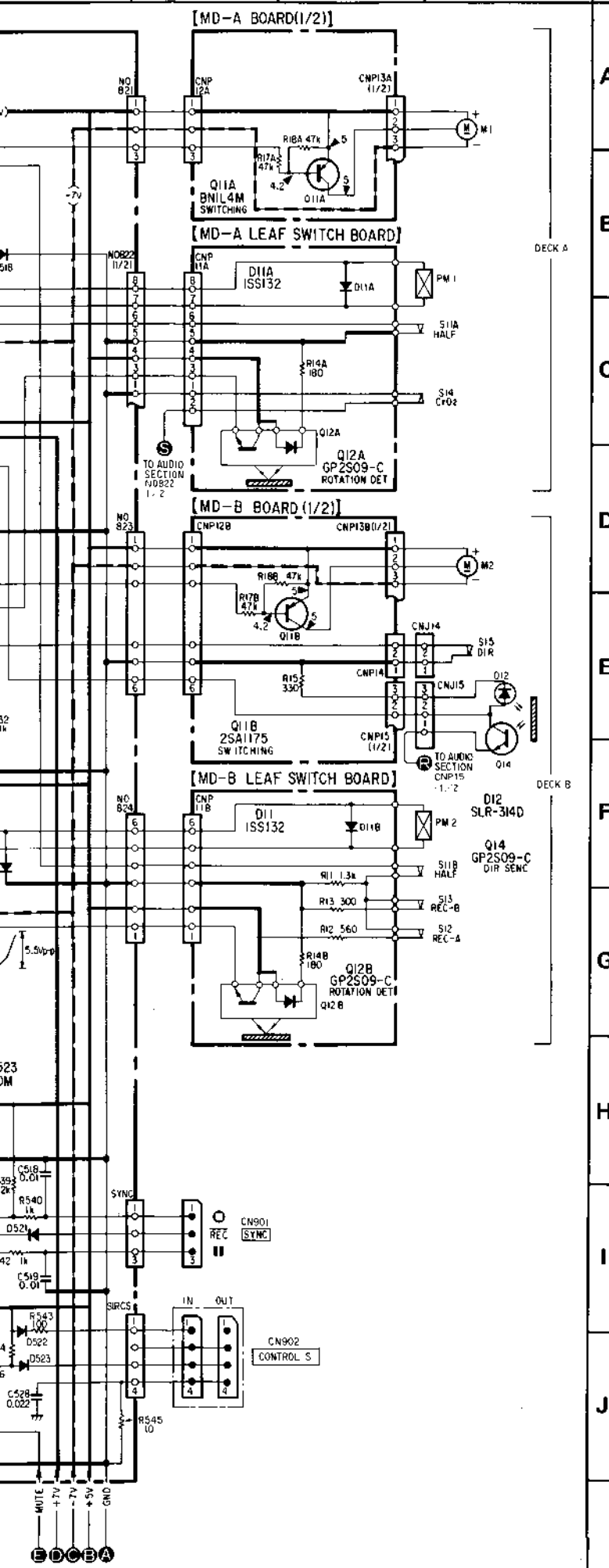
## PRINTED WIRING BOARDS











**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\rho\text{F}$ :  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- $\triangle$ : internal component.

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

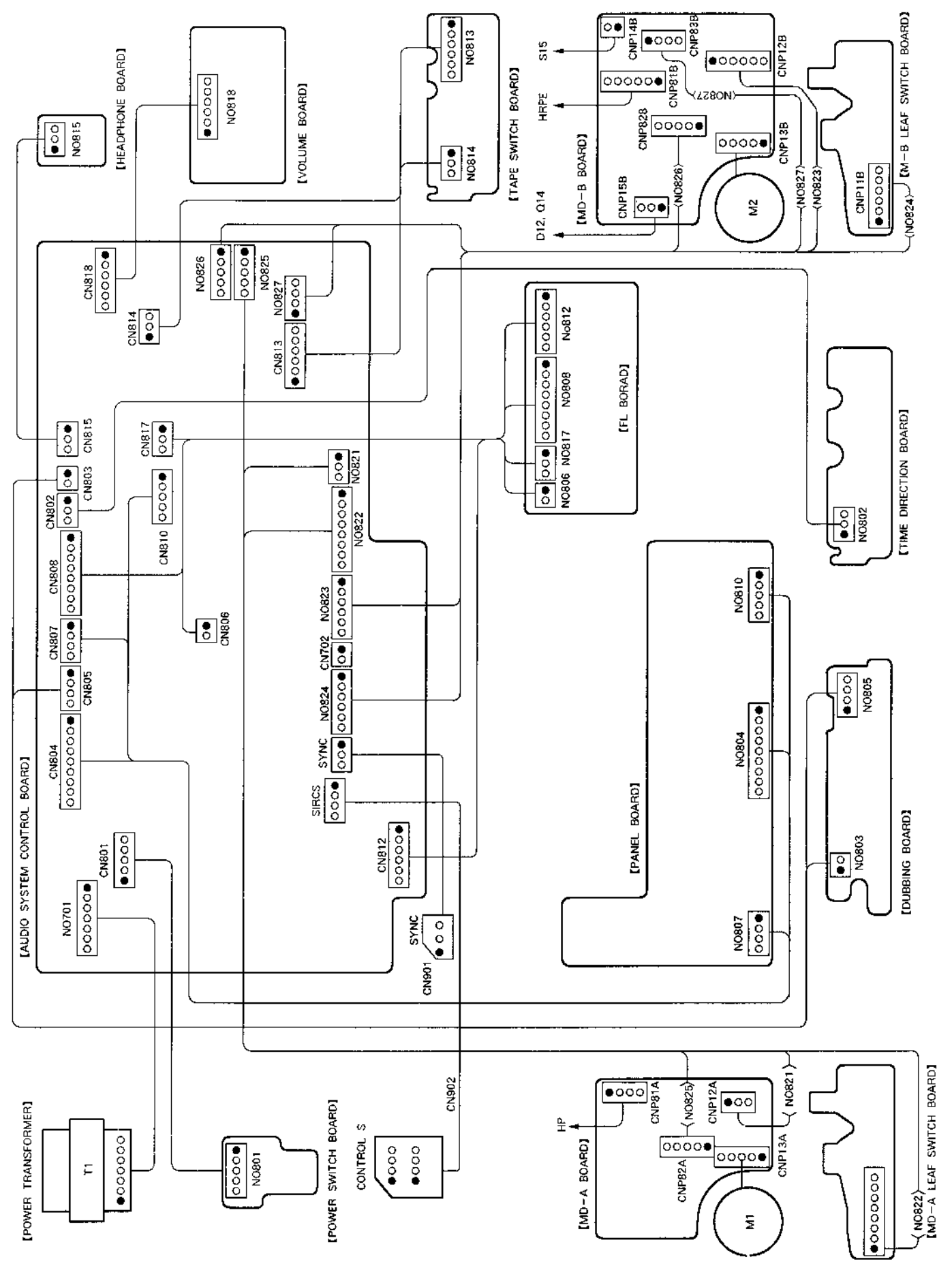
• Switch

Ref. No.	Switch	Position
S11A(B)	HALF	OFF
S12	deck B REC-A	OFF
S13	deck B REC-B	OFF
S14	deck A CrO <sub>2</sub>	OFF
S15	deck B DIR	OFF
S502	TIMER	OFF
S503	DIRECTION	↔
S504	A-FWD	OFF
S505	A-REV	OFF
S506	A-STOP	OFF
S507	A-REW	OFF
S508	A-FF	OFF
S509	B-PAUSE	OFF
S510	B-FWD	OFF
S511	B-REV	OFF
S512	B-REC MUTE	OFF
S513	B-STOP	OFF
S514	B-REW	OFF
S515	B-FF	OFF
S516	B-REC	OFF
S517	AUTO PAUSE	OFF
S518	NOR SPEED	OFF
S519	HIGH SPEED	OFF
S520	AMS	OFF
S801	RESET	OFF
S802	MEMORY	OFF
S803	A/B	OFF

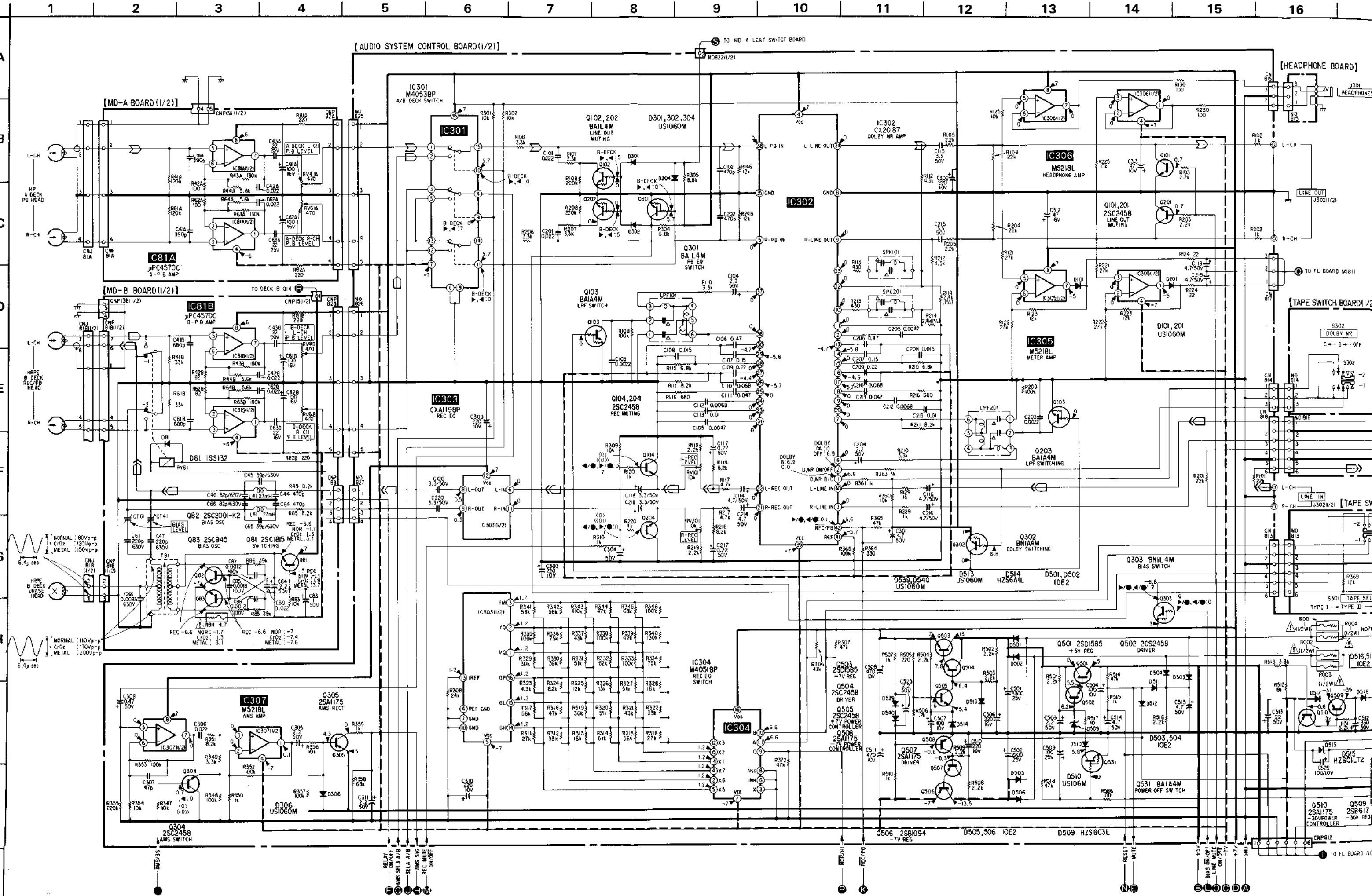
- $\text{---}$ : B+ Line
- $\text{---}$ : B- Line
- $\square$ : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Voltage and waveforms are dc with respect to ground under no signal (detuned) conditions.
- no mark: STOP
- < >: NORMAL SPEED
- ◀ ▶: HIGH SPEED
- ▶ : FWD    ◀ : REV    ■ : STOP
- ▶▶ : FF    ◀◀ : REW    ● : REC

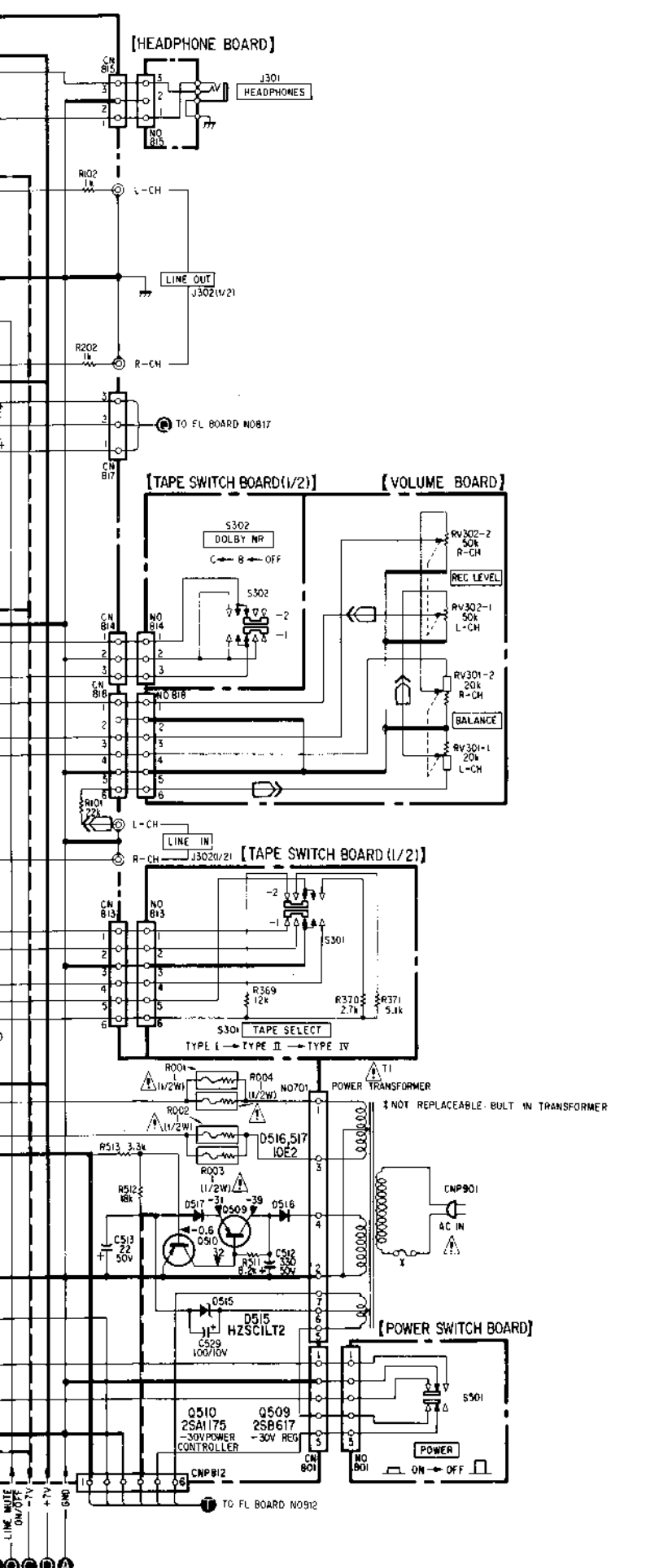
- Voltages are taken with a VOM (50 k $\Omega$ /V). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.

**FRAME SCHEMATIC DIAGRAM**



4-4. SCHEMATIC DIAGRAM (audio section)





A  
B  
C  
D  
E  
F  
G  
H  
I  
J

**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$ . 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- % : indicates tolerance.
- $\Delta$  : internal component.
- $\text{---}/\text{---}$  : fusible resistor.

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

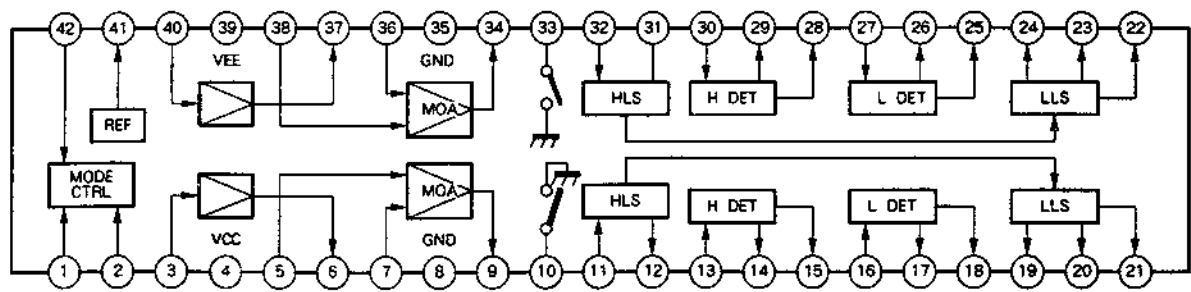
• Switch

Ref. No.	Switch	Position
S301	TAPE SELECT	I
S302	DOLBY NR	OFF
S501	POWER	ON

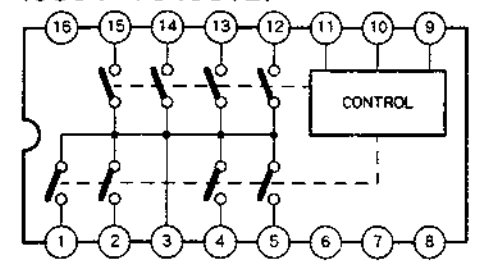
- $\text{---}$  : B+ Line
  - $\text{---}$  : B- Line
  - $\text{---}$  : adjustment for repair.
  - AC voltage readings in the bias oscillator with a VTVM.
  - Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  - no mark : STOP
  - < > : NORMAL SPEED
  - << >> : HIGH SPEED
  - ▶ : FWD ◀ : REV ■ : STOP
  - ▶▶ : FF ◀◀ : REW ● : REC
- Voltages are taken with a VOM (50  $\text{k}\Omega/\text{V}$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
- ▷ : PB (DECK A)
  - ◁ : PB (DECK B)
  - ◁▷ : REC (DECK B)

**4-5. IC BLOCK DIAGRAMS**

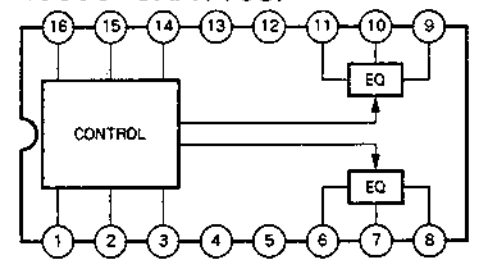
**IC302 CX-20187**



**IC304 TC4051BP**

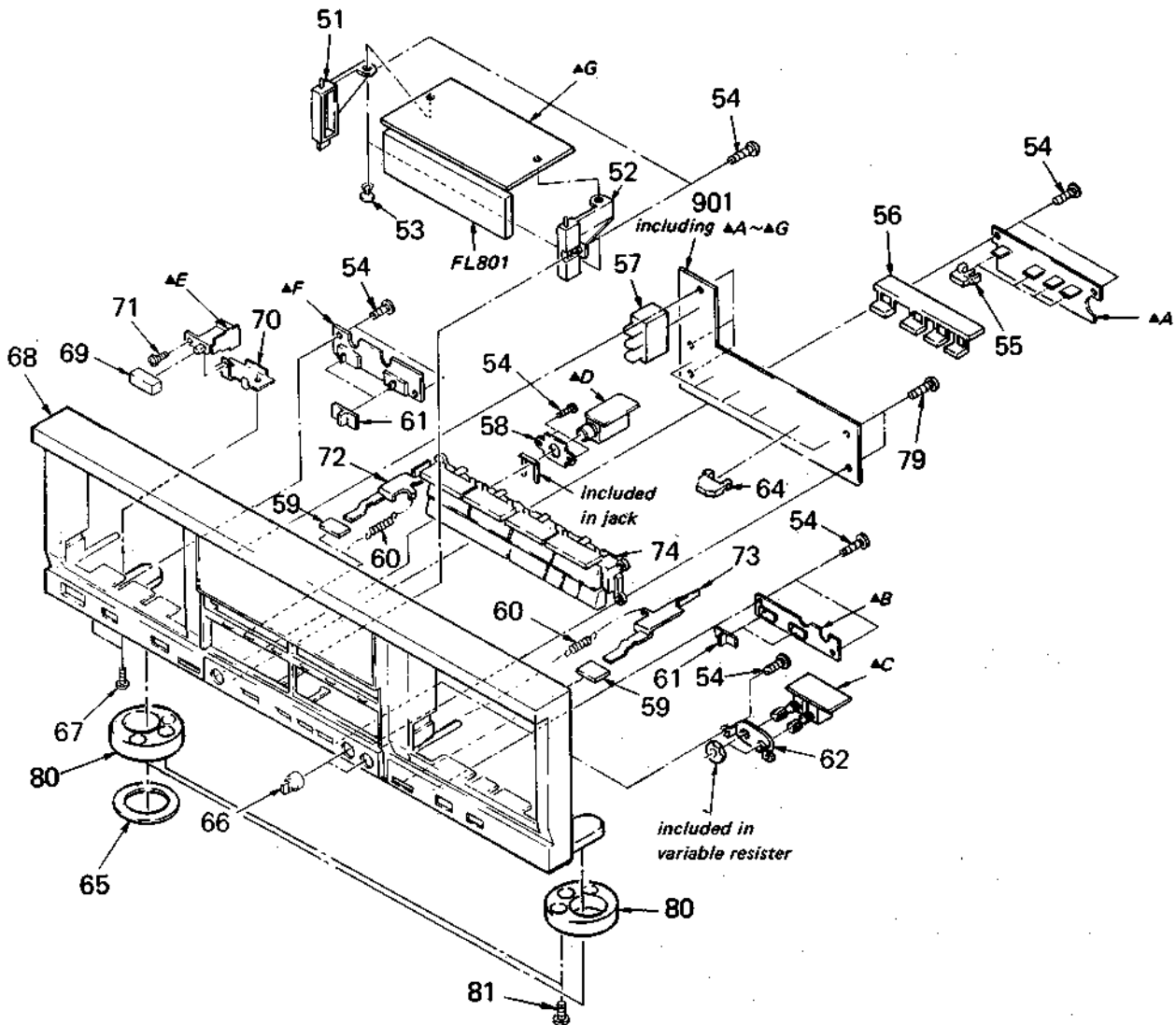


**IC303 CXA1198P**



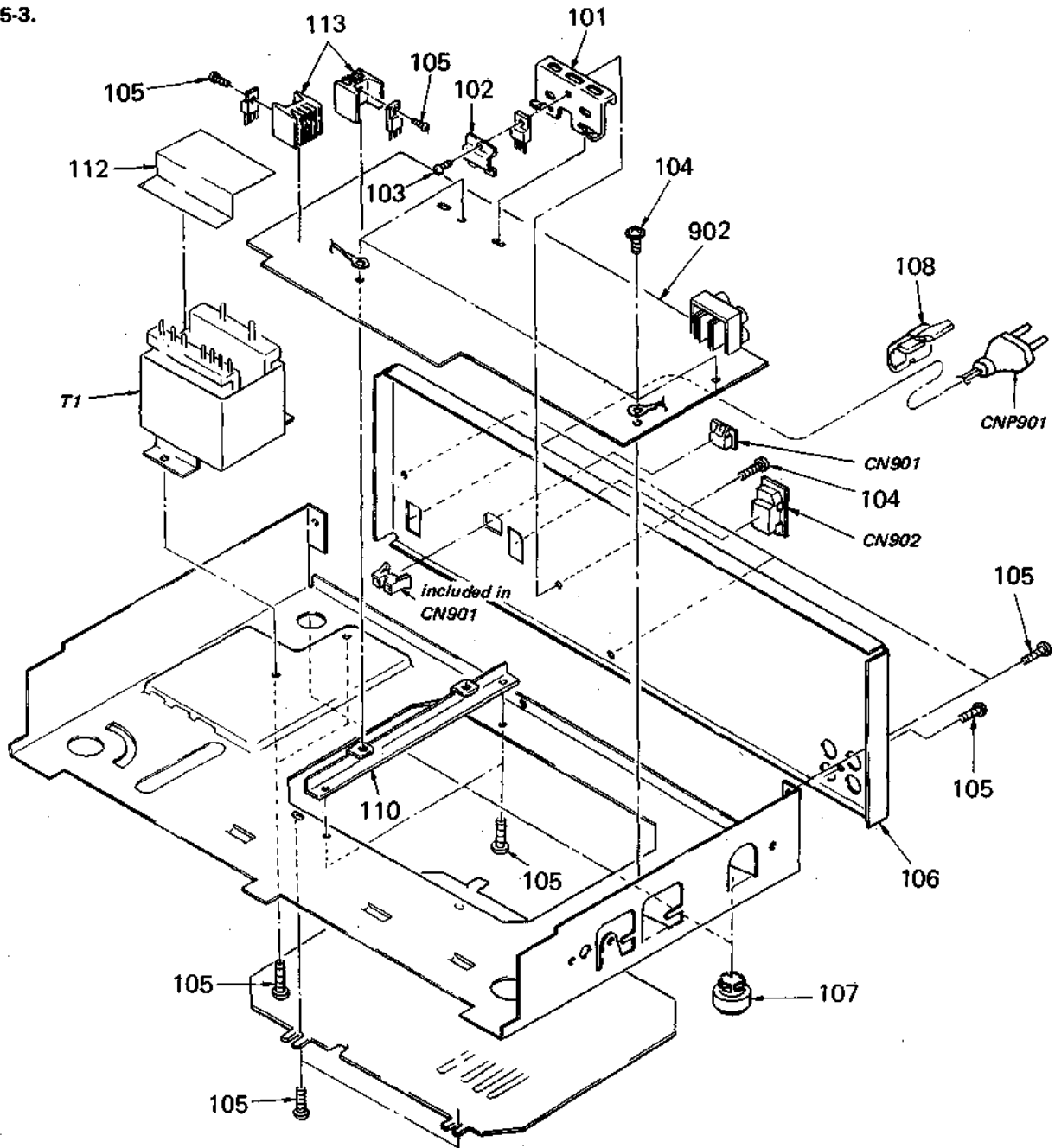


5-2.





No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	*3-343-608-01	HOLDER (LEFT), FL TUBE		69	3-340-168-01	BUTTON (POWER SW)	
52	*3-343-607-01	HOLDER (RIGHT), FL TUBE		70	*3-340-178-01	BRACKET (POWER SW)	
53	4-812-134-00	RIVET NYLON, 3.5		71	7-621-255-15	SCREW +P 2X3	
54	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S		72	*3-340-193-01	SLIDER (EJECT LEFT)	
55	*3-337-108-01	HOLDER, LED		73	*3-340-194-01	SLIDER (EJECT RIGHT)	
56	*3-346-308-01	BUTTON (DUBBING)		74	X-3332-481-1	BUTTON ASSY, CONTROL	
57	3-346-309-01	BUTTON (CUNTER)		79	7-685-135-19	SCREW +BTP 2.6X10 TYPE2 N-S	
58	*3-346-303-01	BRACKET (HEADPHONE)		80	3-332-580-01	(AEP model).....COVER (FOOT)	
59	3-340-188-01	BUTTON (EJECT)			3-332-580-11	(West Germany model)....COVER (FOOT)	
60	4-885-182-11	SPRING, TENSION		81	7-682-548-04	SCREW +BVIT 3x8(S)	
61	3-323-415-41	KNOB, SWITCH TIMER		901	*1-626-030-11	PC BOARD, PANEL	
62	*3-340-196-01	BRACKET (VOLUME)					
64	*3-346-339-01	HOLDER					
65	3-337-121-01	FELT, ORNAMENTAL FOOT					
66	3-304-929-11	KNOB, HEADPHONE					
67	7-621-775-10	SCREW +B 2.6X4					
68	X-3332-490-1	PANEL ASSY, FRONT					

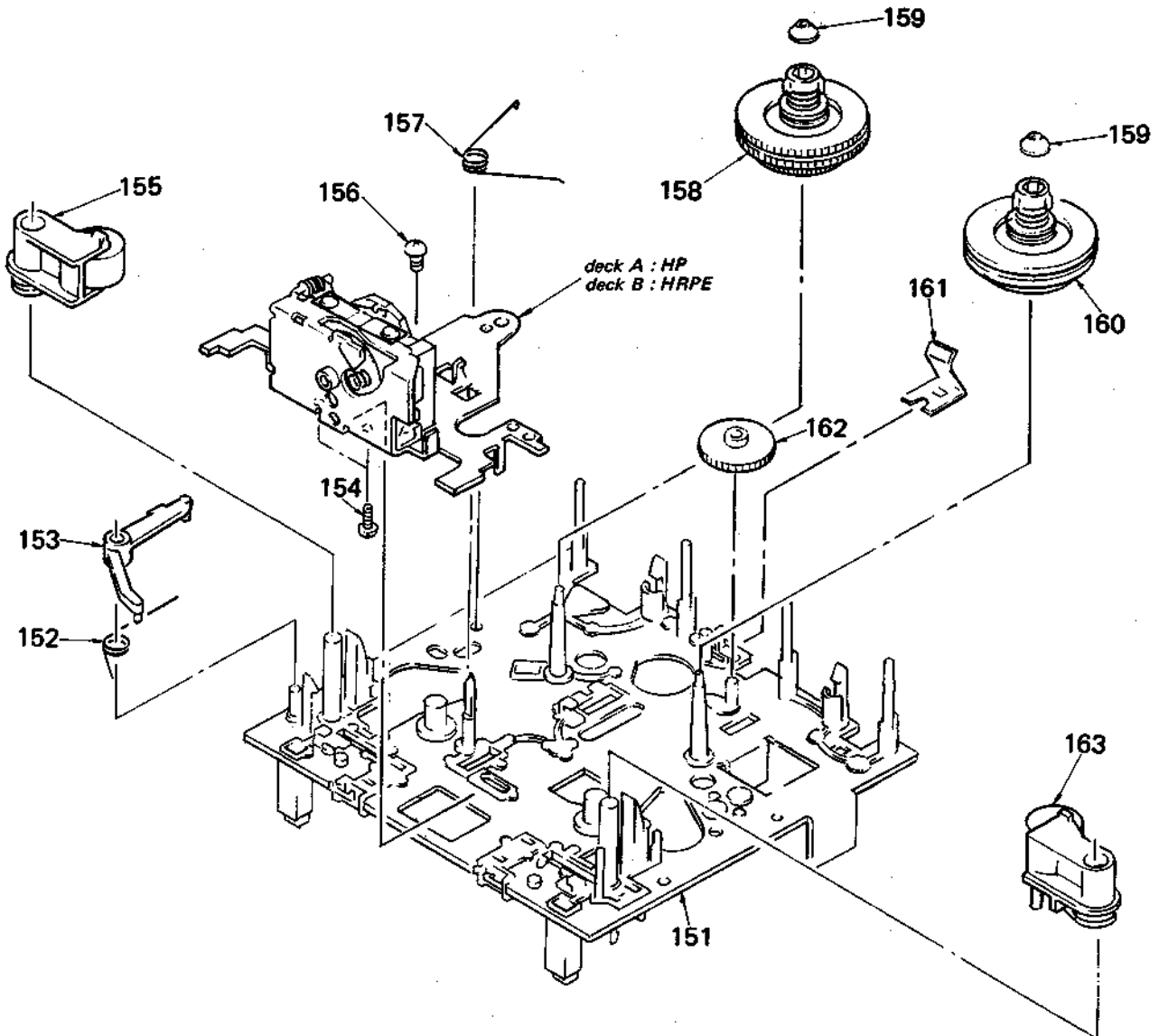
5-3.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	*3-346-338-01	HEAT SINK		110	*3-346-343-01	BRACKET (PCB)	
102	*3-346-337-01	HOLDER (TR)		112	*3-337-136-01	COVER, TRANSFORMER SAFETY	
103	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6		113	*4-363-146-21	HEAT SINK, V.OUT	
104	7-621-849-00	SCREW, TAPPING		902	*A-2056-408-A	MOUNTED PCB, SYSTEM CONTROL	
105	7-682-548-04	SCREW +BYTT 3X8 (S)		CN901	*1-558-520-11	CORD (WITH CONNECTOR) SYNCHRO	
106	3-346-320-21	PANEL, BACK		CN902	*1-559-135-41	CORD (WITH CONNECTOR) CONTROL S	
107	X-4864-303-0	FOOT ASSY		CNP901	*1-555-795-00	CORD, POWER, EULO PLUG	
108	*3-703-244-00	BUSHING (2104), CORD		T1	*1-449-223-11	TRANSFORMER, POWER	

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

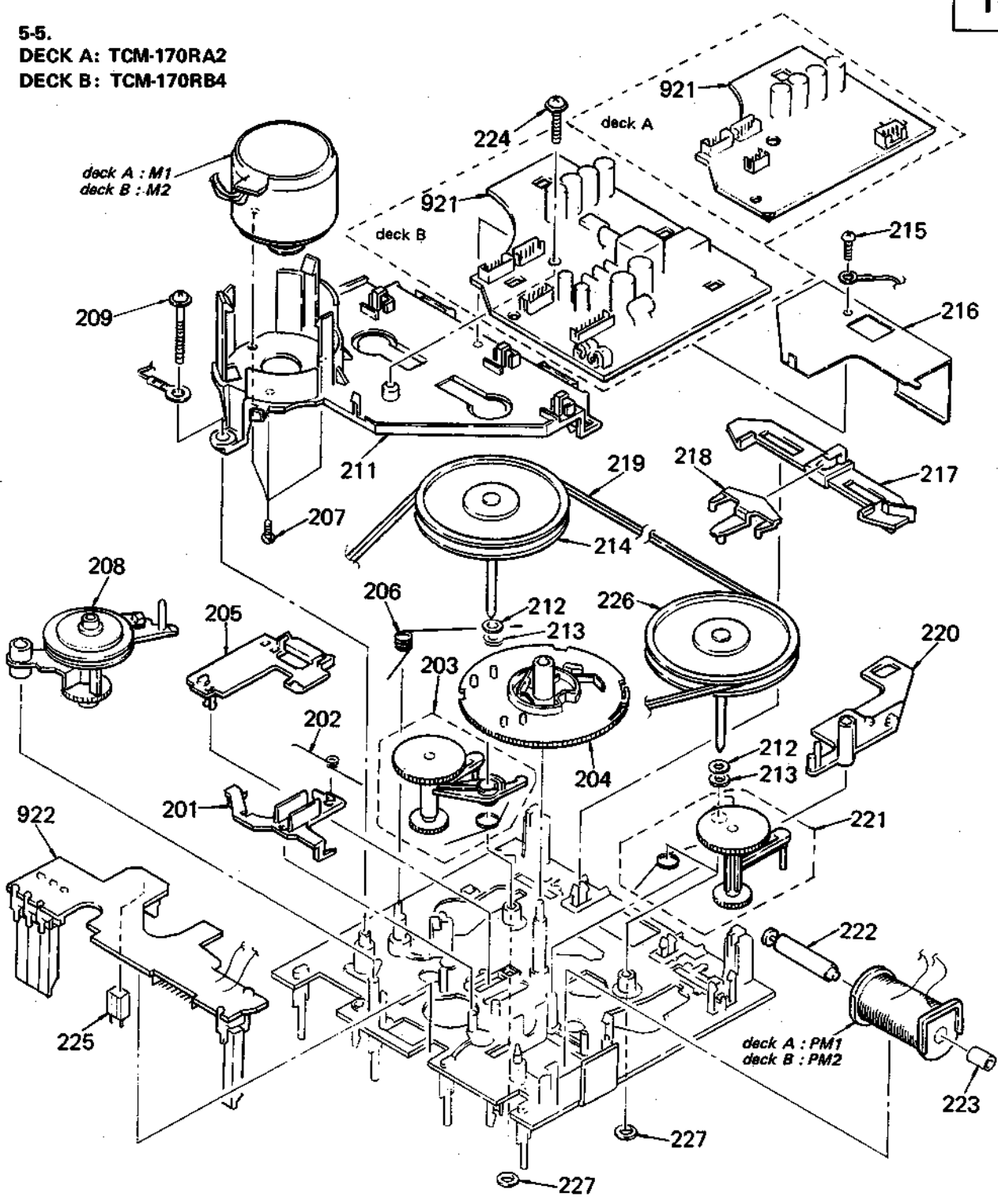
5-4.  
 DECK A: TCM-170RA2  
 DECK B: TCM-170RB4



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
151	*X-3343-418-5	CHASSIS ASSY, MECHANICAL		159	3-343-439-01	CAP (REEL TABLE)	
152	3-343-477-01	SPRING, TORSION (EJECT SAFTY)		160	X-3343-401-1	TABEL ASSY, REEL	
153	*3-343-476-03	LEVER (EJECT SAFETY LEVER)		161	3-343-420-01	SPRING, LEAF	
154	7-685-104-19	SCREW +P 2×6 TYPE2 NON-SLIT		162	3-343-411-01	GEAR (FF GEAR)	
155	X-3343-403-1	LEVER (PINCH LEVER REV) ASSY		163	X-3343-402-1	LEVER (PINCH LEVER FWD) ASSY	
156	7-621-773-86	SCREW +PYTT 2.6X4 (S)		HP	A-2108-122-A	CHASSIS ASSY, HEAD	
157	3-343-401-01	SPRING, TORSION		HRPE	A-2108-043-A	CHASSIS ASSY, HEAD	
158	X-3343-415-1	TABEL (REV) ASSY, REEL					



**5-5.**  
**DECK A: TCM-170RA2**  
**DECK B: TCM-170RB4**



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	3-343-453-01	SLIDER (BRAKE PLATE)		219	3-343-426-01	BELT (CAPSTAN BELT SQUARE)	
202	3-343-429-01	SPRING, TORSION		220	*3-343-456-01	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 SENSER A)	
208	X-3343-414-1	LAYER (FR ARM) ASSY		226	X-3343-416-1	FLYWHEEL (REV) COMPLETE ASSY	
209	3-343-403-01	SCREW (PTTWH 2X18)		227	3-343-473-01	WASHER, NYLON	
211	*X-3343-407-1	BASE (THRUST RETAINER) ASSY		921	*A-2010-267-A	(DECK B)...MOUNTED PCB, MD (B)	
212	4-605-835-11	WASHER (2.6), POLYSLIDER			1-624-147-11	(DECK A)...PC BOARD, MD (A)	
213	3-307-482-00	WASHER, LUMILER		922	*1-624-148-11	PC BOARD, LEAF SW	
214	X-3343-411-1	FLYWHEEL COMPLETE ASSY		M1	X-3343-408-1	MOTOR ASSY	
215	7-685-102-19	SCREW *P 2X4 NON-SLIT TYPE 2		M2	X-3343-408-1	MOTOR ASSY	
216	*3-343-480-01	PLATE, SHIELD		PM1	1-454-456-11	SOLENOID, PLUNGER	
217	*3-343-457-01	SLIDER (REVERSE SLIDER)		PM2	1-454-456-11	SOLENOID, PLUNGER	
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:  $\mu$ 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 or dotted line with mark are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				
901	*1-626-030-11	PC BOARD, PANEL				
902	*A-2056-408-A	MOUNTED PCB, SYSTEM CONTROL				
921	*A-2010-267-A 1-624-147-11	(DECK B)...MOUNTED PCB, MD (B) (DECK A)...PC BOARD, MD (A)				
922	*1-624-148-11	PC BOARD, LEAF SW				
C41A	1-162-289-31	CERAMIC	390PF	10%	50V	
C41B	1-130-469-00	MYLAR	680PF	5%	50V	
C42	1-136-157-00	FILM	0.022MF	5%	50V	
C43	1-124-282-00	ELECT	22MF	20%	25V	
C44B	1-162-290-31	CERAMIC	470PF	10%	50V	
C45B	1-136-440-11	FILM	39PF	5%	630V	
C46B	1-136-440-11	FILM	39PF	5%	630V	
C61A	1-162-289-31	CERAMIC	390PF	10%	50V	
C61B	1-130-469-00	MYLAR	680PF	5%	50V	
C62	1-136-157-00	FILM	0.022MF	5%	50V	
C63	1-124-282-00	ELECT	22MF	20%	25V	
C64B	1-162-290-31	CERAMIC	470PF	10%	50V	
C47	1-136-437-11	FILM	220MF	5%	630V	
C65B	1-136-440-11	FILM	39PF	5%	630V	
C66B	1-136-440-11	FILM	39PF	5%	630V	
C67	1-136-437-11	FILM	220MF	5%	630V	
C81	1-126-101-11	ELECT	100MF	20%	16V	
C82	1-126-101-11	ELECT	100MF	20%	16V	
C83B	1-124-499-11	ELECT	1MF	20%	50V	
C84B	1-124-925-11	ELECT	2.2MF	20%	50V	
C85B	1-130-279-00	FILM	0.0018MF	5%	100V	
C86B	1-136-228-11	FILM	0.0012MF	5%	100V	
C87B	1-136-228-11	FILM	0.0012MF	5%	100V	
C88B	1-136-557-11	FILM	0.0033MF	5%	630V	
C89B	1-161-494-00	CERAMIC	0.022MF	25V		
C90B	1-126-101-11	ELECT	100MF	20%	16V	
C101	1-136-157-00	FILM	0.022MF	5%	50V	
C102	1-162-290-31	CERAMIC	470PF	10%	50V	
C103	1-161-375-00	CERAMIC	0.0022MF	30%	16V	
C104	1-124-925-11	ELECT	2.2MF	20%	50V	
C105	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C106	1-136-173-00	FILM	0.47MF	5%	50V	
C107	1-136-167-00	FILM	0.15MF	5%	50V	
C108	1-136-155-00	FILM	0.015MF	5%	50V	
C109	1-136-169-00	FILM	0.22MF	5%	50V	
C110	1-136-163-00	FILM	0.068MF	5%	50V	
C111	1-136-161-00	FILM	0.047MF	5%	50V	
C112	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C113	1-136-153-00	FILM	0.01MF	5%	50V	
C114	1-124-927-11	ELECT	4.7MF	20%	50V	
C115	1-124-273-00	ELECT	3.3MF	20%	50V	

Ref.No.	Part No.	Description				
C116	1-124-927-11	ELECT	4.7MF	20%	50V	
C117	1-124-464-11	ELECT	0.22MF	20%	50V	
C118	1-123-382-00	ELECT	3.3MF	20%	50V	
C119	1-124-927-11	ELECT	4.7MF	20%	50V	
C120	1-124-273-00	ELECT	3.3MF	20%	50V	
C201	1-136-157-00	FILM	0.022MF	5%	50V	
C202	1-162-290-31	CERAMIC	470PF	10%	50V	
C203	1-161-375-00	CERAMIC	0.0022MF	30%	16V	
C204	1-124-925-11	ELECT	2.2MF	20%	50V	
C205	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C206	1-136-173-00	FILM	0.47MF	5%	50V	
C207	1-136-167-00	FILM	0.15MF	5%	50V	
C208	1-136-155-00	FILM	0.015MF	5%	50V	
C209	1-136-169-00	FILM	0.22MF	5%	50V	
C210	1-136-163-00	FILM	0.068MF	5%	50V	
C211	1-136-161-00	FILM	0.047MF	5%	50V	
C212	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C213	1-136-153-00	FILM	0.01MF	5%	50V	
C214	1-124-927-11	ELECT	4.7MF	20%	50V	
C215	1-124-273-00	ELECT	3.3MF	20%	50V	
C216	1-124-927-11	ELECT	4.7MF	20%	50V	
C217	1-124-464-11	ELECT	0.22MF	20%	50V	
C218	1-123-382-00	ELECT	3.3MF	20%	50V	
C219	1-124-927-11	ELECT	4.7MF	20%	50V	
C220	1-124-273-00	ELECT	3.3MF	20%	50V	
C301	1-124-927-11	ELECT	4.7MF	20%	50V	
C302	1-126-176-11	ELECT	220MF	20%	10V	
C303	1-126-176-11	ELECT	220MF	20%	10V	
C304	1-124-499-11	ELECT	1MF	20%	50V	
C305	1-124-925-11	ELECT	2.2MF	20%	50V	
C306	1-136-157-00	FILM	0.022MF	5%	50V	
C307	1-162-215-31	CERAMIC	47PF	5%	50V	
C308	1-124-902-00	ELECT	0.47MF	20%	50V	
C309	1-126-176-11	ELECT	220MF	20%	10V	
C310	1-126-176-11	ELECT	220MF	20%	10V	
C311	1-124-925-11	ELECT	2.2MF	20%	50V	
C312	1-124-477-11	ELECT	47MF	20%	16V	
C313	1-124-477-11	ELECT	47MF	20%	16V	
C501	1-124-636-00	ELECT	3300MF	20%	25V	
C502	1-124-563-11	ELECT	2200MF	20%	25V	
C503	1-124-925-11	ELECT	2.2MF	20%	50V	
C504	1-124-472-11	ELECT	470MF	20%	10V	
C506	1-124-120-11	ELECT	220MF	20%	16V	
C507	1-124-443-00	ELECT	100MF	20%	10V	
C508	1-124-472-11	ELECT	470MF	20%	10V	

Ref.No.	Part No.	Description					Ref.No.	Part No.	Description
C509	1-124-478-11	ELECT	100MF	20%	25V		CT41	1-141-391-11	CAP, TRIMMER
C510	1-124-120-11	ELECT	220MF	20%	16V		CT61	1-141-391-11	CAP, TRIMMER
C511	1-124-472-11	ELECT	470MF	20%	10V		D11	8-719-940-76	DIODE 1SS132
C512	1-124-912-11	ELECT	330MF	20%	50V		D12	8-719-950-74	DIODE SLR-314D
C513	1-124-908-11	ELECT	22MF	20%	50V		D81	8-719-940-76	DIODE 1SS132
C514	1-124-927-11	ELECT	4.7MF	20%	50V		D101	8-719-000-26	DIODE US1060M
C515	1-124-927-11	ELECT	4.7MF	20%	50V		D201	8-719-000-26	DIODE US1060M
C516	1-124-477-11	ELECT	47MF	20%	16V		D301	8-719-000-26	DIODE US1060M
C517	1-124-927-11	ELECT	4.7MF	20%	50V		D302	8-719-000-26	DIODE US1060M
C518	1-161-379-00	CERAMIC	0.01MF	30%	16V		D304	8-719-000-26	DIODE US1060M
C519	1-161-379-00	CERAMIC	0.01MF	30%	16V		D306	8-719-000-26	DIODE US1060M
C520	1-162-294-31	CERAMIC	0.001MF	10%	50V		D501	8-719-200-77	DIODE 10E2N
C521	1-124-925-11	ELECT	2.2MF	20%	50V		D502	8-719-200-77	DIODE 10E2N
C522	1-161-494-00	CERAMIC	0.022MF		25V		D503	8-719-200-77	DIODE 10E2N
C523	1-124-925-11	ELECT	2.2MF	20%	50V		D504	8-719-200-77	DIODE 10E2N
C525	1-161-494-00	CERAMIC	0.022MF		25V		D505	8-719-200-77	DIODE 10E2N
C526	1-161-377-00	CERAMIC	0.0047MF	30%	16V		D506	8-719-200-77	DIODE 10E2N
C527	1-161-494-00	CERAMIC	0.022MF		25V		D509	8-719-933-41	DIODE HZS6C3L
C528	1-161-494-00	CERAMIC	0.022MF		25V		D510	8-719-000-26	DIODE US1060M
C801	1-161-494-00	CERAMIC	0.022MF		25V		D511	8-719-000-26	DIODE US1060M
C802	1-161-494-00	CERAMIC	0.022MF		25V		D512	8-719-000-26	DIODE US1060M
C803	1-161-494-00	CERAMIC	0.022MF		25V		D513	8-719-000-26	DIODE US1060M
CN701	*1-564-505-11	PLUG, CONNECTOR 2P					D514	8-719-933-33	DIODE HZS6A1L
CN702	*1-564-505-21	PLUG, CONNECTOR 2P					D515	8-719-333-39	DIODE HZS7C1L
CN801	*1-564-339-61	PIN, CONNECTOR 5P					D516	8-719-200-77	DIODE 10E2N
CN802	*1-564-337-81	PIN, CONNECTOR 3P					D517	8-719-200-77	DIODE 10E2N
CN803	*1-564-336-51	PIN, CONNECTOR 2P					D518	8-719-200-77	DIODE 10E2N
CN804	*1-506-503-11	PIN, CONNECTOR 9P					D519	8-719-000-26	DIODE US1060M
CN805	*1-564-338-61	PIN, CONNECTOR 4P					D520	8-719-200-77	DIODE 10E2N
CN806	*1-564-336-61	PIN, CONNECTOR 2P					D521	8-719-000-26	DIODE US1060M
CN807	*1-564-338-51	PIN, CONNECTOR 4P					D522	8-719-000-26	DIODE US1060M
CN808	*1-564-342-51	PIN, CONNECTOR 8P					D523	8-719-000-26	DIODE US1060M
CN810	*1-564-339-51	PIN, CONNECTOR 5P					D524	8-719-000-26	DIODE US1060M
CN812	*1-564-340-61	PIN, CONNECTOR 6P					D525	8-719-000-26	DIODE US1060M
CN813	*1-564-340-51	PIN, CONNECTOR 6P					D526	8-719-000-26	DIODE US1060M
CN814	*1-564-337-51	PIN, CONNECTOR 3P					D527	8-719-948-79	DIODE GL8HD34T
CN815	*1-564-337-71	PIN, CONNECTOR 3P					D528	8-719-948-79	DIODE GL8HD34T
CN817	*1-564-337-61	PIN, CONNECTOR 3P					D529	8-719-948-81	DIODE GL8NG34T
CN818	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P					D530	8-719-948-80	DIODE GL8HY34T
CN901	*1-558-520-11	CORD (WITH CONNECTOR) SYNCHRO					D531	8-719-303-00	DIODE SEL2510C-C
CN902	*1-559-135-41	CORD (WITH CONNECTOR) CONTROL S					D532	8-719-303-84	DIODE SEL4914D-C
CNP11B	*1-564-499-11	PIN, CONNECTOR 6P					D533	8-719-300-71	DIODE SEL2210R-C
CNP11A	*1-564-501-11	PIN, CONNECTOR 8P					D534	8-719-303-00	DIODE SEL2510C-C
CNP12A	*1-564-337-51	PIN, CONNECTOR 3P					D535	8-719-812-42	DIODE TLY124
CNP12B	*1-564-340-71	PIN, CONNECTOR 6P					D536	8-719-812-42	DIODE TLY124
CNP13B	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P					D537	8-719-812-42	DIODE TLY124
CNP14B	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P					D538	8-719-812-42	DIODE TLY124
CNP15B	*1-564-506-11	PLUG, CONNECTOR 3P					D539	8-719-000-26	DIODE US1060M
CNP81A	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P					D540	8-719-000-26	DIODE US1060M
CNP81B	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P					D801	8-719-000-26	DIODE US1060M
CNP82	*1-564-339-51	PIN, CONNECTOR 5P					D802	8-719-000-26	DIODE US1060M
CNP83B	*1-564-338-51	PIN, CONNECTOR 4P					D803	8-719-000-26	DIODE US1060M
CNP901A	*1-555-795-00	CORD, POWER, EULO PLUG					D804	8-719-000-26	DIODE US1060M
CP501	1-233-120-11	COMPOSITION CIRCUIT BLOCK					D805	8-719-000-26	DIODE US1060M
CP502	1-233-119-11	COMPOSITION CIRCUIT BLOCK					FL801	1-519-447-11	INDICATOR TUBE, FLUORESCENT
CP801	1-233-140-11	COMPOSITION CIRCUIT BLOCK					HP	A-2108-122-A	CHASSIS ASSY, HEAD
CP802	1-233-141-11	COMPOSITION CIRCUIT BLOCK							

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

# TC-WR800

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description			
HRPE	A-2108-043-A	CHASSIS ASSY, HEAD	Q517	8-729-115-81	TRANSISTOR	BA1F4N		
IC81	8-759-111-44	IC UPC4570C-1	Q518	8-729-802-22	TRANSISTOR	2SB1014		
IC301	8-759-601-41	IC M4053BP	Q519	8-729-115-15	TRANSISTOR	BN1A4M		
IC302	8-752-018-70	IC CX20187	Q520	8-729-801-93	TRANSISTOR	2SD1387		
IC303	8-752-032-60	IC CXA1198P	Q521	8-729-115-15	TRANSISTOR	BN1A4M		
IC304	8-759-240-51	IC TC40518P	Q522	8-729-115-12	TRANSISTOR	BN1L4M		
IC305	8-759-600-02	IC M5218L	Q523	8-729-806-38	TRANSISTOR	2SC3399		
IC306	8-759-600-02	IC M5218L	Q524	8-729-115-12	TRANSISTOR	BN1L4M		
IC307	8-759-600-02	IC M5218L	Q525	8-729-115-12	TRANSISTOR	BN1L4M		
IC501	8-752-804-34	IC CXP5048H-1275	Q526	8-729-115-12	TRANSISTOR	BN1L4M		
IC502	8-759-240-52	IC TC4052BP	Q527	8-729-115-15	TRANSISTOR	BN1A4M		
IC503	8-759-601-45	IC M4069UBP	Q528	8-729-115-15	TRANSISTOR	BN1A4M		
IC801	8-759-971-72	IC MB88517B-510N	Q529	8-729-115-15	TRANSISTOR	BN1A4M		
J301	1-507-796-21	JACK (HEADPHONES)	Q530	8-729-115-15	TRANSISTOR	BN1A4M		
J302	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)	Q531	8-729-806-28	TRANSISTOR	2SC3402		
L41	1-410-780-11	INDUCTOR	Q801	8-729-117-54	TRANSISTOR	2SA1175		
L61	1-410-780-11	INDUCTOR	Q802	8-729-117-54	TRANSISTOR	2SA1175		
L41	1-410-780-11	INDUCTOR	27MMH					
L61	1-410-780-11	INDUCTOR	27MMH					
LPF101	1-235-980-11	FILTER, LOW PASS	R11A	1-247-834-11	CARBON	1.3K	5%	1/4W
LPF201	1-235-980-11	FILTER, LOW PASS	R12B	1-249-414-11	CARBON	560	5%	1/4W
M1	X-3343-408-1	MOTOR ASSY	R13B	1-247-818-11	CARBON	300	5%	1/4W
M2	X-3343-408-1	MOTOR ASSY	R14	1-249-408-11	CARBON	180	5%	1/4W
PM1	1-454-456-11	SOLENOID, PLUNGER	R15B	1-249-413-11	CARBON	470	5%	1/4W
PM2	1-454-456-11	SOLENOID, PLUNGER	R17	1-249-437-11	CARBON	47K	5%	1/4W
Q11	8-729-117-54	TRANSISTOR	R18	1-249-437-11	CARBON	47K	5%	1/4W
Q12	8-719-939-11	TRANSISTOR	R41A	1-247-881-00	CARBON	120K	5%	1/4W
Q14B	8-719-809-43	TRANSISTOR	R41B	1-249-435-11	CARBON	33K	5%	1/4W
Q81B	8-729-801-93	TRANSISTOR	R42A	1-249-405-11	CARBON	100	5%	1/4W
Q82B	8-729-100-13	TRANSISTOR	R42B	1-249-404-00	CARBON	82	5%	1/4W
Q83B	8-729-100-13	TRANSISTOR	R43A	1-247-882-11	CARBON	130K	5%	1/4W
Q101	8-729-600-27	TRANSISTOR	R43B	1-247-885-00	CARBON	180K	5%	1/4W
Q102	8-729-806-38	TRANSISTOR	R44	1-249-426-11	CARBON	5.6K	5%	1/4W
Q103	8-729-806-28	TRANSISTOR	R45B	1-249-428-11	CARBON	8.2K	5%	1/4W
Q104	8-729-600-27	TRANSISTOR	R61A	1-247-881-00	CARBON	120K	5%	1/4W
Q201	8-729-600-27	TRANSISTOR	R61B	1-249-435-11	CARBON	33K	5%	1/4W
Q202	8-729-806-38	TRANSISTOR	R62A	1-249-405-11	CARBON	100	5%	1/4W
Q203	8-729-806-28	TRANSISTOR	R62B	1-249-404-00	CARBON	82	5%	1/4W
Q204	8-729-600-27	TRANSISTOR	R63A	1-247-882-11	CARBON	130K	5%	1/4W
Q301	8-729-806-38	TRANSISTOR	R63B	1-247-885-00	CARBON	180K	5%	1/4W
Q302	8-729-115-15	TRANSISTOR	R64	1-249-426-11	CARBON	5.6K	5%	1/4W
Q303	8-729-115-12	TRANSISTOR	R65B	1-249-428-11	CARBON	8.2K	5%	1/4W
Q304	8-729-600-27	TRANSISTOR	R81	1-249-409-11	CARBON	220	5%	1/4W
Q305	8-729-117-54	TRANSISTOR	R82	1-249-409-11	CARBON	220	5%	1/4W
Q501	8-729-107-25	TRANSISTOR	R83B	1-249-429-11	CARBON	10K	5%	1/4W
Q502	8-729-600-27	TRANSISTOR	R84B	△ 1-212-851-00	FUSIBLE	5.6	5%	1/4W F
Q503	8-729-107-25	TRANSISTOR	R85B	1-249-436-11	CARBON	39K	5%	1/4W
Q504	8-729-600-27	TRANSISTOR	R86B	1-249-436-11	CARBON	39K	5%	1/4W
Q505	8-729-600-27	TRANSISTOR	R001	△ 1-212-939-00	FUSIBLE	1	5%	1/2W F
Q506	8-729-111-67	TRANSISTOR	R002	△ 1-212-939-00	FUSIBLE	1	5%	1/2W F
Q507	8-729-117-54	TRANSISTOR	R003	△ 1-212-939-00	FUSIBLE	1	5%	1/2W F
Q508	8-729-117-54	TRANSISTOR	R004	△ 1-212-939-00	FUSIBLE	1	5%	1/2W F
Q509	8-729-364-72	TRANSISTOR	R101	1-249-433-11	CARBON	22K	5%	1/4W
Q510	8-729-117-54	TRANSISTOR	R102	1-249-417-11	CARBON	1K	5%	1/4W
Q513	8-729-802-22	TRANSISTOR	R103	1-249-421-11	CARBON	2.2K	5%	1/4W
Q514	8-729-115-15	TRANSISTOR	R104	1-249-433-11	CARBON	22K	5%	1/4W
Q515	8-729-801-93	TRANSISTOR	R105	1-249-421-11	CARBON	2.2K	5%	1/4W
Q516	8-729-600-27	TRANSISTOR	R106	1-249-423-11	CARBON	3.3K	5%	1/4W

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

Ref.No.	Part No.	Description													
R107	1-249-423-11	CARBON	3.3K	5%	1/4W										
R108	1-247-887-00	CARBON	220K	5%	1/4W										
R109	1-249-441-11	CARBON	100K	5%	1/4W										
R110	1-249-423-11	CARBON	3.3K	5%	1/4W										
R111	1-249-428-11	CARBON	8.2K	5%	1/4W										
R112	1-247-846-11	CARBON	4.3K	5%	1/4W										
R113	1-247-822-11	CARBON	430	5%	1/4W										
R114	1-215-430-00	METAL	2.4K	1%	1/6W										
R115	1-249-427-11	CARBON	6.8K	5%	1/4W										
R116	1-249-415-11	CARBON	680	5%	1/4W										
R117	1-249-425-11	CARBON	4.7K	5%	1/4W										
R118	1-249-428-11	CARBON	8.2K	5%	1/4W										
R119	1-249-421-11	CARBON	2.2K	5%	1/4W										
R120	1-249-417-11	CARBON	1K	5%	1/4W										
R121	1-249-434-11	CARBON	27K	5%	1/4W										
R122	1-249-434-11	CARBON	27K	5%	1/4W										
R123	1-249-430-11	CARBON	12K	5%	1/4W										
R124	1-249-397-11	CARBON	22	5%	1/4W										
R125	1-249-429-11	CARBON	10K	5%	1/4W										
R129	1-249-417-11	CARBON	1K	5%	1/4W										
R130	1-249-405-11	CARBON	100	5%	1/4W										
R146	1-249-430-11	CARBON	12K	5%	1/4W										
R201	1-249-433-11	CARBON	22K	5%	1/4W										
R202	1-249-417-11	CARBON	1K	5%	1/4W										
R203	1-249-421-11	CARBON	2.2K	5%	1/4W										
R204	1-249-433-11	CARBON	22K	5%	1/4W										
R205	1-249-421-11	CARBON	2.2K	5%	1/4W										
R206	1-249-423-11	CARBON	3.3K	5%	1/4W										
R207	1-249-423-11	CARBON	3.3K	5%	1/4W										
R208	1-247-887-00	CARBON	220K	5%	1/4W										
R209	1-249-441-11	CARBON	100K	5%	1/4W										
R210	1-249-423-11	CARBON	3.3K	5%	1/4W										
R211	1-249-428-11	CARBON	8.2K	5%	1/4W										
R212	1-247-846-11	CARBON	4.3K	5%	1/4W										
R213	1-247-822-11	CARBON	430	5%	1/4W										
R214	1-215-430-00	METAL	2.4K	1%	1/6W										
R215	1-249-427-11	CARBON	6.8K	5%	1/4W										
R216	1-249-415-11	CARBON	680	5%	1/4W										
R217	1-249-425-11	CARBON	4.7K	5%	1/4W										
R218	1-249-428-11	CARBON	8.2K	5%	1/4W										
R219	1-249-421-11	CARBON	2.2K	5%	1/4W										
R220	1-249-417-11	CARBON	1K	5%	1/4W										
R221	1-249-434-11	CARBON	27K	5%	1/4W										
R222	1-249-434-11	CARBON	27K	5%	1/4W										
R223	1-249-430-11	CARBON	12K	5%	1/4W										
R224	1-249-397-11	CARBON	22	5%	1/4W										
R225	1-249-429-11	CARBON	10K	5%	1/4W										
R229	1-249-417-11	CARBON	1K	5%	1/4W										
R230	1-249-405-11	CARBON	100	5%	1/4W										
R246	1-249-430-11	CARBON	12K	5%	1/4W										
R256	1-249-417-11	CARBON	1K	5%	1/4W										
R301	1-249-429-11	CARBON	10K	5%	1/4W										
R302	1-249-429-11	CARBON	10K	5%	1/4W										
R304	1-249-427-11	CARBON	6.8K	5%	1/4W										
R305	1-249-427-11	CARBON	6.8K	5%	1/4W										
R306	1-249-437-11	CARBON	47K	5%	1/4W										
R307	1-249-437-11	CARBON	47K	5%	1/4W										
R308	1-247-864-11	CARBON	24K	5%	1/4W										
R309	1-249-429-11	CARBON	10K	5%	1/4W										
R310	1-249-417-11	CARBON	1K	5%	1/4W										
R311	1-249-434-11	CARBON	27K	5%	1/4W										
R312	1-249-435-11	CARBON	33K	5%	1/4W										
R313	1-247-860-11	CARBON	16K	5%	1/4W										
R314	1-247-872-11	CARBON	51K	5%	1/4W										
R315	1-249-438-11	CARBON	56K	5%	1/4W										
R316	1-249-434-11	CARBON	27K	5%	1/4W										
R317	1-249-438-11	CARBON	56K	5%	1/4W										
R318	1-249-437-11	CARBON	47K	5%	1/4W										
R319	1-247-868-11	CARBON	36K	5%	1/4W										
R320	1-247-872-11	CARBON	51K	5%	1/4W										
R321	1-247-870-11	CARBON	43K	5%	1/4W										
R322	1-249-435-11	CARBON	33K	5%	1/4W										
R323	1-247-846-11	CARBON	4.3K	5%	1/4W										
R324	1-249-428-11	CARBON	8.2K	5%	1/4W										
R325	1-249-430-11	CARBON	12K	5%	1/4W										
R326	1-247-858-11	CARBON	13K	5%	1/4W										
R327	1-247-872-11	CARBON	51K	5%	1/4W										
R328	1-247-860-11	CARBON	16K	5%	1/4W										
R329	1-247-866-11	CARBON	30K	5%	1/4W										
R330	1-249-436-11	CARBON	39K	5%	1/4W										
R331	1-247-872-11	CARBON	51K	5%	1/4W										
R332	1-247-874-11	CARBON	62K	5%	1/4W										
R333	1-249-441-11	CARBON	100K	5%	1/4W										
R334	1-247-876-11	CARBON	75K	5%	1/4W										
R335	1-249-441-11	CARBON	100K	5%	1/4W										
R336	1-247-876-11	CARBON	75K	5%	1/4W										
R337	1-247-870-11	CARBON	43K	5%	1/4W										
R338	1-249-441-11	CARBON	100K	5%	1/4W										
R339	1-247-874-11	CARBON	62K	5%	1/4W										
R340	1-247-882-11	CARBON	130K	5%	1/4W										
R341	1-249-438-11	CARBON	56K	5%	1/4W										
R342	1-249-438-11	CARBON	56K	5%	1/4W										
R343	1-247-880-11	CARBON	110K	5%	1/4W										
R344	1-249-437-11	CARBON	47K	5%	1/4W										
R345	1-249-439-11	CARBON	68K	5%	1/4W										
R346	1-249-441-11	CARBON	100K	5%	1/4W										
R347	1-249-429-11	CARBON	10K	5%	1/4W										
R348	1-249-441-11	CARBON	100K	5%	1/4W										
R349	1-249-423-11	CARBON	3.3K	5%	1/4W										
R350	1-249-417-11	CARBON	1K	5%	1/4W										
R351	1-249-428-11	CARBON	8.2K	5%	1/4W										
R352	1-249-441-11	CARBON	100K	5%	1/4W										
R353	1-249-441-11	CARBON	100K	5%	1/4W										
R354	1-249-429-11	CARBON	10K	5%	1/4W										
R355	1-247-887-00	CARBON	220K	5%	1/4W										
R356	1-249-429-11	CARBON	10K	5%	1/4W										
R357	1-249-441-11	CARBON	100K	5%	1/4W										
R358	1-249-439-11	CARBON	68K	5%	1/4W										
R359	1-249-417-11	CARBON	1K	5%	1/4W										
R360	1-249-429-11	CARBON	10K	5%	1/4W										
R361	1-249-417-11	CARBON	1K	5%	1/4W										
R363	1-249-417-11	CARBON	1K	5%	1/4W										
R364	1-249-411-11	CARBON	330	5%	1/4W										
R365	1-249-437-11	CARBON	47K	5%	1/4W										

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Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
R366	1-215-469-00	METAL	100K	1%	1/6W	R546	1-249-430-11	CARBON	12K	5%	1/4W
R369	1-249-430-11	CARBON	12K	5%	1/4W	R547	1-249-433-11	CARBON	22K	5%	1/4W
R370	1-247-848-11	CARBON	5.1K	5%	1/4W	R548	1-249-425-11	CARBON	4.7K	5%	1/4W
R371	1-249-422-11	CARBON	2.7K	5%	1/4W	R549	1-249-433-11	CARBON	22K	5%	1/4W
R372	1-249-437-11	CARBON	47K	5%	1/4W	R550	1-249-437-11	CARBON	47K	5%	1/4W
R501	1-249-421-11	CARBON	2.2K	5%	1/4W	R551	1-249-430-11	CARBON	12K	5%	1/4W
R502	1-249-421-11	CARBON	2.2K	5%	1/4W	R552	1-249-437-11	CARBON	47K	5%	1/4W
R503	1-249-421-11	CARBON	2.2K	5%	1/4W	R553	1-249-425-11	CARBON	4.7K	5%	1/4W
R504	1-249-421-11	CARBON	2.2K	5%	1/4W	R554	1-249-425-11	CARBON	4.7K	5%	1/4W
R505	1-249-409-11	CARBON	220	5%	1/4W	R555	1-249-421-11	CARBON	2.2K	5%	1/4W
R506	1-249-418-11	CARBON	1.2K	5%	1/4W	R556	1-249-417-11	CARBON	1K	5%	1/4W
R507	1-249-417-11	CARBON	1K	5%	1/4W	R558	1-249-413-11	CARBON	470	5%	1/4W
R508	1-249-421-11	CARBON	2.2K	5%	1/4W	R559	1-249-413-11	CARBON	470	5%	1/4W
R509	1-249-421-11	CARBON	2.2K	5%	1/4W	R560	1-249-413-11	CARBON	470	5%	1/4W
R510	1-249-417-11	CARBON	1K	5%	1/4W	R561	1-249-412-11	CARBON	390	5%	1/4W
R511	1-249-428-11	CARBON	8.2K	5%	1/4W	R562	1-249-405-11	CARBON	100	5%	1/4W
R512	1-249-432-11	CARBON	18K	5%	1/4W	R563	1-249-408-11	CARBON	180	5%	1/4W
R513	1-249-423-11	CARBON	3.3K	5%	1/4W	R564	1-249-409-11	CARBON	220	5%	1/4W
R514	1-249-437-11	CARBON	47K	5%	1/4W	R565	1-249-405-11	CARBON	100	5%	1/4W
R515	1-249-417-11	CARBON	1K	5%	1/4W	R566	1-249-408-11	CARBON	180	5%	1/4W
R516	1-249-421-11	CARBON	2.2K	5%	1/4W	R567	1-249-408-11	CARBON	180	5%	1/4W
R517	1-249-393-11	CARBON	10	5%	1/4W	R568	1-249-408-11	CARBON	180	5%	1/4W
R518	1-249-437-11	CARBON	47K	5%	1/4W	R569	1-249-408-11	CARBON	180	5%	1/4W
R521	1-249-437-11	CARBON	47K	5%	1/4W	R570	1-249-429-11	CARBON	10K	5%	1/4W
R522	1-249-425-11	CARBON	4.7K	5%	1/4W	R571	1-249-418-11	CARBON	1.2K	5%	1/4W
R523	1-249-413-11	CARBON	470	5%	1/4W	R572	1-249-418-11	CARBON	1.2K	5%	1/4W
R524	1-249-417-11	CARBON	1K	5%	1/4W	R573	1-249-420-11	CARBON	1.8K	5%	1/4W
R525	1-249-425-11	CARBON	4.7K	5%	1/4W	R574	1-249-418-11	CARBON	1.2K	5%	1/4W
R527	1-249-429-11	CARBON	10K	5%	1/4W	R575	1-249-420-11	CARBON	1.8K	5%	1/4W
R528	1-249-421-11	CARBON	2.2K	5%	1/4W	R576	1-249-418-11	CARBON	1.2K	5%	1/4W
R529	1-249-436-11	CARBON	39K	5%	1/4W	R577	1-249-420-11	CARBON	1.8K	5%	1/4W
R531	1-247-895-00	CARBON	470K	5%	1/4W	R578	1-249-423-11	CARBON	3.3K	5%	1/4W
R532	1-249-436-11	CARBON	39K	5%	1/4W	R579	1-249-418-11	CARBON	1.2K	5%	1/4W
R534	1-247-895-00	CARBON	470K	5%	1/4W	R580	1-249-420-11	CARBON	1.8K	5%	1/4W
R535	1-249-425-11	CARBON	4.7K	5%	1/4W	R581	1-249-423-11	CARBON	3.3K	5%	1/4W
R536	1-249-413-11	CARBON	470	5%	1/4W	R582	1-249-418-11	CARBON	1.2K	5%	1/4W
R537	1-249-417-11	CARBON	1K	5%	1/4W	R583	1-249-420-11	CARBON	1.8K	5%	1/4W
R538	1-249-425-11	CARBON	4.7K	5%	1/4W	R584	1-249-430-11	CARBON	12K	5%	1/4W
R539	1-249-433-11	CARBON	22K	5%	1/4W	R585	1-247-842-11	CARBON	3K	5%	1/4W
R540	1-249-417-11	CARBON	1K	5%	1/4W	R586	1-249-405-11	CARBON	100	5%	1/4W
R541	1-249-433-11	CARBON	22K	5%	1/4W	R587	1-249-437-11	CARBON	47K	5%	1/4W
R542	1-249-417-11	CARBON	1K	5%	1/4W	R801	1-249-421-11	CARBON	2.2K	5%	1/4W
R543	1-249-405-11	CARBON	100	5%	1/4W	R802	1-249-421-11	CARBON	2.2K	5%	1/4W
R544	1-249-432-11	CARBON	18K	5%	1/4W	R803	1-249-429-11	CARBON	10K	5%	1/4W
R545	1-249-393-11	CARBON	10	5%	1/4W	R804	1-249-437-11	CARBON	47K	5%	1/4W

Ref.No.	Part No.	Description
R805	1-249-437-11	CARBON 47K 5% 1/4W
R806	1-249-429-11	CARBON 10K 5% 1/4W
R807	1-249-437-11	CARBON 47K 5% 1/4W
R808	1-249-425-11	CARBON 4.7K 5% 1/4W
R809	1-249-437-11	CARBON 47K 5% 1/4W
R821	1-249-428-11	CARBON 8.2K 5% 1/4W
R822	1-249-423-11	CARBON 3.3K 5% 1/4W
RV41	1-228-989-00	RES, ADJ, CARBON 470
RV61	1-228-989-00	RES, ADJ, CARBON 470
RV101	1-228-994-00	RES, ADJ, CARBON 10K
RV201	1-228-994-00	RES, ADJ, CARBON 10K
RV301	1-238-139-11	RES, VAR, CARBON 20K/20K (BALANCE)
RV302	1-238-138-11	RES, VAR, CARBON 50K/50K (VOLUME)
RV501	1-228-996-00	RES, ADJ, CARBON 47K
RY81	1-515-614-11	RELAY
S11	1-571-281-21	SWITCH, LEAF
S12B	1-571-281-21	SWITCH, LEAF
S13B	1-571-281-21	SWITCH, LEAF
S14A	1-571-281-21	SWITCH, LEAF
S301	1-570-837-11	SWITCH, SLIDE (TAPE SELECT)
S302	1-570-837-11	SWITCH, SLIDE (DOLBY NR)
S501	1-553-336-21	SWITCH, PUSH (POWER)
S502	1-570-837-11	SWITCH, SLIDE (TIMER)
S503	1-570-837-11	SWITCH, SLIDE (DIRECTION)
S504	1-554-303-21	SWITCH, KEY BOARD (A-FWD)
S505	1-554-303-21	SWITCH, KEY BOARD (A-REY)
S506	1-554-303-21	SWITCH, KEY BOARD (A-STOP)
S507	1-554-303-21	SWITCH, KEY BOARD (A-REW)
S508	1-554-303-21	SWITCH, KEY BOARD (A-FF)
S509	1-554-303-21	SWITCH, KEY BOARD (B-PAUSE)
S510	1-554-303-21	SWITCH, KEY BOARD (B-FWD)
S511	1-554-303-21	SWITCH, KEY BOARD (B-REY)
S512	1-554-303-21	SWITCH, KEY BOARD (B-REC MUTE)
S513	1-554-303-21	SWITCH, KEY BOARD (B-STOP)
S514	1-554-303-21	SWITCH, KEY BOARD (B-REW)
S515	1-554-303-21	SWITCH, KEY BOARD (B-FF)
S516	1-554-303-21	SWITCH, KEY BOARD (B-REC)
S517	1-554-303-21	SWITCH, KEY BOARD (AUTO PAUSE)
S518	1-554-303-21	SWITCH, KEY BOARD (NORMAL SPEED)
S519	1-554-303-21	SWITCH, KEY BOARD (HIGH SPEED)
S520	1-554-303-21	SWITCH, KEY BOARD (AMS)
S801	1-554-303-21	SWITCH, KEY BOARD (RESET)
S802	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S803	1-554-303-21	SWITCH, KEY BOARD (A/B)

Ref.No.	Part No.	Description
SPK101	1-235-186-00	ENCAPSULATED COMPONENT
SPK201	1-235-186-00	ENCAPSULATED COMPONENT
T1	△1-449-223-11	TRANSFORMER, POWER
T81	1-433-333-11	TRANSFORMER, BIAS OSCILLATION
X501	1-567-772-11	VIBRATOR, CERAMIC 4.19MHz
X801	1-567-771-11	VIBRATOR, CERAMIC 6MHz

ACCESSORY & PACKING MATERIAL

1-558-233-11	CORD (WITH CONNECTOR)(SIRCS) 4P
1-559-533-11	CORD, CONNECTION
3-769-908-11	(AEP model).....MANUAL, INSTRUCTION
3-769-908-41	MANUAL, INSTRUCTION
*3-332-555-01	CUSHION
*3-346-325-11	INDIVIDUAL CARTON
*3-704-343-01	SHEET (STANDARD), PROTECTION






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

**TROUBLESHOOTING GUIDE**

Before proceeding with these trouble checks, first check these basic points:

- The power cord is firmly connected.
- Amplifier connections are firmly made.
- Heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are set correctly.

FUNCTION BUTTONS AND TAPE TRANSPORT PROBLEMS		
Symptom	Cause	Remedy
Function buttons do not activate. ● button does not activate.	Cassette holder is not fully closed.	Close the holder completely.
	No cassette in the holder.	Insert a cassette.
	Tab has been removed from the cassette.	Cover the hole with plastic tape.
Automatic shut-off mechanism activates before the tape comes to its end.	Tape is slack.	Take up the tape slack.
	Cassette shell is deformed.	Use another cassette.
	The inside of the cassette holder is illuminated by strong light.	Remove the light source.
Excessively loud tape transport noise when rewinding or fast-forwarding	This depends on the cassette used and is not a problem.	—

RECORDING AND PLAYBACK PROBLEMS		
Symptom	Cause	Remedy
Auto reverse function does not operate.	DIRECTION MODE selector is set to  .	Set DIRECTION MODE to  .
Recording or playback cannot be made or there is a decrease in sound level.	Record/playback and erase heads are either dirty or magnetized.	Clean or demagnetize the heads.
	Improper connection	Make connections properly.
	Improper setting of the amplifier controls	Set the amplifier controls to the appropriate positions.
Excessive wow, flutter or dropout	Head, capstan or pinch roller is dirty.	Clean in accordance with instructions.
Incomplete erasure	Erase head is dirty.	Clean the erase head.
Increased noise or poor reproduction in high frequencies	Head is magnetized.	Demagnetize the head.
Unbalanced tone in high frequencies	Improper setting of the DOLBY NR switch.	When playing back, set the switch to the same position used in recording.
	Improper setting of the TAPE SELECT switch.	If recorded with the wrong switch setting, adjust the tone controls of the amplifier in playback.
	The unit is placed near a television set.	Move the deck away from the television set.
The desired selection cannot be located even if you activate the AMS.	• There is noise in the space between selections.	—
	• The space is less than 4 seconds long.	Press  to insert a longer blank space.
	• The  or  button is pressed immediately before or after the beginning of the following selection.	—
Playback or fast-winding may begin in the middle of the selection when AMS or blank skip is activated.	• The following will be treated as blanks: — a long pause in the music — a passage of low frequencies or very low volume — gradual increase or decrease of volume	—

NOISE		
Symptom	Cause	Remedy
Hum noise	The deck is stacked on or under the amplifier.	Separate the units.
Noise is recorded.	Recording was made near such equipment as a television set or a color monitor, and the interference has affected the recording on the tape and the Dolby NR system.	Move the unit away from television set or color monitor.