

TC-WR90ES

SERVICE MANUAL

US Model



Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	TCM-200R3

SPECIFICATIONS

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

Dolby NR switch Cassette	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-ES)	59 dB	67 dB	74 dB
TYPE II (Sony UX-S)	58 dB	66 dB	73 dB
TYPE I (Sony HF-S)	56 dB	64 dB	71 dB

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

Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-ES)	20-20,000 Hz (± 3 dB) 30-15,000 Hz (OVU recording)
TYPE II cassette (Sony UX-S)	25-17,000 Hz (± 3 dB)
TYPE I cassette (Sony HF-S)	25-16,000 Hz (± 3 dB)

Wow and flutter 0.06% WRMS (NAB)

Inputs

Line inputs (phono jacks)	Sensitivity	97.5 mV (-18 dB)
	Input impedance	50 kohms

Outputs

Line outputs (phono jacks)	Rated output level	0.44 V (-5 dB) at a load impedance 47 kohms
	Load impedance	Over 10 kohms
Headphones (stereo phone jack)	Output level	0-2.5 mW at a load impedance of 32 ohms

General

Power requirements 120 V AC, 60 Hz
Power consumption 29 Watts
Dimensions Approx. 470 $\times$ 135 $\times$ 345 mm (w/h/d)
(18 $\frac{5}{8}$ $\times$ 5 $\frac{3}{8}$ $\times$ 13 $\frac{3}{8}$ inches)
including projecting parts and controls
Weight Approx. 7 kg (15 lbs 7 oz)

Supplied accessory

Audio connecting cord (2)

Design and specifications subject to change without notice.

STEREO CASSETTE DECK
SONY®

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Features

- The **Dolby HX PRO*** system which improves the linearity of a tape's high-range response during recording.
- **Automatic recording level adjustment** for one touch protection against distortion.
- **A relay function** for long recording and playback.
- **Quick reversing** at the end of a tape to minimize interruptions during playback and recording.
- **Fade-in and fade-out functions** to start and end recordings with a professional touch.
- **Auto-synchro dubbing** at normal or high (double) speed.
- **AMS and memory play functions** which provide easy access to desired selections.
- **An easy-to-read linear counter** which shows the elapsed recording or playback time for decks A and B.

*Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
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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 microamperes). 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 2 V AC range are suitable. (See Fig. A)

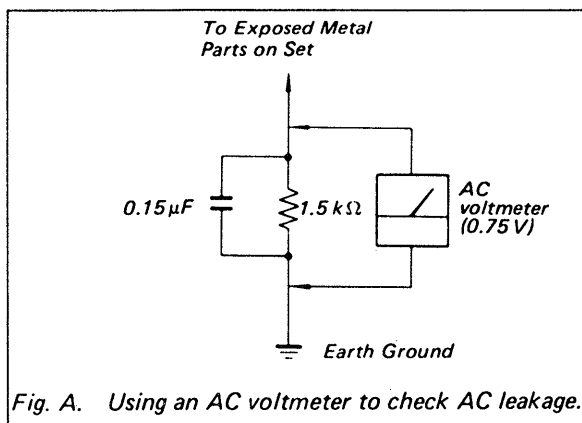


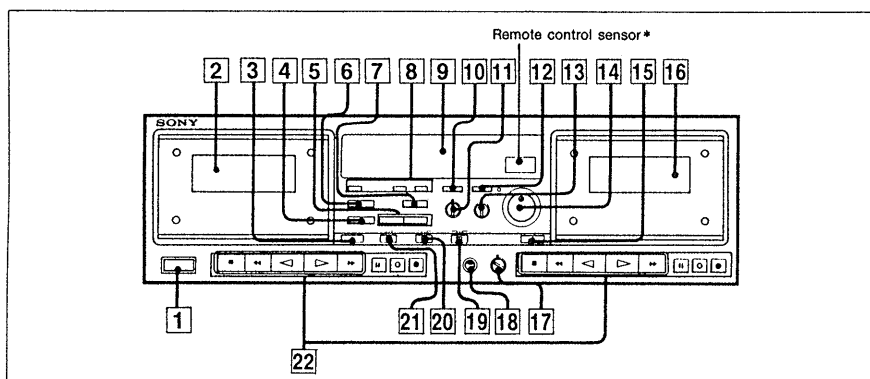
Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

Identification of Front Panel Parts



17 Headphones LEVEL control

18 PHONES (headphones) jack (stereo phone jack)

19 NR (Dolby noise reduction) switch

20 DIR (direction) MODE switch

21 TIMER switch

22 Tape operation buttons

- (stop) button
- ◀◀ (leftward fast winding) button
- ▶▶ (forward play) button
- ◀ (reverse play) button
- ▶▶ (rightward fast winding) button
- || PAUSE button
- REC MUTE (recording muting) button
- REC (recording) button

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

1 POWER switch

2 Cassette holder (deck A)

3 OPEN/CLOSE button (deck A)

4 A + B REC (recording) button and indicator

5 SYNCHRO DUBBING buttons
 HIGH SPEED button
 NORM (normal) SPEED button

6 BLANK SKIP button

7 AUTO PAUSE button

8 COUNTER buttons
 A/B (deck A/B) selector
 RESET button
 MEMORY button

9 Display panel

10 FADER button

11 BIAS control (deck B)

12 AUTO REC (automatic recording) LEVEL button

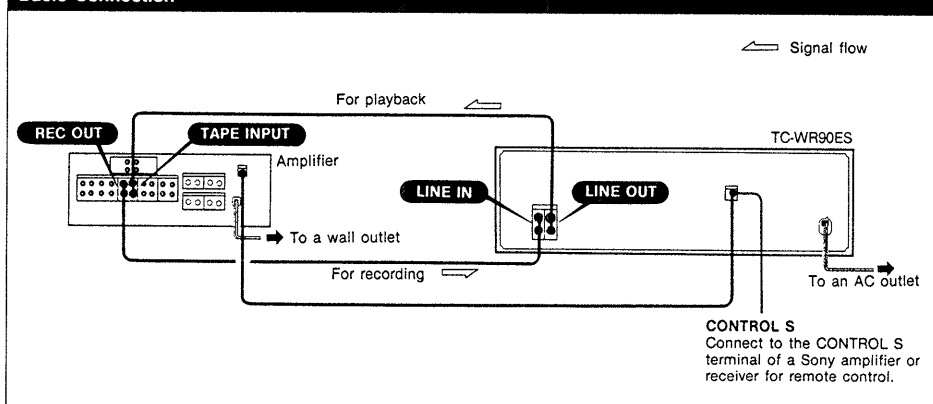
13 BALANCE control

14 REC (recording) LEVEL control

15 OPEN/CLOSE button (deck B)

16 Cassette holder (deck B)

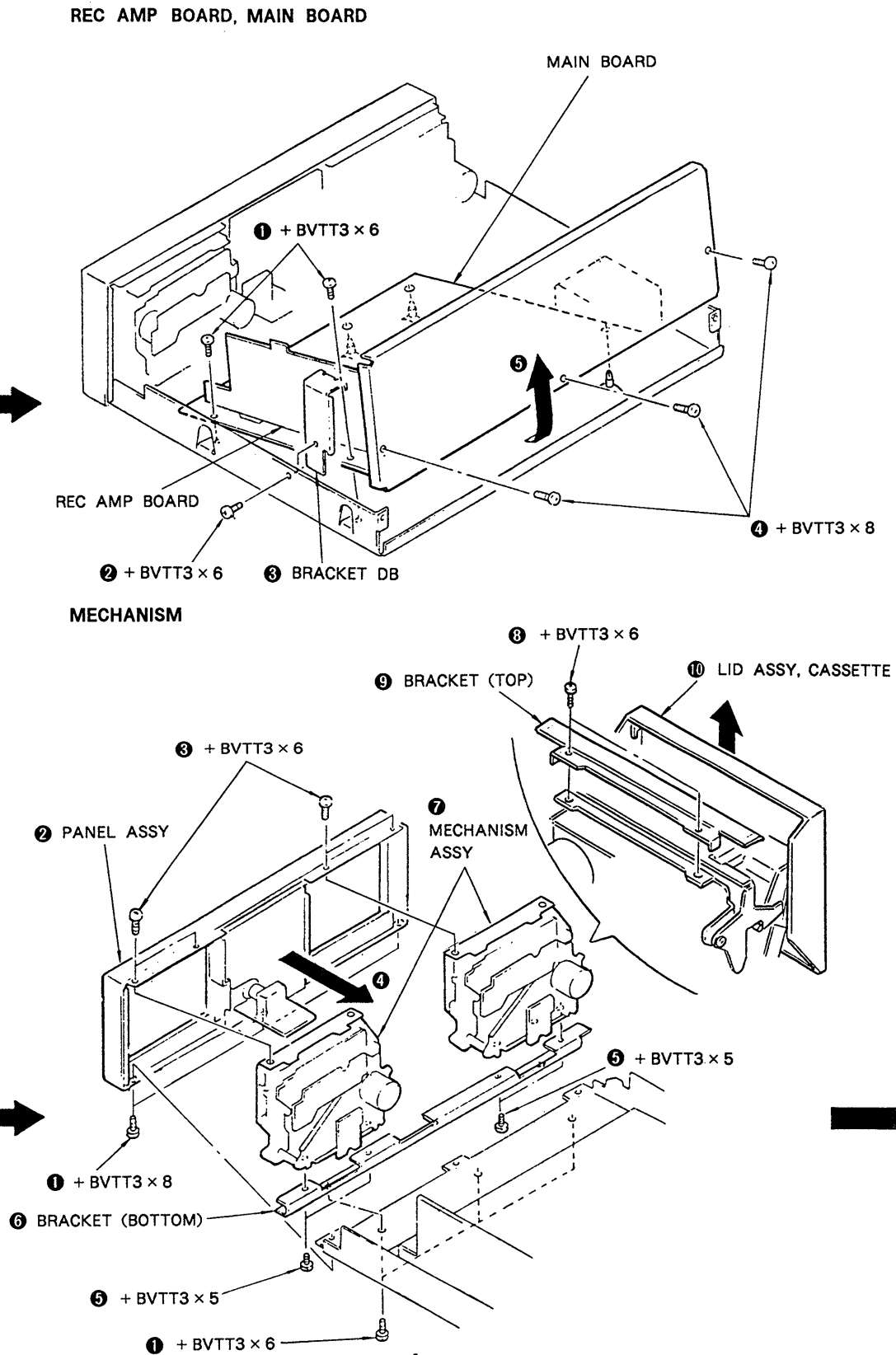
Basic Connection



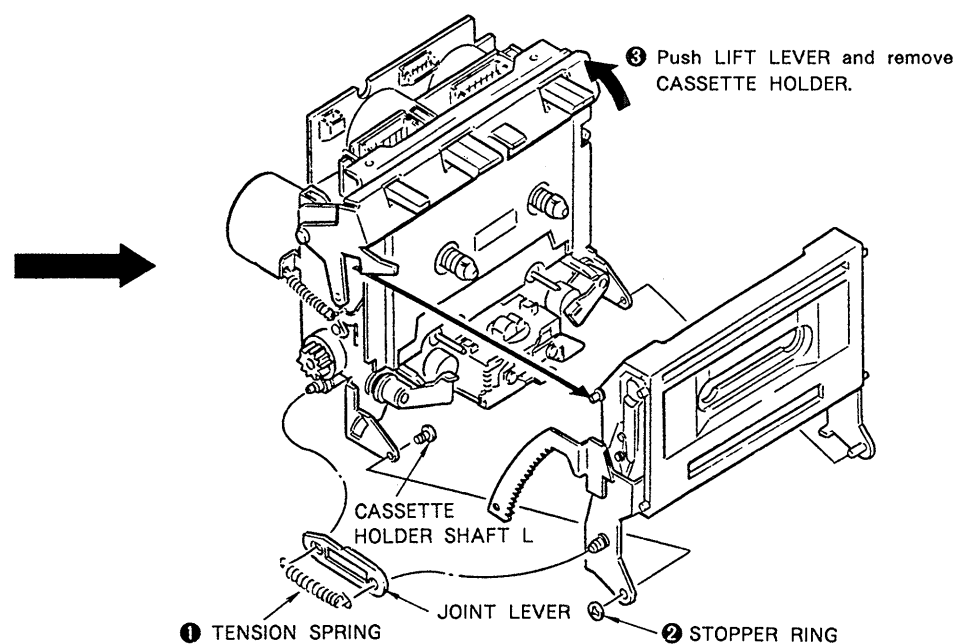
SECTION 2 DISASSEMBLY

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

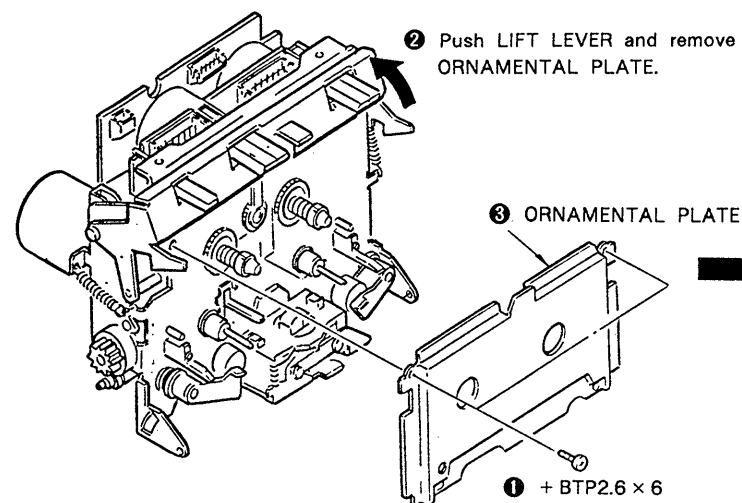
Unscrew the four case attachment screws M3 × 8 and
remove the upper case.



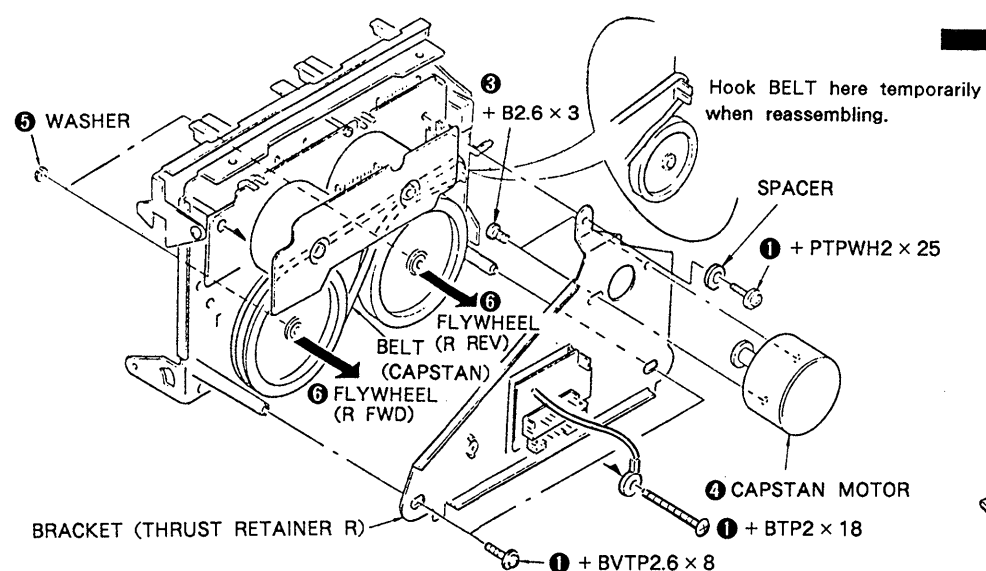
CASSETTE HOLDER



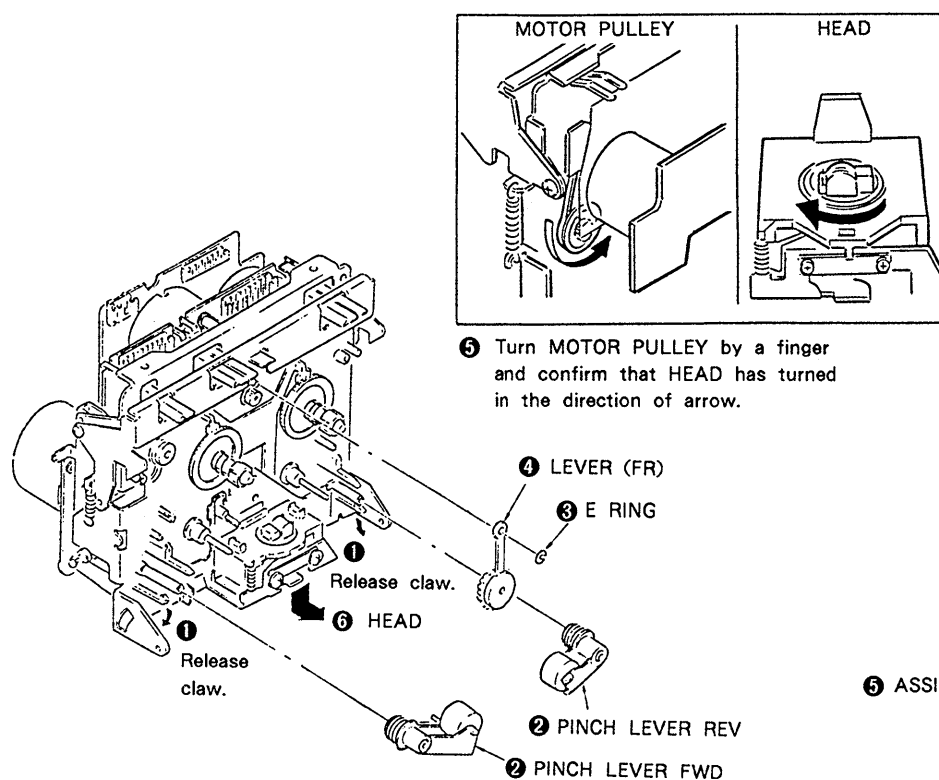
ORNAMENTAL PLATE



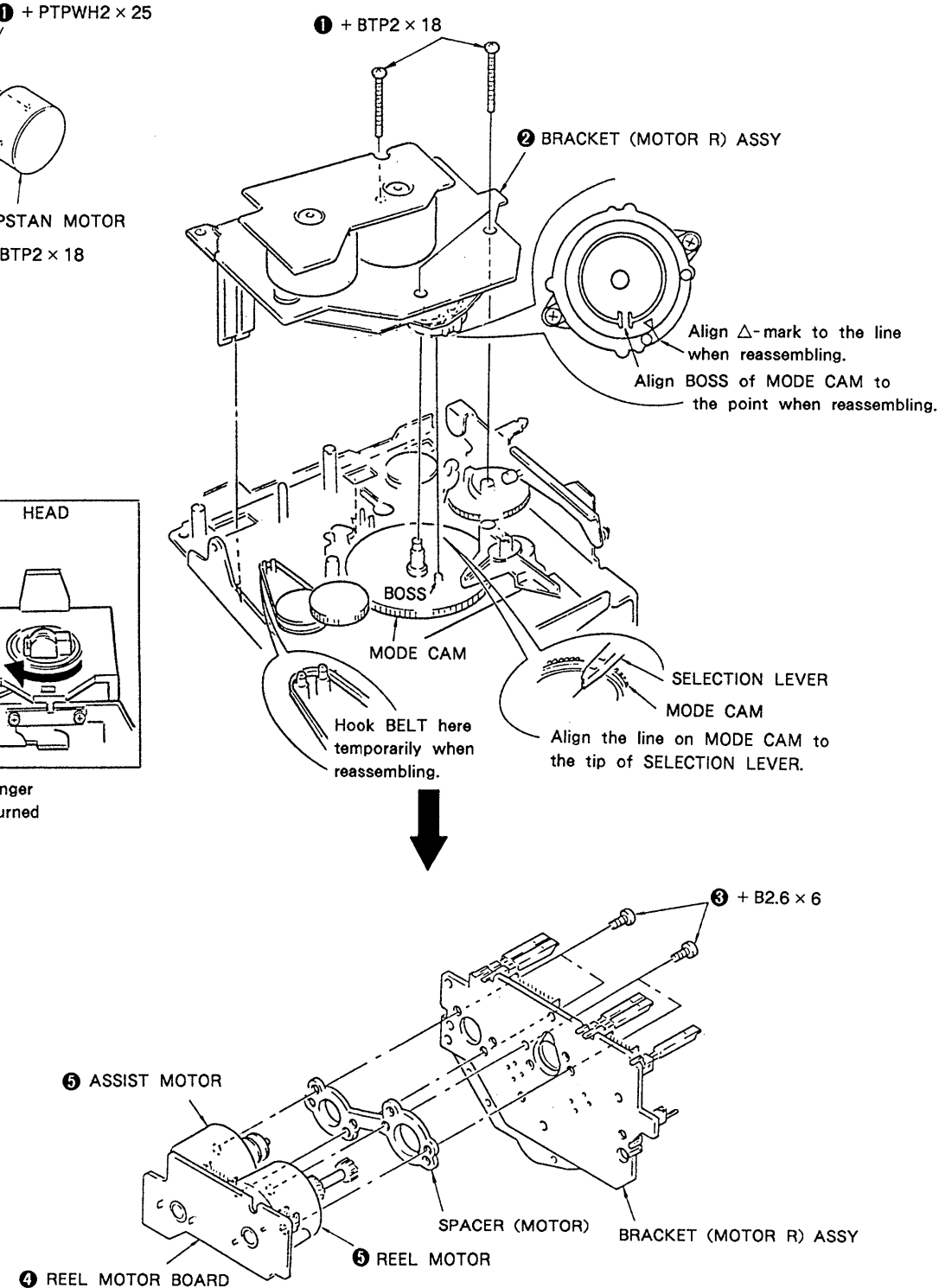
CAPSTAN MOTOR/FLYWHEEL



PINCH LEVER/HEAD



REEL and ASSIST MOTORS



SECTION 3 ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :

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

TORQUE MEASUREMENT

Torque	Torque meter	Meter reading
FWD	CQ-102C	30 - 60g·cm (0.42 - 0.83oz·inch)
FWD Back tension	CQ-102C	1 - 5g·cm (0.014 - 0.063oz·inch)
REV	CQ-102RB	30 - 60g·cm (0.42 - 0.83oz·inch)
REV Back tension	CQ-102RB	1 - 5g·cm (0.014 - 0.063oz·inch)
FF, REW	CQ-201B	70 - 100g·cm (0.97 - 1.39oz·inch)

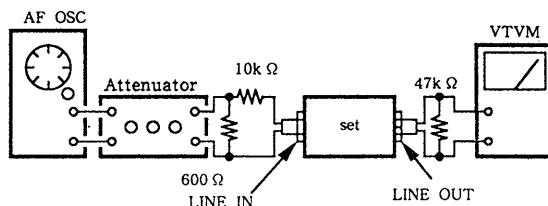
3-2. ELECTRICAL ADJUSTMENT

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

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

DOLBY NR switch	: OFF
DIRECTION switch	:
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

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

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

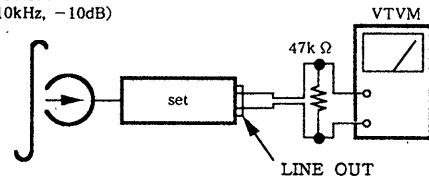
Record/Playback Head Azimuth Adjustment

DECK A DECK B

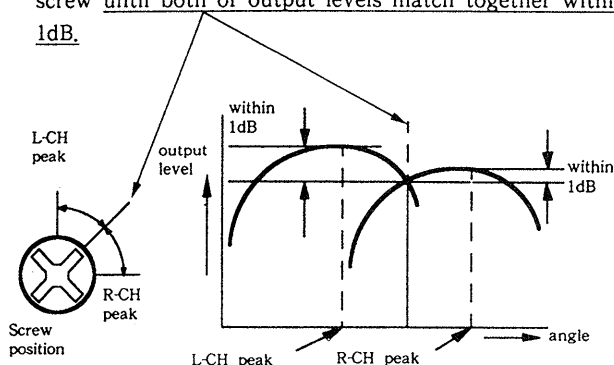
Procedure :

1. Mode : FWD playback

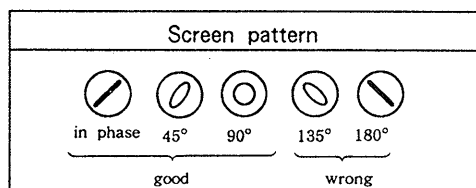
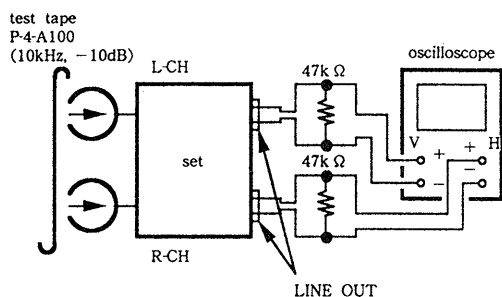
Test tape
P-4-A100
(10kHz, -10dB)



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

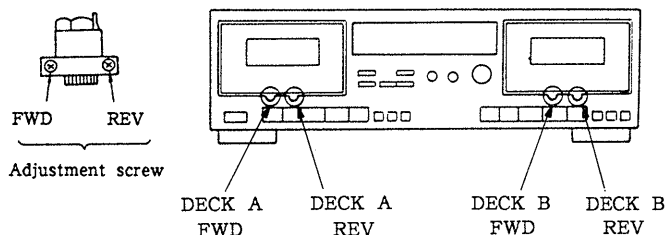


- Phase Check
Mode : playback



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

Adjustment Location : Record/Playback head

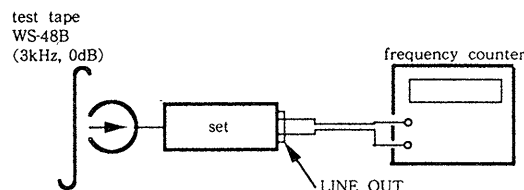


Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback

Perform high speed adjustment before normal speed adjustment



(high speed adjustment)

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

(normal speed adjustment)

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

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

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

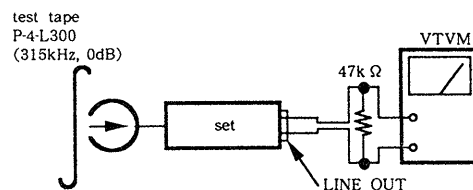
Adjustment Location :

motor rear side (both DECK A and B)

Playback Level Adjustment DECK A DECK B

Procedure :

Mode : playback



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

Adjustment 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 even if Playback and Stop operation is repeated several times.

Adjustment Location : MAIN board

BIAS CURRENT ADJUSTMENT

Procedure :

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

DECK		Mesurement Point	Adjustment	Value
A	L	① and ②, TP521	T121	not more than 80mV
	R	② and ③, TP521	T221	
B	L	① and ②, TP541	T141	
	R	② and ③, TP541	T241	

Adjustment Location : MAIN board

Record Bias Adjustment DECK A DECK B

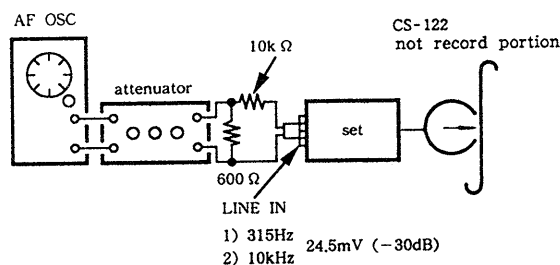
Setting :

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

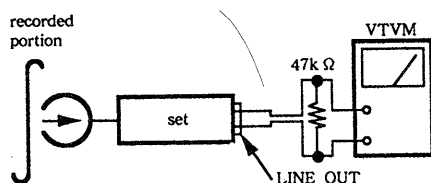
test pin TP801 : short

Procedure :

1. Mode : record



2. Mode : playback



Playback the signal recorded in step 1.

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

Adjustment Location : MAIN board

Record Level Adjustment DECK A DECK B

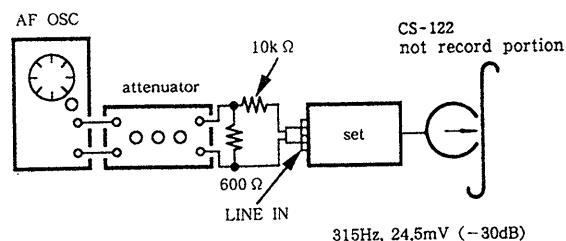
Setting :

REC LEVEL control : Standard Record (See page 7.)

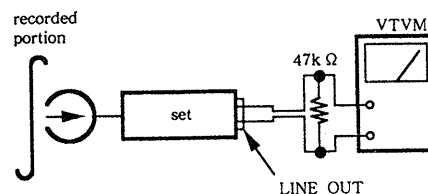
test pin TP801 : short

Procedure :

1. Mode : record



2. Mode : playback



3. Playback the signal recorded in step1.

Confirm that the signal level is within the adjustment limits below.
If necessary, adjust RV301 (L-ch) and RV401 (R-ch) for DECK A and RV351 (L-ch) and RV451 (R-ch) for DECK B, and repeat the step1-2.

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

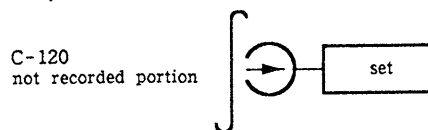
Adjustment Location : REC EQ board (component side)

Quick Reverse Sensitivity Adjustment DECK A DECK B

Conditions :

DIRECTION MODE switch : $\Rightarrow$

Adjustment procedure :

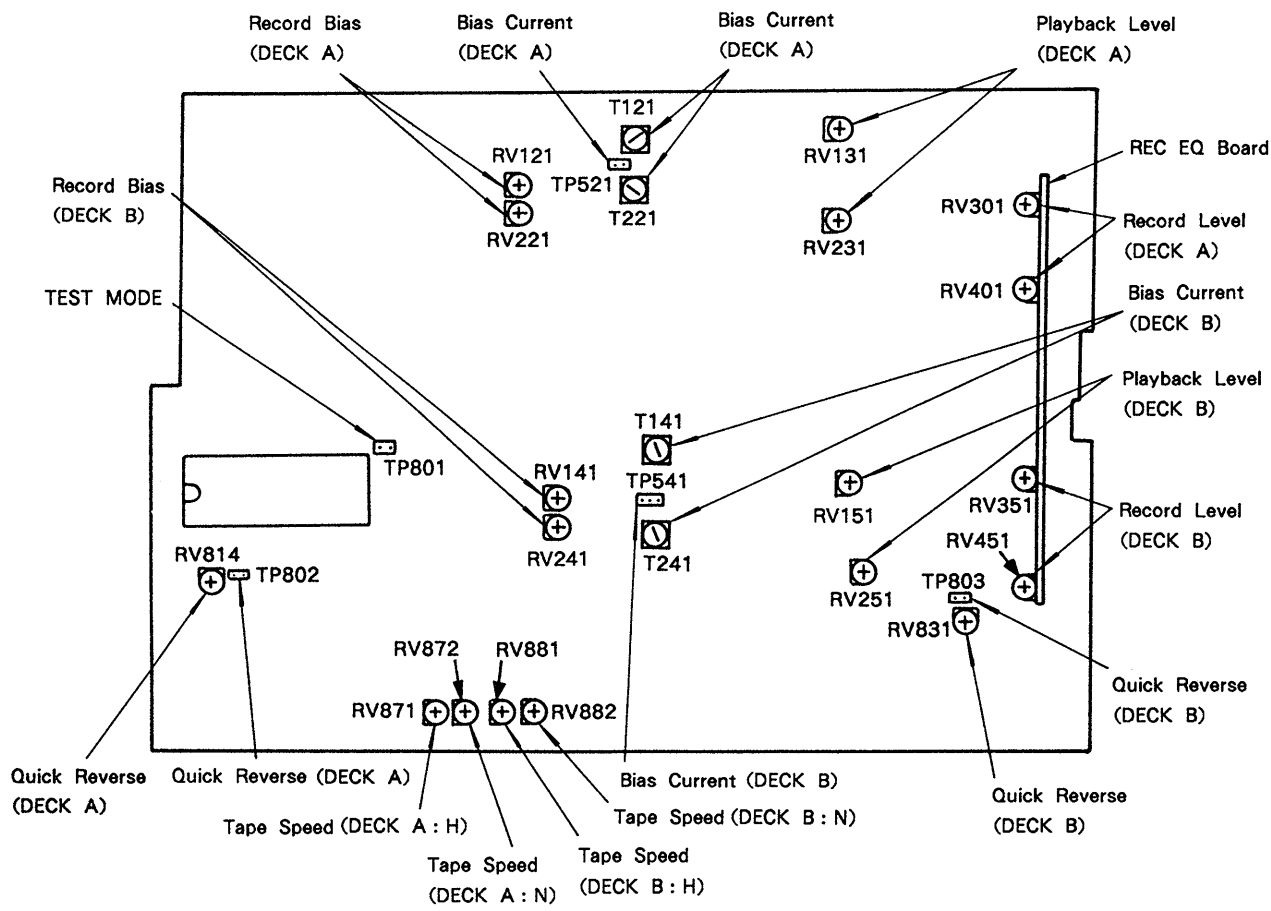


1. Connect the digital voltmeter to test point TP802 (DECK A) / TP803 (DECK B).
2. Load C-120 tape cassette and playback the leading portion in FWD mode.
3. Adjust the RV841 (DECK A), RV831 (DECK B) for $4.5 \pm 0.5\text{V}$ reading on the digital voltmeter.
4. Playback C-120 tape cassette in FWD mode again.
5. Confirm that the reading on the digital voltmeter is "L" level at the magnetic portion of the tape.
6. Confirm that the tape stop around the tape end (boder of the leading and the magnetic portions).

Adjustment Location : MAIN board

ADJUSTMENT PARTS LOCATION DIAGRAM

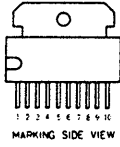
— MAIN/REC EQ boards —



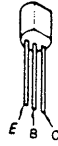
SECTION 4 DIAGRAMS

4-1. SEMICONDUCTOR LEAD LAYOUTS

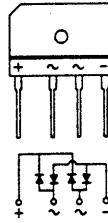
LB1641
BA6219B



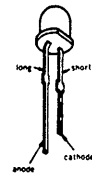
2SB1116



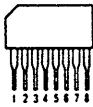
D2SB20



SEL2210S



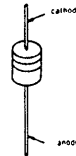
M5218AL



2SB1187-EF
2SD1761-EF



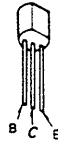
HZS6A1L
HZS6B3L
HZS6C3L
HZS9A2L
1SS202-1



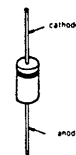
DTA114ES
DTA144ES
DTC144ES
DTC143TS
2SA1317-STU
2SC2603-EF
2SC2144S
2SD2144S



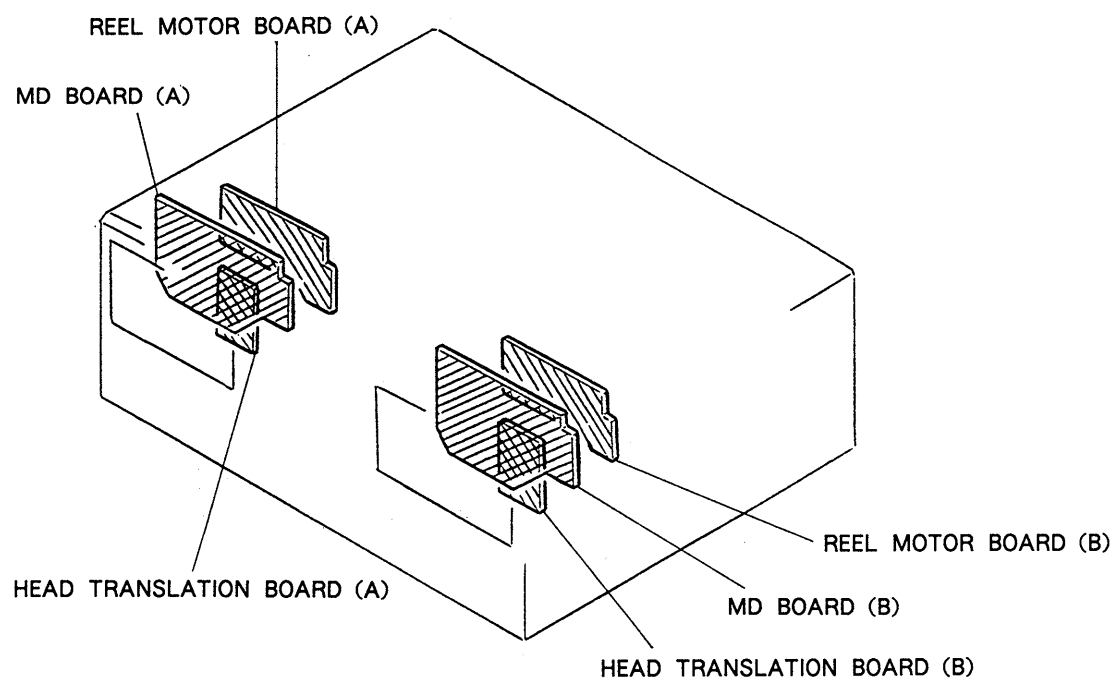
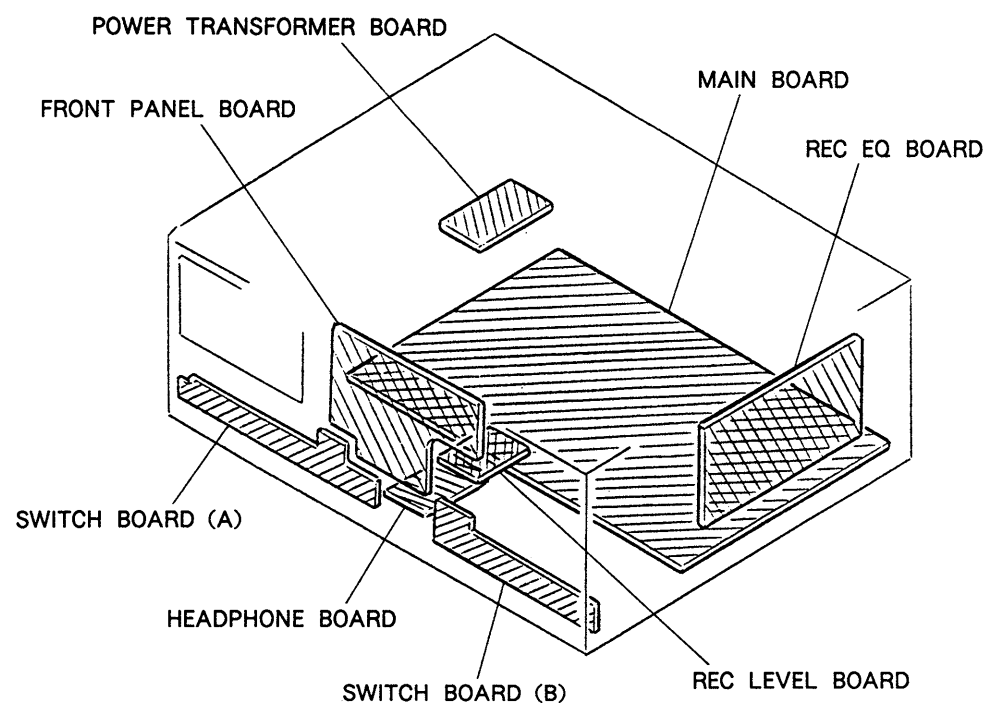
2SC2001-LK



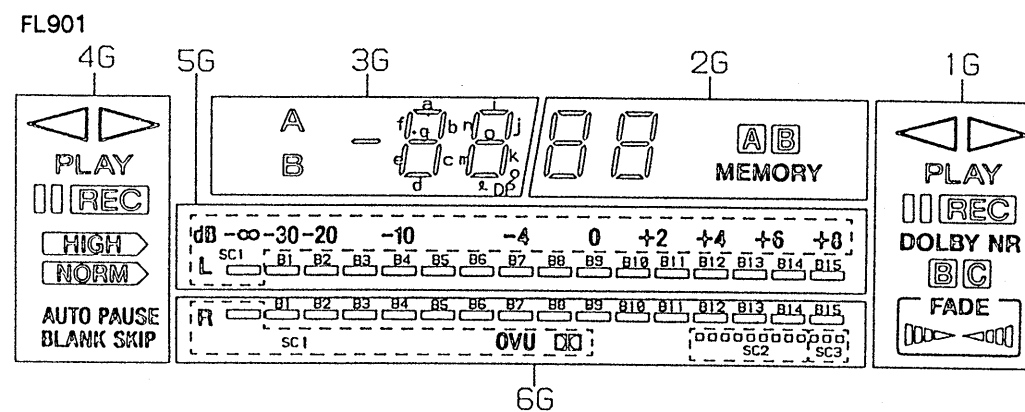
UZL-11H2
10E2Z



4-2. CIRCUIT BOARDS LOCATION



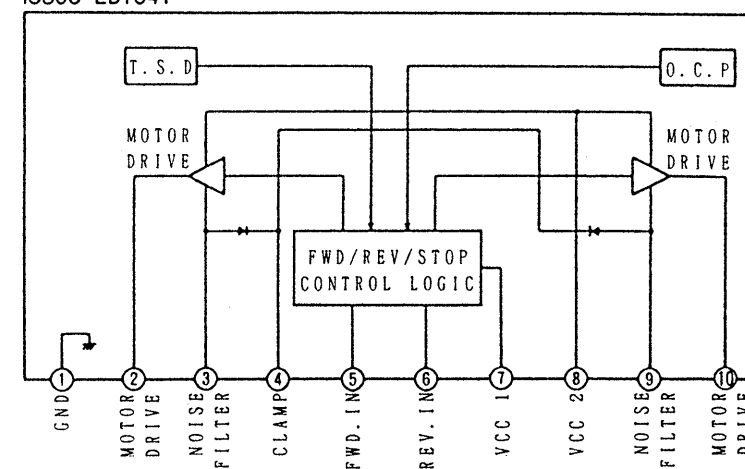
4-3. IC BLOCK DIAGRAM



ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
a	SC1	SC1	▷	a	a	▷
b	B1	B1	PLAY	b	b	▷
c	B4	B4	▷	c	c	PLAY
d	B6	B6	REC	d	d	REC
e	B5	B5		e	e	
f	B2	B2	-	f	f	-
g	B3	B3	-	g	g	-
h	B7	B7	-	-	-	-
i	B8	B8	NORM	i	i	DOLBY NR
j	B9	B9	HIGH	j	j	B
k	B15	B15	AUTO PAUSE	k	k	FADE
ℓ	B13	B13	BLANK SKIP	ℓ	ℓ	▷
m	B14	B14	-	m	m	◀
n	B10	B10	-	n	n	C
o	B11	B11	-	o	o	-
p	B12	B12	-	DP	MEMORY	-
q	SC2	-	-	A	A	-
r	SC3	-	-	B	B	-

IC805 BA6219B
IC806 LB1641



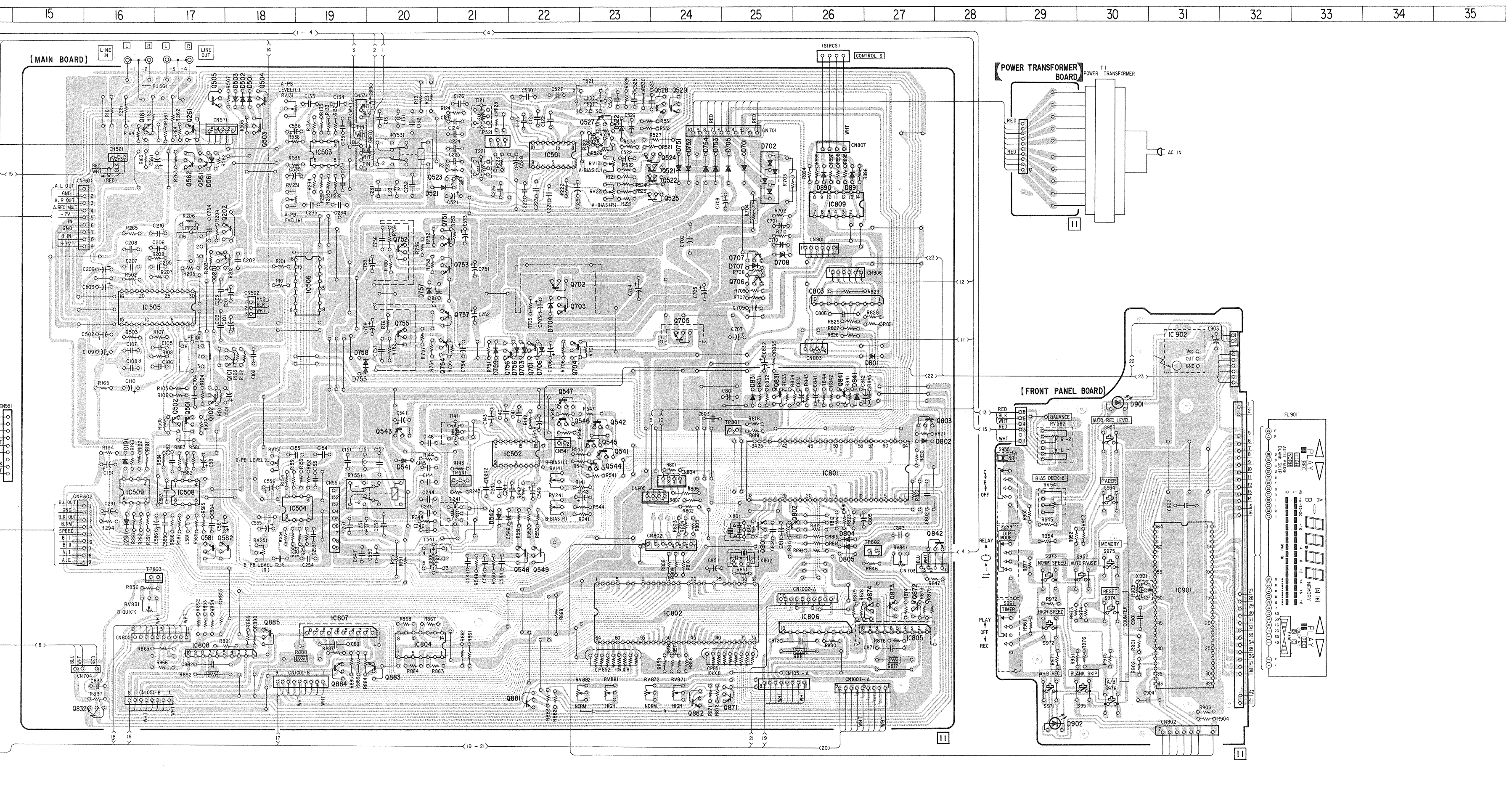
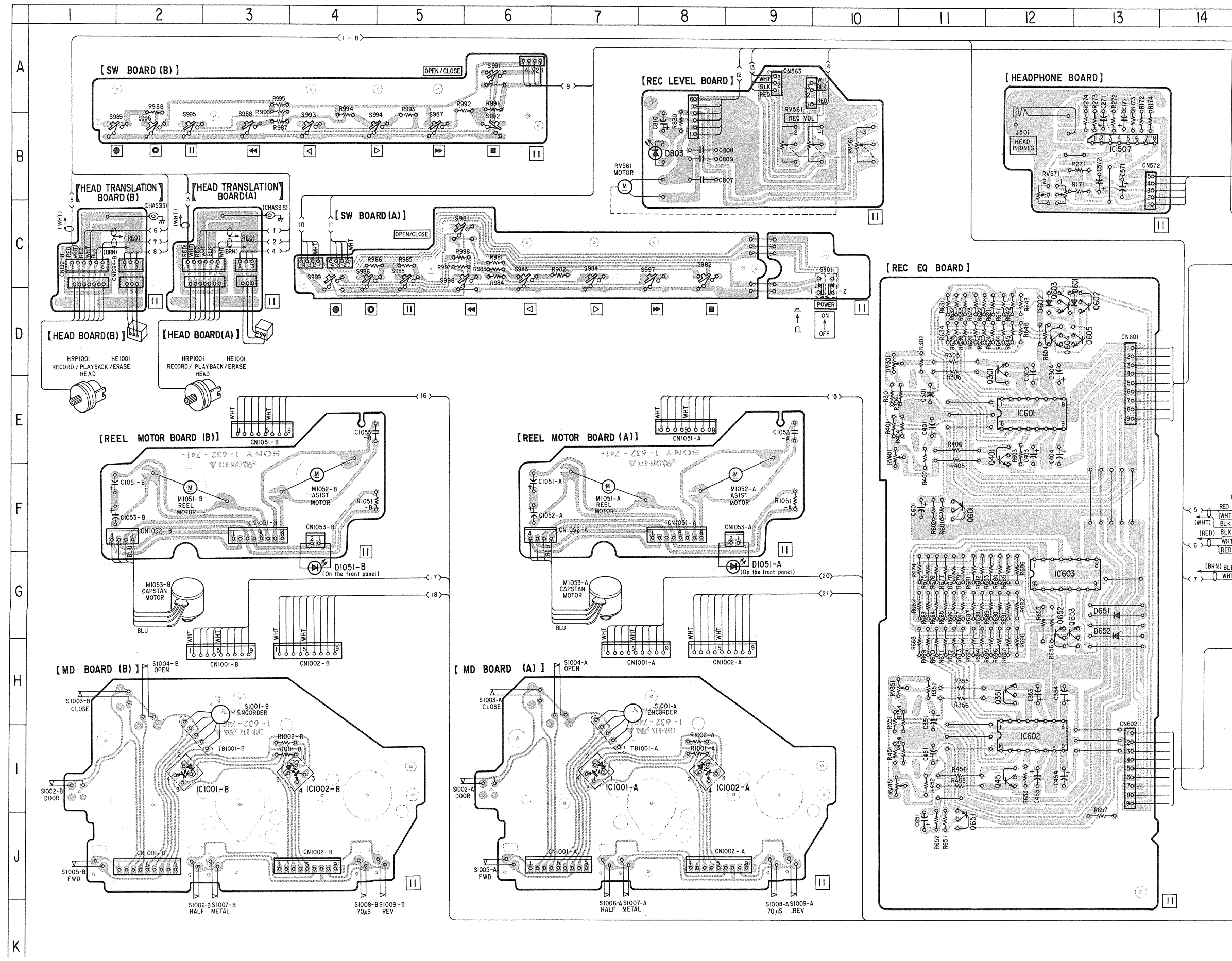
• Semiconductor Location

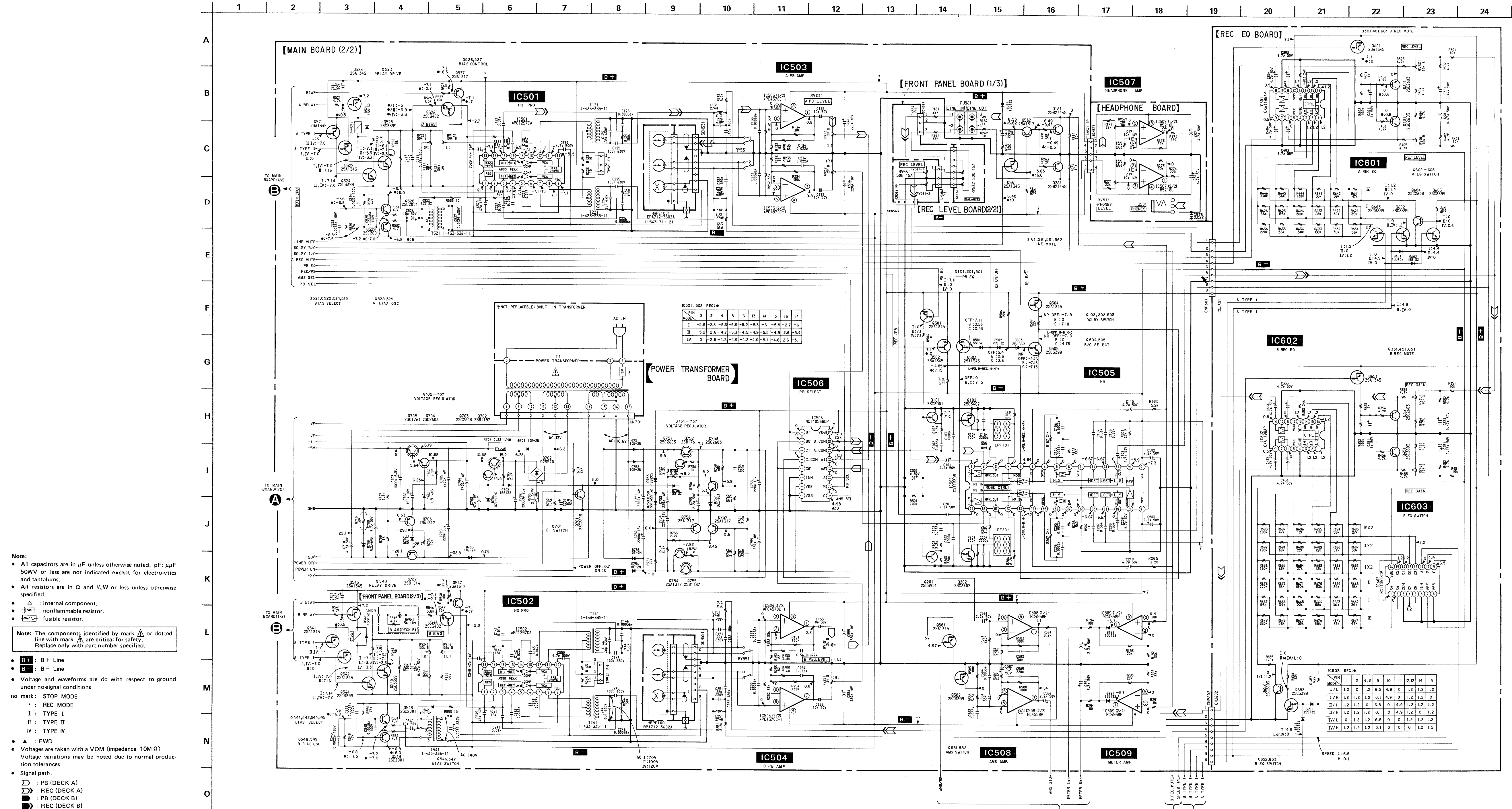
Ref. No.	Location	Ref. No.	Location
D191	G-16	Q161	B-16
D291	H-16	Q201	D-17
D501	B-18	Q202	C-18
D502	B-18	Q261	B-17
D503	B-18	Q301	D-12
D521	C-20	Q351	H-12
D522	B-23	Q401	E-12
D541	G-20	Q451	I-12
D542	G-21	Q501	F-17
D561	C-17	Q502	F-17
D601	D-13	Q503	B-18
D602	D-12	Q504	B-18
D651	G-13	Q505	B-17
D652	G-13	Q521	C-24
D701	C-25	Q522	C-24
D702	C-25	Q523	C-21
D703	E-22	Q524	B-24
D704	E-22	Q525	C-24
D705	C-25	Q526	B-23
D706	E-22	Q527	B-24
D707	D-25	Q528	B-24
D708	D-25	Q529	B-24
D751	C-24	Q541	G-23
D752	C-24	Q542	F-20
D753	C-24	Q543	F-20
D754	C-24	Q544	G-23
D755	E-19	Q545	F-23
D756	E-22	Q546	F-22
D757	D-20	Q547	F-22
D758	E-19	Q548	H-22
D759	E-21	Q549	C-17
D801	E-27	Q561	C-17
D802	F-27	Q562	C-17
D803	B-8	Q581	H-17
D804	H-26	Q582	H-17
D805	H-26	Q601	F-11
D831	F-25	Q602	D-13
D841	F-26	Q603	D-12
D890	C-26	Q604	D-12
D891	C-26	Q605	D-12
D901	F-30	Q651	J-11
D902	J-29	Q652	G-12
DI051	G-4	Q653	G-13
DI091	D-2	Q701	E-22
DI091	D-3	Q702	D-22
DI091	D-3	Q703	D-22
IC501	B-22	Q704	E-22
IC502	G-22	Q705	E-24
IC503	B-19	Q706	D-25
IC504	G-19	Q707	D-25
IC505	E-17	Q751	D-21
IC506	D-19	Q752	D-20
IC507	B-13	Q753	D-21
IC508	G-17	Q754	E-21
IC509	G-16	Q755	E-21
IC601	E-12	Q756	E-21
IC602	G-12	Q801	H-25
IC603	G-26	Q802	H-25
IC801	I-24	Q803	F-27
IC803	D-26	Q831	F-25
IC804	I-20	Q832	J-16
IC805	I-27	Q841	F-26
IC806	I-26	Q842	H-28
IC807	I-19	Q871	J-25
IC808	I-17	Q872	I-27
IC809	C-26	Q873	I-27
IC901	I-31	Q874	I-27
IC902	E-31	Q881	J-22
IC1001-A8	I-7	Q882	J-24
IC1001-B8	I-2	Q883	J-20
IC1002-A	I-8	Q884	J-19
IC1002-B	I-4	Q885	I-18
Q101	F-18	Q1091	D-2
Q102	F-17	Q1091	D-3

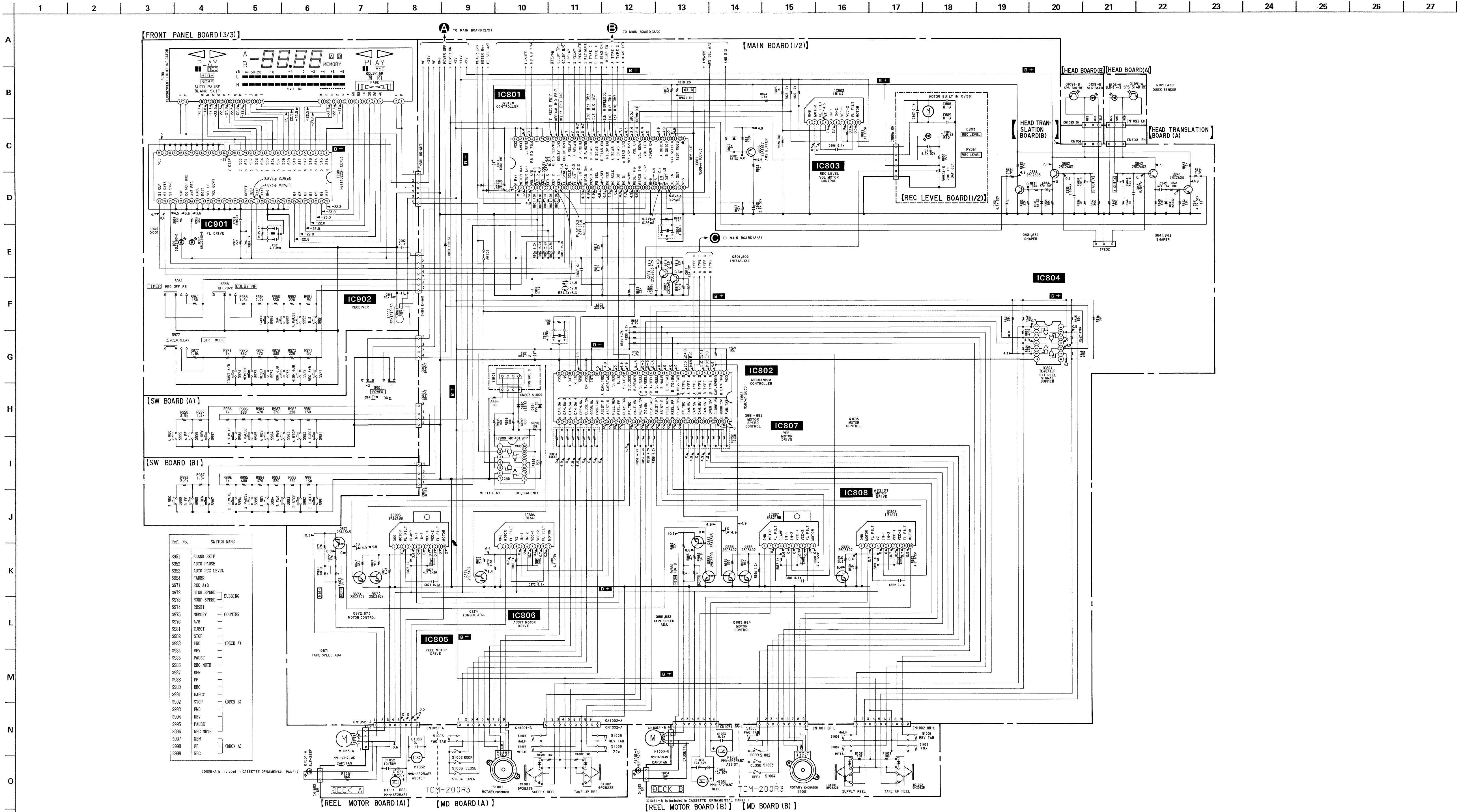
Note:

- — : parts extracted from the component side.
- : indicates side identified with part number.

4-4. PRINTED WIRING BOARDS • See page 11 for Semiconductor Lead Layouts. • See page 12 for Circuit Boards Location.







SECTION 5

EXPLODED VIEWS

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.

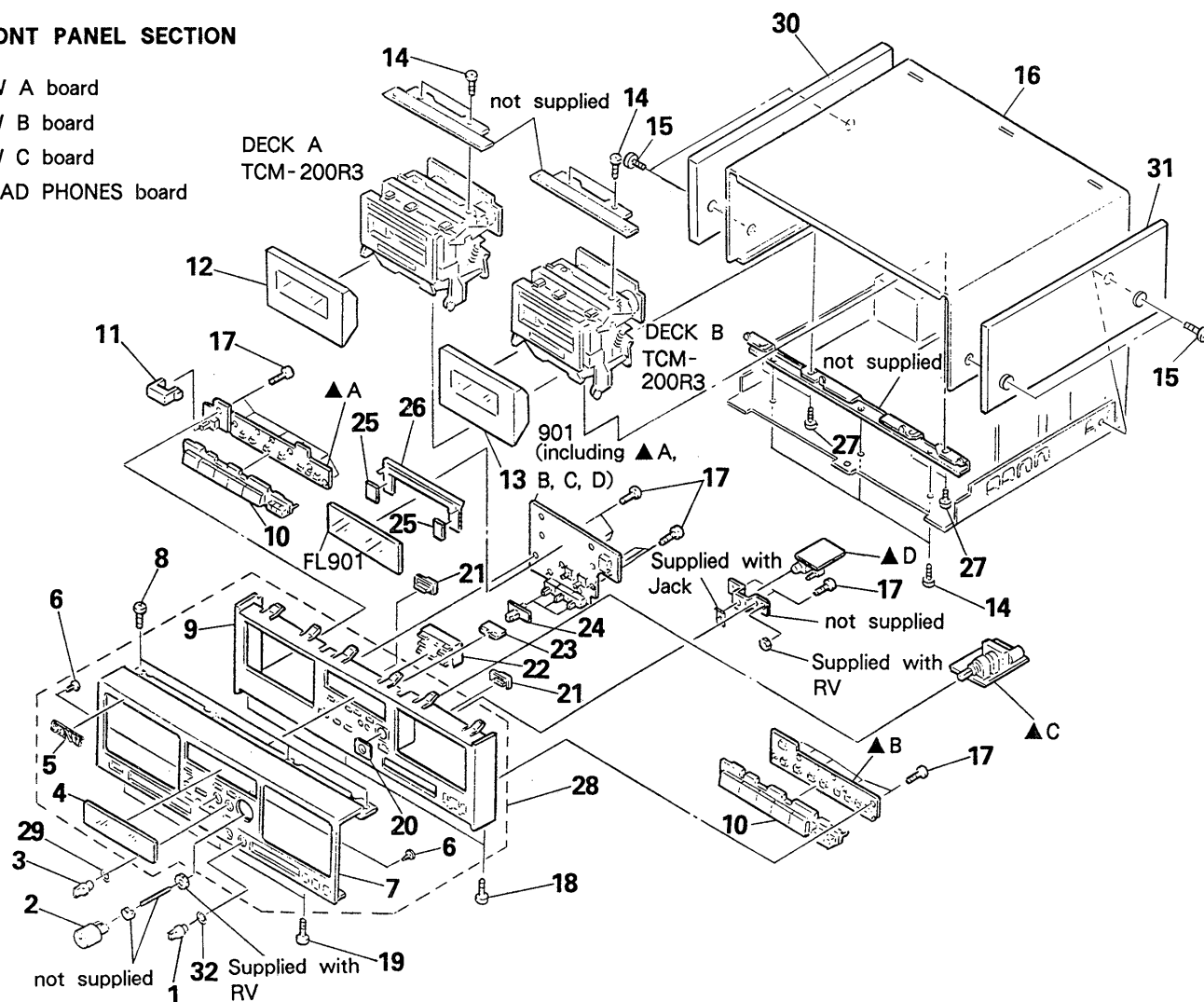
5-1. FRONT PANEL SECTION

▲A: SW A board

▲B: SW B board

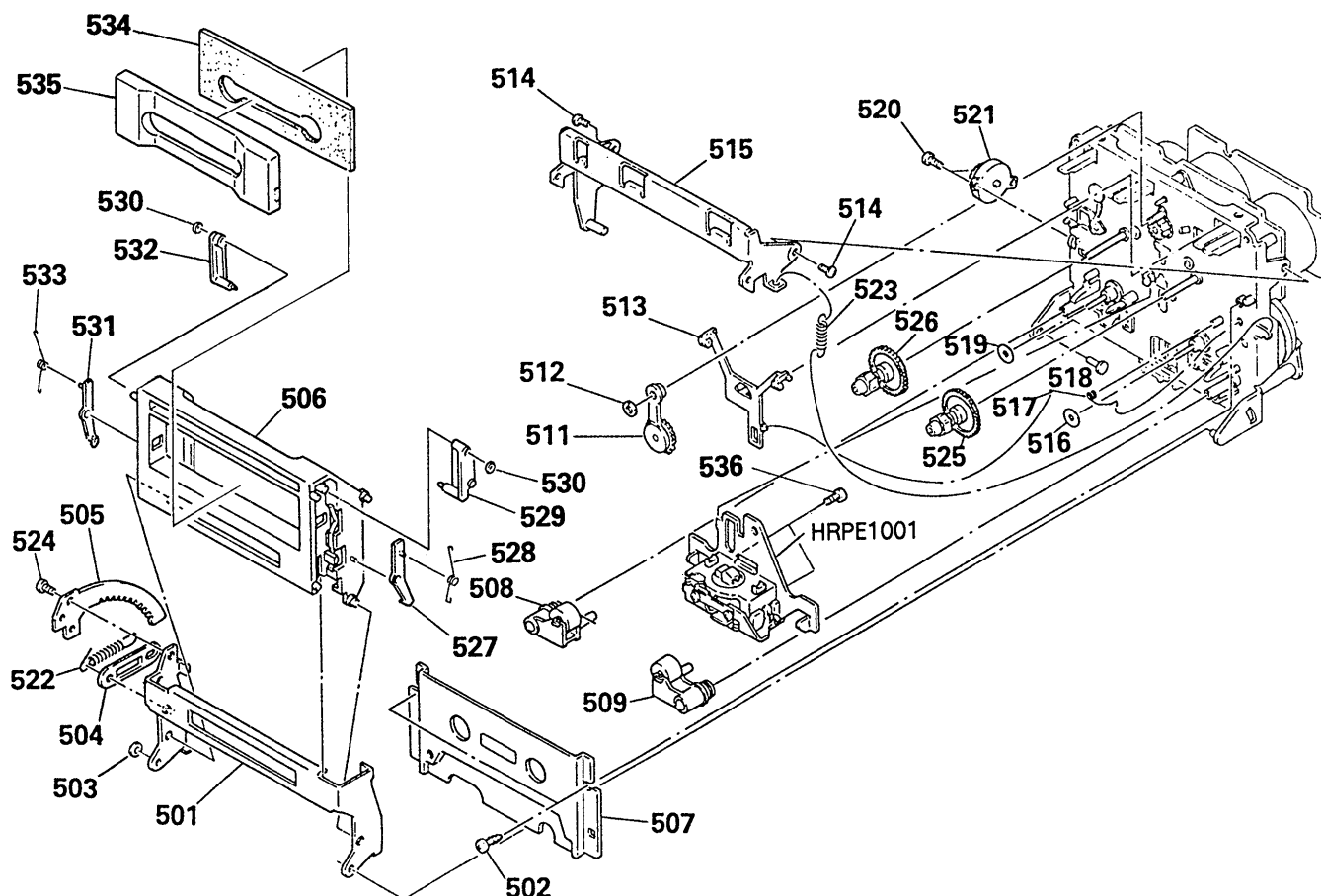
▲C: SW C board

▲D: HEAD PHONES board



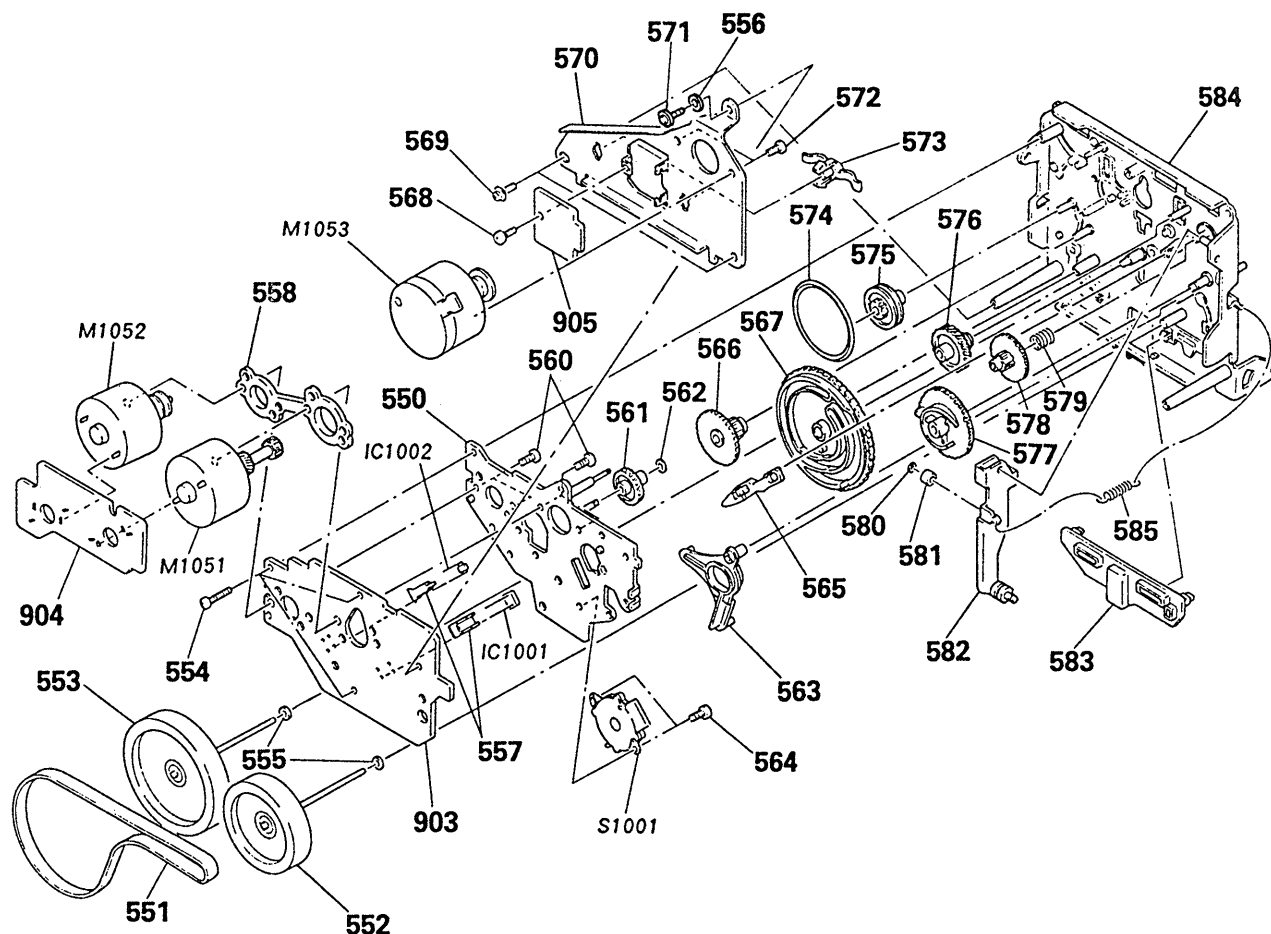
No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	3-354-931-01	KNOB (DIA.10)		18	7-682-548-09	SCREW +BVTT 3X8 (S)	
2	3-329-983-01	KNOB (REC)		19	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
3	3-354-931-11	KNOB (DIA.10)		20	3-354-923-01	PLATE (VOL), ORNAMENTAL	
4	3-354-933-12	WINDOW (METER)		21	3-354-930-01	BUTTON (D)	
5	4-908-848-01	EMBLEM, SONY		22	3-354-938-01	BUTTON (B)	
6	3-354-924-01	PLATE, INDICATION		23	3-354-929-01	BUTTON (C)	
7	3-354-939-11	PANEL, FRONT		24	4-922-518-01	KNOB (TIMER)	
8	7-682-547-04	SCREW +BV 3X6, S TIGHT		25	9-911-844-XX	CUSHION	
9	3-354-916-01	PANEL (BASE)		26	*4-925-125-01	HOLDER, FL TUBE	
10	3-354-937-01	BUTTON (A)		27	7-685-870-01	SCREW +BVTT 3X5 (S)	
11	3-354-932-01	BUTTON (POWER)		28	A-2003-530-A	PANEL ASSY, FRONT	
12	X-3340-192-1	LID (A) ASSY, CASSETTE		29	3-354-981-01	SPRING (SUS), RING	
13	X-3340-193-1	LID (B) ASSY, CASSETTE		30	X-3340-187-1	PANEL (L) ASSY, SIDE	
14	7-682-547-04	SCREW +BVTT 3X6 (S)		31	X-3340-188-1	PANEL (R) ASSY, SIDE	
15	4-933-446-01	SCREW (SIDE PANEL)		32	3-356-935-01	SPRING	
16	4-925-039-61	CASE		901	*1-634-143-11	PC BOARD, PANEL (including A-D)	
17	4-928-635-01	SCREW, +BV (2.6X8) TAPPING		FL901	1-519-593-11	INDICATOR TUBE, FLUORESCENT	

5-3. MECHANISM SECTION 1 (TCM-200R3)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
501	X-3356-612-1	HOLDER (B) ASSY, CASSETTE		520	7-685-851-09	SCREW +BVTT 2X4 (S)	
502	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S		521	3-712-786-01	DAMPER, OIL	
503	3-558-708-21	WASHER, STOPPER		522	3-356-626-01	SPRING, TENSION	
504	*3-356-717-01	LEVER (JOINT)		523	3-356-625-01	SPRING, TENSION	
505	3-356-708-01	GEAR (SOFT EJECT)		524	7-621-775-10	SCREW +B 2.6X4	
506	X-3356-611-1	HOLDER (A) ASSY, CASSETTE		525	X-3356-627-1	(T) ASSY	
507	X-3356-613-1	PLATE ASSY, ORNAMENTAL		526	X-3356-628-1	(S) ASSY	
508	X-3343-456-1	LEVER (PINCH R) ASSY		527	3-356-930-01	LEVER (RA)	
509	X-3343-455-1	LEVER (PINCH F) ASSY		528	3-356-926-01	SPRING (RIGHT), TORSION	
511	X-3356-641-1	LEVER (FR2) ASSY		529	3-356-931-01	LEVER (RB)	
512	3-701-436-11	WASHER, 1.6 POLYETHYLENE		530	3-356-946-01	BUSHING	
513	3-356-614-01	SLIDER (BRAKE)		531	3-356-932-01	LEVER (LA)	
514	3-356-601-11	SCREW, STEP		532	3-356-933-01	LEVER (LB)	
515	*X-3356-608-1	LEVER (LIFTER) ASSY		533	3-356-927-01	SPRING (LEFT), TORSION	
516	3-356-713-01	WASHER		534	3-356-731-01	ABSORBENT, VIBRATION	
517	3-356-619-01	SPRING (B), TORSION		535	3-356-928-01	PLATE (A), ORNAMENTAL	
518	3-356-710-01	SHAFT (LEFT) (CASSETTE HOLDER)		536	3-356-716-01	SCREW (2X4) (B TIGHT), +P	
519	3-356-714-01	WASHER		HRPE1001			
				A-2003-533-A SLIDER COMPLETE ASSY.			

5-4. MECHANISM SECTION 2 (TCM-200R3)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
550	*X-3356-602-1	BRACKET (MOTOR R) ASSY		570	*3-356-629-01	BRACKET (THRUST RETAINER R)	
551	3-356-604-01	BELT (CAPSTAN)		571	3-356-707-01	SCREW (+PTPW 2X25)	
552	X-3356-642-1	FLYWHEEL (R FWD) ASSY		572	7-621-775-00	SCREW +B 2.6X3	
553	X-3356-643-1	FLYWHEEL (R REV) ASSY		573	3-575-321-00	RETAINER, THRUST, CAPSTAN	
554	3-355-801-01	SCREW (BTP 2X18)		574	3-356-603-01	BELT (MODE)	
555	3-356-705-01	WASHER (CAPSTAN)		575	3-356-607-01	PULLEY (MODE)	
556	*3-356-718-01	SPACER (THRUST RETAINER R)		576	3-356-703-01	GEAR (COMMUNICATION C)	
557	3-356-631-01	HOLDER (SENSOR)		577	3-356-616-01	GEAR (LOADING CAM)	
558	*3-356-628-01	SPACER (MOTOR)		578	3-356-609-01	GEAR (LOADING)	
560	7-621-773-95	SCREW +B 2.6X6		579	3-356-605-01	SPRING, COMPRESSION	
561	3-356-702-01	GEAR (COMMUNICATION B)		580	3-558-708-11	WASHER, STOPPER	
562	3-669-465-00	WASHER (1.5), STOPPER		581	3-356-630-01	ROLLER (LOADING)	
563	3-356-613-01	LEVER (MODE)		582	*X-3356-606-1	LEVER (LOADING) ASSY	
564	7-621-772-20	SCREW +B 2X5		583	3-356-612-01	SLIDER (REVERSE)	
565	3-356-617-01	LEVER (SELECTION)		584	X-3356-634-1	CHASSIS (R2) COMPLETE ASSY, MECH	
566	3-356-606-01	GEAR (MODE)		585	3-356-624-01	SPRING, TENSION	
567	3-356-615-01	GEAR (MODE CAM RR)		903	*1-632-740-11	PC BOARD, MD	
568	7-621-770-67	SCREW +BVT 2.6X6 (S)		904	*1-632-741-11	PC BOARD, REAL MOTOR	
569	4-928-635-01	SCREW, +BV (2.6X8) TAPPING		905	*1-634-323-11	PC BOARD, TRANSLATION	
				M1051	X-3356-638-1	MOTOR (REEL R) ASSY	
				M1052	X-3356-604-1	MOTOR (ASSIST) ASSY	
				M1053	X-3356-605-1	MOTOR (CAPSTAN R) ASSY	
				S1001	1-466-237-11	ENCODER, ROTARY	

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: μ F, PF: μ F.**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORSIn each case, U: μ , for example:UA...: μ A..., UPA...: μ PA...,UPC...: μ PC, UPD...: μ 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	Ref.No.	Part No.	Description
901	*1-634-143-11	PC BOARD, PANEL (including A-D)	C206	1-130-475-00	MYLAR 0.0022MF 5% 50V
902	*A-2006-239-A	MOUNTED PCB, MAIN (including E-F)	C207	1-136-174-00	FILM 0.56MF 5% 50V
903	*1-632-740-11	PC BOARD, MD	C208	1-136-171-00	FILM 0.33MF 5% 50V
904	*1-632-741-11	PC BOARD, REAL MOTOR	C209	1-124-927-11	ELECT 4.7MF 20% 50V
905	*1-634-323-11	PC BOARD, TRANSLATION	C210	1-124-927-11	ELECT 4.7MF 20% 50V
906	 1-555-465-00	CORD, POWER	C221	1-136-153-00	FILM 0.01MF 5% 50V
907	*1-558-350-21	CORD (WITH CONNECTOR)(SIRCS)	C222	1-136-157-00	FILM 0.022MF 5% 50V
C101	1-124-925-11	ELECT 2.2MF 20% 50V	C223	1-136-161-00	FILM 0.047MF 5% 50V
C102	1-136-157-00	FILM 0.022MF 5% 50V	C224	1-136-272-00	FILM 68PF 5% 630V
C103	1-162-294-31	CERAMIC 0.001MF 10% 50V	C225	1-136-433-11	FILM 100PF 5% 630V
C104	1-161-375-00	CERAMIC 0.0022MF 30% 16V	C226	1-130-468-00	MYLAR 560PF 5% 50V
C105	1-130-475-00	MYLAR 0.0022MF 5% 50V	C231	1-136-935-11	FILM 22PF 5% 630V
C106	1-130-475-00	MYLAR 0.0022MF 5% 50V	C232	1-162-285-31	CERAMIC 180PF 10% 50V
C107	1-136-174-00	FILM 0.56MF 5% 50V	C233	1-130-469-00	MYLAR 680PF 5% 50V
C108	1-136-171-00	FILM 0.33MF 5% 50V	C234	1-136-157-00	FILM 0.022MF 5% 50V
C109	1-124-927-11	ELECT 4.7MF 20% 50V	C235	1-124-657-00	ELECT 10MF 20% 50V
C110	1-124-927-11	ELECT 4.7MF 20% 50V	C241	1-136-153-00	FILM 0.01MF 5% 50V
C121	1-136-153-00	FILM 0.01MF 5% 50V	C242	1-136-157-00	FILM 0.022MF 5% 50V
C122	1-136-157-00	FILM 0.022MF 5% 50V	C243	1-136-161-00	FILM 0.047MF 5% 50V
C123	1-136-161-00	FILM 0.047MF 5% 50V	C244	1-136-272-00	FILM 68PF 5% 630V
C124	1-136-272-00	FILM 68PF 5% 630V	C245	1-136-433-11	FILM 100PF 5% 630V
C125	1-136-433-11	FILM 100PF 5% 630V	C246	1-130-468-00	MYLAR 560PF 5% 50V
C126	1-130-468-00	MYLAR 560PF 5% 50V	C251	1-136-935-11	FILM 22PF 5% 630V
C131	1-136-935-11	FILM 22PF 5% 630V	C252	1-162-285-31	CERAMIC 180PF 10% 50V
C132	1-162-285-31	CERAMIC 180PF 10% 50V	C253	1-130-469-00	MYLAR 680PF 5% 50V
C133	1-130-469-00	MYLAR 680PF 5% 50V	C254	1-136-157-00	FILM 0.022MF 5% 50V
C134	1-136-157-00	FILM 0.022MF 5% 50V	C255	1-124-657-00	ELECT 10MF 20% 50V
C135	1-124-657-00	ELECT 10MF 20% 50V	C271	1-126-157-11	ELECT 10MF 20% 16V
C141	1-136-153-00	FILM 0.01MF 5% 50V	C291	1-123-382-00	ELECT 3.3MF 20% 50V
C142	1-136-157-00	FILM 0.022MF 5% 50V	C301	1-124-902-00	ELECT 0.47MF 20% 50V
C143	1-136-161-00	FILM 0.047MF 5% 50V	C303	1-124-927-11	ELECT 4.7MF 20% 50V
C144	1-136-272-00	FILM 68PF 5% 630V	C304	1-124-927-11	ELECT 4.7MF 20% 50V
C145	1-136-433-11	FILM 100PF 5% 630V	C351	1-124-902-00	ELECT 0.47MF 20% 50V
C146	1-130-468-00	MYLAR 560PF 5% 50V	C353	1-124-927-11	ELECT 4.7MF 20% 50V
C151	1-136-935-11	FILM 22PF 5% 630V	C354	1-124-927-11	ELECT 4.7MF 20% 50V
C152	1-162-285-31	CERAMIC 180PF 10% 50V	C401	1-124-902-00	ELECT 0.47MF 20% 50V
C153	1-130-469-00	MYLAR 680PF 5% 50V	C403	1-124-927-11	ELECT 4.7MF 20% 50V
C154	1-136-157-00	FILM 0.022MF 5% 50V	C404	1-124-927-11	ELECT 4.7MF 20% 50V
C155	1-124-657-00	ELECT 10MF 20% 50V	C451	1-124-902-00	ELECT 0.47MF 20% 50V
C171	1-126-157-11	ELECT 10MF 20% 16V	C453	1-124-927-11	ELECT 4.7MF 20% 50V
C191	1-123-382-00	ELECT 3.3MF 20% 50V	C454	1-124-927-11	ELECT 4.7MF 20% 50V
C201	1-124-925-11	ELECT 2.2MF 20% 50V	C501	1-124-791-11	ELECT 1MF 20% 50V
C202	1-136-157-00	FILM 0.022MF 5% 50V	C502	1-124-925-11	ELECT 2.2MF 20% 50V
C203	1-162-294-31	CERAMIC 0.001MF 10% 50V	C503	1-124-925-11	ELECT 2.2MF 20% 50V
C204	1-161-375-00	CERAMIC 0.0022MF 30% 16V	C521	1-124-925-11	ELECT 2.2MF 20% 50V
C205	1-130-475-00	MYLAR 0.0022MF 5% 50V			

Ref.No.	Part No.	Description											
C522	1-124-902-00	ELECT	0.47MF	20%	50V								
C523	1-136-230-00	FILM	0.0022MF	5%	100V								
C524	1-136-230-00	FILM	0.0022MF	5%	100V								
C525	1-130-856-00	FILM	0.0068MF	5%	100V								
C526	1-123-875-11	ELECT	10MF	20%	50V								
C527	1-136-558-11	FILM	0.0039MF	5%	630V								
C528	1-124-477-11	ELECT	47MF	20%	16V								
C529	1-124-477-11	ELECT	47MF	20%	16V								
C530	1-107-046-00	MICA	4.7PF	0.5PF	500V								
C535	1-126-176-11	ELECT	220MF	20%	10V								
C536	1-126-176-11	ELECT	220MF	20%	10V								
C541	1-124-925-11	ELECT	2.2MF	20%	50V								
C542	1-124-902-00	ELECT	0.47MF	20%	50V								
C543	1-136-230-00	FILM	0.0022MF	5%	100V								
C544	1-136-230-00	FILM	0.0022MF	5%	100V								
C545	1-130-856-00	FILM	0.0068MF	5%	100V								
C546	1-123-875-11	ELECT	10MF	20%	50V								
C547	1-136-558-11	FILM	0.0039MF	5%	630V								
C548	1-124-477-11	ELECT	47MF	20%	16V								
C549	1-124-477-11	ELECT	47MF	20%	16V								
C550	1-107-046-00	MICA	4.7PF	0.5PF	500V								
C555	1-126-176-11	ELECT	220MF	20%	10V								
C556	1-126-176-11	ELECT	220MF	20%	10V								
C561	1-124-120-11	ELECT	220MF	20%	16V								
C571	1-126-163-11	ELECT	4.7MF	20%	50V								
C572	1-126-163-11	ELECT	4.7MF	20%	50V								
C573	1-161-494-00	CERAMIC	0.022MF		25V								
C581	1-124-925-11	ELECT	2.2MF	20%	50V								
C582	1-162-217-31	CERAMIC	56PF	5%	50V								
C583	1-136-157-00	FILM	0.022MF	5%	50V								
C585	1-162-286-31	CERAMIC	220PF	10%	50V								
C586	1-124-925-11	ELECT	2.2MF	20%	50V								
C587	1-124-925-11	ELECT	2.2MF	20%	50V								
C601	1-124-791-11	ELECT	1MF	20%	50V								
C651	1-124-791-11	ELECT	1MF	20%	50V								
C701	1-123-875-11	ELECT	10MF	20%	50V								
C702	1-124-772-11	ELECT	10000MF	20%	25V								
C703	1-124-446-11	ELECT	47MF	20%	10V								
C704	1-124-898-11	ELECT	4700MF	20%	16V								
C705	1-124-556-11	ELECT	2200MF	20%	16V								
C706	1-124-443-00	ELECT	100MF	20%	10V								
C707	1-124-471-00	ELECT	1000MF	20%	6.3V								
C708	1-124-911-11	ELECT	220MF	20%	50V								
C709	1-124-927-11	ELECT	4.7MF	20%	50V								
C710	1-124-927-11	ELECT	4.7MF	20%	50V								
C751	1-124-556-11	ELECT	2200MF	20%	16V								
C752	1-124-556-11	ELECT	2200MF	20%	16V								
C753	1-124-120-11	ELECT	220MF	20%	16V								
C754	1-124-120-11	ELECT	220MF	20%	16V								
C755	1-124-925-11	ELECT	2.2MF	20%	50V								
C756	1-162-286-31	CERAMIC	220PF	10%	50V								
C757	1-162-286-31	CERAMIC	220PF	10%	50V								
C758	1-126-176-11	ELECT	220MF	20%	10V								
C759	1-126-176-11	ELECT	220MF	20%	10V								
C801	1-124-443-00	ELECT	100MF	20%	10V								
C802	1-164-159-11	CERAMIC	0.1MF		50V								
C803	1-161-494-00	CERAMIC	0.022MF		25V								
C804	1-162-306-11	CERAMIC	0.01MF	20%	16V								
C805	1-124-925-11	ELECT	2.2MF	20%	50V								
C806	1-164-159-11	CERAMIC	0.1MF		50V								
C807	1-164-159-11	CERAMIC	0.1MF		50V								
C808	1-164-159-11	CERAMIC	0.1MF		50V								
C809	1-164-159-11	CERAMIC	0.1MF		50V								
C810	1-124-927-11	ELECT	4.7MF	20%	50V								
C811	1-126-233-11	ELECT	22MF	20%	50V								
C831	1-124-927-11	ELECT	4.7MF	20%	50V								
C832	1-124-477-11	ELECT	47MF	20%	16V								
C833	1-130-479-00	MYLAR	0.0047MF	5%	50V								
C841	1-124-927-11	ELECT	4.7MF	20%	50V								
C842	1-124-477-11	ELECT	47MF	20%	16V								
C843	1-130-479-00	MYLAR	0.0047MF	5%	50V								
C851	1-124-443-00	ELECT	100MF	20%	10V								
C871	1-164-159-11	CERAMIC	0.1MF		50V								
C872	1-164-159-11	CERAMIC	0.1MF		50V								
C881	1-164-159-11	CERAMIC	0.1MF		50V								
C882	1-164-159-11	CERAMIC	0.1MF		50V								
C901	1-161-494-00	CERAMIC	0.022MF		25V								
C902	1-164-159-11	CERAMIC	0.1MF		50V								
C903	1-124-443-00	ELECT	100MF	20%	10V								
C904	1-162-294-31	CERAMIC	0.001MF	10%	50V								
C1051	1-123-875-11	ELECT	10MF	20%	50V								
C1052	1-123-875-11	ELECT	10MF	20%	50V								
C1053	1-164-159-11	CERAMIC	0.1MF		50V								
CN541	*1-564-336-00	PIN, CONNECTOR 2P											
CN561	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P											
CN562	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P											
CN563	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P											
CN571	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P											
CN572	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P											
CN701	*1-564-513-11	PLUG, CONNECTOR 10P											
CN801	*1-564-340-61	PIN, CONNECTOR 6P											
CN802	*1-564-510-11	PLUG, CONNECTOR 7P											
CN803	*1-564-338-00	PIN, CONNECTOR 4P											
CN804	*1-564-338-61	PIN, CONNECTOR 4P											
CN805	*1-564-338-71	PIN, CONNECTOR 4P											
CN806	*1-564-340-00	PIN, CONNECTOR 6P											
CN807	1-565-951-11	SOCKET, CONNECTOR (PC BOARD) 4P											
CN1001	1-506-615-11	PIN, CONNECTOR 9P											
CN1002	*1-564-502-11	PIN, CONNECTOR 10P											
CN1051	1-564-501-11	PIN, CONNECTOR 8P											
CN1052	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P											
CN1053	*1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P											
CN1091	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P											
CN1092	*1-564-509-11	PLUG, CONNECTOR 6P											
CN1093	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P											
CN1094	*1-564-506-11	PLUG, CONNECTOR 3P											
CNJ601	*1-563-660-11	CONNECTOR 9P											
CNJ602	*1-563-660-11	CONNECTOR 9P											
CNP601	*1-560-339-00	PIN, CONNECTOR 9P											
CNP602	*1-560-339-00	PIN, CONNECTOR 9P											
CP851	1-233-199-11	COMPOSITION CIRCUIT BLOCK (10KX8)											
CP852	1-233-199-11	COMPOSITION CIRCUIT BLOCK (10KX8)											

Ref.No.	Part No.	Description
D191	8-719-107-94	DIODE 1SS202-1
D291	8-719-107-94	DIODE 1SS202-1
D501	8-719-107-94	DIODE 1SS202-1
D502	8-719-107-94	DIODE 1SS202-1
D503	8-719-933-54	DIODE HZS9A2L
D521	8-719-107-94	DIODE 1SS202-1
D522	8-719-107-94	DIODE 1SS202-1
D541	8-719-107-94	DIODE 1SS202-1
D542	8-719-107-94	DIODE 1SS202-1
D561	8-719-107-94	DIODE 1SS202-1
D601	8-719-107-94	DIODE 1SS202-1
D602	8-719-107-94	DIODE 1SS202-1
D651	8-719-107-94	DIODE 1SS202-1
D652	8-719-107-94	DIODE 1SS202-1
D701	8-719-200-77	DIODE 10E2N
D702	8-719-500-36	DIODE D2SB20
D703	8-719-107-94	DIODE 1SS202-1
D704	8-719-001-54	DIODE UZL-11H2
D705	8-719-200-77	DIODE 10E2N
D706	8-719-933-41	DIODE HZS6C3L
D707	8-719-107-94	DIODE 1SS202-1
D708	8-719-933-38	DIODE HZS6C3L
D751	8-719-200-77	DIODE 10E2N
D752	8-719-200-77	DIODE 10E2N
D753	8-719-200-77	DIODE 10E2N
D754	8-719-200-77	DIODE 10E2N
D755	8-719-107-94	DIODE 1SS202-1
D756	8-719-107-94	DIODE 1SS202-1
D757	8-719-933-33	DIODE HZS6A1L
D758	8-719-107-94	DIODE 1SS202-1
D759	8-719-107-94	DIODE 1SS202-1
D801	8-719-107-94	DIODE 1SS202-1
D802	8-719-107-94	DIODE 1SS202-1
D804	8-719-107-94	DIODE 1SS202-1
D805	8-719-107-94	DIODE 1SS202-1
D831	8-719-107-94	DIODE 1SS202-1
D841	8-719-107-94	DIODE 1SS202-1
D890	8-719-107-94	DIODE 1SS202-1
D891	8-719-107-94	DIODE 1SS202-1
D901	8-719-301-39	DIODE SEL2210
D902	8-719-301-39	DIODE SEL2210
D1051A/B	8-719-980-85	DIODE SLF-325C
D1091	8-719-950-74	DIODE SLR-314D
FL901	1-519-593-11	INDICATOR TUBE, FLUORESCENT
HRPE1001	A-2003-533-A	SLIDER COMPLETE ASSY
HS705	*3-309-144-21	HEAT SINK
HS752	*4-880-403-11	HEAT SINK
HS755	*4-880-403-11	HEAT SINK
IC501	8-759-106-56	IC UPC1297CA
IC502	8-759-106-56	IC UPC1297CA
IC503	8-759-111-44	IC UPC4570C-1
IC504	8-759-111-44	IC UPC4570C-1
IC505	8-752-036-34	IC CXA1330S
IC506	8-759-040-53	IC MC14053BCP
IC507	8-759-634-50	IC M5218AL
IC508	8-759-945-58	IC RC4558P
IC509	8-759-945-58	IC RC4558P

Ref.No.	Part No.	Description
IC601	8-752-033-61	IC CXA1198AP
IC602	8-752-033-61	IC CXA1198AP
IC603	8-759-208-06	IC TC4051BPHB
IC801	8-759-634-67	IC M50944-160SP
IC802	8-759-633-86	IC M50747-B831P
IC803	8-759-822-09	IC LB1641
IC804	8-759-240-71	IC TC4071BP
IC805	8-759-973-95	IC BA6219B
IC806	8-759-822-09	IC LB1641
IC807	8-759-973-95	IC BA6219B
IC808	8-759-822-09	IC LB1641
IC809	8-759-040-11	IC MC14011BCP
IC901	8-759-322-40	IC HD614023SA40
IC902	8-741-100-48	IC SBX1610-59
IC1001	8-749-920-97	PHOTO REFLECTOR GP2S22B
IC1002	8-749-920-97	PHOTO REFLECTOR GP2S22B
J501	1-507-796-71	JACK (PHONES)
L131	1-410-780-11	INDUCTOR 27MMH
L151	1-410-780-11	INDUCTOR 27MMH
L231	1-410-780-11	INDUCTOR 27MMH
L251	1-410-780-11	INDUCTOR 27MMH
LPF101	1-236-475-11	FILTER, LOW PASS
LPF201	1-236-475-11	FILTER, LOW PASS
M1051	X-3356-638-1	MOTOR (REEL R) ASSY
M1052	X-3356-604-1	MOTOR (ASSIST) ASSY
M1053	X-3356-605-1	MOTOR (CAPSTAN R) ASSY
PJ561	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)
Q101	8-729-900-74	TRANSISTOR DTC143TS
Q102	8-729-900-80	TRANSISTOR DTC114ES
Q161	8-729-922-37	TRANSISTOR 2SD2144S
Q201	8-729-900-74	TRANSISTOR DTC143TS
Q202	8-729-900-80	TRANSISTOR DTC114ES
Q261	8-729-922-37	TRANSISTOR 2SD2144S
Q301	8-729-620-05	TRANSISTOR 2SC2603-EF
Q351	8-729-620-05	TRANSISTOR 2SC2603-EF
Q401	8-729-620-05	TRANSISTOR 2SC2603-EF
Q451	8-729-620-05	TRANSISTOR 2SC2603-EF
Q501	8-729-900-65	TRANSISTOR DTA114ES
Q502	8-729-900-65	TRANSISTOR DTA114ES
Q503	8-729-900-65	TRANSISTOR DTA144ES
Q504	8-729-900-65	TRANSISTOR DTA144ES
Q505	8-729-900-89	TRANSISTOR DTC144ES
Q521	8-729-900-65	TRANSISTOR DTA144ES
Q522	8-729-900-65	TRANSISTOR DTA144ES
Q523	8-729-900-65	TRANSISTOR DTA144ES
Q524	8-729-900-89	TRANSISTOR DTC144ES
Q525	8-729-900-89	TRANSISTOR DTC144ES
Q526	8-729-900-80	TRANSISTOR DTC114ES
Q527	8-729-821-04	TRANSISTOR 2SA1317-STU
Q528	8-729-142-46	TRANSISTOR 2SC2001-LK
Q529	8-729-142-46	TRANSISTOR 2SC2001-LK
Q541	8-729-900-65	TRANSISTOR DTA144ES
Q542	8-729-900-65	TRANSISTOR DTA144ES
Q543	8-729-900-65	TRANSISTOR DTA144ES

Ref.No.	Part No.	Description			
Q544	8-729-900-89	TRANSISTOR DTC144ES			
Q545	8-729-900-89	TRANSISTOR DTC144ES			
Q546	8-729-900-89	TRANSISTOR DTC114ES			
Q547	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q548	8-729-142-46	TRANSISTOR 2SC2001-LK			
Q549	8-729-142-46	TRANSISTOR 2SC2001-LK			
Q561	8-729-900-65	TRANSISTOR 2SA144ES			
Q562	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q581	8-729-900-65	TRANSISTOR DTA144ES			
Q582	8-729-900-89	TRANSISTOR DTC144ES			
Q601	8-729-900-65	TRANSISTOR DTA144ES			
Q602	8-729-900-89	TRANSISTOR DTC144ES			
Q603	8-729-900-89	TRANSISTOR DTC144ES			
Q604	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q605	8-729-900-89	TRANSISTOR DTC144ES			
Q651	8-729-900-65	TRANSISTOR DTA144ES			
Q652	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q653	8-729-900-89	TRANSISTOR DTC144ES			
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q702	8-729-920-97	TRANSISTOR 2SB1187-EF			
Q703	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q704	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q705	8-729-920-98	TRANSISTOR 2SD1761-EF			
Q706	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q707	8-729-118-01	TRANSISTOR 2SB1116			
Q751	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q752	8-729-920-98	TRANSISTOR 2SD1761-EF			
Q753	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q754	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q755	8-729-920-97	TRANSISTOR 2SB1187-EF			
Q756	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q757	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q801	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q803	8-729-821-04	TRANSISTOR 2SA1317-STU			
Q831	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q832	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q841	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q842	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q871	8-729-900-65	TRANSISTOR DTA144ES			
Q872	8-729-900-89	TRANSISTOR DTC144ES			
Q873	8-729-900-89	TRANSISTOR DTC144ES			
Q874	8-729-900-89	TRANSISTOR DTC144ES			
Q881	8-729-900-65	TRANSISTOR DTA144ES			
Q882	8-729-900-89	TRANSISTOR DTC144ES			
Q883	8-729-900-80	TRANSISTOR DTC114ES			
Q884	8-729-900-80	TRANSISTOR DTC114ES			
Q885	8-729-900-80	TRANSISTOR DTC114ES			
Q1091	8-729-809-43	SPS-314B			
R001	1-249-673-11	CARBON	1K	5%	1/2W
R101	1-249-421-11	CARBON	2.2K	5%	1/4W
R102	1-249-423-11	CARBON	3.3K	5%	1/4W
R103	1-247-887-00	CARBON	220K	5%	1/4W
R104	1-249-441-11	CARBON	100K	5%	1/4W
R105	1-249-423-11	CARBON	3.3K	5%	1/4W
R106	1-249-428-11	CARBON	8.2K	5%	1/4W
R107	1-247-864-11	CARBON	24K	5%	1/4W
R108	1-249-414-11	CARBON	560	5%	1/4W

Ref.No.	Part No.	Description			
R121	1-249-434-11	CARBON	27K	5%	1/4W
R122	1-249-432-11	CARBON	18K	5%	1/4W
R123	1-249-393-11	CARBON	10	5%	1/4W
R124	1-247-883-00	CARBON	150K	5%	1/4W
R131	1-249-428-11	CARBON	8.2K	5%	1/4W
R132	1-249-435-11	CARBON	33K	5%	1/4W
R133	1-249-404-00	CARBON	82	5%	1/4W
R134	1-247-882-11	CARBON	130K	5%	1/4W
R135	1-249-426-11	CARBON	5.6K	5%	1/4W
R141	1-249-434-11	CARBON	27K	5%	1/4W
R142	1-249-432-11	CARBON	18K	5%	1/4W
R143	1-249-393-11	CARBON	10	5%	1/4W
R144	1-247-883-00	CARBON	150K	5%	1/4W
R151	1-249-428-11	CARBON	8.2K	5%	1/4W
R152	1-249-435-11	CARBON	33K	5%	1/4W
R153	1-249-404-00	CARBON	82	5%	1/4W
R154	1-247-882-11	CARBON	130K	5%	1/4W
R155	1-249-426-11	CARBON	5.6K	5%	1/4W
R161	1-249-433-11	CARBON	22K	5%	1/4W
R162	1-249-417-11	CARBON	1K	5%	1/4W
R163	1-249-421-11	CARBON	2.2K	5%	1/4W
R164	1-249-429-11	CARBON	10K	5%	1/4W
R165	1-249-421-11	CARBON	2.2K	5%	1/4W
R171	1-249-433-11	CARBON	22K	5%	1/4W
R172	1-249-421-11	CARBON	2.2K	5%	1/4W
R173	1-249-433-11	CARBON	22K	5%	1/4W
R174	1-249-409-11	CARBON	220	5%	1/4W
R191	1-249-429-11	CARBON	10K	5%	1/4W
R192	1-249-435-11	CARBON	33K	5%	1/4W
R193	1-247-862-11	CARBON	20K	5%	1/4W
R194	1-249-408-11	CARBON	180	5%	1/4W
R201	1-249-421-11	CARBON	2.2K	5%	1/4W
R202	1-249-423-11	CARBON	3.3K	5%	1/4W
R203	1-247-887-00	CARBON	220K	5%	1/4W
R204	1-249-441-11	CARBON	100K	5%	1/4W
R205	1-249-423-11	CARBON	3.3K	5%	1/4W
R206	1-249-428-11	CARBON	8.2K	5%	1/4W
R207	1-247-864-11	CARBON	24K	5%	1/4W
R208	1-249-414-11	CARBON	560	5%	1/4W
R221	1-249-434-11	CARBON	27K	5%	1/4W
R222	1-249-432-11	CARBON	18K	5%	1/4W
R223	1-249-393-11	CARBON	10	5%	1/4W
R224	1-247-883-00	CARBON	150K	5%	1/4W
R231	1-249-428-11	CARBON	8.2K	5%	1/4W
R232	1-249-435-11	CARBON	33K	5%	1/4W
R233	1-249-404-00	CARBON	82	5%	1/4W
R234	1-247-882-11	CARBON	130K	5%	1/4W
R235	1-249-426-11	CARBON	5.6K	5%	1/4W
R241	1-249-434-11	CARBON	27K	5%	1/4W
R242	1-249-432-11	CARBON	18K	5%	1/4W
R243	1-249-393-11	CARBON	10	5%	1/4W
R244	1-247-883-00	CARBON	150K	5%	1/4W
R251	1-249-428-11	CARBON	8.2K	5%	1/4W
R252	1-249-435-11	CARBON	33K	5%	1/4W
R253	1-249-404-00	CARBON	82	5%	1/4W
R254	1-247-882-11	CARBON	130K	5%	1/4W
R255	1-249-426-11	CARBON	5.6K	5%	1/4W

Ref.No.	Part No.	Description			
R261	1-249-433-11	CARBON	22K	5%	1/4W
R262	1-249-417-11	CARBON	1K	5%	1/4W
R263	1-249-421-11	CARBON	2.2K	5%	1/4W
R264	1-249-429-11	CARBON	10K	5%	1/4W
R265	1-249-421-11	CARBON	2.2K	5%	1/4W
R271	1-249-433-11	CARBON	22K	5%	1/4W
R272	1-249-421-11	CARBON	2.2K	5%	1/4W
R273	1-249-433-11	CARBON	22K	5%	1/4W
R274	1-249-409-11	CARBON	220	5%	1/4W
R291	1-249-429-11	CARBON	10K	5%	1/4W
R292	1-249-435-11	CARBON	33K	5%	1/4W
R293	1-247-862-11	CARBON	20K	5%	1/4W
R294	1-249-408-11	CARBON	180	5%	1/4W
R301	1-249-429-11	CARBON	10K	5%	1/4W
R302	1-249-425-11	CARBON	4.7K	5%	1/4W
R304	1-249-425-11	CARBON	4.7K	5%	1/4W
R305	1-249-425-11	CARBON	4.7K	5%	1/4W
R306	1-249-425-11	CARBON	4.7K	5%	1/4W
R351	1-249-429-11	CARBON	10K	5%	1/4W
R352	1-249-425-11	CARBON	4.7K	5%	1/4W
R354	1-249-425-11	CARBON	4.7K	5%	1/4W
R355	1-249-425-11	CARBON	4.7K	5%	1/4W
R356	1-249-425-11	CARBON	4.7K	5%	1/4W
R401	1-249-429-11	CARBON	10K	5%	1/4W
R402	1-249-425-11	CARBON	4.7K	5%	1/4W
R404	1-249-425-11	CARBON	4.7K	5%	1/4W
R405	1-249-425-11	CARBON	4.7K	5%	1/4W
R406	1-249-425-11	CARBON	4.7K	5%	1/4W
R451	1-249-429-11	CARBON	10K	5%	1/4W
R452	1-249-425-11	CARBON	4.7K	5%	1/4W
R454	1-249-425-11	CARBON	4.7K	5%	1/4W
R455	1-249-425-11	CARBON	4.7K	5%	1/4W
R456	1-249-425-11	CARBON	4.7K	5%	1/4W
R501	1-249-441-11	CARBON	100K	5%	1/4W
R502	1-249-417-11	CARBON	1K	5%	1/4W
R503	1-215-455-00	METAL	27K	1%	1/6W
R504	1-249-417-11	CARBON	1K	5%	1/4W
R505	1-249-433-11	CARBON	22K	5%	1/4W
R506	1-249-433-11	CARBON	22K	5%	1/4W
R507	1-249-433-11	CARBON	22K	5%	1/4W
R521	1-249-425-11	CARBON	4.7K	5%	1/4W
R522	1-247-848-11	CARBON	5.1K	5%	1/4W
R523	1-247-858-11	CARBON	13K	5%	1/4W
R524	1-249-441-11	CARBON	100K	5%	1/4W
R526	1-247-852-11	CARBON	7.5K	5%	1/4W
R527	1-249-429-11	CARBON	10K	5%	1/4W
R528	1-249-429-11	CARBON	10K	5%	1/4W
R529	1-249-437-11	CARBON	47K	5%	1/4W
R530	1-249-437-11	CARBON	47K	5%	1/4W
R531	1-249-389-11	CARBON	4.7	5%	1/4W
R532	1-249-389-11	CARBON	4.7	5%	1/4W
R533	1-249-393-11	CARBON	10	5%	1/4W
R541	1-249-425-11	CARBON	4.7K	5%	1/4W
R542	1-249-426-11	CARBON	5.6K	5%	1/4W
R543	1-249-431-11	CARBON	15K	5%	1/4W
R544	1-249-441-11	CARBON	100K	5%	1/4W
R545	1-249-425-11	CARBON	4.7K	5%	1/4W

Ref.No.	Part No.	Description			
R546	1-249-426-11	CARBON	5.6K	5%	1/4W
R547	1-249-429-11	CARBON	10K	5%	1/4W
R548	1-249-429-11	CARBON	10K	5%	1/4W
R549	1-249-437-11	CARBON	47K	5%	1/4W
R550	1-249-437-11	CARBON	47K	5%	1/4W
R551	1-249-389-11	CARBON	4.7	5%	1/4W
R552	1-249-389-11	CARBON	4.7	5%	1/4W
R553	1-249-393-11	CARBON	10	5%	1/4W
R561	1-249-409-11	CARBON	220	5%	1/4W
R562	1-249-433-11	CARBON	22K	5%	1/4W
R581	1-247-887-00	CARBON	220K	5%	1/4W
R582	1-249-425-11	CARBON	4.7K	5%	1/4W
R583	1-249-441-11	CARBON	100K	5%	1/4W
R584	1-249-428-11	CARBON	8.2K	5%	1/4W
R585	1-249-441-11	CARBON	100K	5%	1/4W
R586	1-249-423-11	CARBON	3.3K	5%	1/4W
R587	1-249-421-11	CARBON	2.2K	5%	1/4W
R588	1-249-441-11	CARBON	100K	5%	1/4W
R601	1-249-417-11	CARBON	1K	5%	1/4W
R602	1-249-441-11	CARBON	100K	5%	1/4W
R603	1-247-864-11	CARBON	24K	5%	1/4W
R604	1-249-433-11	CARBON	22K	5%	1/4W
R621	1-249-436-11	CARBON	39K	5%	1/4W
R622	1-247-866-11	CARBON	30K	5%	1/4W
R623	1-249-439-11	CARBON	68K	5%	1/4W
R624	1-247-883-00	CARBON	150K	5%	1/4W
R625	1-249-438-11	CARBON	56K	5%	1/4W
R626	1-249-438-11	CARBON	56K	5%	1/4W
R631	1-249-438-11	CARBON	56K	5%	1/4W
R632	1-249-436-11	CARBON	39K	5%	1/4W
R633	1-249-439-11	CARBON	68K	5%	1/4W
R634	1-247-883-00	CARBON	150K	5%	1/4W
R635	1-249-438-11	CARBON	56K	5%	1/4W
R636	1-247-887-00	CARBON	220K	5%	1/4W
R641	1-249-437-11	CARBON	47K	5%	1/4W
R642	1-249-436-11	CARBON	39K	5%	1/4W
R643	1-249-435-11	CARBON	33K	5%	1/4W
R644	1-247-882-11	CARBON	130K	5%	1/4W
R645	1-249-438-11	CARBON	56K	5%	1/4W
R646	1-247-891-00	CARBON	330K	5%	1/4W
R651	1-249-417-11	CARBON	1K	5%	1/4W
R652	1-249-441-11	CARBON	100K	5%	1/4W
R653	1-247-864-11	CARBON	24K	5%	1/4W
R655	1-247-881-00	CARBON	120K	5%	1/4W
R656	1-249-433-11	CARBON	22K	5%	1/4W
R657	1-249-425-11	CARBON	4.7K	5%	1/4W
R662	1-249-436-11	CARBON	39K	5%	1/4W
R663	1-247-866-11	CARBON	30K	5%	1/4W
R664	1-249-439-11	CARBON	68K	5%	1/4W
R665	1-247-883-00	CARBON	150K	5%	1/4W
R666	1-249-438-11	CARBON	56K	5%	1/4W
R667	1-249-438-11	CARBON	56K	5%	1/4W
R668	1-249-438-11	CARBON	56K	5%	1/4W
R669	1-249-436-11	CARBON	39K	5%	1/4W
R670	1-249-440-11	CARBON	82K	5%	1/4W
R671	1-247-885-00	CARBON	180K	5%	1/4W
R672	1-249-438-11	CARBON	56K	5%	1/4W

Ref.No.	Part No.	Description			
R673	1-247-887-00	CARBON	220K	5%	1/4W
R674	1-249-437-11	CARBON	47K	5%	1/4W
R675	1-247-870-11	CARBON	43K	5%	1/4W
R676	1-249-436-11	CARBON	39K	5%	1/4W
R677	1-247-883-00	CARBON	150K	5%	1/4W
R678	1-249-438-11	CARBON	56K	5%	1/4W
R679	1-247-891-00	CARBON	330K	5%	1/4W
R681	1-247-860-11	CARBON	16K	5%	1/4W
R682	1-247-868-11	CARBON	36K	5%	1/4W
R683	1-249-430-11	CARBON	12K	5%	1/4W
R684	1-249-434-11	CARBON	27K	5%	1/4W
R685	1-249-439-11	CARBON	68K	5%	1/4W
R686	1-247-883-00	CARBON	150K	5%	1/4W
R687	1-247-866-11	CARBON	30K	5%	1/4W
R688	1-247-872-11	CARBON	51K	5%	1/4W
R689	1-249-430-11	CARBON	12K	5%	1/4W
R690	1-249-433-11	CARBON	22K	5%	1/4W
R691	1-249-439-11	CARBON	68K	5%	1/4W
R692	1-247-885-00	CARBON	180K	5%	1/4W
R693	1-249-434-11	CARBON	27K	5%	1/4W
R694	1-249-438-11	CARBON	56K	5%	1/4W
R695	1-247-856-00	CARBON	11K	5%	1/4W
R696	1-249-430-11	CARBON	12K	5%	1/4W
R697	1-249-437-11	CARBON	47K	5%	1/4W
R698	1-247-885-00	CARBON	180K	5%	1/4W
R701	1-249-433-11	CARBON	22K	5%	1/4W
R702	1-249-419-11	CARBON	1.5K	5%	1/4W
R703	1-219-134-11	FUSIBLE	0.1	10%	1/4W
R704	1-219-136-11	FUSIBLE	0.22	10%	1/4W
R705	1-249-422-11	CARBON	2.7K	5%	1/4W
R706	1-249-421-11	CARBON	2.2K	5%	1/4W
R707	1-249-421-11	CARBON	2.2K	5%	1/4W
R708	1-249-430-11	CARBON	12K	5%	1/4W
R709	1-247-856-00	CARBON	11K	5%	1/4W
R710	1-249-436-11	CARBON	39K	5%	1/4W
R751	1-249-433-11	CARBON	22K	5%	1/4W
R752	1-249-421-11	CARBON	2.2K	5%	1/4W
R753	1-249-421-11	CARBON	2.2K	5%	1/4W
R754	1-249-421-11	CARBON	2.2K	5%	1/4W
R755	1-249-421-11	CARBON	2.2K	5%	1/4W
R756	1-249-417-11	CARBON	1K	5%	1/4W
R757	1-249-417-11	CARBON	1K	5%	1/4W
R758	1-249-417-11	CARBON	1K	5%	1/4W
R759	1-249-415-11	CARBON	680	5%	1/4W
R760	1-249-422-11	CARBON	2.7K	5%	1/4W
R761	1-249-424-11	CARBON	3.9K	5%	1/4W
R762	1-249-423-11	CARBON	3.3K	5%	1/4W
R801	1-249-405-11	CARBON	100	5%	1/4W
R802	1-249-405-11	CARBON	100	5%	1/4W
R803	1-249-405-11	CARBON	100	5%	1/4W
R804	1-249-405-11	CARBON	100	5%	1/4W
R805	1-249-405-11	CARBON	100	5%	1/4W
R806	1-249-421-11	CARBON	2.2K	5%	1/4W
R807	1-249-421-11	CARBON	2.2K	5%	1/4W
R808	1-249-421-11	CARBON	2.2K	5%	1/4W
R809	1-249-421-11	CARBON	2.2K	5%	1/4W
R810	1-249-421-11	CARBON	2.2K	5%	1/4W

Ref.No.	Part No.	Description			
R811	1-249-425-11	CARBON	4.7K	5%	1/4W
R812	1-249-433-11	CARBON	22K	5%	1/4W
R813	1-247-903-00	CARBON	1M	5%	1/4W
R814	1-249-425-11	CARBON	4.7K	5%	1/4W
R815	1-249-433-11	CARBON	22K	5%	1/4W
R816	1-249-433-11	CARBON	22K	5%	1/4W
R817	1-249-424-11	CARBON	3.9K	5%	1/4W
R818	1-249-433-11	CARBON	22K	5%	1/4W
R819	1-249-433-11	CARBON	22K	5%	1/4W
R820	1-249-429-11	CARBON	10K	5%	1/4W
R821	1-249-441-11	CARBON	100K	5%	1/4W
R822	1-249-417-11	CARBON	1K	5%	1/4W
R823	1-249-437-11	CARBON	47K	5%	1/4W
R824	1-249-420-11	CARBON	1.8K	5%	1/4W
R825	1-249-417-11	CARBON	1K	5%	1/4W
R826	1-249-429-11	CARBON	10K	5%	1/4W
R827	1-249-429-11	CARBON	10K	5%	1/4W
R828	1-249-415-11	CARBON	680	5%	1/4W
R829	1-247-727-11	CARBON	10	5%	1/2W
R830	1-249-410-11	CARBON	270	5%	1/4W
R831	1-249-429-11	CARBON	10K	5%	1/4W
R832	1-249-433-11	CARBON	22K	5%	1/4W
R833	1-249-429-11	CARBON	10K	5%	1/4W
R834	1-249-421-11	CARBON	2.2K	5%	1/4W
R835	1-249-429-11	CARBON	10K	5%	1/4W
R836	1-249-417-11	CARBON	1K	5%	1/4W
R837	1-249-412-11	CARBON	390	5%	1/4W
R841	1-249-429-11	CARBON	10K	5%	1/4W
R842	1-249-433-11	CARBON	22K	5%	1/4W
R843	1-249-429-11	CARBON	10K	5%	1/4W
R844	1-249-421-11	CARBON	2.2K	5%	1/4W
R845	1-249-429-11	CARBON	10K	5%	1/4W
R846	1-249-417-11	CARBON	1K	5%	1/4W
R847	1-249-412-11	CARBON	390	5%	1/4W
R851	1-247-903-00	CARBON	1M	5%	1/4W
R852	1-249-425-11	CARBON	4.7K	5%	1/4W
R853	1-249-425-11	CARBON	4.7K	5%	1/4W
R854	1-249-425-11	CARBON	4.7K	5%	1/4W
R855	1-249-425-11	CARBON	4.7K	5%	1/4W
R856	1-249-425-11	CARBON	4.7K	5%	1/4W
R857	1-249-425-11	CARBON	4.7K	5%	1/4W
R858	1-249-425-11	CARBON	4.7K	5%	1/4W
R859	1-249-425-11	CARBON	4.7K	5%	1/4W
R861	1-249-436-11	CARBON	39K	5%	1/4W
R862	1-249-436-11	CARBON	39K	5%	1/4W
R863	1-247-895-00	CARBON	470K	5%	1/4W
R864	1-247-895-00	CARBON	470K	5%	1/4W
R865	1-249-436-11	CARBON	39K	5%	1/4W
R866	1-249-436-11	CARBON	39K	5%	1/4W
R867	1-247-895-00	CARBON	470K	5%	1/4W
R868	1-247-895-00	CARBON	470K	5%	1/4W
R869	1-249-429-11	CARBON	10K	5%	1/4W
R871	1-249-433-11	CARBON	22K	5%	1/4W
R872	1-249-434-11	CARBON	27K	5%	1/4W
R873	1-249-411-11	CARBON	330	5%	1/4W
R874	1-247-830-11	CARBON	910	5%	1/4W
R875	1-249-418-11	CARBON	1.2K	5%	1/4W

Ref.No.	Part No.	Description			
R876	1-249-417-11	CARBON	1K	5%	1/4W
R877	△.1-249-482-11	CARBON	4.7	5%	1/2W
R878	1-249-421-11	CARBON	2.2K	5%	1/4W
R879	1-249-419-11	CARBON	1.5K	5%	1/4W
R880	1-249-417-11	CARBON	1K	5%	1/4W
R881	△.1-249-482-11	CARBON	4.7	5%	1/2W
R882	1-249-433-11	CARBON	22K	5%	1/4W
R883	1-249-434-11	CARBON	27K	5%	1/4W
R884	1-249-411-11	CARBON	330	5%	1/4W
R885	1-247-830-11	CARBON	910	5%	1/4W
R886	1-249-418-11	CARBON	1.2K	5%	1/4W
R887	1-249-417-11	CARBON	1K	5%	1/4W
R888	△.1-249-482-11	CARBON	4.7	5%	1/2W
R889	1-249-421-11	CARBON	2.2K	5%	1/4W
R890	1-249-419-11	CARBON	1.5K	5%	1/4W
R891	1-249-417-11	CARBON	1K	5%	1/4W
R892	△.1-249-482-11	CARBON	4.7	5%	1/2W
R893	1-249-433-11	CARBON	22K	5%	1/4W
R894	1-249-393-11	CARBON	10	5%	1/4W
R895	1-249-429-11	CARBON	10K	5%	1/4W
R896	1-249-429-11	CARBON	10K	5%	1/4W
R897	1-249-405-11	CARBON	100	5%	1/4W
R898	1-249-429-11	CARBON	10K	5%	1/4W
R899	1-249-429-11	CARBON	10K	5%	1/4W
R901	1-249-411-11	CARBON	330	5%	1/4W
R902	1-249-411-11	CARBON	330	5%	1/4W
R903	1-249-433-11	CARBON	22K	5%	1/4W
R904	1-249-417-11	CARBON	1K	5%	1/4W
R905	1-247-903-00	CARBON	1M	5%	1/4W
R951	1-249-407-11	CARBON	150	5%	1/4W
R952	1-249-409-11	CARBON	220	5%	1/4W
R953	1-249-411-11	CARBON	330	5%	1/4W
R954	1-249-421-11	CARBON	2.2K	5%	1/4W
R955	1-249-420-11	CARBON	1.8K	5%	1/4W
R961	1-249-407-11	CARBON	150	5%	1/4W
R971	1-249-407-11	CARBON	150	5%	1/4W
R972	1-249-409-11	CARBON	220	5%	1/4W
R973	1-249-411-11	CARBON	330	5%	1/4W
R974	1-249-413-11	CARBON	470	5%	1/4W
R975	1-249-415-11	CARBON	680	5%	1/4W
R976	1-249-417-11	CARBON	1K	5%	1/4W
R977	1-249-420-11	CARBON	1.8K	5%	1/4W
R981	1-249-407-11	CARBON	150	5%	1/4W
R982	1-249-409-11	CARBON	220	5%	1/4W
R983	1-249-411-11	CARBON	330	5%	1/4W
R984	1-249-413-11	CARBON	470	5%	1/4W
R985	1-249-415-11	CARBON	680	5%	1/4W
R986	1-249-417-11	CARBON	1K	5%	1/4W
R987	1-249-420-11	CARBON	1.8K	5%	1/4W
R988	1-249-424-11	CARBON	3.9K	5%	1/4W
R991	1-249-407-11	CARBON	150	5%	1/4W
R992	1-249-409-11	CARBON	220	5%	1/4W
R993	1-249-411-11	CARBON	330	5%	1/4W
R994	1-249-413-11	CARBON	470	5%	1/4W
R995	1-249-415-11	CARBON	680	5%	1/4W
R996	1-249-417-11	CARBON	1K	5%	1/4W
R997	1-249-420-11	CARBON	1.8K	5%	1/4W
R998	1-249-424-11	CARBON	3.9K	5%	1/4W

Ref.No.	Part No.	Description
R1001	1-249-408-11	CARBON 180 5% 1/4W
R1002	1-249-408-11	CARBON 180 5% 1/4W
R1051	1-249-414-11	CARBON 560 5% 1/4W
RV121	1-237-461-11	RES, ADJ, CARBON 50K (A.BIAS)
RV131	1-237-457-21	RES, ADJ, CARBON 2K (PB LEVEL L)
RV141	1-237-461-11	RES, ADJ, CARBON 50K (B.BIAS)
RV151	1-237-457-21	RES, ADJ, CARBON 2K (PB LEVEL L)
RV221	1-237-461-11	RES, ADJ, CARBON 50K (A.BIAS)
RV231	1-237-457-21	RES, ADJ, CARBON 2K (PB LEVEL R)
RV241	1-237-461-11	RES, ADJ, CARBON 50K (B.BIAS)
RV251	1-237-457-21	RES, ADJ, CARBON 2K (PB LEVEL R)
RV301	1-230-496-11	RES, ADJ, CARBON 10K (A.REC LEVEL)
RV351	1-230-496-11	RES, ADJ, CARBON 10K (B.REC LEVEL)
RV401	1-230-496-11	RES, ADJ, CARBON 10K (A.REC LEVEL)
RV451	1-230-496-11	RES, ADJ, CARBON 10K (B.REC LEVEL)
RV541	1-238-952-11	RES, VAR, CARBON 5K (BIAS)
RV561	1-238-908-11	RES, VAR, CARBON 20K/50K/50K(REC LEVEL)
RV562	1-238-953-11	RES, VAR, CARBON 50K/50K (BALANCE)
RV571	1-238-085-11	REA, VAR, CARBON 20K/20K (PHONE LEVEL)
RV831	1-237-461-11	RES, ADJ, CARBON 50K (B.QUICK)
RV841	1-237-461-11	RES, ADJ, CARBON 50K (A.QUICK)
RV871	1-237-459-11	RES, ADJ, CARBON 10K (A.HIGH)
RV872	1-237-458-21	RES, ADJ, CARBON 5K (A.NOMAL)
RV881	1-237-459-11	RES, ADJ, CARBON 10K (B.HIGH)
RV882	1-237-458-21	RES, ADJ, CARBON 5K (B.NOMAL)
RY531	1-515-683-11	RELAY
RY551	1-515-683-11	RELAY
S901	1-571-305-11	SWITCH, PUSH (1 KEY)(POWER)
S951	1-554-303-21	SWITCH, KEY BOARD (BLANK SKIP)
S952	1-554-303-21	SWITCH, KEY BOARD (A.PAUSE)
S953	1-554-303-21	SWITCH, KEY BOARD (AUTO REC LEVEL)
S954	1-554-303-21	SWITCH, KEY BOARD (FADER)
S955	1-571-520-11	SWITCH, SLIDE (DOLBY NR)
S961	1-571-520-11	SWITCH, SLIDE (TIMER)
S971	1-554-303-21	SWITCH, KEY BOARD (REC A+B)
S972	1-554-303-21	SWITCH, KEY BOARD (HIGH DUB)
S973	1-554-303-21	SWITCH, KEY BOARD (NOR DUB)
S974	1-554-303-21	SWITCH, KEY BOARD (RESET)
S975	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S976	1-554-303-21	SWITCH, KEY BOARD (COUNT A/B)
S977	1-571-520-11	SWITCH, SLIDE (DIRECTION)
S981	1-554-303-21	SWITCH, KEY BOARD (A.EJECT)
S982	1-554-303-21	SWITCH, KEY BOARD (A.STOP)
S983	1-554-303-21	SWITCH, KEY BOARD (A.FWD)
S984	1-554-303-21	SWITCH, KEY BOARD (A.REV)
S985	1-554-303-21	SWITCH, KEY BOARD (A.PAUSE)
S986	1-554-303-21	SWITCH, KEY BOARD (A.REC MUTE)
S987	1-554-303-21	SWITCH, KEY BOARD (B.REW)
S988	1-554-303-21	SWITCH, KEY BOARD (B.FF)
S989	1-554-303-21	SWITCH, KEY BOARD (B.REC)
S991	1-554-303-21	SWITCH, KEY BOARD (B.EJECT)
S992	1-554-303-21	SWITCH, KEY BOARD (B.STOP)
S993	1-554-303-21	SWITCH, KEY BOARD (B.FWD)
S994	1-554-303-21	SWITCH, KEY BOARD (B.REV)
S995	1-554-303-21	SWITCH, KEY BOARD (B.PAUSE)
S996	1-554-303-21	SWITCH, KEY BOARD (B.REC MUTE)
S997	1-554-303-21	SWITCH, KEY BOARD (A.REW)

Note: 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
S998	1-554-303-21	SWITCH, KEY BOARD (A.FF)
S999	1-554-303-21	SWITCH, KEY BOARD (A.REW)
S1001	1-466-237-11	ENCODER, ROTARY
S1002	1-570-953-11	SWITCH, PUSH (1 KEY)(DOOR)
S1003	1-571-958-11	SWITCH, PUSH (1 KEY)(CLOSE)
S1004	1-572-126-11	SWITCH, PUSH (1 KEY)(OPEN)
S1005	1-572-125-11	SWITCH, LEAF (FWD)
S1006	1-572-202-11	SWITCH, LEAF (HALF)
S1007	1-572-125-11	SWITCH, LEAF (METAL)
S1008	1-572-125-11	SWITCH, LEAF (70US)
S1009	1-572-125-11	SWITCH, LEAF (REV)
T1	<u>Δ</u> 1-449-944-11	TRANSFORMER, POWER
T121	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T141	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T221	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T241	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T521	1-433-336-11	TRANSFORMER, BIAS OSCILLATION
T541	1-433-336-11	TRANSFORMER, BIAS OSCILLATION
TB1001*	1-569-066-11	PIN, CONNECTOR 5P
TP521	*1-564-506-11	PLUG, CONNECTOR 3P
TP541	*1-564-506-11	PLUG, CONNECTOR 3P
TP801	*1-564-505-11	PLUG, CONNECTOR 2P
TP802	*1-564-505-11	PLUG, CONNECTOR 2P
TP803	*1-564-505-11	PLUG, CONNECTOR 2P
X801	1-577-358-21	VIBRATOR, CERAMIC (4.0MHz)
X802	1-577-358-21	VIBRATOR, CERAMIC (4.0MHz)
X901	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)

ACCESSORY & PACKING MATERIAL

1-559-533-11	CORD, CONNECTION
*3-354-915-01	CUSHION
*3-354-919-01	INDIVIDUAL CARTON
3-703-450-01	INSTRUCTION
3-704-366-01	SCREW (CASE) (M3X8)
3-751-439-21	MANUAL, INSTRUCTION

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