HCD-H450/H450M

SERVICE MANUAL

Photo: HCD-H450M

US Model
Canadian Model
UK Model
HCD-H450M

AEP Model
HCD-H450/H450M

E Model
Australian Model
HCD-H450

- HCD-H450 is the tuner, deck, CD and amplifier section in FH-B411/B450.
- HCD-H450M is the tuner, deck, CD and amplifier section in MHC-450.

SPECIFICATION

AUDIO POWER SPECIFICATIONS (For the Customers in the USA)
POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
With 6 ohm loads, both channels driven, from 60 Hz — 20 kHz; rated 35 watts per channel minimum RMS power, with no more than 1% total harmonic distortion from 250 miliwatts to rated output.

Tuner section
FM stereo. FM/AM superheterodyne tuner

FM tuner section
Tuning range For East European model
65.0 — 74.0 MHz
87.5 — 108.0 MHz
For other countries models
87.5 — 108.0 MHz
Antenna FM lead antenna (for HCD-H450M)
Telescopic antenna (for HCD-H450)
Antenna terminals
75 ohm unbalanced
Intermediate frequency
10.7 MHz

AM tuner section
Tuning range For US, Canadian model
AM: 530 — 1,710 kHz
For Italian model
AM: 522 — 1,611 kHz
For German model
AM: 531 — 1,602 kHz
For AEP, East European, UK model
MW: 531 — 1,602 kHz
LW: 153 — 279 kHz
For other countries models
MW: 531 — 1,602 kHz (at 9 kHz step)
530 — 1,710 kHz (at 10 kHz step, except for Middle Eastern model)
SW: 5.950 — 17.900 MHz
Antenna AM loop antenna
External antenna terminals
Intermediate frequency
450 kHz

CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM28-5BD10D
	Base Unit Name	BU-5BD10D
Tape deck Section	Model Name Using Similar Mechanism	NEW
	Tape Transport Mechanism Type	TCM-180VW-N6

Amplifier section
Countinuous RMS power output
16 + 16 watts (6 ohms at 1 kHz, DIN)
20 + 20 watts (6 ohms at 1 kHz, 5% THD)
For AEP, UK, German, East European, Italian model
Peak music power output
80 + 80 watts (6 ohms at 1kHz, 10% THD)
For US, Canadian, E, Saudi Arabia, Australian, Malaysia, Sigapore model
Peak music power output
200 watts (6 ohms at 1kHz, 10% THD)
Input
For E, Saudi Arabia, Australian, Malaysia, Sigapore model
MIX MIC (minijack)
sensitivity 1 mV,
impedance 600 ohms
VIDEO/AUX
sensitivity 450 mV,
impedance 47 kilohms
For AEP, UK, German, East European, Iatlian model
PHONO (phono jack)
sensitivity 5 mV,
impedance 47 kilohms
For US, Canadian model
VIDEO/AUX
sensitivity 5 mV,
impedance 47 kilohms
Outputs
HEADPHONES (stereo minjack):
accept headphones of 8 ohms or more.
SPEAKERS: accept impedance of 6 to 16 ohms.

Cassette deck section
Recording system
4-track 2-channel stereo

Frequency response
(DOLBY NR OFF)
60 — 13,000 HZ (± 3 dB),
using TYPE I
cassette (Sony HF-S)
60 — 14,000 Hz (± 3 dB),
using TYPE II
cassette (Sony UX-S)

— Continued on next page —

使用時は添付資料も参照のこと
Refer to the additional documents.

MINI HI-FI COMPONENT SYSTEM

SONY®

Wow and flutter
0.1% WRMS ± 0.3% (DIN)

Compact disc player section

System Compact disc digital audio system
Laser Semiconductor laser
Wavelength=780 — 790 nm

General

Destination	Power requirements	Power consumption
Canadian model	120 V AC, 50 Hz	55 W
Australian model	220 — 240 V AC, 50 Hz	55 W
AEP, German, Italian, East European model	220 — 230 V AC, 50/60 Hz	55 W
UK model	240 V AC, 50 Hz	55 W
E, Saudi Arabia, Malaysia, Singapore model	110 — 120 V / 220 V — 240 V AC, 50/60 Hz Adjustable with the Voltage Selector	55 W

Dimensions
Approx. 225 × 285 × 275 mm (w/h/d) incl. projecting parts and controls
Mass Approx. 5.2 kg

Design and specifications subject to change without notice.

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

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

SAFETY CHECK-OUT

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

LEAKAGE TEST

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

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

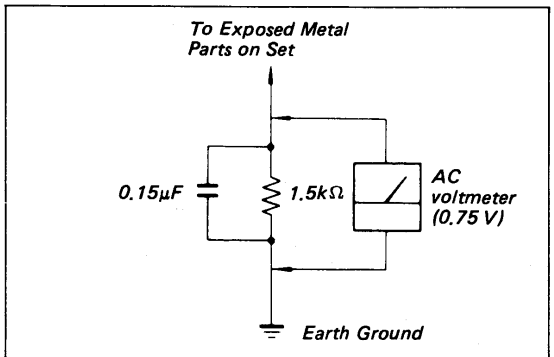
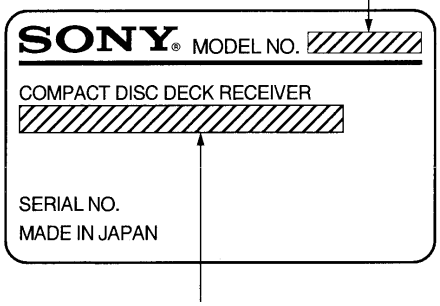


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION

— Specification Labels —

AEP, German, Italian, E, Saudi Arabia, Australian,
Malaysia, Singapore model : HCD-H450
US, Canadian, AEP, East European, UK model : HCD-H450M



US, Canadian model : AC : 120V 60Hz
AEP, East Europoean model : AC : 220—230V~50/60Hz
UK, Australian model : AC : 240V~50Hz
German, Italian model : AC : 220—230V~50HZ
E, Saudi Arabia, Malaysia,
Singapore model : AC : 110—120/220—240V~50/60Hz

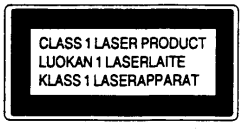
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

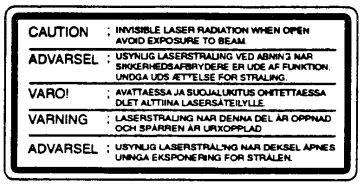
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For customers in Europe

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.



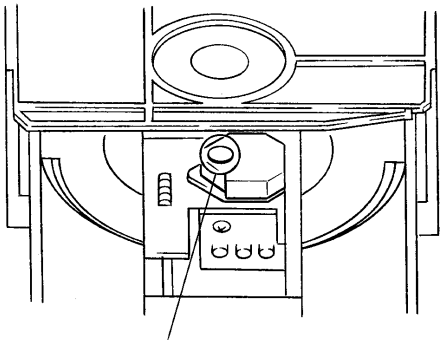
This caution label is located inside the unit.

TABLE OF CONTENTS

SECTION 1
SERVICING NOTES

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Make POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objecting lens.



❶ Confirm that laser beam is spread.
❷ Up and down motion of the objective lens. (3 times)

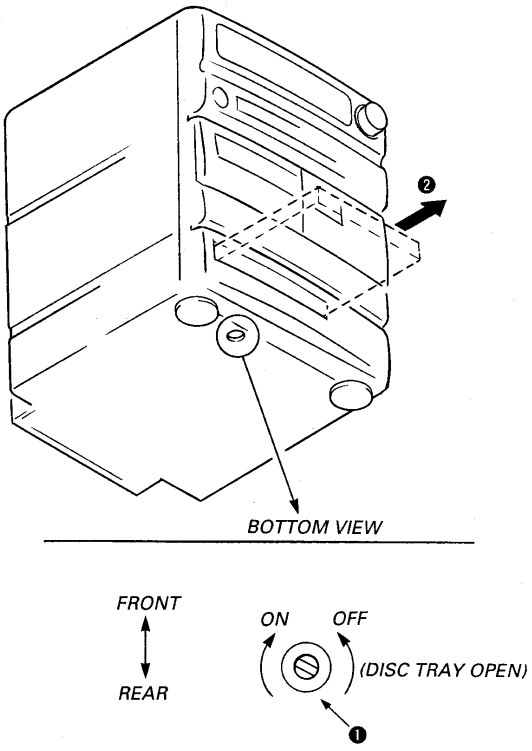
NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



(1) Insert to ❶ for tapering driver, etc., and turn in the direction of arrow OFF. (Disc tray open)
(2) Tray as come out little of front panel, pull out in the direction of arrow ❷ by hand.

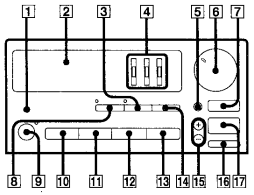
US, Canadian, E, Australian, Saudi Arabia, Malaysia, Singapore model

Index to Parts and Controls

Refer to the pages indicated in parentheses for how to use the controls.

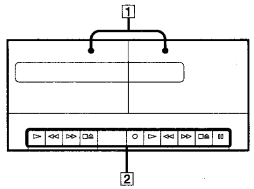
Front Panel

Tuner/Amplifier



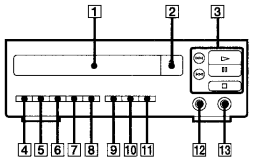
1 Remote sensor
2 Display window (6)
3 DBFB button and lamp (14)
4 Graphic equalizer controls (14)
5 MEMORY button (10)
6 VOLUME control (6 , 14)
7 PRESET/TUNING button (9, 10)
8 KARAOKE PON button and lamp (15)
*Except for US, Canadian models
9 SYSTEM POWER button (6)
10 TAPE button and lamp (11)
11 CD button and lamp (6)
12 TUNER button and lamp (9)
13 VIDEO button and lamp (15)
14 MONO button (9)
15 TUNER buttons (9)
16 SHIFT button (10)
17 BAND button (9)

Tape player



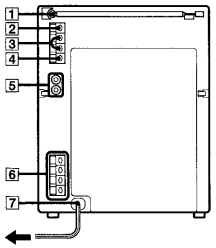
1 Cassette compartments
2 Tape operating buttons
▷ (play) (11)
▶▶ (fast forward) (11)
◀◀ (rewind) (11)
■⏏ (stop/eject) (11)
● (recording)(for deck B only) (11)
❚❚ (pause)(for deck B only) (11)

CD player



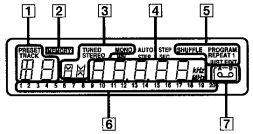
1 CD tray (6)
2 ⏏ OPEN/CLOSE button (6)
3 CD player operating buttons
▷ (play) (6)
❚❚ (pause) (6)
■ (stop) (6)
⏮◀◀/▷▷⏭▶▶ (manual search/ AMS) buttons (6)
4 CONTINUE button (7)
5 SHUFFLE button (7)
6 PROGRAM button (7)
7 REPEAT button (8)
8 TIME button (7)
9 CHECK button (7)
10 CLEAR button (7)
11 EDIT button (12)
12 MIX MIC jack (15)
*Except for US, Canadian models
13 HEADPHONES jack (14)

Rear Panel



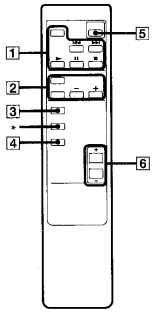
1 FM telescopic aerial
2 FM 75Ω terminal (4)
3 ⏚ earth terminal (4)
4 AM terminal (4)
5 VIDEO/AUX jacks (15)
6 SPEAKER connector (4)
7 AC power cord (5)

Display Window



1 TRACK number/PRESET radio code indication (6, 10)
2 MEMORY indication (10)
3 Tuner indication (9)
4 Time/frequency indication (6, 9)
5 CD play mode indication (7)
6 Music calendar (6)
7 Tape recording side indication (12)

Remote commander



1 CD operating buttons
CD (CD mode) button (6)
► (play) (6)
⏮◀◀ /▶▶⏭ (AMS*) (6)
❚❚ (pause) (6)
■ (stop) (6)
* AMS: Automatic Music Sensor
2 Tuner operating buttons
TUNER (TUNER mode) button (9)
SHIFT button (10)
PRESET+/– buttons (10)
3 TAPE button (11)
4 VIDEO button (15)
5 SYSTEM POWER button (6)
6 VOL (volume) buttons (6,14)

This section is extracted from instruction manual.

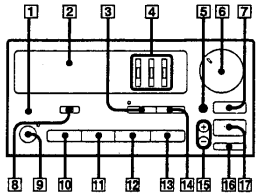
AEP, German, Italian, East European, UK model

Index to Parts and Controls

Refer to the pages indicated in parentheses for how to use the controls.

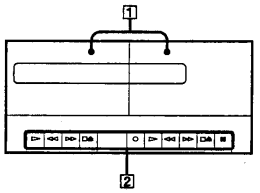
Front Panel

Tuner/Amplifier



1 Remote sensor
2 Display window (6)
3 DBFB button and lamp (14)
4 Graphic equalizer controls (14)
5 MEMORY button (10)
6 VOLUME control (6 , 14)
7 PRESET/TUNING button (9, 10)
8 DOLBY NR switch (11)
9 SYSTEM POWER button (6)
10 TAPE button and lamp (11)
11 CD button and lamp (6)
12 TUNER button and lamp (9)
13 PHONO button and lamp (15)
14 MONO button (9)
15 TUNER buttons (9)
16 SHIFT button (10)
17 BAND button (9)

Tape player



1 Cassette compartments
2 Tape operating buttons
▷ (play) (11)
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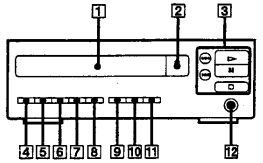
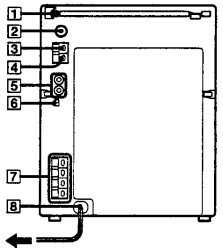
◀◀ (rewind) (11)
■⏏ (stop/eject) (11)
● (recording)(for dek B only) (11)
❚❚ (pause)(for deck B only) (11)

CD player



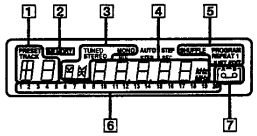
1 CD tray (6)
2 ⏏ OPEN/CLOSE button (6)
3 CD player operating buttons
▷ (play) (6)
❚❚ (pause) (6)
■ (stop) (6)
⏮◀◀/▷▷⏭ (manual search/ AMS) buttons (6)
4 CONTINUE button (7)
5 SHUFFLE button (7)
6 PROGRAM button (7)
7 REPEAT button (8)
8 TIME button (7)
9 CHECK button (7)
10 CLEAR button (12)
11 EDIT button (12)
12 HEADPHONES jack (14)

Rear Panel



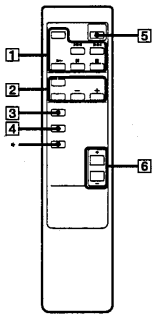
1 FM telescopic aerial (FH-B450 only)
2 FM 75Ω terminal (4)
3 ⏚ earth terminal (4)
4 AM terminal (4)
5 PHONO jacks (15)
6 ISS switch* (13)
* Except for German and Italian models
7 SPEAKER connector (4)
8 AC power cord (5)

Display Window



1 TRACK number/PRESET radio code indication (6, 10)
2 MEMORY indication (10)
3 Tuner indication (9)
4 Time/frequency indication (6, 9)
5 CD play mode indication (7)
6 Music calendar (6)
7 Tape recording side indication (12)

Remote commander



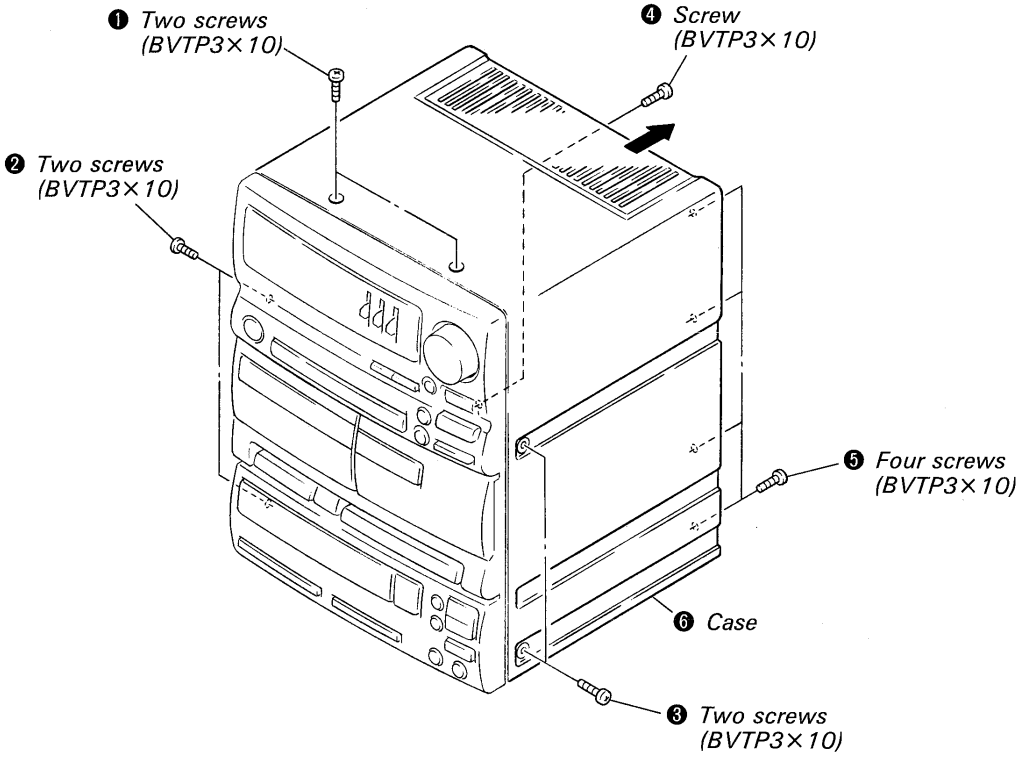
1 CD operating buttons
CD (CD mode) button (6)
▶ (play) (6)
⏮◀◀ / ▶▶⏭ (AMS*) (6)
❚❚ (pause) (6)
■ (stop) (6)
* AMS: Automatic Music Sensor
2 Tuner operating buttons
TUNER (TUNER mode) button (9)
SHIFT button (10)
PRESET+/– buttons (10)
3 TAPE button (11)
4 PHONO button (15)
5 SYSTEM POWER button (6)
6 VOL (volume) buttons (6,14)

SECTION 3
DISASSEMBLY

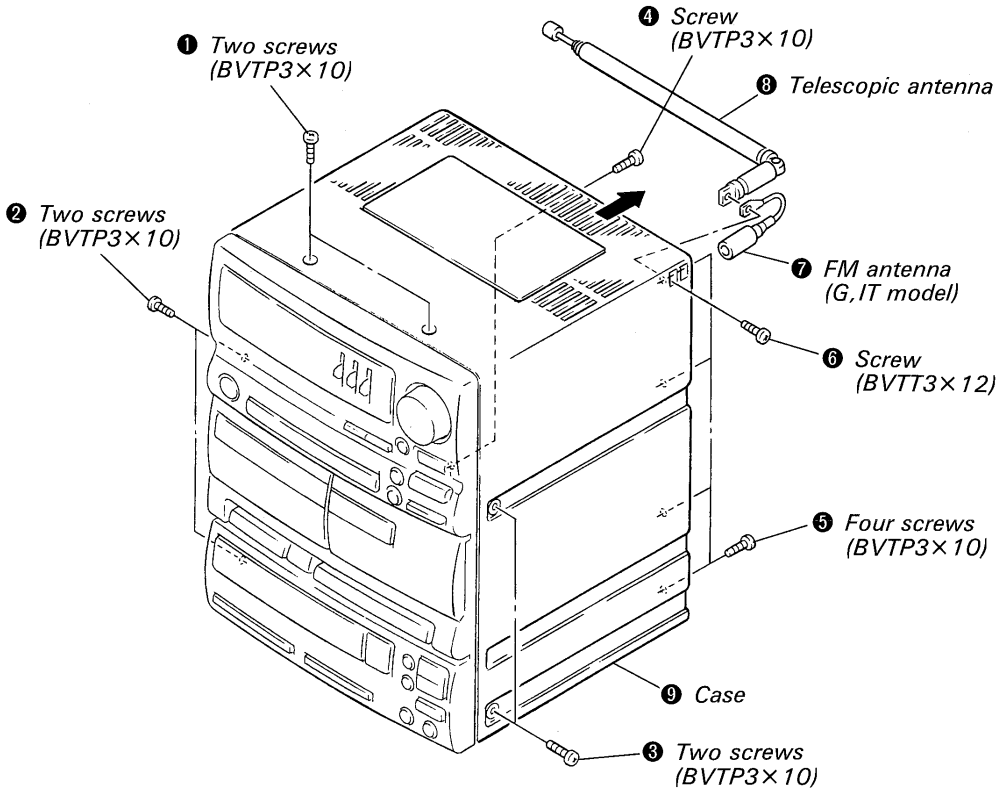
NOTE: Follow the disassembly procedure in the numerical order given.

3-1. CASE REMOVAL

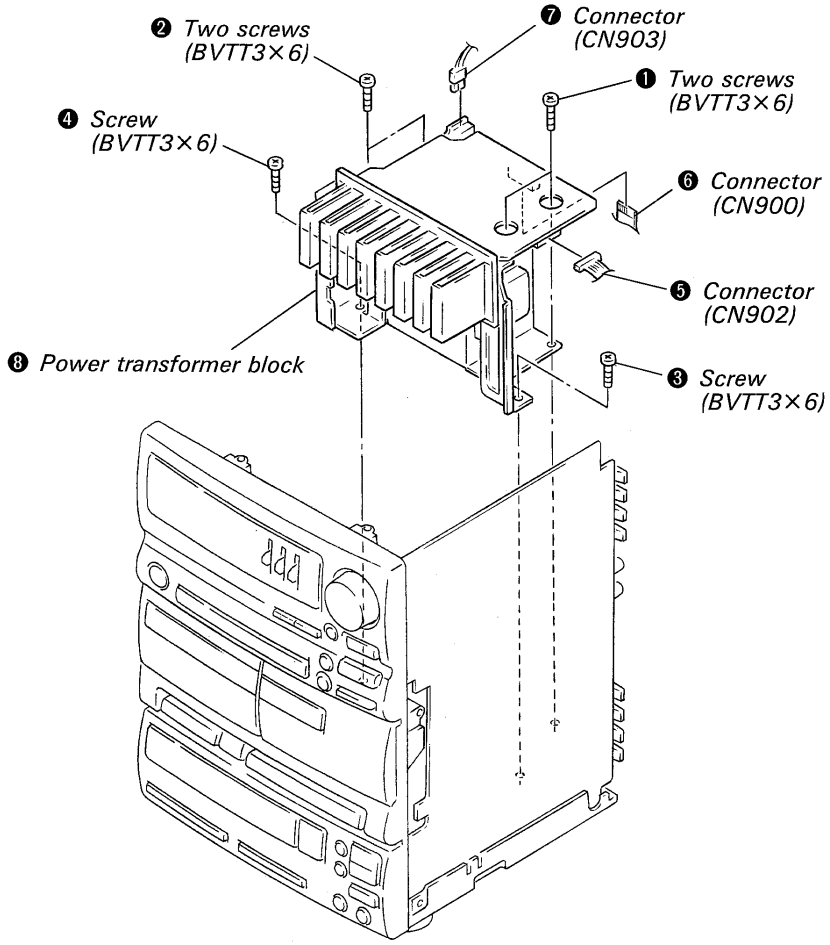
(HCD-H450M model)



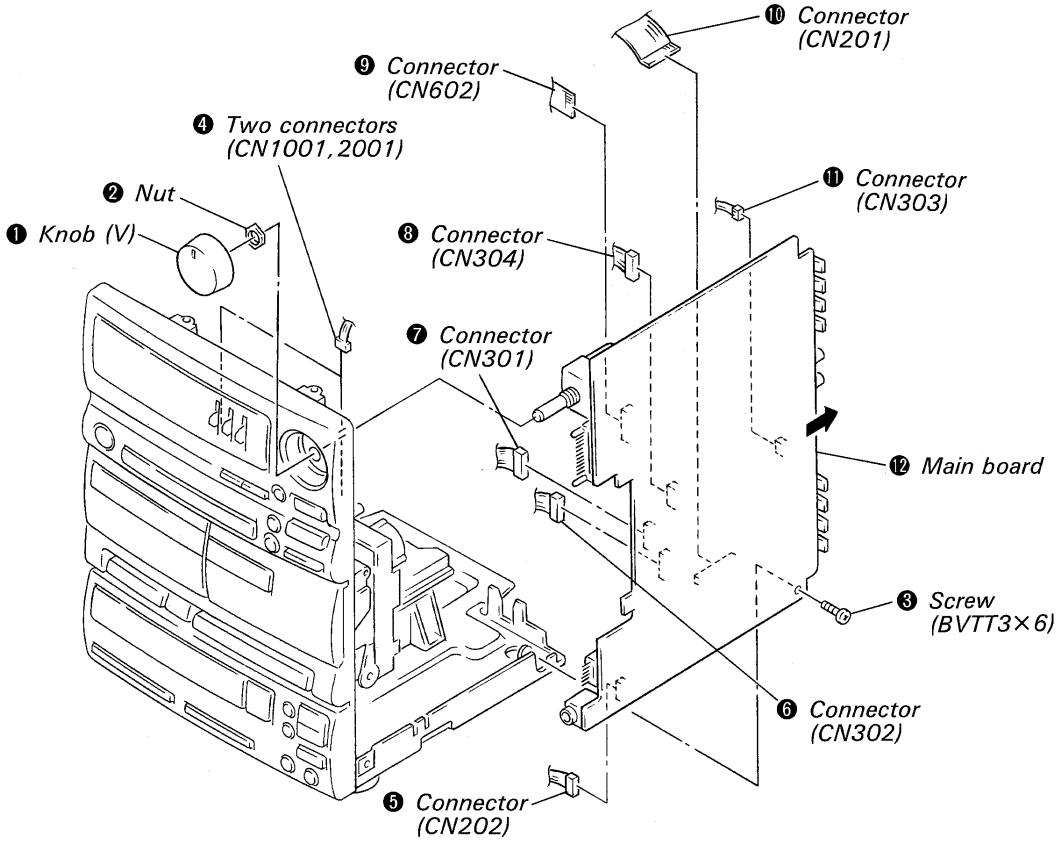
(HCD-H450 model)



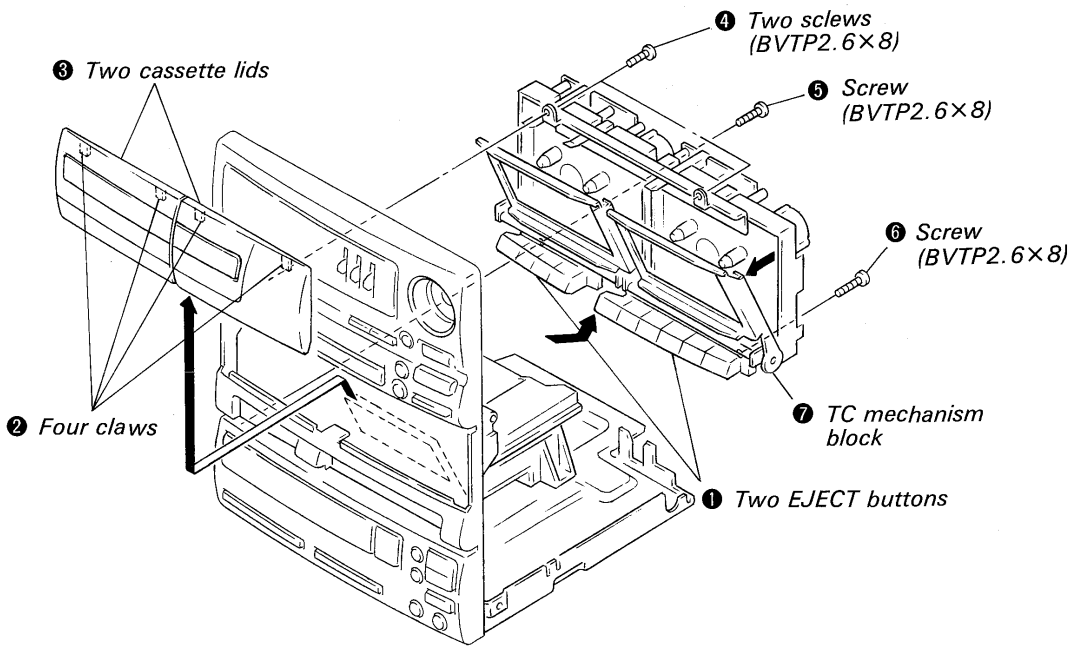
3-2. POWER BLOCK REMOVAL



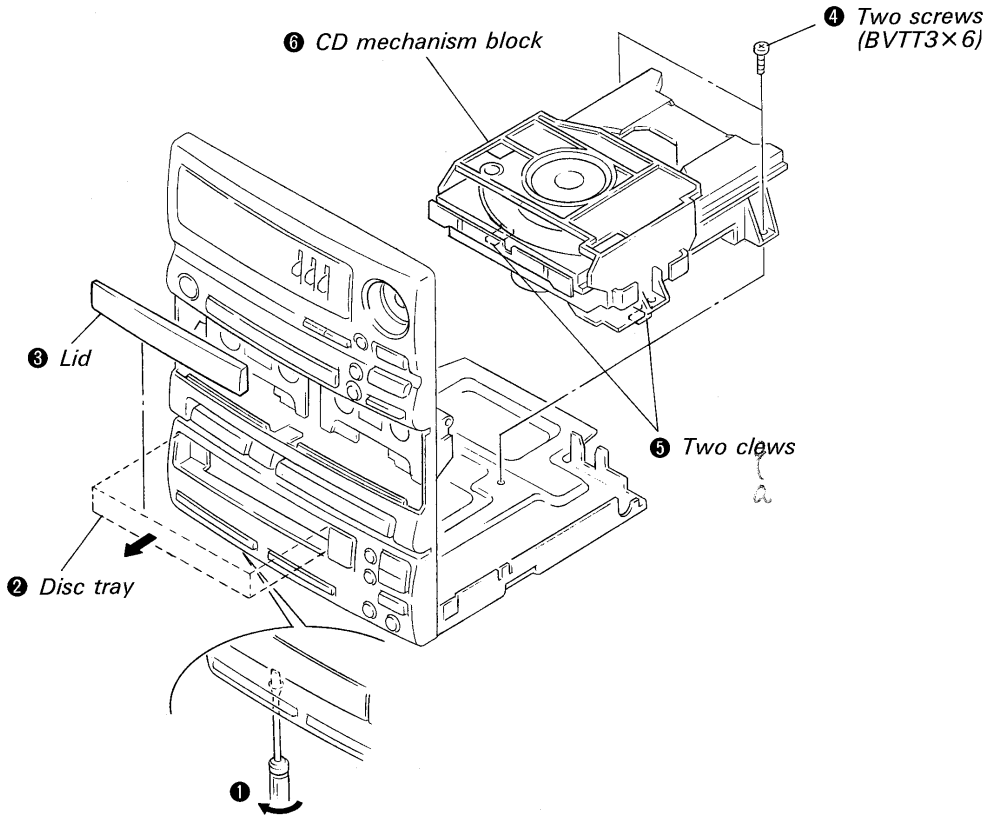
3-3. MAIN BOARD REMOVAL



3-4. TC MECHANISM BLOCK REMOVAL



3-5. CD MECHANISM BLOCK REMOVAL



SECTION 4
DIAGRAMS

4-1. IC PIN DESCRIPTIONS

• IC351 TMP87CH46N-4067

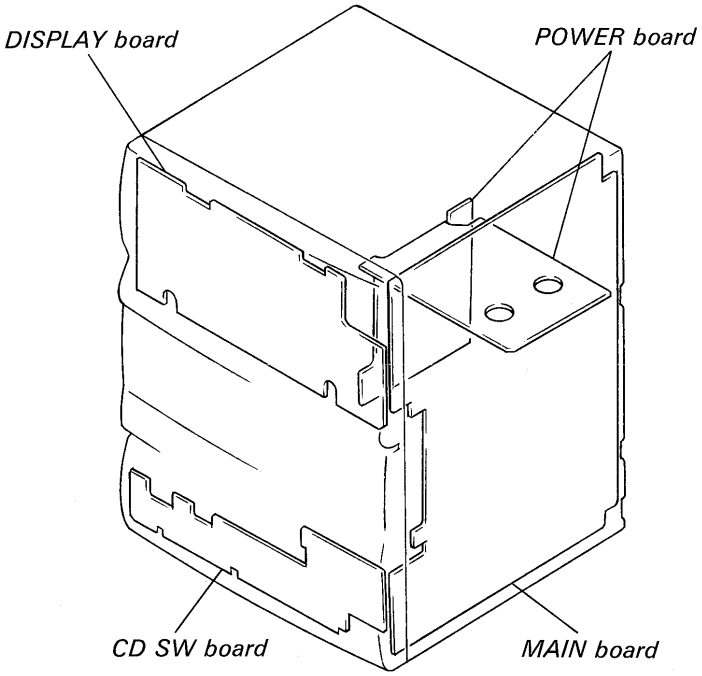
Pin No.	Pin Name	I/O	Pin Description
1	DATA	O	Command data to CXD2515Q.
2	CLK	O	Command clock to CXD2515Q.
3	PLAY	O	LED of PLAY.
4	SUBQ	I	To Q code output of CXD2515Q.
5	SQCLK	O	Clock of on read Q code.
6	PRGL	—	Not used.
7	XLT	O	For CXD2515Q latch.
8	SCOR	I	Large frame syncronization signal. 75Hz.
9	PAUSE	O	LED of PAUSE.
10	ICSW	O	CD power supply control pin. OFF : L, ON : H.
11	AMUTE	O	Mute. To CXD2515Q.
12	SCLK	O	Servo mode for read clock.
13	LDON	O	Laser diode ON/OFF.
14	—	—	Not used.
15	—	—	Not used.
16	SENSE	I	SENSE of CXD2515Q.
17	TEST	I	Connect to GND.
18	RESET	I	Reset pin of microcomputer.
19	X1	I	Oscillator connecting input pin. 8MHz.
20	X2	O	Oscillator connecting output pin. 8MHz.
21	GND	—	GND
22	VAREF	I	Reference voltage of A/D change.
23	KEYIN0	I	A/D key input
24	KEYIN1	I	A/D key input
25	KEYIN2	I	A/D key input
26	DPCLK	O	Display clock
27	DPDAT0	O	Display data
28	DPDAT1	O	Display data
29	DPDAT2	O	Display data
30	DPDAT3	O	Display data
31	EMPH	O	Emphasis control
32	KEYREQ	I	Key request
33	AUBIN	I	AU BUS input pin
34	AUBOUT	O	AU BUS output pin
35	LODOUT	O	Tray out
36	LODIN	O	Tray in
37	OUTSW	I	Tray out switch
38	INSW	I	Tray in switch
39	A-FUNC	I	Auto function ON/OFF select
40	ADJ	I	CD test mode pin (ADJ). Normally, 5V pull up.
41	AFADJ	I	CD test mode pin (AFADJ). Normally, 5V pull up.
42	+5V	—	+5V power supply pin

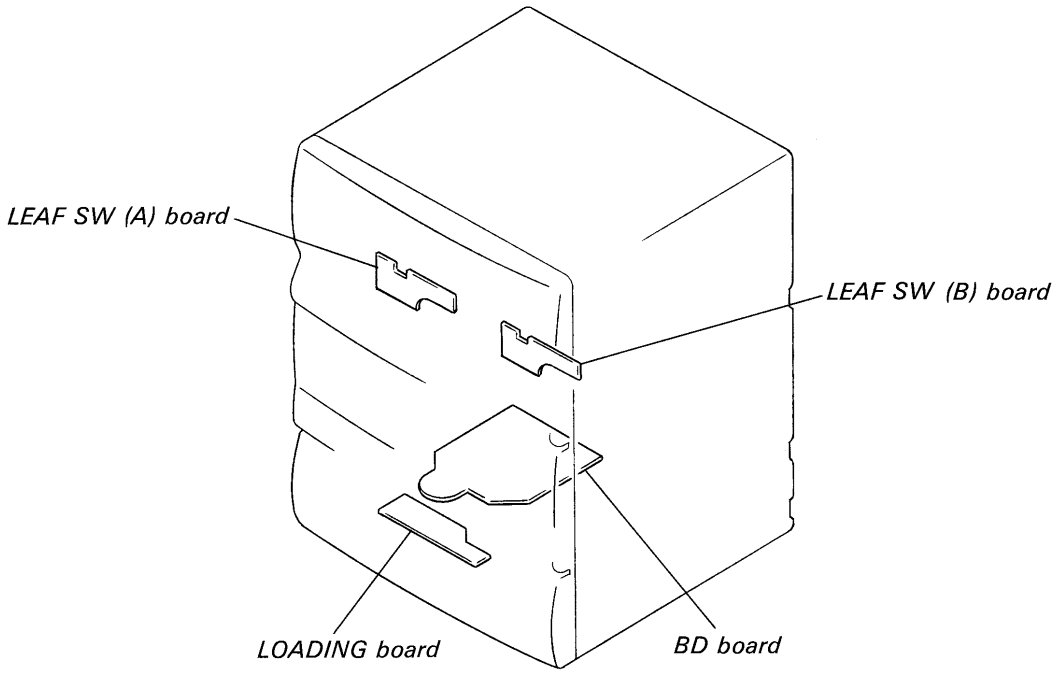
• **IC501 μPD78042GF-053-3B9**

Pin No.	Pin Name	I/O	Pin Description
1	7G	O	FL tube digit output
2	6G	O	FL tube digit output
3	5G	O	FL tube digit output
4	4G	O	FL tube digit output
5	3G	O	FL tube digit output
6	2G	O	FL tube digit output
7	1G	O	FL tube digit output
8	VDD	—	Microcomputer power (5V)
9	CL	O	Serial clock output to LC7218 (PLL IC).
10	SO/IF COUNT NG	O	Serial data output to LC7218 (PLL IC).
11	SI	I	Serial data input from LC7218 (PLL IC).
12	CE/TIMER CLOCK	I	Chip enable input from LC7218 (PLL IC).
13	TUNED IN	I	Modulation signal from tuner block. (L···Field)
14	STEREO IN	I	Stereo signal from tuner block. (L···FM STEREO received)
15	MUTING	O	Audio mute (L : Mute)
16	AUX. OUT	—	Not used.
17	RESET	—	Microcomputer reset pin
18	FUNCTION A	O	Function control
19	FUNCTION B	O	Function control
20	AVSS	—	A/D GND for key input.
21	DISPLAY. DATA. 3	I	CD display data bit 3
22	DISPLAY. DATA. 2	I	CD display data bit 2
23	DISPLAY. DATA. 1	I	CD display data bit 1
24	DISPLAY. DATA. 0	I	CD display data bit 0
25	AUB. OUT	O	AU BUS output
26	POWER ON/OFF	O	Power on/off
27	KEY IN1	I	Key input (A/D change line 1)
28	KEY IN2	I	Key input (A/D change line 2)
29	AVDD	—	A/D power for key input (5V)
30	AVREF	—	A/D reference voltage (5V)
31	CD. BUSY	I	At H, CD is Active. (At H, tuner is fundamentally not operated.)
32	—	—	Not used.
33	GND	—	Microcomputer GND
34	X1	—	Crystal connection pin for Main•clock oscillator.
35	X2	—	Crystal connection pin for Main•clock oscillator.
36	POWER. MUTE	—	Not used.
37	TAPE. LED	O	Tape function LED
38	CD. LED	O	CD function LED
39	TUNER. LED	O	Tuner function LED
40	PHONO/VIDEO. LED	O	PHONO/VIDEO function LED
41	DBFB	—	DBFB ON/OFF
42	K-PON	—	KARAOKE-PON ON/OFF
43	K-PON• LED	—	KARAOKE-PON LED
44	HOLD	I	Power cut detection pin (Normally : H, AC no connect : L)

Pin No.	Pin Name	I/O	Pin Description
45	CD. CLOCK	I	CD display data clock
46	SIRCS IN	I	SIRCS input
47	AUB. IN	I	AU BUS input
48	—	—	Connect to GND.
49	FUNCTION. C	—	Not used.
50	VOL. DOWN	O	Volume control (VOL DOWN)
51	VOL. UP	O	Volume control (VOL UP)
52	VDD	—	Microcomputer power (5V)
53	—	—	Not used.
54	DIODE. IN2	I	Distination•model discrimination input
55	DIODE. IN1	I	Distination•model discrimination input
56	S20	—	Not used.
57	S19	O	Distination•model discrimination output
58	S18	O	Distination•model discrimination output
59	S17	—	Not used.
60	S16	O	Distination•model discrimination output
61	S15	O	Distination•model discrimination output
62	S14	—	Not used.
63	—	—	Not used.
64	S0	O	FL tube segment output
65	S1	O	FL tube segment output
66	S2	O	FL tube segment output
67	S3	O	FL tube segment output
68	S4	O	FL tube segment output
69	S5	O	FL tube segment output
70	S6	O	FL tube segment output
71	V. LOAD	—	Minus voltage for FL tube.
72	S7	O	FL tube segment output
73	S8	O	FL tube segment output
74	S9	O	FL tube segment output
75	S10	O	FL tube segment output
76	S11	O	FL tube segment output
77	S12	O	FL tube segment output
78	—	O	Not used.
79	9G	O	FL tube digit output
80	8G	O	FL tube digit output

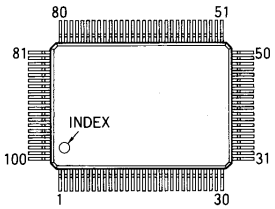
4-2. CIRCUIT BOARD LOCATION





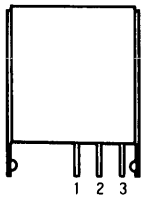
4-3. SEMICONDUCTOR LEAD LAYOUTS

CXD2515Q



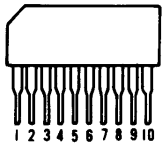
(TOP VIEW)

GP1U50XB

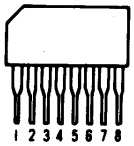


1 Vout
2 Vcc
3 GND

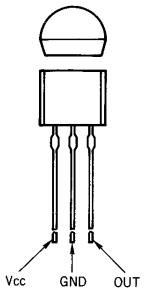
LB1641



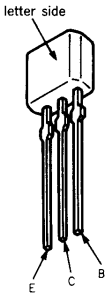
M5218AL
M5230L-A
UPC1330HA



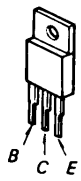
PST600C-T
PST600G-T



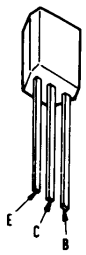
2SA1175-HFE
2SC2785-HFE



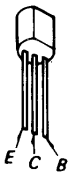
2SB1094-LK
2SD2012



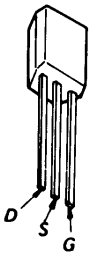
2SC2669-OY
2SC3622A-LK
DTA114ES
DTA144ES
DTC114ES
DTC144ES



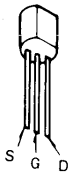
2SC3112-B
2SC945-P



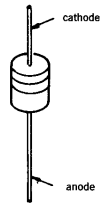
2SK161-YGR



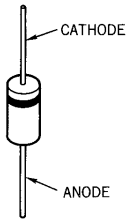
2SK246-GR3



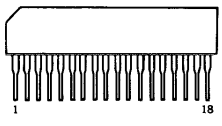
11ES2
HZS30-2L
HZS6A1L
HZS6C3L
HZS7C2L
UZ-4.7BSB



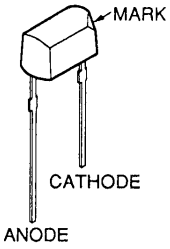
1N4148M
UZP-6.2B



RBA-402



SEL5221S



4-4. PRINTED WIRING BOARDS —MAIN/POWER Section—

● See page 13, 14 for Circuit Boards Location and Semiconductor Lead Layouts.

● **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D1	I - 10	IC851	G - 19
D21	G - 12	IC901	H - 18
D51	E - 9		
D201	I - 3	Q1	H - 11
D221	D - 3	Q2	G - 11
D252	C - 2	Q3	H - 10
D403	H - 5	Q4	H - 10
D404	F - 7	Q5	H - 10
D405	G - 5	Q6	H - 10
D407	G - 5	Q7	J - 11
D408	G - 5	Q8	J - 11
D409	E - 8	Q9	J - 10
D451	G - 7	Q15	J - 10
D602	E - 9	Q21	H - 12
D801	I - 21	Q22	H - 12
D802	I - 21	Q23	H - 12
D901	G - 18	Q24	H - 12
D902	G - 17	Q53	E - 9
D903	H - 22	Q201	F - 3
D904	I - 17	Q202	I - 3
D905	I - 18	Q203	E - 3
D906	G - 23	Q204	E - 3
		Q205	G - 2
IC21	G - 12	Q221	D - 3
IC51	F - 10	Q251	F - 3
IC201	G - 3	Q252	H - 2
IC202	H - 3	Q291	I - 2
IC203	F - 3	Q301	H - 9
IC251	I - 3	Q371	D - 19
IC252	I - 2	Q372	D - 19
IC255	C - 2	Q401	H - 8
IC303	H - 7	Q407	G - 5
IC304	E - 7	Q408	G - 5
IC305	E - 5	Q409	G - 5
IC306	E - 5	Q410	G - 8
IC351	E - 3	Q411	G - 8
IC407	G - 6	Q412	G - 7
IC602	E - 8	Q451	J - 6
IC730	D - 12	Q452	J - 5
IC750	I - 8	Q453	J - 6
IC751	F - 9	Q454	J - 6
IC801	G - 20		

Note:

● ○—— : parts extracted from the component side.

CND : Canadian
G : German
IT : Italian
AUS : Australian
EA : Saudi Arabia
EE : East European
MY : Malaysia
SP : Singapore

【MAIN BOARD】

【CD SW BOARD】

【LEAF SW(A) BOARD】

【LEAF SW(B) BOARD】

【POWER BOARD】

【MAIN BOARD(1/3)】

IC304 EQ AMP

IC305 EQ AMP

IC306 REC/PB SELECT

IC303 SYSTEM CONTROL

IC750 PHONO AMP

IC751 FUNCTION SW

IC602 LINE AMP

IC730 MOTOR DRIVE

IC407 AND GATE SW

【LEAF SW(A) BOARD】

【LEAF SW(B) BOARD】

SPEAKER IMPEDANCE USED=4~16Ω

HEAD PHONES

(See page 27)

(See page 26)

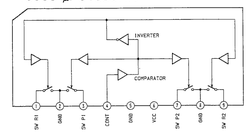
(See page 31)

(See page 27)

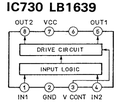
(See page 27)

● IC Block Diagrams

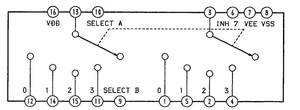
IC306 μPC1330HA



IC730 LB1639



IC751 MC14052BCP



Note:

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

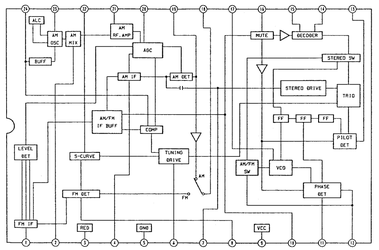
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- : B+ Line
- : B– Line
- : adjustment for repair.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY
  ( ) : REC
  A : A DECK
  B : B DECK
- Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : FM : PB (DECK A) : CD
  : PB (DECK B) : PHONO/VIDEO
  : REC (DECK B)

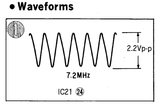
CND: Canadian
G: German
IT: Italian
AUS: Australian
EA: Saudi Arabia
EE: East European
MY: Malaysia
SP: Singapore

● IC Block Diagram

IC51 LA1831



● Waveforms

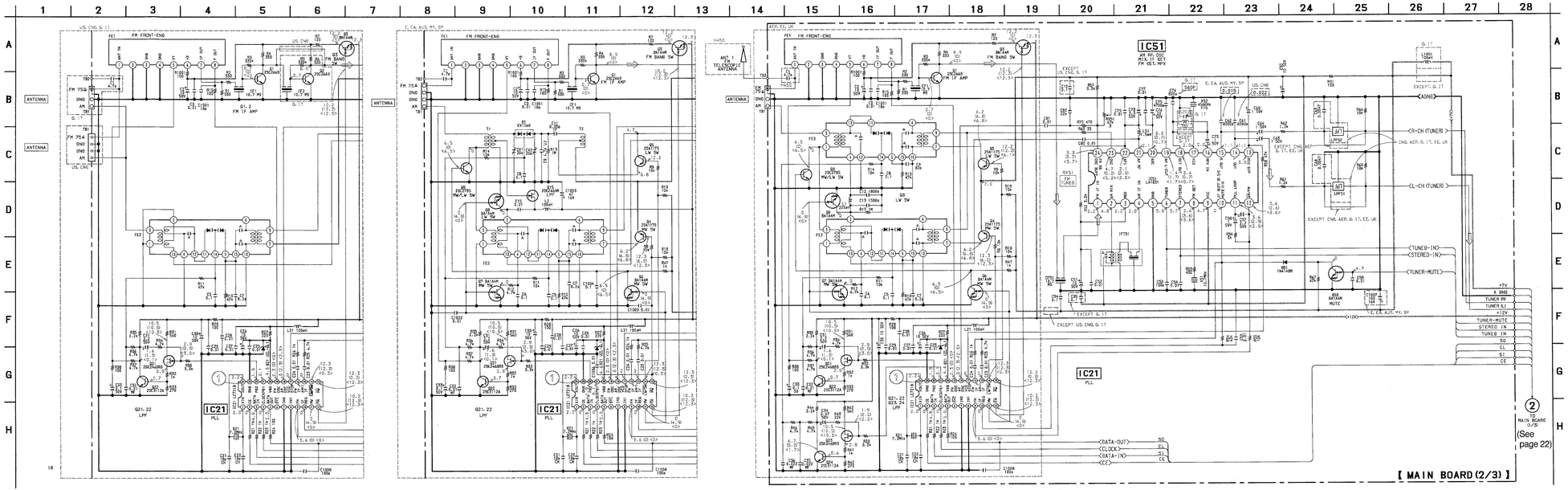


Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ☆ : B+ Line
- ☆ [ ] : adjustment for repair.
- ☆ Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : MW
  < > : SW/LW
- ☆ Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- ☆ Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- ☆ Circled numbers refer to waveforms.
- ☆ Signal path.
  ⇨ : FM

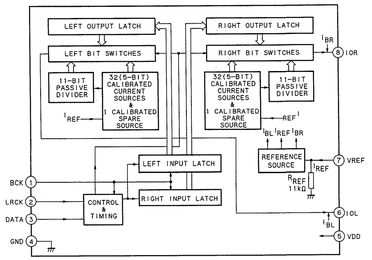
CND : Canadian
G : German
IT : Italian
AUS : Australian
EA : Saudi Arabia
EE : East European
MY : Malaysia
SP : Singapore

4-6. SCHEMATIC DIAGRAM —TUNER Section—

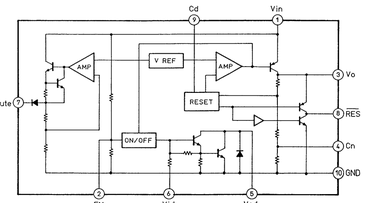


● IC Block Diagrams

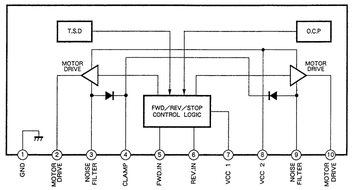
IC203 TDA1545P



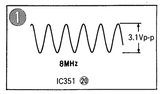
IC251 LA5601



IC255 LB1641



● Waveforms



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

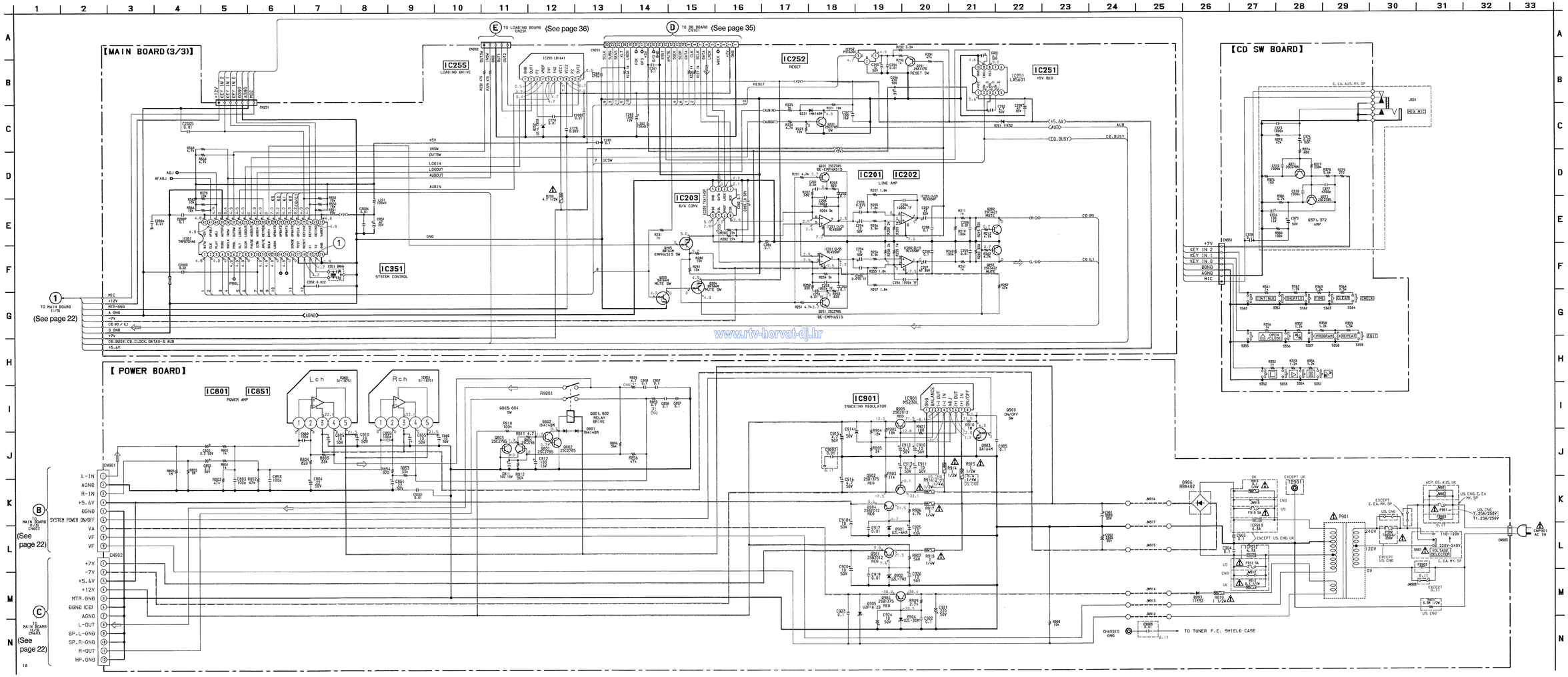
Note:	**Note:**
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- : B+ Line
- : B– Line

- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark : PLAY
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : FM ⇨ : CD

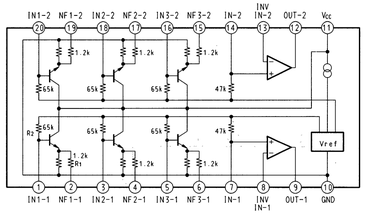
CND : Canadian
G : German
IT : Italian
AUS : Australian
EA : Saudi Arabia
EE : East European
MY : Malaysia
SP : Singapore

4-7. SCHEMATIC DIAGRAM —CD CONTROL/POWER Section—

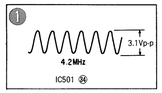


● IC Block Diagram

IC604 M5243P12



● Waveforms

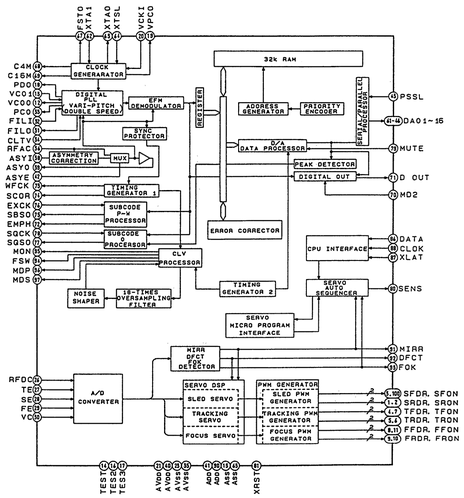


Note:

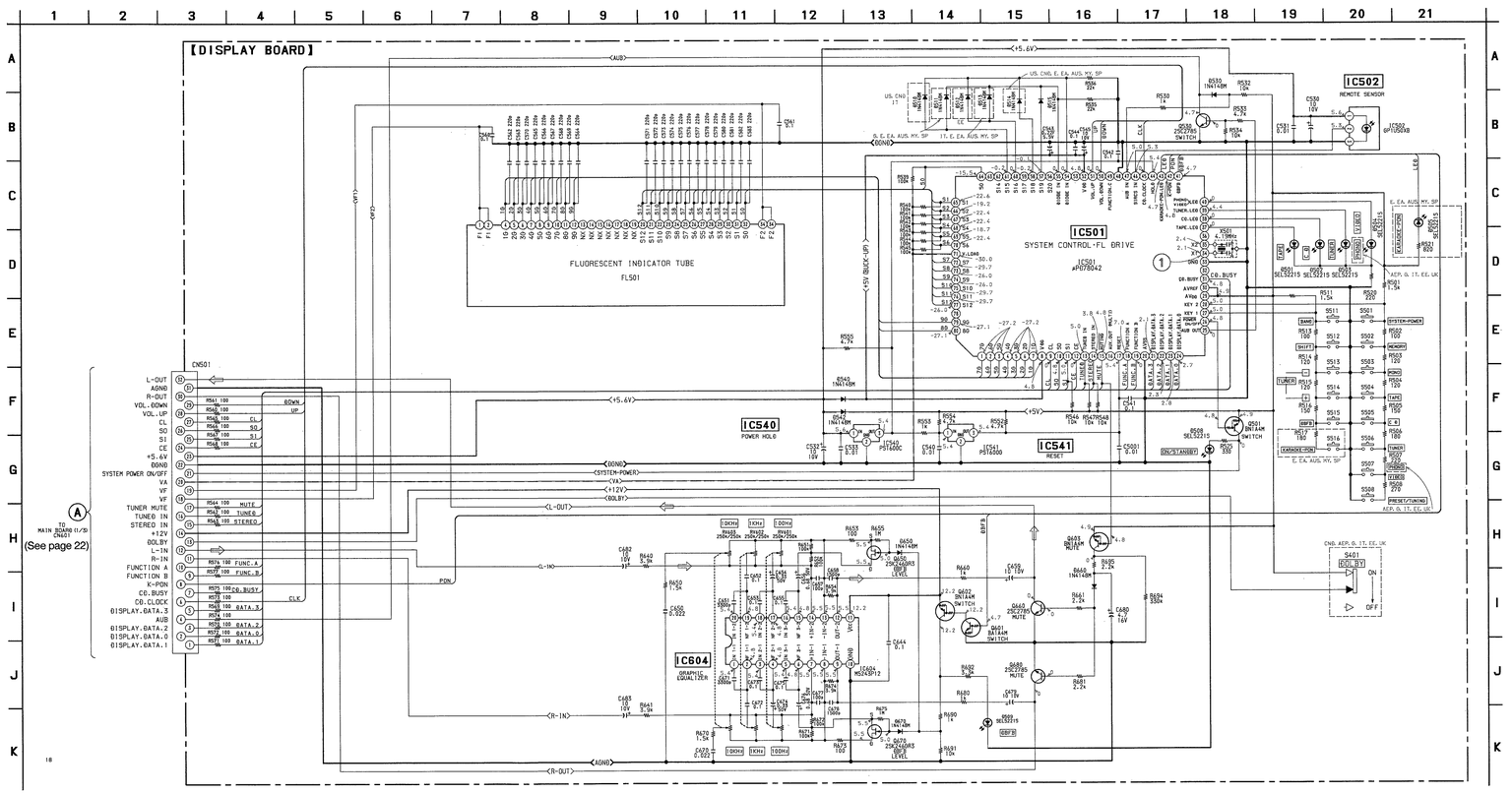
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- ═══ : B+ Line
- ═══ : B− Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM

CND : Canadian EE : East European
G : German MY : Malaysia
IT : Italian SP : Singapore
AUS : Australian
EA : Saudi Arabia

● IC Block Diagram **IC101 CXD2515Q**



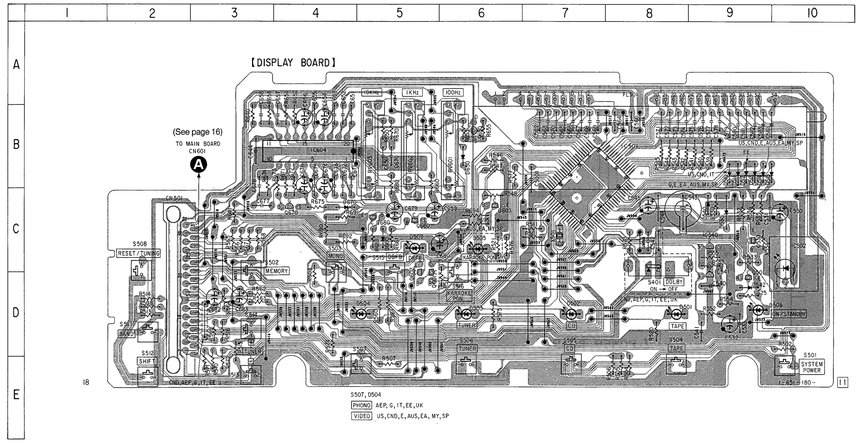
4-8. SCHEMATIC DIAGRAM —DISPLAY Section—



● Semiconductor Location

Ref. No.	Location
D501	D - 8
D502	D - 7
D503	D - 6
D504	E - 5
D505	C - 6
D508	D - 9
D509	C - 5
D510	B - 9
D511	B - 9
D512	B - 9
D513	B - 9
D514	B - 9
D515	B - 9
D530	C - 9
D540	C - 9
D542	D - 9
D650	B - 6
D660	C - 5
D670	C - 4
IC501	B - 7
IC502	C - 10
IC540	C - 9
IC541	D - 9
IC604	D - 4
Q501	D - 9
Q530	C - 9
Q601	E - 5
Q602	E - 5
Q603	C - 6
Q650	B - 6
Q660	C - 5
Q670	C - 4
Q680	C - 5

4-9. PRINTED WIRING BOARDS —DISPLAY Section— ●See page 13, 14 for Circuit Boards Location and Semiconductor Lead Layouts.

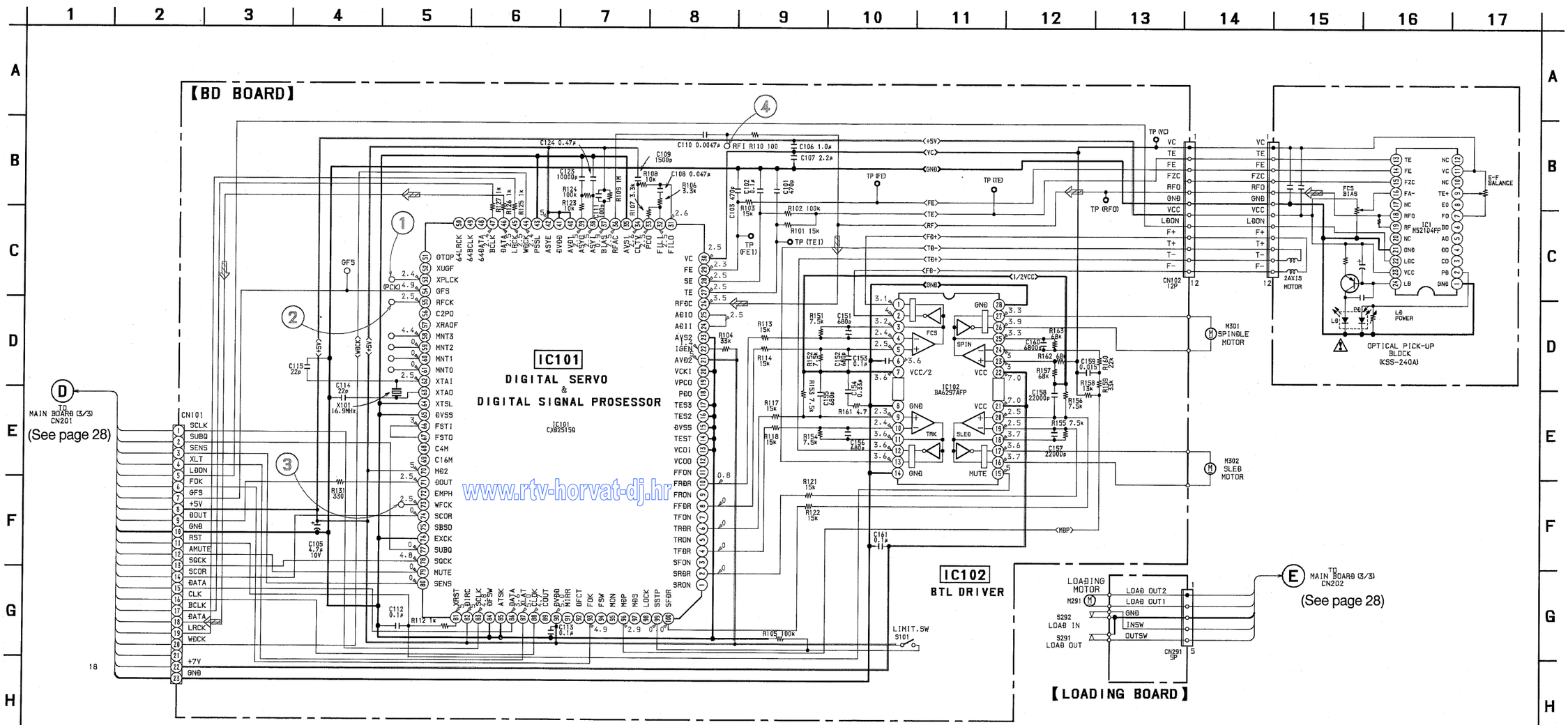


Note:

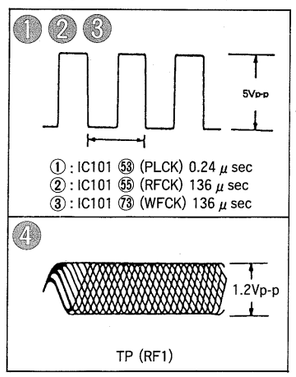
- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.

CND : Canadian EE : East European
G : German MY : Malaysia
IT : Italian SP : Singapore
AUS : Australian
EA : Saudi Arabia

4-10. SCHEMATIC DIAGRAM —CD Section—



• Waveforms



① : IC101 ㊸ (PLCK) 0.24 μ sec
② : IC101 ㊺ (RFCK) 136 μ sec
③ : IC101 ㊻ (WFCK) 136 μ sec

Note:

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

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

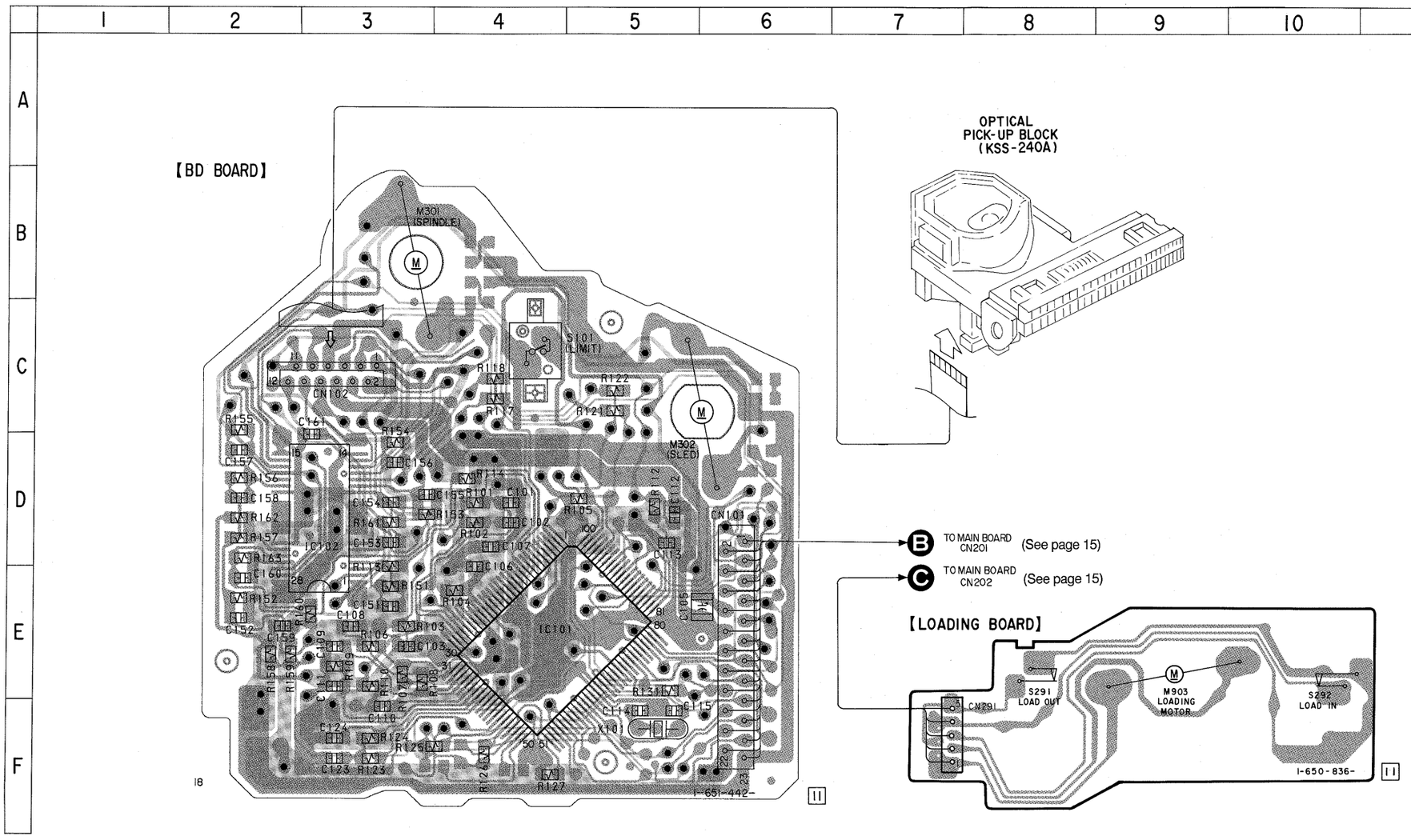
- ▭ : B+ Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇛ : CD

4-11. PRINTED WIRING BOARDS —CD Section—

● See page 13, 14 for Circuit Boards Location and Semiconductor Lead Layouts.

● **Semiconductor Location**

Ref. No.	Location
IC101	E - 4
IC102	D - 3



Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- ▒▒ : Pattern on the side which is seen.
- ◎ ▒▒ : Pattern of the rear side.

SECTION 5
EXPLODED VIEWS

NOTE:

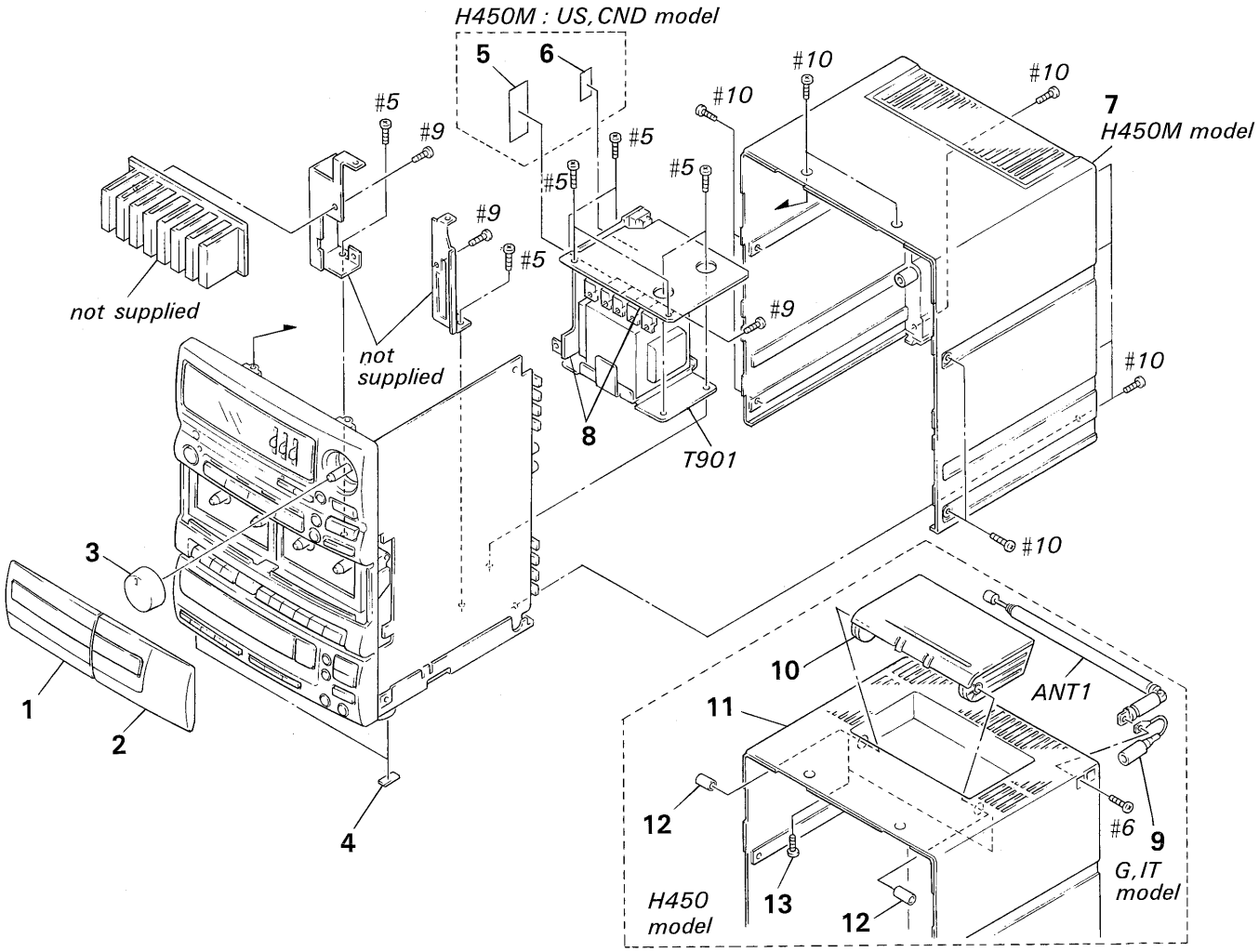
- -xx,-x mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviations

CND:	Canadian	EA:	Saudi Arabia
IT:	Italian	SP:	Singapore
G:	German	MY:	Malaysia
EE:	East European	AUS:	Australian

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

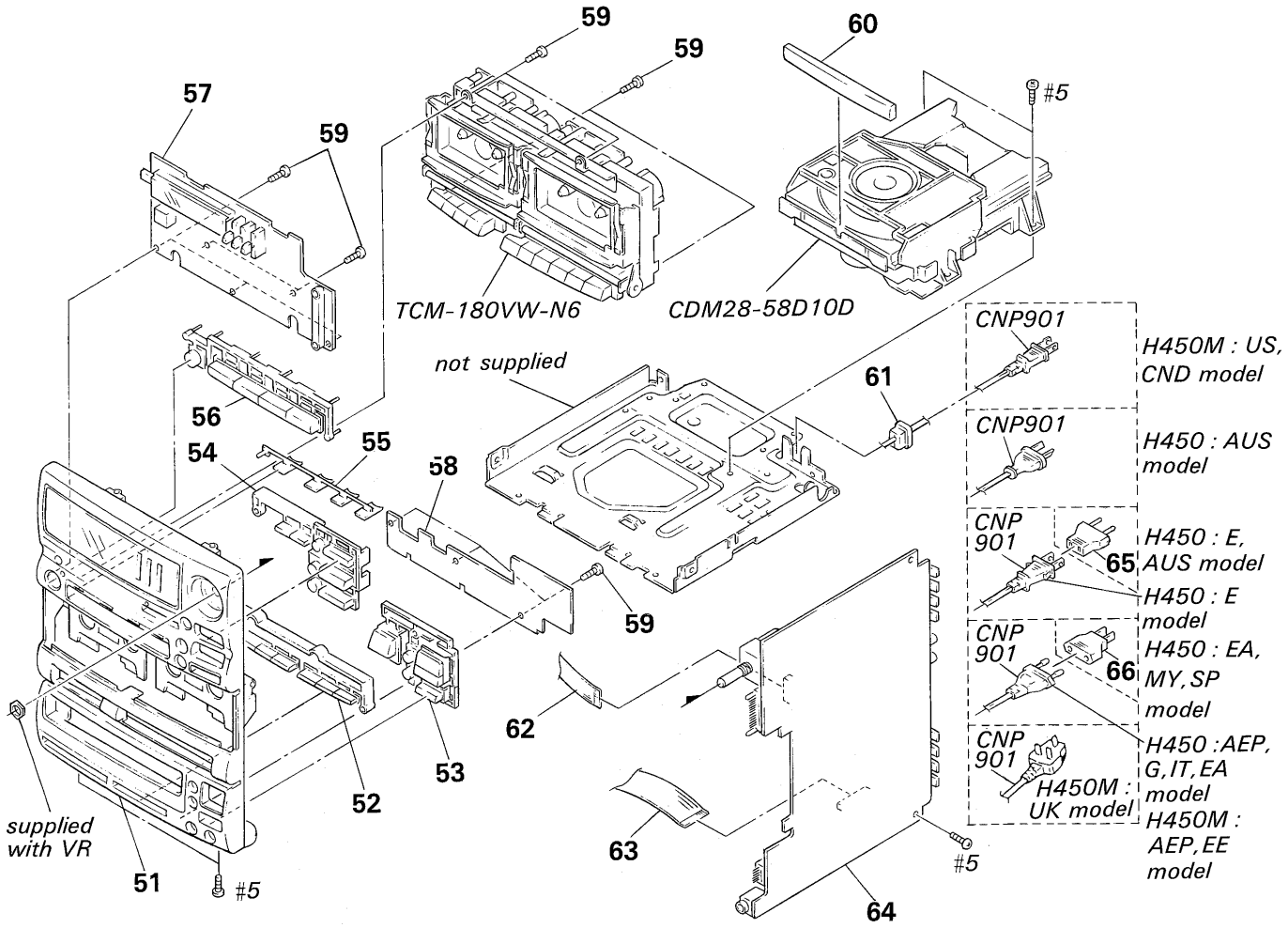
Les components identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET SECTION



Ref.No.	Part No.	Description	Remark
1	A-4353-939-A	LID (A) ASSY, CASSETTE	
2	A-4353-940-A	LID (B) ASSY, CASSETTE (H450:E2, AUS, EA, MY, SP)	
2	A-4353-941-A	LID (B) ASSY, CASSETTE (H450:AEP, G, IT)	
2	A-4353-944-A	LID (B) ASSY, CASSETTE (H450M:CND, AEP, UK, EE)	
2	A-4353-945-A	LID (B) ASSY, CASSETTE (H450M:US)	
3	4-964-858-01	KNOB (V)	
4	4-930-336-81	FOOT (FELT)	
5	3-703-044-26	LABEL, CAUTION (H450M:US, CND)	
*6	3-701-946-11	LABEL, FUSE RATING (H450M:US, CND)	
7	4-963-306-51	CASE (H450M)	
*8	A-4369-104-A	POWER BOARD, COMPLETE (H450M:UK)	
*8	A-4369-110-A	POWER BOARD, COMPLETE (H450M:US)	
*8	A-4369-111-A	POWER BOARD, COMPLETE (H450:AEP, AUS /H450M:AEP, EE)	
*8	A-4369-121-A	POWER BOARD, COMPLETE (H450:E, EA, MY, SP)	
*8	A-4369-122-A	POWER BOARD, COMPLETE (H450:G, IT)	
*8	A-4371-249-A	POWER BOARD, COMPLETE (H450M:CND)	
9	1-501-594-21	ANTENNA (FM) (H450:G, IT)	
10	4-963-673-01	HANDLE (H450)	
11	4-964-234-31	CASE (FH) (H450:E, EA, MY, SP)	
11	4-964-234-41	CASE (FH) (H450:AEP, G, IT, AUS)	
12	4-963-672-01	COLLAR (H450)	
13	4-951-620-11	SCREW (2.6X10), +BVTP	
⚠T901	1-426-656-11	TRANSFORMER, POWER (H450:AUS/H450M:UK)	
⚠T901	1-426-657-11	TRANSFORMER, POWER (H450:AEP, G, IT, /H450M:AEP, EE)	
⚠T901	1-426-658-11	TRANSFORMER, POWER (H450M:US, CND)	
⚠T901	1-426-659-11	TRANSFORMER, POWER (H450:E, EA, MY, SP)	
ANT1	1-501-321-51	ANTENNA, TELESCOPIC (H450)	

5-2. CHASSIS SECTION

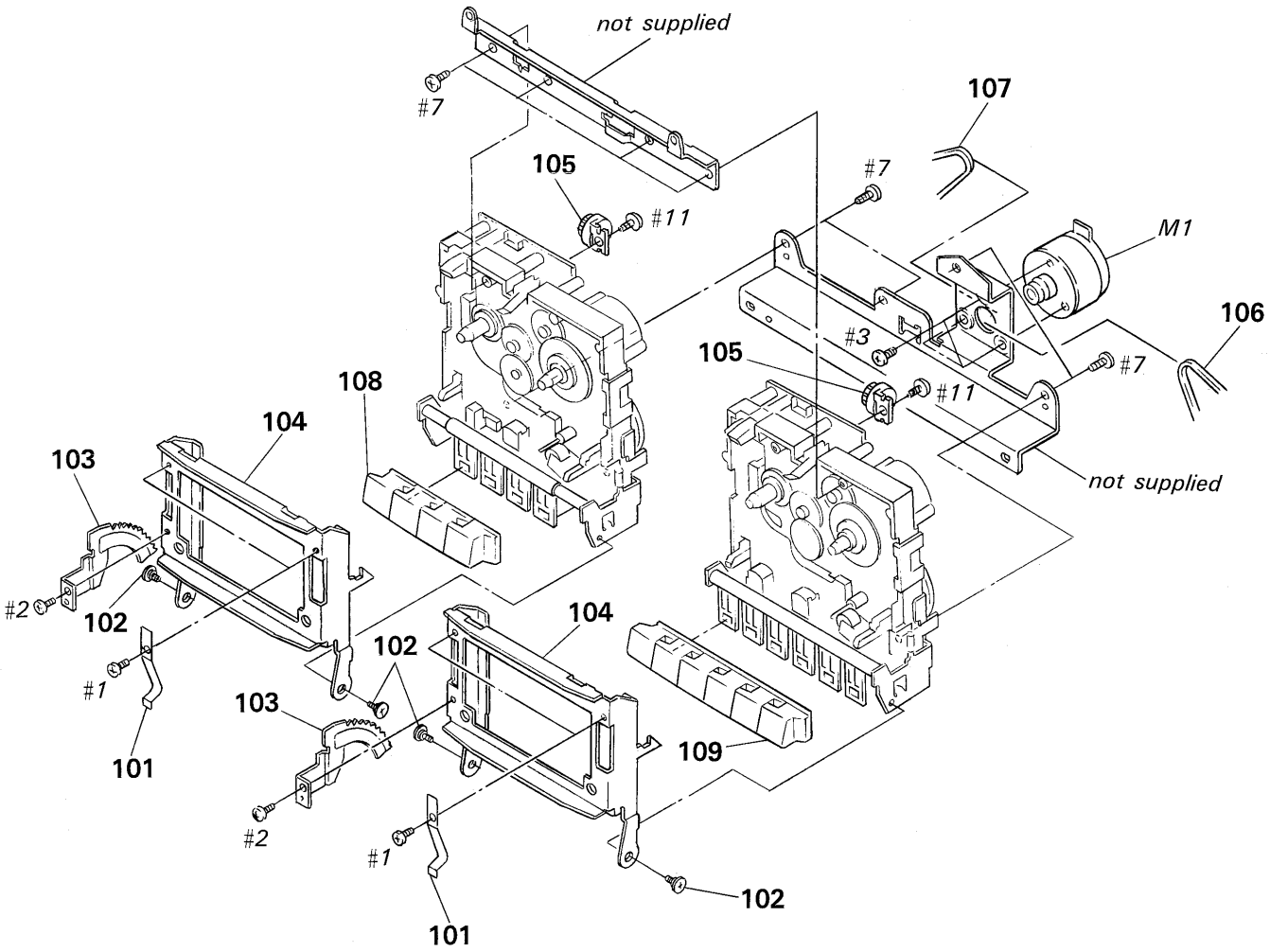


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
51	A-4353-937-A	PANEL ASSY, FRONT (H450:E, AUS, EA, MY, SP)	
51	A-4353-938-A	PANEL ASSY, FRONT (H450:AEP, G, IT /H450M:CND, AEP, EE)	
51	A-4353-946-A	PANEL ASSY, FRONT (H450M:US)	
52	4-963-655-01	BUTTON (CDP)	
53	4-964-103-01	BUTTON (CD)	
54	4-964-111-01	BUTTON (TA)	
55	4-964-104-01	INDICATOR (FUNCTION)	
56	4-964-102-01	BUTTON (POWER/FUNCTION) (H450:E, AUS, EA, MY, SP/ H450M:US, CND)	
56	4-964-102-11	BUTTON (POWER/FUNCTION) (H450:AEP, G, IT/ H450M:AEP, UK, EE)	
*57	A-4357-983-A	DISPLAY BOARD, COMPLETE (H450M:EE)	
*57	A-4364-021-A	DISPLAY BOARD, COMPLETE (H450M:CND)	
*57	A-4369-103-A	DISPLAY BOARD, COMPLETE (H450M:UK)	
*57	A-4369-108-A	DISPLAY BOARD, COMPLETE (H450M:US)	
*57	A-4369-109-A	DISPLAY BOARD, COMPLETE (AEP)	
*57	A-4369-117-A	DISPLAY BOARD, COMPLETE (H450:E, AUS, EA, MY, SP)	
*57	A-4369-118-A	DISPLAY BOARD, COMPLETE (H450:G)	
*57	A-4369-119-A	DISPLAY BOARD, COMPLETE (H450:IT)	
*57	A-4371-090-A	DISPLAY BOARD, COMPLETE (H450M:EE)	
*57	A-4371-234-A	DISPLAY BOARD, COMPLETE (H450M:CND)	
*58	A-4369-105-A	CD SW BOARD, COMPLETE (H450M:UK)	
*58	A-4369-112-A	CD SW BOARD, COMPLETE (H450:E, AUS, EA, MY, SP)	

Ref.No.	Part No.	Description	Remark
*58	A-4369-113-A	CD SW BOARD, COMPLETE (H450:AEP, G, IT/ H450M:US, CND, AEP, EE)	
59	4-951-620-11	SCREW (2.6X10), +BVTP	
60	4-963-286-11	PANEL, LOADING	
*61	3-703-244-00	BUSHING (2104), CORD (EXCEPT H450:E)	
61	3-703-571-00	BUSHING (S) (4516), CORD (H450:E)	
62	1-765-125-11	WIRE (FLAT TYPE) (9 CORE)	
63	1-765-124-11	WIRE (FLAT TYPE)	
*64	A-4369-102-A	MAIN BOARD, COMPLETE (H450M:UK)	
*64	A-4369-106-A	MAIN BOARD, COMPLETE (H450M:US)	
*64	A-4369-107-A	MAIN BOARD, COMPLETE (AEP)	
*64	A-4369-114-A	MAIN BOARD, COMPLETE (H450:E, AUS, EA, MY, SP)	
*64	A-4369-115-A	MAIN BOARD, COMPLETE (H450:G, IT)	
*64	A-4371-091-A	MAIN BOARD, COMPLETE (H450M:EE)	
*64	A-4371-218-A	MAIN BOARD, COMPLETE (H450M:CND)	
⚠65	1-569-007-11	ADAPTER, CONVERSION 2P (H450:E, AUS)	
⚠66	1-569-008-11	ADAPTER, CONVERSION 2P (H450:EA, MY, SP)	
⚠CNP901	1-558-943-41	CORD, POWER (H450:E)	
⚠CNP901	1-575-042-31	CORD, POWER (H450M:US, CND)	
⚠CNP901	1-575-651-91	CORD, POWER (H450:AEP, G, IT, EA, MY, SP /H450M:AEP, EE)	
⚠CNP901	1-696-846-21	CORD, POWER (H450:AUS)	
⚠CNP901	1-751-522-21	CORD, POWER (H450M:UK)	

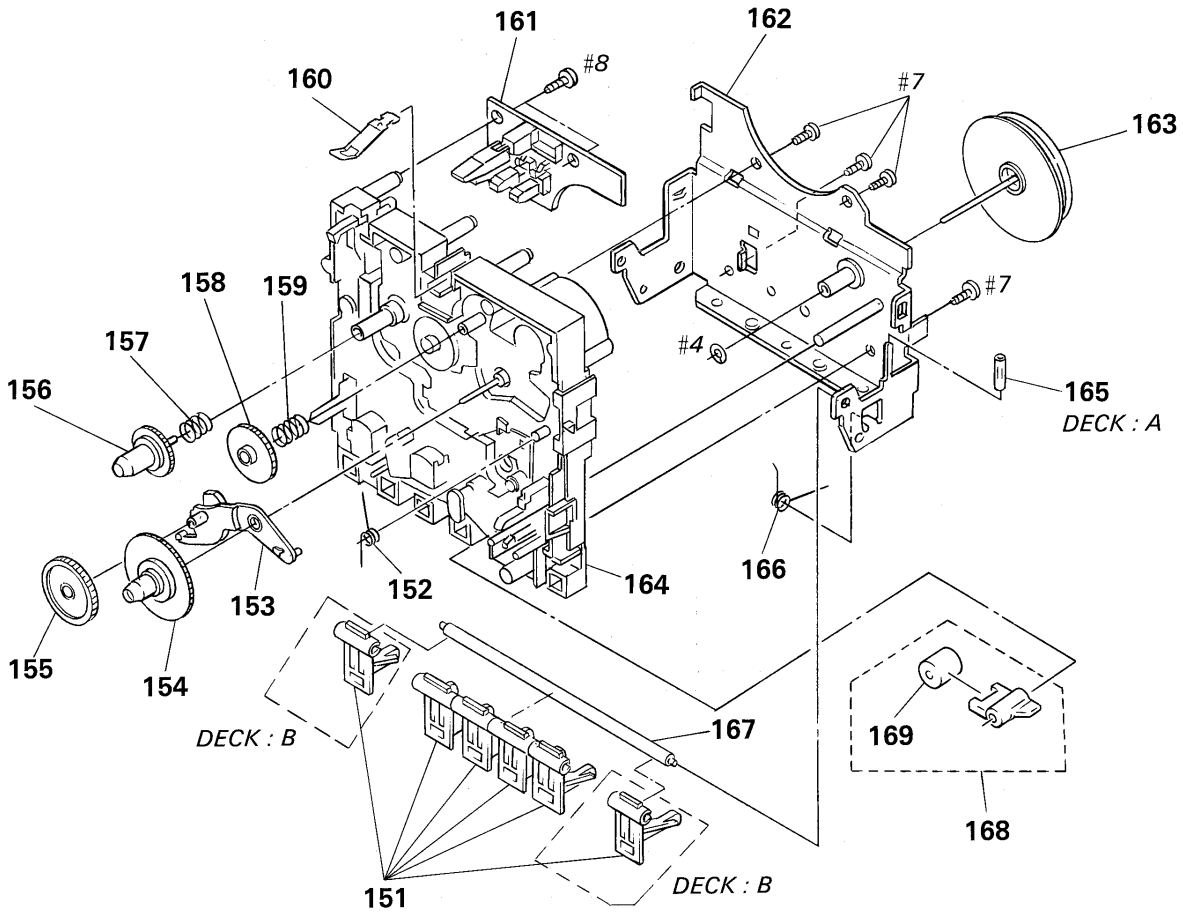
5-3. MECHANISM DECK SECTION-1 (TCM-180VW-N6)



Ref.No.	Part No.	Description	Remark
101	3-358-280-01	SPRING (CASSETTE HOLDER FH)	
102	3-358-277-01	SCREW, STEP	
*103	3-358-276-01	RACK, GEAR	
104	3-358-282-01	HOLDER (FH), CASSETTE	
105	4-919-393-21	DAMPER	

Ref.No.	Part No.	Description	Remark
106	3-911-187-01	BELT (WH)	
107	3-358-230-01	BELT (A1)	
108	4-956-320-01	BUTTON (TC-A)	
109	4-956-321-01	BUTTON (TC-B)	
M1	X-3362-377-1	MOTOR (WH) ASSY	

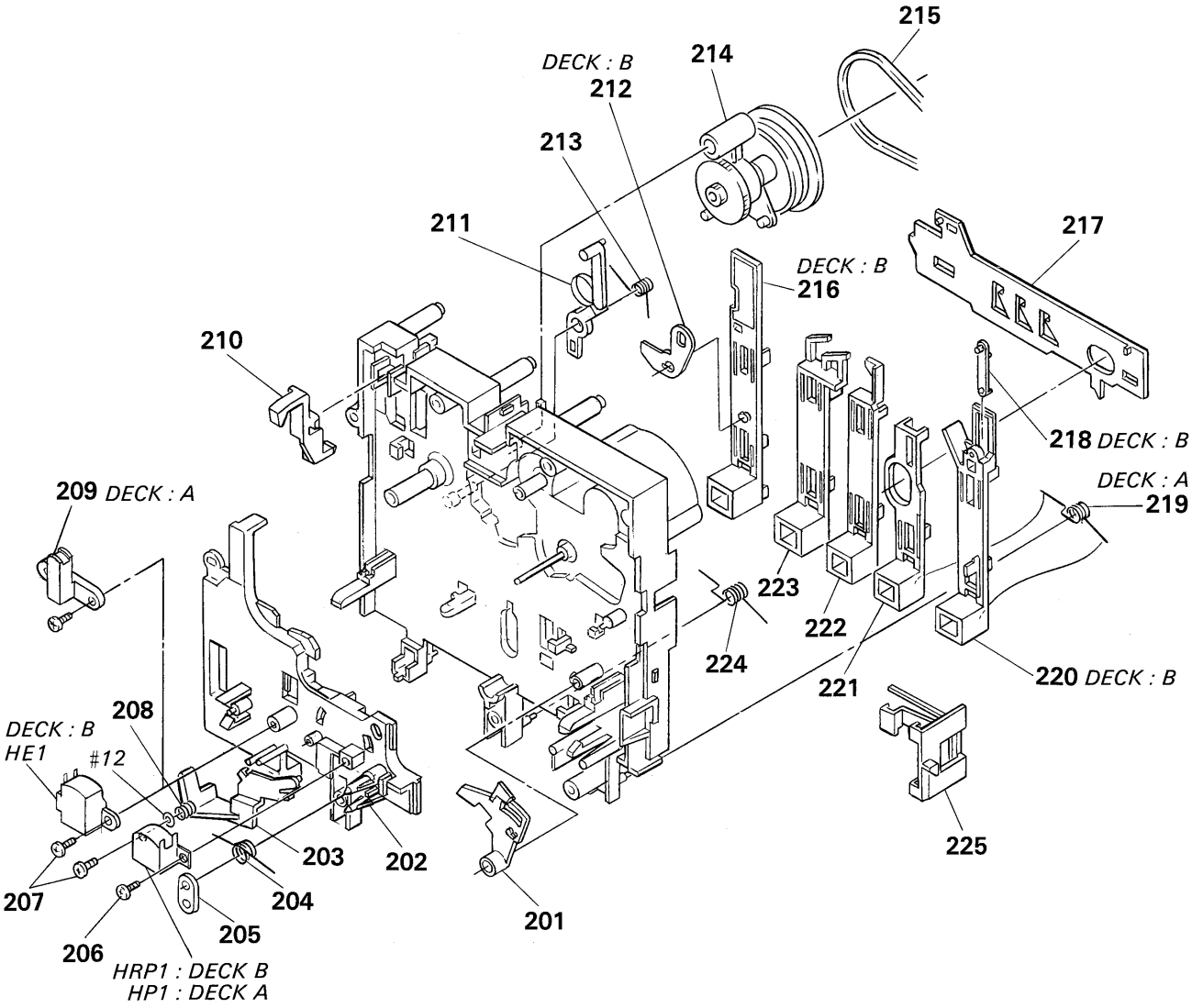
5-4. MECHANISM DECK SECTION-2 (TCM-180VW-N6)



Ref.No.	Part No.	Description	Remark
151	3-369-334-01	LEVER (BUTTON BASE E)	
152	3-358-243-01	SPRING (TU-SHUT), TORSION	
*153	3-358-252-01	LEVER (TU ARM)	
154	X-3358-203-1	TABLE (T) ASSY, REEL	
*155	3-358-284-01	GEAR (TU GEAR)	
156	3-358-248-01	GEAR (SUPPLY REEL)	
157	3-358-208-01	SPRING (SUPPLY), COMPRESSION	
*158	3-358-224-01	GEAR (FF GEAR)	
159	3-358-207-01	SPRING (FF GEAR), COMPRESSION	
160	3-358-227-01	SPRING, LEAF	
*161	1-647-784-11	LEAF SW (A) BOARD (DECK:A)	

Ref.No.	Part No.	Description	Remark
*161	1-647-785-11	LEAF SW (A) BOARD (DECK:B)	
*162	X-3358-216-1	BRACKET (FH) ASSY	
163	X-3358-205-1	FLYWHEEL (A) ASSY (DECK:A)	
163	X-3366-859-1	FLYWHEEL (D) ASSY (DECK:B)	
*164	X-3358-215-1	CHASSIS (B) ASSY	
*165	3-358-216-01	COLLAR (DECK:A)	
166	3-358-278-01	SPRING (LOADING FH), TORSION	
167	3-371-917-01	SHAFT (BUTTON SHAFT 4)	
168	X-3358-204-1	LEVER (PINCH LEVER) ASSY	
169	3-578-143-11	PINCH ROLLER	

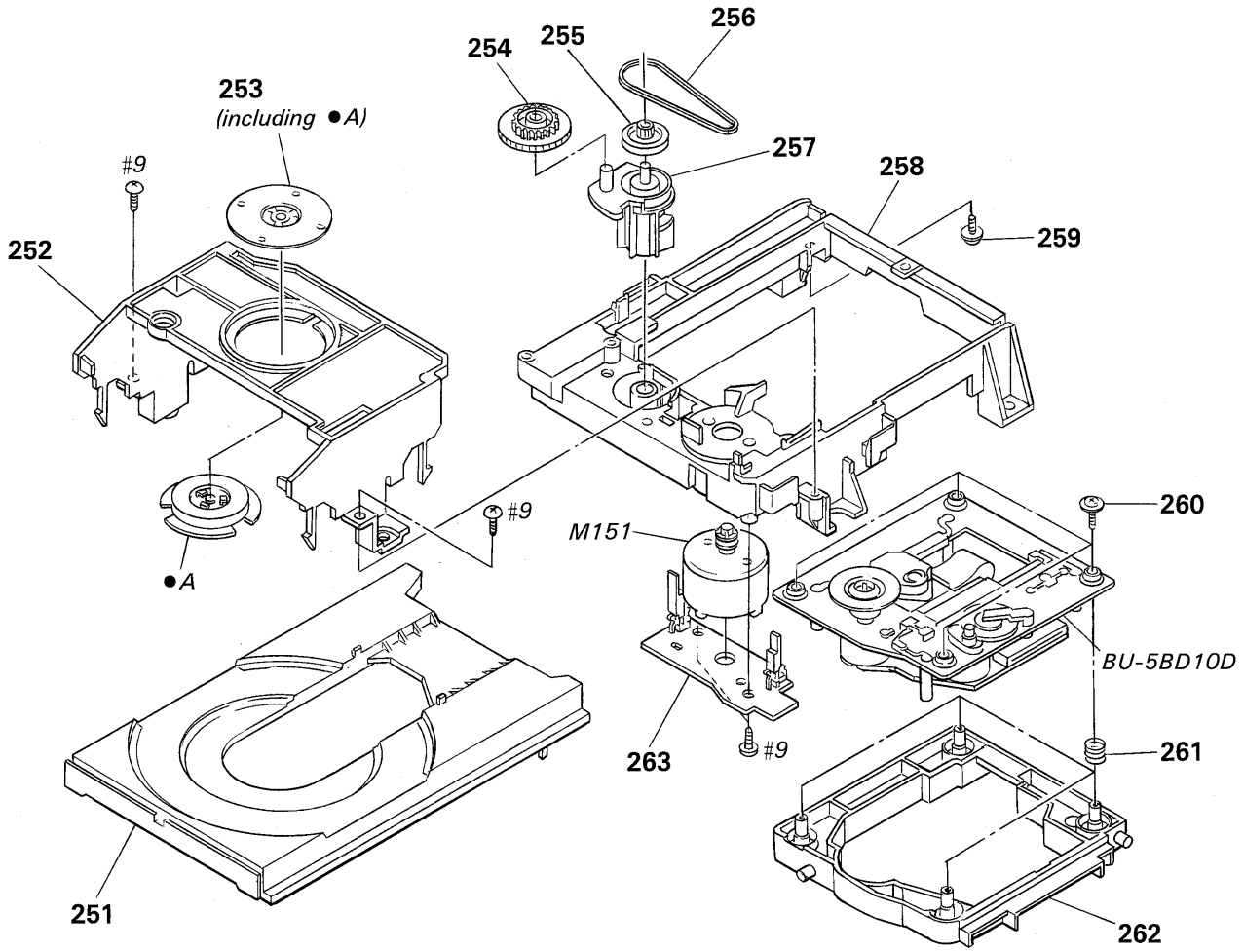
5-5. MECHANISM DECK SECTION-3 (TCM-180VW-N6)



Ref.No.	Part No.	Description	Remark
*201	3-358-253-01	LEVER (SHUT-OFF LEVER)	
202	3-358-265-01	SLIDER (HEAD PC BOARD A)	
*203	3-358-251-01	LEVER (TENSION DETECTION ARM)	
204	3-358-228-01	SPRING, TORSION	
*205	3-358-215-01	BUSHING (WIRE KIT RETAINER)	
206	3-358-288-01	SCREW (T), AZIMUTH	
207	3-358-288-11	SCREW (T), AZIMUTH	
208	3-358-234-01	SPRING (AZIMUTH), COMPRESSION	
*209	3-363-931-01	GUIDE, TAPE (DECK:A)	
*210	3-358-255-01	LEVER (GB LEVER) (DECK B)	
211	3-358-286-01	LEVER (MOTOR LEVER)	
*212	3-358-204-01	LEVER (REC SAFETY) (DECK:B)	
213	3-358-214-01	SPRING (LOCK), TORSION (DECK:A)	
213	3-358-233-01	SPRING (REC-LOCK), TORSION (DECK B)	
214	X-3358-202-1	LEVER (FR ARM) ASSY	

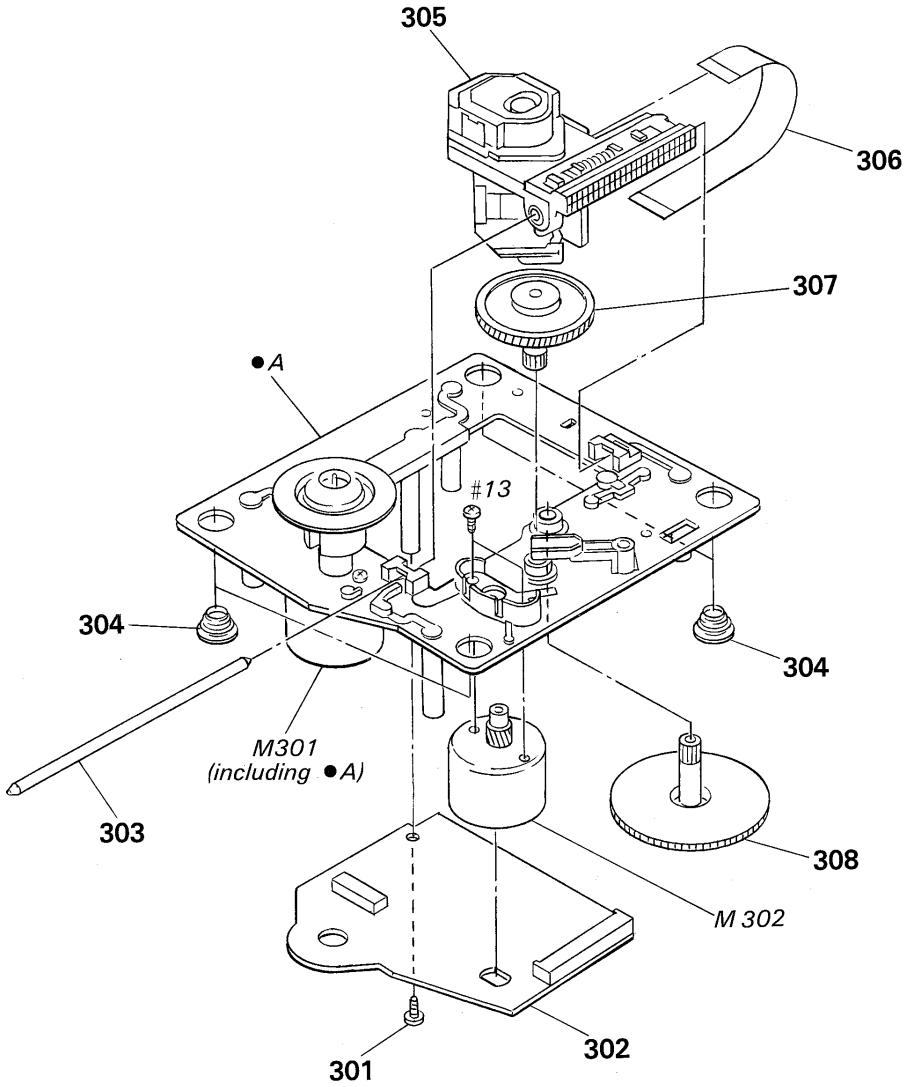
Ref.No.	Part No.	Description	Remark
215	3-358-230-01	BELT (A1)	
216	3-358-259-01	SLIDER (REC) (DECK B)	
*217	3-358-249-01	SLIDER (LOCK PLATE)	
*218	3-358-226-01	LEVER (PAUSE LEVER) (DECK:B)	
219	3-358-279-01	SPRING (STOP), TORSION (DECK:A)	
220	3-358-260-01	SLIDER (PAUSE) (DECK:B)	
221	3-358-256-01	SLIDER (STOP/EJECT) (DECK:B)	
222	3-358-257-01	SLIDER (FF)	
223	3-358-258-01	SLIDER (REW)	
224	3-358-232-01	SPRING (S-P F-R), TORSION	
225	3-358-281-01	SLIDER (HOLDER LOCK FH)	
HE1	1-543-673-11	HEAD, MAGNETIC (ERASE) (DECK:B)	
HP1	1-543-319-11	HEAD, MAGNETIC (PB) (DECK:A)	
HRP1	1-543-319-11	HEAD, MAGNETIC (REC/PB) (DECK:B)	

5-6. CD MECHANISM SECTION-1 (CDM28-5BD10D)



Ref.No.	Part No.	Description	Remark
251	4-960-836-01	TABLE, DISK	
252	4-960-835-01	HOLDER (M)	
253	1-452-719-11	MAGNET ASSY	
254	4-960-842-01	GEAR (P)	
255	4-960-841-01	PULLEY (S)	
256	4-927-649-01	BELT	
*257	4-960-839-01	CAM	
258	4-960-838-01	BASE (MD)	
*259	4-917-583-21	BRACKET, YOKE	
260	4-933-134-01	SCREW (+PTPWH M2.6X6)	
261	4-959-996-01	SPRING (932), COMPRESSION	
262	4-960-834-01	HOLDER (BU)	
*263	1-650-836-11	LOADING BOARD	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

5-7. CD MECHANISM SECTION-2 (BU-5BD10D)



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

Ref.No.	Part No.	Description	Remark
301	4-951-620-11	SCREW (2.6X10), +BVTP	
*302	A-4673-015-A	BD BORD, COMPLETE	
303	4-917-565-01	SHAFT, SLED	
304	4-951-940-01	INSULATOR (BU)	
⚠305	8-848-144-11	DEVICE, OPTICAL KSS-240A	

Ref.No.	Part No.	Description	Remark
306	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
307	4-917-567-01	GEAR (M)	
308	4-917-564-01	GEAR (P), FLATNESS	
M301	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M302	X-4917-504-1	MOTOR ASSY (SLED)	

SECTION 6
ELECTRICAL PARTS LIST

BD

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

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

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

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···, uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviations

CND:	Canadian	EA:	Saudi Arabia
IT:	Italian	SP:	Singapore
G:	German	MY:	Malaysia
EE:	East European	AUS:	Australian

Ref.No.	Part No.	Description			Remark
	A-4673-015-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C105	1-135-155-21	TANTAL, CHIP	4.7MF	20%	10V
C106	1-164-346-11	CERAMIC CHIP	1MF		16V
C107	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C109	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C113	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C114	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C115	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C123	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C124	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C151	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C152	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C153	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33MF		25V
C155	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C156	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C157	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C158	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C159	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C160	1-163-019-00	CERAMIC CHIP	0.0063MF	10%	50V
C161	1-163-038-11	CERAMIC CHIP	0.1MF		25V
		< CONNECTOR >			
*CN101	1-568-865-11	SOCKET, CONNECTOR 23P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
		< IC >			
IC101	8-752-351-94	IC CXD2515Q			
IC102	8-759-071-79	IC BA6297AFP			

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R101	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R102	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R103	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R104	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R105	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R106	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R107	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R108	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R109	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R110	1-216-025-00	METAL GLAZE	100	5%	1/10W
R112	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R113	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R114	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R117	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R118	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R121	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R122	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R123	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R124	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R125	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R126	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R127	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R131	1-216-037-00	METAL GLAZE	330	5%	1/10W
R151	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R152	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R153	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R154	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R155	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R156	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R157	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R158	1-216-076-00	METAL GLAZE	13K	5%	1/10W
R159	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R160	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R161	1-216-308-00	METAL GLAZE	4.7	5%	1/10W
R162	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R163	1-216-093-00	METAL GLAZE	68K	5%	1/10W

Ref.No.	Part No.	Description				Remark
		< SWITCH >				
S101	1-572-085-11	SWITCH, LEAF (LIMIT)				
		< VIBRATOR >				
X101	1-567-908-11	VIBRATOR, CRYSTAL (16.9MHz)				
**********						
*	A-4369-113-A	CD SW BOARD, COMPLETE (H450:AEP,G,IT/H450M:US,CND,AEP,EE)				
*	A-4369-105-A	CD SW BOARD, COMPLETE (H450:UK)				
*	A-4369-112-A	CD SW BOARD, COMPLETE (H450:E,AUS,EA.MY,SP)				
		**********				
		< CAPACITOR >				
C310	1-162-294-31	CERAMIC	0.001uF	10%	50V (H450:E,AUS,EA,MY,SP)	
C372	1-162-294-31	CERAMIC	0.001uF	10%	50V (H450:E,AUS,EA,MY,SP)	
C373	1-162-294-31	CERAMIC	0.001uF	10%	50V (H450:E,AUS,EA,MY,SP)	
C374	1-124-464-11	ELECT	0.22uF	20%	50V (H450:E,AUS,EA,MY,SP)	
C375	1-124-903-11	ELECT	1uF	20%	50V (H450:E,AUS,EA,MY,SP)	
C376	1-126-933-11	ELECT	100uF	20%	16V (H450:E,AUS,EA,MY,SP)	
C377	1-161-377-00	CERAMIC	0.0047uF	30%	16V (H450:E,AUS,EA,MY,SP)	
C378	1-164-159-11	CERAMIC	0.1uF		50V (H450:E,AUS,EA,MY,SP)	
		< CONNECTOR >				
*CN351	1-569-768-11	SOCKET, CONNECTOR 7P				
		< JACK >				
J351	1-563-935-31	JACK, STEREO HEADPHONE (MIX MIC)				(H450:E,AUS,EA,MY,SP)
		< TRANSISTOR >				
Q371	8-729-119-78	TRANSISTOR	2SC2785-HFE(H450:E,AUS,EA,MY,SP)			
Q372	8-729-119-78	TRANSISTOR	2SC2785-HFE(H450:E,AUS,EA,MY,SP)			
		< RESISTOR >				
R352	1-249-417-11	CARBON	1K	5%	1/4W	
R353	1-249-418-11	CARBON	1.2K	5%	1/4W	
R354	1-249-418-11	CARBON	1.2K	5%	1/4W	
R356	1-249-417-11	CARBON	1K	5%	1/4W	
R357	1-249-418-11	CARBON	1.2K	5%	1/4W	
R358	1-249-418-11	CARBON	1.2K	5%	1/4W	
R359	1-249-419-11	CARBON	1.5K	5%	1/4W	
R361	1-249-417-11	CARBON	1K	5%	1/4W	
R362	1-249-418-11	CARBON	1.2K	5%	1/4W	
R363	1-249-418-11	CARBON	1.2K	5%	1/4W	
R364	1-249-419-11	CARBON	1.5K	5%	1/4W	
R373	1-249-437-11	CARBON	47K	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R374	1-249-415-11	CARBON	680	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R376	1-247-807-31	CARBON	100	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R377	1-247-891-00	CARBON	330K	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R378	1-249-426-11	CARBON	5.6K	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R379	1-249-410-11	CARBON	270	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R380	1-249-441-11	CARBON	100K	5%	1/4W(H450:E,AUS,EA,MY,SP)	
R381	1-249-425-11	CARBON	4.7K	5%	1/4W(H450:E,AUS,EA,MY,SP)	
		< SWITCH >				
S351	1-571-760-11	SWITCH, KEY BOARD (□)				
S352	1-571-760-11	SWITCH, KEY BOARD (▷)				
S353	1-571-760-11	SWITCH, KEY BOARD (□□)				
S354	1-571-760-11	SWITCH, KEY BOARD (⏭ / ⏩)				
S355	1-571-760-11	SWITCH, KEY BOARD (⏏ OPEN/CLOSE)				
S356	1-571-760-11	SWITCH, KEY BOARD (⏮ / ⏪)				
S357	1-571-760-11	SWITCH, KEY BOARD (PROGRAM)				
S358	1-571-760-11	SWITCH, KEY BOARD (REPEAT)				
S359	1-571-760-11	SWITCH, KEY BOARD (EDIT)				
S360	1-571-760-11	SWITCH, KEY BOARD (CONTINUE)				
S361	1-571-760-11	SWITCH, KEY BOARD (SHUFFLE)				
S362	1-571-760-11	SWITCH, KEY BOARD (TIME)				
S363	1-571-760-11	SWITCH, KEY BOARD (CLEAR)				
S364	1-571-760-11	SWITCH, KEY BOARD (CHECK)				
**********						
*	A-4369-103-A	DISPLAY BOARD, COMPLETE (H450M:UK)				
*	A-4369-108-A	DISPLAY BOARD, COMPLETE (H450M:US)				
*	A-4369-109-A	DISPLAY BOARD, COMPLETE (H450:AEP/H450M:AEP)				
*	A-4369-117-A	DISPLAY BOARD, COMPLETE (H450:E,AUS,EA,EA,MY,SP)				
*	A-4369-118-A	DISPLAY BOARD, COMPLETE (H450:G)				
*	A-4369-119-A	DISPLAY BOARD, COMPLETE (H450:IT)				
*	A-4371-234-A	DISPLAY BOARD, COMPLETE (H450M:CND)				
*	A-4371-090-A	DISPLAY BOARD, COMPLETE (H450M:EE)				
		**********				
*	4-932-810-11	CUSHION (FL)				
*	4-942-301-01	HOLDER, FL TUBE				
		< CAPACITOR >				
C530	1-126-157-11	ELECT	10uF	20%	16V	
C531	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C532	1-126-157-11	ELECT	10uF	20%	16V	
C533	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C540	1-161-379-00	CERAMIC	0.01uF	20%	25V	

DISPLAY

Ref.No.	Part No.	Description			Remark
C541	1-164-159-11	CERAMIC	0.1uF		50V
C542	1-164-159-11	CERAMIC	0.1uF		50V
C543	1-104-905-11	CAP, DOUBLE LAYERS	0.22F		
C544	1-164-159-11	CERAMIC	0.1uF		50V
C545	1-126-157-11	ELECT	10uF	20%	16V
C560	1-164-159-11	CERAMIC	0.1uF		50V
C561	1-164-159-11	CERAMIC	0.1uF		50V
C562	1-162-286-31	CERAMIC	220PF	10%	50V
C563	1-162-286-31	CERAMIC	220PF	10%	50V
C564	1-162-286-31	CERAMIC	220PF	10%	50V
C565	1-162-286-31	CERAMIC	220PF	10%	50V
C566	1-162-286-31	CERAMIC	220PF	10%	50V
C567	1-162-286-31	CERAMIC	220PF	10%	50V
C568	1-162-286-31	CERAMIC	220PF	10%	50V
C569	1-162-286-31	CERAMIC	220PF	10%	50V
C570	1-162-286-31	CERAMIC	220PF	10%	50V
C571	1-162-286-31	CERAMIC	220PF	10%	50V
C572	1-162-286-31	CERAMIC	220PF	10%	50V
C573	1-162-286-31	CERAMIC	220PF	10%	50V
C574	1-162-286-31	CERAMIC	220PF	10%	50V
C575	1-162-286-31	CERAMIC	220PF	10%	50V
C576	1-162-286-31	CERAMIC	220PF	10%	50V
C577	1-162-286-31	CERAMIC	220PF	10%	50V
C578	1-162-286-31	CERAMIC	220PF	10%	50V
C579	1-162-286-31	CERAMIC	220PF	10%	50V
C580	1-162-286-31	CERAMIC	220PF	10%	50V
C581	1-162-286-31	CERAMIC	220PF	10%	50V
C582	1-162-286-31	CERAMIC	220PF	10%	50V
C583	1-162-286-31	CERAMIC	220PF	10%	50V
C644	1-164-159-11	CERAMIC	0.1uF		50V
C650	1-161-494-00	CERAMIC	0.022uF		25V
C651	1-161-327-00	CERAMIC	0.0033uF	30%	16V
C652	1-164-159-11	CERAMIC	0.1uF		50V
C653	1-164-159-11	CERAMIC	0.1uF		50V
C654	1-124-252-00	ELECT	0.33uF	20%	50V
C655	1-164-159-11	CERAMIC	0.1uF		50V
C656	1-124-254-00	ELECT	0.68uF	20%	50V
C657	1-162-282-31	CERAMIC	100PF	10%	50V
C658	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C659	1-126-157-11	ELECT	10uF	20%	16V
C670	1-161-494-00	CERAMIC	0.022uF		25V
C671	1-161-327-00	CERAMIC	0.0033uF	30%	16V
C672	1-164-159-11	CERAMIC	0.1uF		50V
C673	1-164-159-11	CERAMIC	0.1uF		50V
C674	1-124-252-00	ELECT	0.33uF	20%	50V
C675	1-164-159-11	CERAMIC	0.1uF		50V
C676	1-124-254-00	ELECT	0.68uF	20%	50V
C677	1-162-282-31	CERAMIC	100PF	10%	50V
C678	1-161-374-11	CERAMIC	0.0015uF	20%	50V

Ref.No.	Part No.	Description			Remark
C679	1-126-157-11	ELECT	10uF	20%	16V
C680	1-126-163-11	ELECT	4.7uF	20%	50V
C682	1-126-157-11	ELECT	10uF	20%	16V
C683	1-126-157-11	ELECT	10uF	20%	16V
C5001	1-161-379-00	CERAMIC	0.01uF	20%	25V
		< CONNECTOR >			
CN501	1-764-306-11	HOUSING, CONNECTOR(PC BOARD)	32P		
		< DIODE >			
D501	8-719-046-44	DIODE	SEL5221S (TAPE)		
D502	8-719-046-44	DIODE	SEL5221S (CD)		
D503	8-719-046-44	DIODE	SEL5221S (TUNER)		
D504	8-719-046-44	DIODE	SEL5221S (PHONO) (H450:AEP, G, IT/H450M:AEP, EE, UK)		
D504	8-719-046-44	DIODE	SEL5221S (VIDEO) (H450:E, AUS, EA, MY, SP/H450M:US, CND)		
D505	8-719-046-44	DIODE	SEL5221S (KARAOKE-PON) (H450:E, AUS, EA, MY, SP)		
D508	8-719-046-44	DIODE	SEL5221S (ON/STANDBY)		
D509	8-719-046-44	DIODE	SEL5221S (DBFB)		
D510	8-719-987-63	DIODE	1N4148M (H450:IT/H450M:US, CND)		
D511	8-719-987-63	DIODE	1N4148M (H450:G, E, AUS, EA, MY, SP)		
D512	8-719-987-63	DIODE	1N4148M (H450M:EE)		
D513	8-719-987-63	DIODE	1N4148M (H450:E, AUS, EA, MY, SP)		
D514	8-719-987-63	DIODE	1N4148M (H450:E, AUS, EA, MY, SP/H450M:US, CND)		
D515	8-719-987-63	DIODE	1N4148M		
D530	8-719-987-63	DIODE	1N4148M		
D540	8-719-987-63	DIODE	1N4148M		
D542	8-719-987-63	DIODE	1N4148M		
D650	8-719-987-63	DIODE	1N4148M		
D660	8-719-987-63	DIODE	1N4148M		
D670	8-719-987-63	DIODE	1N4148M		
		< FLUORESCENT INDICATOR TUBE >			
FL501	1-517-258-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC501	8-759-248-06	IC	uPD78042GF-053-3B9		
IC502	8-749-922-36	IC	GP1U50XB		
IC540	8-759-165-80	IC	PST600C-T		
IC541	8-759-165-84	IC	PST600G-T		
IC604	8-759-256-11	IC	M5243P12		
		< TRANSISTOR >			
Q501	8-729-900-61	TRANSISTOR	DTA114ES		
Q530	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q601	8-729-900-80	TRANSISTOR	DTC114ES		

Ref.No.	Part No.	Description				Remark
Q602	8-729-900-61	TRANSISTOR	DTA114ES			
Q603	8-729-900-61	TRANSISTOR	DTA114ES			
Q650	8-729-202-67	TRANSISTOR	2SK246-GR3			
Q660	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q670	8-729-202-67	TRANSISTOR	2SK246-GR3			
Q680	8-729-119-78	TRANSISTOR	2SC2785-HFE			
		< RESISTOR >				
R501	1-249-419-11	CARBON	1.5K	5%	1/4W	
R502	1-247-807-31	CARBON	100	5%	1/4W	
R503	1-249-406-11	CARBON	120	5%	1/4W	
R504	1-249-406-11	CARBON	120	5%	1/4W	
R505	1-247-811-31	CARBON	150	5%	1/4W	
R506	1-249-408-11	CARBON	180	5%	1/4W	
R507	1-249-409-11	CARBON	220	5%	1/4W	
R508	1-249-410-11	CARBON	270	5%	1/4W	
R511	1-249-419-11	CARBON	1.5K	5%	1/4W	
R513	1-247-807-31	CARBON	100	5%	1/4W	
R514	1-249-406-11	CARBON	120	5%	1/4W	
R515	1-249-406-11	CARBON	120	5%	1/4W	
R516	1-247-811-31	CARBON	150	5%	1/4W	
R517	1-249-408-11	CARBON	180	5%	1/4W(H450:E, AUS, EA, MY, SP)	
R520	1-249-409-11	CARBON	220	5%	1/4W	
R521	1-249-416-11	CARBON	820	5%	1/4W(H450:E, AUS, EA, MY, SP)	
R525	1-249-411-11	CARBON	330	5%	1/4W	
R530	1-249-417-11	CARBON	1K	5%	1/4W	
R532	1-249-429-11	CARBON	10K	5%	1/4W	
R533	1-249-425-11	CARBON	4.7K	5%	1/4W	
R534	1-249-429-11	CARBON	10K	5%	1/4W	
R535	1-249-433-11	CARBON	22K	5%	1/4W	
R536	1-249-433-11	CARBON	22K	5%	1/4W	
R539	1-249-441-11	CARBON	100K	5%	1/4W	
R540	1-249-441-11	CARBON	100K	5%	1/4W	
R541	1-249-441-11	CARBON	100K	5%	1/4W	
R542	1-249-441-11	CARBON	100K	5%	1/4W	
R543	1-249-441-11	CARBON	100K	5%	1/4W	
R544	1-249-441-11	CARBON	100K	5%	1/4W	
R545	1-249-441-11	CARBON	100K	5%	1/4W	
R546	1-249-429-11	CARBON	10K	5%	1/4W	
R547	1-249-429-11	CARBON	10K	5%	1/4W	
R548	1-249-429-11	CARBON	10K	5%	1/4W	
R552	1-249-425-11	CARBON	4.7K	5%	1/4W	
R553	1-249-417-11	CARBON	1K	5%	1/4W	
R554	1-249-425-11	CARBON	4.7K	5%	1/4W	
R555	1-249-425-11	CARBON	4.7K	5%	1/4W	
R560	1-247-807-31	CARBON	100	5%	1/4W	
R561	1-247-807-31	CARBON	100	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R562	1-247-807-31	CARBON	100	5%	1/4W	
R563	1-247-807-31	CARBON	100	5%	1/4W	
R564	1-247-807-31	CARBON	100	5%	1/4W	
R565	1-247-807-31	CARBON	100	5%	1/4W	
R566	1-247-807-31	CARBON	100	5%	1/4W	
R567	1-247-807-31	CARBON	100	5%	1/4W	
R568	1-247-807-31	CARBON	100	5%	1/4W	
R569	1-247-807-31	CARBON	100	5%	1/4W	
R570	1-247-807-31	CARBON	100	5%	1/4W	
R571	1-247-807-31	CARBON	100	5%	1/4W	
R572	1-247-807-31	CARBON	100	5%	1/4W	
R573	1-247-807-31	CARBON	100	5%	1/4W	
R574	1-247-807-31	CARBON	100	5%	1/4W	
R575	1-247-807-31	CARBON	100	5%	1/4W	
R576	1-247-807-31	CARBON	100	5%	1/4W	
R577	1-247-807-31	CARBON	100	5%	1/4W	
R640	1-249-424-11	CARBON	3.9K	5%	1/4W	
R641	1-249-424-11	CARBON	3.9K	5%	1/4W	
R650	1-249-419-11	CARBON	1.5K	5%	1/4W	
R651	1-249-441-11	CARBON	100K	5%	1/4W	
R652	1-249-441-11	CARBON	100K	5%	1/4W	
R653	1-247-807-31	CARBON	100	5%	1/4W	
R654	1-249-424-11	CARBON	3.9K	5%	1/4W	
R655	1-247-903-00	CARBON	1M	5%	1/4W	
R660	1-249-417-11	CARBON	1K	5%	1/4W	
R661	1-249-421-11	CARBON	2.2K	5%	1/4W	
R670	1-249-419-11	CARBON	1.5K	5%	1/4W	
R671	1-249-441-11	CARBON	100K	5%	1/4W	
R672	1-249-441-11	CARBON	100K	5%	1/4W	
R673	1-247-807-31	CARBON	100	5%	1/4W	
R674	1-249-424-11	CARBON	3.9K	5%	1/4W	
R675	1-247-903-00	CARBON	1M	5%	1/4W	
R680	1-249-417-11	CARBON	1K	5%	1/4W	
R681	1-249-421-11	CARBON	2.2K	5%	1/4W	
R690	1-249-417-11	CARBON	1K	5%	1/4W	
R691	1-249-429-11	CARBON	10K	5%	1/4W	
R692	1-249-423-11	CARBON	3.3K	5%	1/4W	
R694	1-247-891-00	CARBON	330K	5%	1/4W	
R695	1-249-421-11	CARBON	2.2K	5%	1/4W	
		< VARIABLE RESISTOR >				
RV601	1-223-296-11	RES, VAR, SLIDE	250K/250K (100Hz)			
RV602	1-223-296-11	RES, VAR, SLIDE	250K/250K (1kHz)			
RV603	1-223-296-11	RES, VAR, SLIDE	250K/250K (10kHz)			
		< SWITCH >				
S401	1-692-883-11	SWITCH, SLIDE (DOLBY)				
		(H450:AEP, G, IT/H450M:CND, AEP, EE, UK)				

DISPLAY | LEAF SW(A) | LEAF SW(B) | LOADING | MAIN

Ref.No.	Part No.	Description	Remark
S501	1-571-760-11	SWITCH, KEY BOARD (SYSTEM POWER)	
S502	1-571-760-11	SWITCH, KEY BOARD (MEMORY)	
S503	1-571-760-11	SWITCH, KEY BOARD (MONO)	
S504	1-571-760-11	SWITCH, KEY BOARD (TAPE)	
S505	1-571-760-11	SWITCH, KEY BOARD (CD)	
S506	1-571-760-11	SWITCH, KEY BOARD (TUNER)	
S507	1-571-760-11	SWITCH, KEY BOARD (VIDEO)	(H450:E, AUS, EA, MY, SP/H450M:US, CND)
S507	1-571-760-11	SWITCH, KEY BOARD (PHONO)	(H450:AEP, G, IT/H450M:AEP, EE, UK)
S508	1-571-760-11	SWITCH, KEY BOARD (PRESET/TUNING)	
S511	1-571-760-11	SWITCH, KEY BOARD (BAND)	
S512	1-571-760-11	SWITCH, KEY BOARD (SHIFT)	
S513	1-571-760-11	SWITCH, KEY BOARD (TUNER -)	
S514	1-571-760-11	SWITCH, KEY BOARD (TUNER +)	
S515	1-571-760-11	SWITCH, KEY BOARD (DBFB)	
S516	1-571-760-11	SWITCH, KEY BOARD (KARAOKE PON)	(H450:E, AUS, EA, MY, SP)
		< VIBRATOR >	
X501	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	
**********			
*	1-647-784-11	LEAF SW (A) BOARD	
		**********	
		< CONNECTOR >	
*CN1001	1-568-943-11	PIN, CONNECTOR 5P	
		< SWITCH >	
S1001	1-571-736-11	SWITCH, LEAF (A MOTOR)	
S1002	1-571-736-11	SWITCH, LEAF (A PLAY)	
S1004	1-572-335-11	SWITCH, LEAF (A CrO_2)	
**********			
*	1-647-785-11	LEAF SW (B) BOARD	
		**********	
		< CONNECTOR >	
*CN2001	1-568-944-11	PIN, CONNECTOR 6P	
		< SWITCH >	
S2001	1-571-736-11	SWITCH, LEAF (B MOTOR)	
S2002	1-571-736-11	SWITCH, LEAF (B PLAY)	
S2003	1-571-736-11	SWITCH, LEAF (B REC)	
S2004	1-572-335-11	SWITCH, LEAF (B CrO_2)	
**********			

Ref.No.	Part No.	Description	Remark
*	1-650-836-11	LOADING BOARD	
		**********	
		< CONNECTOR >	
*CN291	1-568-943-11	PIN, CONNECTOR 5P	
		< SWITCH >	
S291	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
S292	1-572-086-11	SWITCH, LEAF (LOAD IN)	
**********			
*	A-4369-102-A	MAIN BOARD, COMPLETE (H450M:UK)	
*	A-4369-106-A	MAIN BOARD, COMPLETE (H450M:US)	
*	A-4369-107-A	MAIN BOARD, COMPLETE (H450:AEP/H450M:AEP)	
*	A-4369-114-A	MAIN BOARD, COMPLETE (H450:E, AUS, EA, MY, SP)	
*	A-4369-115-A	MAIN BOARD, COMPLETE (H450:G, IT)	
*	A-4371-091-A	MAIN BOARD, COMPLETE (H450M:EE)	
*	A-4371-218-A	MAIN BOARD, COMPLETE (H450M:CND)	
		**********	
*	4-925-530-01	PLATE, GROUND (H450/H450M:AEP)	
		< ANTENNA >	
ANT1	1-501-321-51	ANTENNA TELESCOPIC (H450)	
		< CAPACITOR >	
C1	1-162-195-31	CERAMIC 4.7PF 10% 50V	(H450/H450M:AEP)
C2	1-126-964-11	ELECT 10uF 20% 50V	
C3	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C5	1-164-159-11	CERAMIC 0.1uF 50V	
C6	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
C7	1-162-198-31	CERAMIC 8.2PF 10% 50V	
C8	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
C9	1-162-280-31	CERAMIC 82PF 10% 50V	(H450:AEP/H450M:AEP, EE, UK)
C9	1-162-195-31	CERAMIC 4.7PF 10% 50V	(H450:E, AUS, EA, MY, SP)
C10	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
C11	1-136-162-00	FILM 0.056uF 5% 50V	(H450:E, AUS, EA, MY, SP)

Ref.No.	Part No.	Description				Remark
C12	1-102-120-00	CERAMIC	0.0018uF	10%	50V	
						(H450:AEP/H450M:AEP,EE,UK)
C13	1-161-374-11	CERAMIC	0.0015uF	20%	50V	
						(H450:AEP/H450M:AEP,EE,UK)
C15	1-161-379-00	CERAMIC	0.01uF	20%	25V	
						(H450:E,AUS,EA,MY,SP)
C21	1-162-205-31	CERAMIC	18PF	5%	50V	
C22	1-162-205-31	CERAMIC	18PF	5%	50V	
C23	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C24	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C25	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C26	1-126-964-11	ELECT	10uF	20%	50V	
C27	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C28	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C29	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C30	1-126-964-11	ELECT	10uF	20%	50V	
C31	1-124-925-11	ELECT	2.2uF	20%	100V	
C32	1-136-153-00	FILM	0.01uF	5%	50V	
C33	1-124-463-00	ELECT	0.1uF	20%	50V	
C34	1-124-902-00	ELECT	0.47uF	20%	50V	
						(H450:AEP/H450M:AEP,EE,UK)
C35	1-136-157-00	FILM	0.022uF	5%	50V	
						(H450:AEP/H450M:AEP,EE,UK)
C36	1-136-157-00	FILM	0.022uF	5%	50V	
						(H450:AEP/H450M:AEP,EE,UK)
C51	1-126-964-11	ELECT	10uF	20%	50V	
C52	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C53	1-162-282-31	CERAMIC	100PF	10%	50V	
C54	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C55	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C57	1-124-925-11	ELECT	2.2uF	20%	100V	
C58	1-124-903-11	ELECT	1uF	20%	50V	
C59	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C60	1-124-903-11	ELECT	1uF	20%	50V	
C61	1-137-438-11	FILM	0.0082uF	5%	50V	
						(H450:AEP,G,IT/H450M:AEP,EE,UK)
C61	1-136-155-00	FILM	0.015uF	5%	50V	
						(H450:E,AUS,EA,MY,SP/H450M:CND)
C61	1-136-157-00	FILM	0.022uF	5%	50V	(H450M:US)
C62	1-137-438-11	FILM	0.0082uF	5%	50V	
						(H450:AEP,G,IT/H450M:AEP,EE,UK)
C62	1-136-155-00	FILM	0.015uF	5%	50V	
						(H450:E,AUS,EA,MY,SP/H450M:CND)
C62	1-136-157-00	FILM	0.022uF	5%	50V	(H450M:US)
C63	1-124-903-11	ELECT	1uF	20%	50V	
C64	1-124-903-11	ELECT	1uF	20%	50V	
C68	1-161-377-00	CERAMIC	0.0047uF	30%	16V	
						(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
C69	1-161-377-00	CERAMIC	0.0047uF	30%	16V	
						(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)

Ref.No.	Part No.	Description				Remark
C73	1-124-903-11	ELECT	1uF	20%	50V	
C74	1-162-293-31	CERAMIC	820PF	10%	50V	
						(H450:AEP,E,AUS,EA,MY,SP/H450M)
C74	1-162-291-31	CERAMIC	560PF	10%	50V	(H450:G,IT)
C75	1-161-377-00	CERAMIC	0.0047uF	30%	16V	
C76	1-126-233-11	ELECT	22uF	20%	50V	
C77	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C78	1-123-382-00	ELECT	3.3uF	20%	100V	
C79	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C80	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C81	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C82	1-162-207-31	CERAMIC	22PF	5%	50V	
C92	1-126-964-11	ELECT	10uF	20%	50V	
C94	1-164-159-11	CERAMIC	0.1uF		50V	
C95	1-164-159-11	CERAMIC	0.1uF		50V	
						(H450:AEP,E,AUS,EA,MY,SP/H450M)
C201	1-136-153-00	FILM	0.01uF	5%	50V	
C202	1-164-159-11	CERAMIC	0.1uF		50V	
C203	1-137-434-11	FILM	0.0018uF	5%	50V	
C204	1-126-964-11	ELECT	10uF	20%	50V	
C205	1-136-155-00	FILM	0.015uF	5%	50V	
C206	1-137-364-11	FILM	0.001uF	5%	50V	
C207	1-126-947-11	ELECT	47uF	20%	35V	
C208	1-164-159-11	CERAMIC	0.1uF		50V	
C209	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C251	1-136-153-00	FILM	0.01uF	5%	50V	
C252	1-164-159-11	CERAMIC	0.1uF		50V	
C253	1-137-434-11	FILM	0.0018uF	5%	50V	
C254	1-126-964-11	ELECT	10uF	20%	50V	
C255	1-136-155-00	FILM	0.015uF	5%	50V	
C256	1-137-364-11	FILM	0.001uF	5%	50V	
C257	1-126-947-11	ELECT	47uF	20%	35V	
C258	1-164-159-11	CERAMIC	0.1uF		50V	
C259	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C260	1-162-290-31	CERAMIC	470PF	10%	50V	
C261	1-164-159-11	CERAMIC	0.1uF		50V	
C278	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C279	1-161-494-00	CERAMIC	0.022uF		25V	
C282	1-164-159-11	CERAMIC	0.1uF		50V	
C283	1-126-964-11	ELECT	10uF	20%	50V	
C284	1-164-159-11	CERAMIC	0.1uF		50V	
C285	1-164-159-11	CERAMIC	0.1uF		50V	
C291	1-124-927-11	ELECT	4.7uF	20%	100V	
C292	1-124-927-11	ELECT	4.7uF	20%	100V	
C293	1-126-926-11	ELECT	1000uF	20%	10V	
C294	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C295	1-126-964-11	ELECT	10uF	20%	50V	
C296	1-126-925-11	ELECT	470uF	20%	10V	

MAIN

Ref.No.	Part No.	Description			Remark
C297	1-126-933-11	ELECT	100uF	20%	16V
C299	1-126-947-11	ELECT	47uF	20%	35V
C301	1-162-292-31	CERAMIC	680PF	10%	50V
C302	1-136-157-00	FILM	0.022uF	5%	50V
C303	1-126-964-11	ELECT	10uF	20%	50V
C304	1-162-282-31	CERAMIC	100PF	10%	50V
C311	1-162-293-31	CERAMIC	820PF	10%	50V
C312	1-136-157-00	FILM	0.022uF	5%	50V
C313	1-126-964-11	ELECT	10uF	20%	50V
C314	1-162-282-31	CERAMIC	100PF	10%	50V
C315	1-126-933-11	ELECT	100uF	20%	16V
C321	1-137-368-11	FILM	0.0047uF	5%	50V
C322	1-124-903-11	ELECT	1uF	20%	50V
C323	1-124-927-11	ELECT	4.7uF	20%	100V
C324	1-164-159-11	CERAMIC	0.1uF		50V
C325	1-126-964-11	ELECT	10uF	20%	50V
C326	1-124-903-11	ELECT	1uF	20%	50V
C327	1-124-902-00	ELECT	0.47uF	20%	50V
C328	1-124-927-11	ELECT	4.7uF	20%	100V
C329	1-162-291-31	CERAMIC	560PF	10%	50V
C330	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C331	1-162-209-31	CERAMIC	27PF	5%	50V
C332	1-162-279-31	CERAMIC	75PF	10%	50V
C333	1-162-288-31	CERAMIC	330PF	10%	50V
C334	1-162-283-31	CERAMIC	120PF	10%	50V
C335	1-162-286-31	CERAMIC	220PF	10%	50V
C351	1-126-947-11	ELECT	47uF	20%	35V
C352	1-161-494-00	CERAMIC	0.022uF		25V
C401	1-162-292-31	CERAMIC	680PF	10%	50V
C402	1-136-157-00	FILM	0.022uF	5%	50V
C403	1-126-964-11	ELECT	10uF	20%	50V
C404	1-162-282-31	CERAMIC	100PF	10%	50V
C411	1-162-293-31	CERAMIC	820PF	10%	50V
C412	1-136-157-00	FILM	0.022uF	5%	50V
C413	1-126-964-11	ELECT	10uF	20%	50V
C414	1-162-282-31	CERAMIC	100PF	10%	50V
C415	1-126-933-11	ELECT	100uF	20%	16V
C421	1-137-368-11	FILM	0.0047uF	5%	50V
C422	1-124-903-11	ELECT	1uF	20%	50V
C423	1-124-927-11	ELECT	4.7uF	20%	100V
C424	1-164-159-11	CERAMIC	0.1uF		50V
C425	1-126-964-11	ELECT	10uF	20%	50V
C426	1-124-903-11	ELECT	1uF	20%	50V
C427	1-124-902-00	ELECT	0.47uF	20%	50V
C428	1-124-927-11	ELECT	4.7uF	20%	100V
C429	1-162-291-31	CERAMIC	560PF	10%	50V
C430	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C431	1-162-209-31	CERAMIC	27PF	5%	50V
C432	1-162-279-31	CERAMIC	75PF	10%	50V
C433	1-162-288-31	CERAMIC	330PF	10%	50V

Ref.No.	Part No.	Description			Remark
C434	1-162-283-31	CERAMIC	120PF	10%	50V
C435	1-162-286-31	CERAMIC	220PF	10%	50V
C436	1-162-286-31	CERAMIC	220PF	10%	50V
C455	1-126-933-11	ELECT	100uF	20%	16V
C456	1-126-933-11	ELECT	100uF	20%	16V
C459	1-126-964-11	ELECT	10uF	20%	50V
C460	1-126-964-11	ELECT	10uF	20%	50V
C461	1-126-768-11	ELECT	2200uF	20%	16V
C464	1-126-933-11	ELECT	100uF	20%	16V
C465	1-126-933-11	ELECT	100uF	20%	16V
C470	1-164-159-11	CERAMIC	0.1uF		50V
C471	1-124-925-11	ELECT	2.2uF	20%	100V
C472	1-136-562-11	FILM	0.0082uF	5%	630V (H450:AEP/H450M:AEP, EE, UK)
C472	1-136-601-11	FILM	0.01uF	5%	630V (H450:G, IT, E, AUS, EA, MY, SP/H450M:US, CND)
C473	1-124-925-11	ELECT	2.2uF	20%	100V
C474	1-137-370-11	FILM	0.01uF	5%	50V
C475	1-161-329-00	CERAMIC	0.0068uF	30%	16V
C476	1-137-436-11	FILM	0.0039uF	5%	50V
C477	1-137-436-11	FILM	0.0039uF	5%	50V
C478	1-164-159-11	CERAMIC	0.1uF		50V
C479	1-126-934-11	ELECT	220uF	20%	16V
C480	1-124-927-11	ELECT	4.7uF	20%	100V
C481	1-136-555-11	FILM	0.0022uF	5%	630V (H450:AEP/H450M:AEP, EE, UK)
C482	1-136-555-11	FILM	0.0022uF	5%	630V (H450:AEP/H450M:AEP, EE, UK)
C491	1-124-927-11	ELECT	4.7uF	20%	100V
C492	1-124-903-11	ELECT	1uF	20%	50V
C493	1-124-927-11	ELECT	4.7uF	20%	100V
C494	1-124-903-11	ELECT	1uF	20%	50V
C495	1-126-964-11	ELECT	10uF	20%	50V
C496	1-124-925-11	ELECT	2.2uF	20%	100V (H450:AEP, G, IT/H450M:CND, AEP, EE, UK)
C620	1-161-377-00	CERAMIC	0.0047uF	30%	16V (H450:E, AUS, EA, MY, SP)
C621	1-161-329-00	CERAMIC	0.0068uF	30%	16V (H450:E, AUS, EA, MY, SP)
C622	1-162-282-31	CERAMIC	100PF	10%	50V
C623	1-162-215-31	CERAMIC	47PF	5%	50V
C624	1-164-159-11	CERAMIC	0.1uF		50V
C630	1-161-377-00	CERAMIC	0.0047uF	30%	16V (H450:E, AUS, EA, MY, SP)
C631	1-161-329-00	CERAMIC	0.0068uF	30%	16V (H450:E, AUS, EA, MY, SP)
C632	1-162-282-31	CERAMIC	100PF	10%	50V
C633	1-162-215-31	CERAMIC	47PF	5%	50V
C634	1-164-159-11	CERAMIC	0.1uF		50V
C642	1-126-964-11	ELECT	10uF	20%	50V
C643	1-126-964-11	ELECT	10uF	20%	50V

Ref.No.	Part No.	Description				Remark
C730	1-164-159-11	CERAMIC	0.1uF		50V	
C734	1-164-159-11	CERAMIC	0.1uF		50V	(H450:G, IT)
C735	1-164-159-11	CERAMIC	0.1uF		50V	(H450:G, IT)
C750	1-162-282-31	CERAMIC	100PF	10%	50V	
C751	1-162-282-31	CERAMIC	100PF	10%	50V	(H450:G, IT)
C752	1-162-282-31	CERAMIC	100PF	10%	50V	
						(H450:AEP/H450M:AEP, EE, UK)
C752	1-162-294-31	CERAMIC	0.001uF	10%	50V	(H450:G, IT)
C753	1-124-927-11	ELECT	4.7uF	20%	100V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C754	1-137-437-11	FILM	0.0056uF	5%	50V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C755	1-137-365-11	FILM	0.0015uF	5%	50V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C756	1-164-159-11	CERAMIC	0.1uF		50V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C757	1-124-925-11	ELECT	2.2uF	20%	100V	
C759	1-164-159-11	CERAMIC	0.1uF		50V	
C766	1-164-159-11	CERAMIC	0.1uF		50V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C770	1-162-282-31	CERAMIC	100PF	10%	50V	
C771	1-162-282-31	CERAMIC	100PF	10%	50V	(H450:G, IT)
C772	1-162-282-31	CERAMIC	100PF	10%	50V	
						(H450:AEP/H450M:AEP, EE, UK)
C772	1-162-294-31	CERAMIC	0.001uF	10%	50V	(H450:G, IT)
C773	1-124-927-11	ELECT	4.7uF	20%	100V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C774	1-137-437-11	FILM	0.0056uF	5%	50V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C775	1-137-365-11	FILM	0.0015uF	5%	50V	
						(H450:AEP, G, IT/H450M:AEP, EE, UK)
C777	1-124-925-11	ELECT	2.2uF	20%	100V	
C779	1-164-159-11	CERAMIC	0.1uF		50V	
C797	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C1001	1-162-205-31	CERAMIC	18PF	5%	50V	
C1002	1-161-379-00	CERAMIC	0.01uF	20%	25V	
						(H450:E, AUS, EA, MY, SP)
C1003	1-124-477-11	ELECT	47uF	20%	25V	
						(H450:E, AUS, EA, MY, SP)
C1004	1-164-159-11	CERAMIC	0.1uF		50V	
						(H450:E, AUS, EA, MY, SP)
C1005	1-161-379-00	CERAMIC	0.01uF	20%	25V	
						(H450:E, AUS, EA, MY, SP)
C1006	1-161-379-00	CERAMIC	0.01uF	20%	25V	
						(H450:E, AUS, EA, MY, SP)
C1007	1-126-933-11	ELECT	100uF	20%	16V	
						(H450:E, AUS, EA, MY, SP)
C1008	1-162-282-31	CERAMIC	100PF	10%	50V	
C1009	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C2002	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C2003	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C2004	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C2005	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C2006	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C2007	1-164-159-11	CERAMIC	0.1uF		50V	
C4003	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C6001	1-162-282-31	CERAMIC	100PF	10%	50V	
						(H450:AEP, G, IT/H450M:CND, AEP, EE, UK)
C8001	1-162-282-31	CERAMIC	100PF	10%	50V	(H450:G, IT)
C8002	1-124-122-11	ELECT	100uF	20%	50V	
C8003	1-124-122-11	ELECT	100uF	20%	50V	
C8051	1-162-282-31	CERAMIC	100PF	10%	50V	(H450:G, IT)
		< FILTER >				
CF1	1-567-389-11	FILTER, CERAMIC				
CF2	1-567-389-11	FILTER, CERAMIC				(H450:G, IT)
CF51	1-567-389-11	FILTER, CERAMIC				
		< CONNECTOR >				
*CN201	1-568-839-11	SOCKET, CONNECTOR 23P				
*CN202	1-568-954-11	PIN, CONNECTOR 5P				
*CN251	1-569-779-11	PLUG, CONNECTOR 7P				
*CN301	1-564-507-11	PLUG, CONNECTOR 4P				
*CN302	1-564-509-11	PLUG, CONNECTOR 6P				
CN303	1-564-505-11	PLUG, CONNECTOR 2P				
*CN304	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P				
*CN411	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P				
*CN412	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P				
CN601	1-764-294-11	PIN, CONNECTOR (PC BOARD) 32P				
CN602	1-695-693-11	CONNECTOR, FFC/FPC 9P				
		< VARIABLE CAPACITOR >				
CV1	1-141-227-00	CAP, TRIMMER	20PF			(H450:E, AUS, EA, MY, SP)
CV2	1-141-227-00	CAP, TRIMMER	20PF			(H450:E, AUS, EA, MY, SP)
		< DIODE >				
D1	8-719-976-30	DIODE	KV1560N			(H450:E, AUS, EA, MY, SP)
D21	8-719-933-33	DIODE	HZS6A1L			
D51	8-719-987-63	DIODE	1N4148M			
D201	8-719-200-82	DIODE	11ES2			
D221	8-719-987-63	DIODE	1N4148M			
D252	8-719-010-33	DIODE	UZ-4.7BSB			
D403	8-719-987-63	DIODE	1N4148M			
D404	8-719-987-63	DIODE	1N4148M			
D405	8-719-987-63	DIODE	1N4148M			
D407	8-719-987-63	DIODE	1N4148M			
D408	8-719-987-63	DIODE	1N4148M			
D409	8-719-987-63	DIODE	1N4148M			
D451	8-719-933-33	DIODE	HZS6A1L			
D602	8-719-987-63	DIODE	1N4148M			(H450:E, AUS, EA, MY, SP)

MAIN

Ref.No.	Part No.	Description	Remark
		< FERRITE BEAD >	
*FB801	1-410-858-11	INDUCTOR 0UH (H450:G, IT)	
*FB851	1-410-858-11	INDUCTOR 0UH (H450:G, IT)	
		< FRONTEND >	
FE1	1-465-673-11	FRONT END (2 BAND) (H450:AEP, E, AUS, EA, MY, SP/H450M:US, CND, AEP)	
FE1	1-465-007-11	FRONT END (4 GANG)	(H450:G, IT)
FE1	1-465-396-11	FRONT END (3 GANG)	(H450M:EE)
FE2	1-239-261-12	ENCAPSULATED COMPONENT (H450:AEP/H450M:AEP, EE, UK)	
FE2	1-239-260-11	ENCAPSULATED COMPONENT (H450:G, IT/H450M:US, CND)	
FE2	1-239-262-11	ENCAPSULATED COMPONENT(H450:E, AUS, EA, MY, SP)	
FE3	1-239-846-11	ENCAPSULATED COMPONENT (H450:AEP/H450M:AEP, EE, UK)	
		< IC >	
IC21	8-759-175-87	IC LC7218-ST	
IC51	8-759-090-40	IC LA1831	
IC201	8-759-145-58	IC UPC4558C	
IC202	8-759-145-58	IC UPC4558C	
IC203	8-759-096-75	IC TDA1545P	
IC251	8-759-821-93	IC LA5601	
IC252	8-759-165-80	IC PST600C-T	
IC255	8-759-822-09	IC LB1641	
IC303	8-759-098-73	IC HA12172NT (H450:AEP, G, IT/H450M:CND, AEP, EE, UK)	
IC303	8-759-198-48	IC HA12184NT (H450:E, AUS, EA, MY, SP/H450M:US)	
IC304	8-759-111-44	IC UPC4570C-1	
IC305	8-759-111-44	IC UPC4570C-1	
IC306	8-759-143-54	IC UPC1330HA	
IC351	8-759-248-11	IC TMP87CH46N-4067	
IC407	8-759-240-81	IC TC4081BP	
IC602	8-759-634-50	IC M5218AL	
IC730	8-759-820-62	IC LB1639	
IC750	8-759-634-50	IC M5218AL (H450:AEP, G, IT/H450M:AEP, EE, UK)	
IC751	8-759-000-48	IC MC14052BCP	
		< IFT >	
IFT51	1-404-713-11	TRANSFORMER, IF	
		< JACK >	
J730	1-750-032-11	JACK (DIA. 3.5) (HEAD PHONES)	
J750	1-764-767-11	JACK, PIN 2P (MD/AUX) (H450:E, AUS, EA, MY, SP/H450M:US, CND)	
J750	1-764-767-11	JACK, PIN 2P (PHONO) (H450:AEP, G, IT/H450M:AEP, EE, UK)	
		< COIL >	
L1	1-408-425-00	INDUCTOR 220uH (H450:AEP/H450M:AEP, EE, UK)	
L2	1-410-521-11	INDUCTOR 100uH (H450:E, AUS, EA, MY, SP)	
L21	1-410-482-31	INDUCTOR 100uH	
L51	1-410-496-11	INDUCTOR 1.5mH	
L201	1-410-521-11	INDUCTOR 100uH	
L202	1-410-521-11	INDUCTOR 100uH	
L301	1-410-780-11	INDUCTOR 27mH	
L401	1-410-780-11	INDUCTOR 27mH	
L451	1-408-429-00	INDUCTOR 470uH	
L1001	1-410-521-11	INDUCTOR 100uH	(H450:G, IT)
L1002	1-410-521-11	INDUCTOR 100uH	(H450:G, IT)
		< FILTER >	
LPF51	1-239-845-11	FILTER, LOW PASS (H450:AEP, G, IT/H450M:CND, AEP, EE, UK)	
LPF52	1-239-845-11	FILTER, LOW PASS (H450:AEP, G, IT/H450M:CND, AEP, EE, UK)	
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY (H450:G, IT)	
Q3	8-729-900-61	TRANSISTOR DTA114ES	
Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE (H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)	
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE (H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)	
Q6	8-729-900-80	TRANSISTOR DTC114ES (H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)	
Q7	8-729-900-80	TRANSISTOR DTC114ES (H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)	
Q8	8-729-900-80	TRANSISTOR DTC114ES (H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)	
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE (H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)	
Q15	8-729-231-20	TRANSISTOR 2SK161-YGR (H450:E, AUS, EA, MY, SP)	
Q21	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q22	8-729-201-84	TRANSISTOR 2SC3112-B	
Q23	8-729-202-67	TRANSISTOR 2SK246-GR3 (H450:AEP/H450M:AEP, EE, UK)	
Q24	8-729-201-84	TRANSISTOR 2SC3112-B (H450:AEP/H450M:AEP, EE, UK)	
Q53	8-729-900-80	TRANSISTOR DTC114ES	

Ref.No.	Part No.	Description	Remark
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q202	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q203	8-729-900-80	TRANSISTOR DTC114ES	
Q204	8-729-900-61	TRANSISTOR DTA114ES	
Q205	8-729-900-61	TRANSISTOR DTA114ES	
Q221	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q251	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q252	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q291	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q301	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q401	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q407	8-729-900-89	TRANSISTOR DTC144ES	
Q408	8-729-900-89	TRANSISTOR DTC144ES	
Q409	8-729-900-89	TRANSISTOR DTC144ES	
Q410	8-729-900-65	TRANSISTOR DTA144ES	
Q411	8-729-900-89	TRANSISTOR DTC144ES	
Q412	8-729-900-89	TRANSISTOR DTC144ES	
Q451	8-729-194-57	TRANSISTOR 2SC945-P	
Q452	8-729-194-57	TRANSISTOR 2SC945-P	
Q453	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q454	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q620	8-729-900-80	TRANSISTOR DTC114ES	(H450:E, AUS, EA, MY, SP)
Q630	8-729-900-80	TRANSISTOR DTC114ES	(H450:E, AUS, EA, MY, SP)
		< RESISTOR >	
R1	1-249-411-11	CARBON 330 5% 1/4W	
R2	1-249-411-11	CARBON 330 5% 1/4W	
R3	1-247-891-00	CARBON 330K 5% 1/4W	
R4	1-249-411-11	CARBON 330 5% 1/4W	
R5	1-247-891-00	CARBON 330K 5% 1/4W	(H450:G, IT)
R6	1-249-411-11	CARBON 330 5% 1/4W	(H450:G, IT)
R7	1-249-406-11	CARBON 120 5% 1/4W	
R8	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R9	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R10	1-249-437-11	CARBON 47K 5% 1/4W	
R11	1-249-429-11	CARBON 10K 5% 1/4W	
R12	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R13	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R13	1-247-903-00	CARBON 1M 5% 1/4W	(H450:E, AUS, EA, MY, SP)
R14	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R15	1-247-807-31	CARBON 100 5% 1/4W	
R17	1-247-903-00	CARBON 1M 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)

Ref.No.	Part No.	Description	Remark
R18	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R19	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R21	1-249-417-11	CARBON 1K 5% 1/4W	
R22	1-249-417-11	CARBON 1K 5% 1/4W	
R23	1-249-417-11	CARBON 1K 5% 1/4W	
R24	1-247-807-31	CARBON 100 5% 1/4W	
R25	1-249-425-11	CARBON 4.7K 5% 1/4W	
R26	1-249-417-11	CARBON 1K 5% 1/4W	
R27	1-249-409-11	CARBON 220 5% 1/4W	
R28	1-247-807-31	CARBON 100 5% 1/4W	
R30	1-249-423-11	CARBON 3.3K 5% 1/4W	
R31	1-249-414-11	CARBON 560 5% 1/4W	
R32	1-249-417-11	CARBON 1K 5% 1/4W	
R33	1-249-410-11	CARBON 270 5% 1/4W	
R34	1-249-425-11	CARBON 4.7K 5% 1/4W	
R35	1-249-421-11	CARBON 2.2K 5% 1/4W	
R36	1-249-425-11	CARBON 4.7K 5% 1/4W	
R37	1-249-425-11	CARBON 4.7K 5% 1/4W	
R38	1-247-807-31	CARBON 100 5% 1/4W	
R39	1-249-423-11	CARBON 3.3K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R40	1-249-414-11	CARBON 560 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R41	1-249-417-11	CARBON 1K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R42	1-249-410-11	CARBON 270 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R43	1-249-433-11	CARBON 22K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R44	1-249-421-11	CARBON 2.2K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R45	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R46	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP/H450M:AEP, EE, UK)
R47	1-249-417-11	CARBON 1K 5% 1/4W	(H450:AEP, E, AUS, EA, MY, SP/H450M:AEP, EE, UK)
R52	1-249-423-11	CARBON 3.3K 5% 1/4W	
R53	1-247-822-11	CARBON 430 5% 1/4W	
R54	1-247-870-11	CARBON 43K 5% 1/4W	
R55	1-249-429-11	CARBON 10K 5% 1/4W	
R56	1-247-842-11	CARBON 3K 5% 1/4W	
R57	1-249-423-11	CARBON 3.3K 5% 1/4W	
R58	1-249-437-11	CARBON 47K 5% 1/4W	
R61	1-249-418-11	CARBON 1.2K 5% 1/4W	
R62	1-249-418-11	CARBON 1.2K 5% 1/4W	
R65	1-249-429-11	CARBON 10K 5% 1/4W	
R66	1-249-429-11	CARBON 10K 5% 1/4W	

MAIN

Ref.No.	Part No.	Description				Remark
R67	1-249-437-11	CARBON	47K	5%	1/4W	
R69	1-249-399-11	CARBON	33	5%	1/4W	
R70	1-249-413-11	CARBON	470	5%	1/4W	
R91	1-247-807-31	CARBON	100	5%	1/4W	
R201	1-249-425-11	CARBON	4.7K	5%	1/4W	
R202	1-249-411-11	CARBON	330	5%	1/4W	
R203	1-249-416-11	CARBON	820	5%	1/4W	
R204	1-247-842-11	CARBON	3K	5%	1/4W	
R205	1-249-420-11	CARBON	1.8K	5%	1/4W	
R206	1-249-424-11	CARBON	3.9K	5%	1/4W	
R207	1-249-420-11	CARBON	1.8K	5%	1/4W	
R208	1-247-838-00	CARBON	2K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	
R210	1-249-441-11	CARBON	100K	5%	1/4W	
R211	1-249-417-11	CARBON	1K	5%	1/4W	
R212	1-249-425-11	CARBON	4.7K	5%	1/4W	
R215	1-249-411-11	CARBON	330	5%	1/4W	
R221	1-249-429-11	CARBON	10K	5%	1/4W	
R223	1-249-429-11	CARBON	10K	5%	1/4W	
R224	1-249-425-11	CARBON	4.7K	5%	1/4W	
R225	1-249-417-11	CARBON	1K	5%	1/4W	
R226	1-249-417-11	CARBON	1K	5%	1/4W	
R227	1-249-417-11	CARBON	1K	5%	1/4W	
R228	1-249-417-11	CARBON	1K	5%	1/4W	
R229	1-249-413-11	CARBON	470	5%	1/4W	
R230	1-249-413-11	CARBON	470	5%	1/4W	
R231	1-249-417-11	CARBON	1K	5%	1/4W	
R232	1-247-807-31	CARBON	100	5%	1/4W	
R233	1-249-413-11	CARBON	470	5%	1/4W	
R234	1-249-413-11	CARBON	470	5%	1/4W	
R235	1-249-413-11	CARBON	470	5%	1/4W	
R236	1-249-413-11	CARBON	470	5%	1/4W	
R237	1-249-437-11	CARBON	47K	5%	1/4W	
R251	1-249-425-11	CARBON	4.7K	5%	1/4W	
R252	1-249-411-11	CARBON	330	5%	1/4W	
R253	1-249-416-11	CARBON	820	5%	1/4W	
R254	1-247-842-11	CARBON	3K	5%	1/4W	
R255	1-249-420-11	CARBON	1.8K	5%	1/4W	
R256	1-249-424-11	CARBON	3.9K	5%	1/4W	
R257	1-249-420-11	CARBON	1.8K	5%	1/4W	
R258	1-247-838-00	CARBON	2K	5%	1/4W	
R259	1-249-417-11	CARBON	1K	5%	1/4W	
R260	1-249-441-11	CARBON	100K	5%	1/4W	
R261	1-249-417-11	CARBON	1K	5%	1/4W	
R262	1-249-425-11	CARBON	4.7K	5%	1/4W	
R265	1-249-411-11	CARBON	330	5%	1/4W	
R280	1-249-429-11	CARBON	10K	5%	1/4W	
R281	1-249-431-11	CARBON	15K	5%	1/4W	
R282	1-249-434-11	CARBON	27K	5%	1/4W	
R283	1-249-434-11	CARBON	27K	5%	1/4W	
R291	1-249-437-11	CARBON	47K	5%	1/4W	
R292	1-249-424-11	CARBON	3.9K	5%	1/4W	
R293	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R299	1-212-950-00	FUSIBLE	4.7	5%	1/2W	F
R301	1-247-889-00	CARBON	270K	5%	1/4W	
R302	1-249-404-00	CARBON	82	5%	1/4W	
R303	1-247-882-11	CARBON	130K	5%	1/4W	
R304	1-247-850-11	CARBON	6.2K	5%	1/4W	
R311	1-247-889-00	CARBON	270K	5%	1/4W	
R312	1-249-404-00	CARBON	82	5%	1/4W	
R313	1-247-882-11	CARBON	130K	5%	1/4W	
R314	1-247-850-11	CARBON	6.2K	5%	1/4W	
R316	1-249-433-11	CARBON	22K	5%	1/4W	
R321	1-249-429-11	CARBON	10K	5%	1/4W	
R322	1-249-431-11	CARBON	15K	5%	1/4W	
R323	1-249-423-11	CARBON	3.3K	5%	1/4W	
R324	1-249-417-11	CARBON	1K	5%	1/4W	
R325	1-249-414-11	CARBON	560	5%	1/4W	
R326	1-249-425-11	CARBON	4.7K	5%	1/4W	
R327	1-249-433-11	CARBON	22K	5%	1/4W	
R328	1-249-417-11	CARBON	1K	5%	1/4W	
R331	1-249-430-11	CARBON	12K	5%	1/4W	
R350	1-249-431-11	CARBON	15K	5%	1/4W	
R351	1-249-431-11	CARBON	15K	5%	1/4W	
R355	1-249-431-11	CARBON	15K	5%	1/4W	
R366	1-249-429-11	CARBON	10K	5%	1/4W	
R367	1-249-429-11	CARBON	10K	5%	1/4W	
R368	1-249-425-11	CARBON	4.7K	5%	1/4W	
R369	1-249-425-11	CARBON	4.7K	5%	1/4W	
R370	1-249-429-11	CARBON	10K	5%	1/4W	
R401	1-247-889-00	CARBON	270K	5%	1/4W	
R402	1-249-404-00	CARBON	82	5%	1/4W	
R403	1-247-882-11	CARBON	130K	5%	1/4W	
R404	1-247-850-11	CARBON	6.2K	5%	1/4W	
R411	1-247-889-00	CARBON	270K	5%	1/4W	
R412	1-249-404-00	CARBON	82	5%	1/4W	
R413	1-247-882-11	CARBON	130K	5%	1/4W	
R414	1-247-850-11	CARBON	6.2K	5%	1/4W	
R416	1-249-433-11	CARBON	22K	5%	1/4W	
R421	1-249-429-11	CARBON	10K	5%	1/4W	
R422	1-249-431-11	CARBON	15K	5%	1/4W	
R423	1-249-423-11	CARBON	3.3K	5%	1/4W	
R424	1-249-417-11	CARBON	1K	5%	1/4W	
R425	1-249-414-11	CARBON	560	5%	1/4W	
R426	1-249-425-11	CARBON	4.7K	5%	1/4W	
R427	1-249-433-11	CARBON	22K	5%	1/4W	
R428	1-249-417-11	CARBON	1K	5%	1/4W	

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

Ref.No.	Part No.	Description				Remark
R431	1-249-430-11	CARBON	12K	5%	1/4W	
R441	1-249-433-11	CARBON	22K	5%	1/4W	
R442	1-247-807-31	CARBON	100	5%	1/4W	
R443	1-249-433-11	CARBON	22K	5%	1/4W	
R444	1-249-425-11	CARBON	4.7K	5%	1/4W	
R445	1-249-437-11	CARBON	47K	5%	1/4W	
R446	1-249-421-11	CARBON	2.2K	5%	1/4W	
R447	1-249-421-11	CARBON	2.2K	5%	1/4W	
R448	1-249-433-11	CARBON	22K	5%	1/4W	
R449	1-249-438-11	CARBON	56K	5%	1/4W	
R450	1-249-437-11	CARBON	47K	5%	1/4W	
R451	1-249-389-11	CARBON	4.7	5%	1/4W	
R452	1-249-425-11	CARBON	4.7K	5%	1/4W	
R453	1-249-409-11	CARBON	220	5%	1/4W	
R454	1-249-409-11	CARBON	220	5%	1/4W	F
R461	1-249-432-11	CARBON	18K	5%	1/4W	
R462	1-247-876-11	CARBON	75K	5%	1/4W	
R463	1-249-432-11	CARBON	18K	5%	1/4W	
R464	1-249-437-11	CARBON	47K	5%	1/4W	
R465	1-249-437-11	CARBON	47K	5%	1/4W	
R466	1-249-437-11	CARBON	47K	5%	1/4W	
R467	1-247-864-11	CARBON	24K	5%	1/4W	
R468	1-249-433-11	CARBON	22K	5%	1/4W	(H450:AEP, G, IT/H450M:CND, AEP, EE, UK)
R469	1-249-433-11	CARBON	22K	5%	1/4W	
R470	1-249-433-11	CARBON	22K	5%	1/4W	
R471	1-249-424-11	CARBON	3.9K	5%	1/4W	
R472	1-249-429-11	CARBON	10K	5%	1/4W	
R473	1-249-434-11	CARBON	27K	5%	1/4W	
R474	1-249-434-11	CARBON	27K	5%	1/4W	
R476	1-249-430-11	CARBON	12K	5%	1/4W	(H450:AEP/H450M:AEP, EE, UK)
R476	1-247-856-00	CARBON	11K	5%	1/4W	(H450:G, IT, E, AUS, EA, MY, SP/H450M:US, CND)
R478	1-249-433-11	CARBON	22K	5%	1/4W	(H450:E, AUS, EA, MY, SP/H450M:US)
R479	1-249-433-11	CARBON	22K	5%	1/4W	
⚠R481	1-215-905-11	METAL OXIDE	10	5%	3W	F
R482	1-249-427-11	CARBON	6.8K	5%	1/4W	
R483	1-249-418-11	CARBON	1.2K	5%	1/4W	
R484	1-249-441-11	CARBON	100K	5%	1/4W	(H450:AEP/H450M:AEP, EE, UK)
R485	1-249-437-11	CARBON	47K	5%	1/4W	(H450:AEP/H450M:AEP, UK)
R493	1-249-425-11	CARBON	4.7K	5%	1/4W	
R495	1-247-883-00	CARBON	150K	5%	1/4W	
R496	1-247-887-00	CARBON	220K	5%	1/4W	
R613	1-249-427-11	CARBON	6.8K	5%	1/4W	(H450:E, AUS, EA, MY, SP/H450M:US, CND)

Ref.No.	Part No.	Description				Remark
R614	1-249-427-11	CARBON	6.8K	5%	1/4W	(H450:E, AUS, EA, MY, SP/H450M:US, CND)
R620	1-249-439-11	CARBON	68K	5%	1/4W	(H450:E, AUS, EA, MY, SP)
R621	1-249-437-11	CARBON	47K	5%	1/4W	
R622	1-249-431-11	CARBON	15K	5%	1/4W	(H450:E, AUS, EA, MY, SP)
R623	1-249-437-11	CARBON	47K	5%	1/4W	
R630	1-249-439-11	CARBON	68K	5%	1/4W	(H450:E, AUS, EA, MY, SP)
R631	1-249-437-11	CARBON	47K	5%	1/4W	
R632	1-249-431-11	CARBON	15K	5%	1/4W	(H450:E, AUS, EA, MY, SP)
R633	1-249-437-11	CARBON	47K	5%	1/4W	
R730	1-249-425-11	CARBON	4.7K	5%	1/4W	
R731	1-249-425-11	CARBON	4.7K	5%	1/4W	
R732	1-249-412-11	CARBON	390	5%	1/4W	
R733	1-249-412-11	CARBON	390	5%	1/4W	
R734	1-249-389-11	CARBON	4.7	5%	1/4W	(H450:G, IT)
R735	1-249-389-11	CARBON	4.7	5%	1/4W	(H450:G, IT)
R750	1-249-425-11	CARBON	4.7K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R750	1-249-433-11	CARBON	22K	5%	1/4W	(H450:E, AUS, EA, MY, SP/H450M:US, CND)
R751	1-249-437-11	CARBON	47K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R751	1-249-439-11	CARBON	68K	5%	1/4W	(H450M:US, CND)
R752	1-249-415-11	CARBON	680	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R753	1-247-897-11	CARBON	560K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R754	1-249-437-11	CARBON	47K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R770	1-249-425-11	CARBON	4.7K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R770	1-249-433-11	CARBON	22K	5%	1/4W	(H450:E, AUS, EA, MY, SP/H450M:US, CND)
R771	1-249-437-11	CARBON	47K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R771	1-249-439-11	CARBON	68K	5%	1/4W	(H450M:US, CND)
R772	1-249-415-11	CARBON	680	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R773	1-247-897-11	CARBON	560K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R774	1-249-437-11	CARBON	47K	5%	1/4W	(H450:AEP, G, IT/H450M:AEP, EE, UK)
R780	1-249-429-11	CARBON	10K	5%	1/4W	
R781	1-249-429-11	CARBON	10K	5%	1/4W	
R785	1-249-437-11	CARBON	47K	5%	1/4W	(H450M:EE)
R1001	1-247-807-31	CARBON	100	5%	1/4W	

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MAIN POWER

Ref.No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV51	1-238-019-11	RES, ADJ, CARBON 47K	
RV301	1-241-630-11	RES, ADJ, CARBON 10K	
RV303	1-241-630-11	RES, ADJ, CARBON 10K	
RV304	1-241-767-21	RES, ADJ, CARBON 100K	
RV311	1-241-630-11	RES, ADJ, CARBON 10K	
RV401	1-241-630-11	RES, ADJ, CARBON 10K	
RV403	1-241-630-11	RES, ADJ, CARBON 10K	
RV404	1-241-767-21	RES, ADJ, CARBON 100K	
RV411	1-241-630-11	RES, ADJ, CARBON 10K	
RV451	1-241-628-11	RES, ADJ, CARBON 2.2K	
RV730	1-223-608-11	RES, VAR, CARBON 100K/100K	
		< SWITCH >	
S301	1-572-185-11	SWITCH, SLIDE (1SS)(H450:AEP/H450M:AEP, EE, UK)	
		< TRANSFORMER >	
T1	1-409-505-11	COIL (ANT. SW3) (H450:E, AUS, EA, MY, SP)	
T2	1-402-960-11	COIL (OSC SW3) (H450:E, AUS, EA, MY, SP)	
T51	1-236-465-11	ENCAPSULATED COMPONENT (H450:G, IT)	
T401	1-433-349-11	TRANSFORMER, BIAS OSCILLATION	
		< TERMINAL >	
TB1	1-537-488-11	TERMINAL BOARD (ANTENNA) (H450:AEP, G, IT/H450M:AEP, EE, UK)	
TB1	1-537-238-21	TERMINAL BOARD (ANTENNA) (H450:E, AUS, EA, MY, SP/H450M:US, CND)	
TM730	1-537-238-11	TERMINAL BOARD (SPEAKER)	
		< VIBRATOR >	
X21	1-579-585-11	VIBRATOR, CRYSTAL (7.2MHz)	
X51	1-579-777-11	DISCRIMINATOR, CERAMIC (10.7MHz)	
X52	1-577-075-11	OSCILLATOR, CERAMIC (456kHz)	
X351	1-579-125-11	VIBRATOR, CERAMIC (8MHz)	
**********			
*	A-4369-111-A	POWER BOARD, COMPLETE (H450:AEP, AUS/H450M:AEP, EE)	
*	A-4369-104-A	POWER BOARD, COMPLETE (H450M:UK)	
*	A-4369-110-A	POWER BOARD, COMPLETE (H450M:US)	
*	A-4369-121-A	POWER BOARD, COMPLETE (H450:E, EA, MY, SP)	
*	A-4369-122-A	POWER BOARD, COMPLETE (H450M:G, IT)	
*	A-4371-249-A	POWER BOARD, COMPLETE (H450M:CND) **********	
*	4-925-530-01	PLATE, GROUND (H450/H450M:US, CND, AEP, EE)	

Ref.No.	Part No.	Description			Remark
		< CAPACITOR >			
C802	1-124-925-11	ELECT	2.2uF	20%	100V
C803	1-162-282-31	CERAMIC	100PF	10%	50V
C804	1-126-233-11	ELECT	22uF	20%	50V
C805	1-126-964-11	ELECT	10uF	20%	50V
C807	1-164-159-11	CERAMIC	0.1uF		50V
C808	1-164-159-11	CERAMIC	0.1uF		50V
C809	1-162-282-31	CERAMIC	100PF	10%	50V
C810	1-126-964-11	ELECT	10uF	20%	50V
C811	1-126-933-11	ELECT	100uF	20%	16V
C812	1-126-933-11	ELECT	100uF	20%	16V
C852	1-124-925-11	ELECT	2.2uF	20%	100V
C853	1-162-282-31	CERAMIC	100PF	10%	50V
C854	1-126-233-11	ELECT	22uF	20%	50V
C855	1-126-964-11	ELECT	10uF	20%	50V
C857	1-164-159-11	CERAMIC	0.1uF		50V
C858	1-164-159-11	CERAMIC	0.1uF		50V
C859	1-162-282-31	CERAMIC	100PF	10%	50V
C860	1-126-964-11	ELECT	10uF	20%	50V
C901	1-126-954-11	ELECT	3300uF	20%	35V
C902	1-126-953-11	ELECT	2200uF	20%	35V
C903	1-164-159-11	CERAMIC	0.1uF		50V
C904	1-164-159-11	CERAMIC	0.1uF		50V
C905	1-164-159-11	CERAMIC	0.1uF		50V
C910	1-126-964-11	ELECT	10uF	20%	50V
C911	1-126-964-11	ELECT	10uF	20%	50V
C912	1-124-927-11	ELECT	4.7uF	20%	100V
C913	1-124-927-11	ELECT	4.7uF	20%	100V
C914	1-124-903-11	ELECT	1uF	20%	50V
C915	1-124-927-11	ELECT	4.7uF	20%	100V
C916	1-124-927-11	ELECT	4.7uF	20%	100V
C917	1-161-379-00	CERAMIC	0.01uF	20%	25V
C918	1-126-964-11	ELECT	10uF	20%	50V
C919	1-161-379-00	CERAMIC	0.01uF	20%	25V
C920	1-126-964-11	ELECT	10uF	20%	50V
C921	1-126-969-11	ELECT	220uF	20%	50V
C922	1-164-159-11	CERAMIC	0.1uF		50V
C923	1-164-159-11	CERAMIC	0.1uF		50V
C924	1-126-964-11	ELECT	10uF	20%	50V
C925	1-126-964-11	ELECT	10uF	20%	50V
C926	1-126-964-11	ELECT	10uF	20%	50V
C9001	1-161-379-00	CERAMIC	0.01uF	20%	25V (H450/H450M:US, CND, AEP, EE)
C9002	1-161-379-00	CERAMIC	0.01uF	20%	25V (H450:G, IT)
C9003	1-161-379-00	CERAMIC	0.01uF	20%	25V (H450:G, IT)
		< CONNECTOR >			
CN901	1-695-657-11	CONNECTOR, FFC/FPC 9P			

Ref.No.	Part No.	Description	Remark
*CN902	1-568-950-11	PIN, CONNECTOR 12P	
*CN903	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P	
		< DIODE >	
D801	8-719-987-63	DIODE 1N4148M	
D802	8-719-987-63	DIODE 1N4148M	
D901	8-719-933-41	DIODE HZS6C3L	
D902	8-719-933-50	DIODE HZS7C2L	
D903	8-719-200-82	DIODE 11ES2	
D904	8-719-934-22	DIODE HZS30-2L	
D905	8-719-014-74	DIODE UZP-6.2B	
D906	8-719-312-09	DIODE RBA-402	
		< FUSE >	
⚠F901	1-532-285-00	FUSE (T1.25A/250V) (H450:E,EA,MY,SP)	
⚠F901	1-576-101-11	FUSE (1.25A/250V) (H450M:US,CND,)	
⚠F902	1-532-215-00	FUSE (T0.8A/250V) (H450/H450M:AEP,EE,UK)	
⚠F912	1-532-783-41	FUSE (5A) (H450M:US)	
⚠F913	1-532-783-41	FUSE (5A) (H450M:US)	
		< FERRITE BEAD >	
*FB901	1-410-858-11	INDUCTOR 0UH (H450:G,IT)	
*FB903	1-410-858-11	INDUCTOR 0UH (H450:G,IT)	
		< FUSE HOLDER >	
FH901	1-533-217-31	HOLDER, FUSE (H450M:US,CND)	
FH902	1-533-217-31	HOLDER, FUSE (H450M:US,CND)	
FH903	1-533-217-31	HOLDER, FUSE (H450/H450M:AEP,EE,UK)	
FH904	1-533-217-31	HOLDER, FUSE (H450/H450M:AEP,EE,UK)	
		< IC >	
IC801	8-759-502-31	IC SI-18751	
IC851	8-759-502-31	IC SI-18751	
IC901	8-759-602-66	IC M5230L-A	
		< IC LINK >	
⚠ICP912	1-532-847-21	LINK, IC (H450/H450M:AEP,EE)	
⚠ICP913	1-532-847-21	LINK, IC (H450/H450M:AEP,EE)	
		< TRANSISTOR >	
Q801	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q802	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q803	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q804	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q901	8-729-209-15	TRANSISTOR 2SD2012	
Q902	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q903	8-729-900-80	TRANSISTOR DTC114ES	
Q904	8-729-209-15	TRANSISTOR 2SD2012	
Q905	8-729-209-15	TRANSISTOR 2SD2012	
Q906	8-729-141-83	TRANSISTOR 2SB1094-LK	
		< RESISTOR >	
R801	1-249-417-11	CARBON 1K 5% 1/4W	
R802	1-249-437-11	CARBON 47K 5% 1/4W	
R803	1-249-435-11	CARBON 33K 5% 1/4W	
R804	1-249-416-11	CARBON 820 5% 1/4W	
R805	1-247-903-00	CARBON 1M 5% 1/4W	
R806	1-249-438-11	CARBON 56K 5% 1/4W	
R809	1-249-389-11	CARBON 4.7 5% 1/4W (H450/H450M:AEP,EE,UK)	
R809	1-249-381-11	CARBON 1 5% 1/4W (H450M:CND)	
R810	1-249-441-11	CARBON 100K 5% 1/4W	
R811	1-249-389-11	CARBON 4.7 5% 1/4W	
R812	1-249-438-11	CARBON 56K 5% 1/4W	
R851	1-249-417-11	CARBON 1K 5% 1/4W	
R852	1-249-437-11	CARBON 47K 5% 1/4W	
R853	1-249-435-11	CARBON 33K 5% 1/4W	
R854	1-249-416-11	CARBON 820 5% 1/4W	
R855	1-247-903-00	CARBON 1M 5% 1/4W	
R856	1-249-437-11	CARBON 47K 5% 1/4W	
R859	1-249-389-11	CARBON 4.7 5% 1/4W (H450/H450M:US,AEP,EE,UK)	
R859	1-249-381-11	CARBON 1 5% 1/4W (H450M:CND)	
R901	1-247-807-31	CARBON 100 5% 1/4W	
R902	1-249-432-11	CARBON 18K 5% 1/4W	
R903	1-247-856-00	CARBON 11K 5% 1/4W	
R904	1-249-432-11	CARBON 18K 5% 1/4W	
R905	1-247-842-11	CARBON 3K 5% 1/4W	
R906	1-249-425-11	CARBON 4.7K 5% 1/4W	
R907	1-249-414-11	CARBON 560 5% 1/4W	
R908	1-249-429-11	CARBON 10K 5% 1/4W	
R909	1-249-422-11	CARBON 2.7K 5% 1/4W	
R910	1-247-903-00	CARBON 1M 5% 1/4W	
R911	1-202-725-00	SOLID 3.3M 10% 1/2W (H450M:US,CND)	
⚠R912	1-219-134-11	FUSIBLE 0.1 10% 1/4W F (H450M:UK)	
⚠R913	1-219-134-11	FUSIBLE 0.1 10% 1/4W F (H450M:UK)	
⚠R914	1-212-849-00	FUSIBLE 4.7 5% 1/4W F (H450M:US)	
⚠R914	1-212-934-00	FUSIBLE 1 5% 1/2W F (H450/H450M:CND,AEP,EE,UK)	
⚠R915	1-212-934-00	FUSIBLE 1 5% 1/2W F (H450/H450M:AEP,EE,UK)	
⚠R915	1-212-851-00	FUSIBLE 5.6 5% 1/4W F (H450M:US,CND)	
⚠R916	1-212-934-00	FUSIBLE 1 5% 1/2W F (H450/H450M:AEP,EE,UK)	
⚠R916	1-212-849-00	FUSIBLE 4.7 5% 1/4W F (H450M:US,CND)	
⚠R917	1-202-972-61	FUSIBLE 1 5% 1/4W F	
⚠R918	1-202-972-61	FUSIBLE 1 5% 1/4W F	
⚠R919	1-212-934-00	FUSIBLE 1 5% 1/2W F	
		< RELAY >	
RY801	1-515-920-11	RELAY (24V)	

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

POWER

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
⚠S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGESELECTOR) (H450:E, EA, MY, SP)	
		< TRANSFORMER >	
⚠T901	1-426-656-11	TRANSFORMER, POWER (H450:AUS/H450M:UK)	
⚠T901	1-426-657-11	TRANSFORMER, POWER (H450:AEP, G, IT/H450M:AEP, EE)	
⚠T901	1-426-658-11	TRANSFORMER, POWER (H450M:US, CND)	
⚠T901	1-426-659-11	TRANSFORMER, POWER (H450:E, EA, MY, SP)	
**********			
		MISCELLANEOUS	
		**********	
9	1-501-594-21	ANTENNA (FM) (H450:G, IT)	
62	1-765-125-11	WIRE (FLAT TYPE) (9 CORE)	
63	1-765-124-11	WIRE (FLAT TYPE)	
⚠65	1-569-007-11	ADAPTER, CONVERSION 2P (H450:E, AUS)	
⚠66	1-569-008-11	ADAPTER, CONVERSION 2P (H450:EA, MY, SP)	
253	1-452-719-11	MAGNET ASSY	
⚠305	8-848-144-11	DEVICE, OPTICAL KSS-240A	
306	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
ANT1	1-501-321-51	ANTENNA, TELESCOPIC (H450)	
⚠CNP901	1-558-943-41	CORD, POWER (H450:E)	
⚠CNP901	1-575-042-31	CORD, POWER (H450M:US, CND)	
⚠CNP901	1-575-651-91	CORD, POWER (H450:AEP, G, IT, EA, MY, SP/H450M:AEP, EE)	
⚠CNP901	1-696-846-21	CORD, POWER (H450:AUS)	
⚠CNP901	1-751-522-21	CORD, POWER (H450M:UK)	
HE1	1-543-673-11	HEAD, MAGNETIC (ERASE) (DECK:B)	
HP1	1-543-319-11	HEAD, MAGNETIC (PB) (DECK:A)	
HRP1	1-543-319-11	HEAD, MAGNETIC (REC/PB) (DECK:B)	
M1	X-3362-377-1	MOTOR (WH) ASSY	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
M301	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M302	X-4917-504-1	MOTOR ASSY (SLED)	
⚠T901	1-426-656-11	TRANSFORMER, POWER (H450:AUS/H450M:UK)	
⚠T901	1-426-657-11	TRANSFORMER, POWER (H450:AEP, G, IT/H450M:AEP, EE)	
⚠T901	1-426-658-11	TRANSFORMER, POWER (H450M:US, CND)	
⚠T901	1-426-659-11	TRANSFORMER, POWER (H450:E, EA, MY, SP)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
*	3-376-136-01	CUSHION (HALF)	
*	4-965-152-01	CUSHION (FRONT) (US, CND, AEP, UK)	
*	4-965-153-01	CUSHION (REAR) (US, CND, AEP, UK)	
**********			

Ref.No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-621-255-10	SCREW +PTT 2X3 (S)	
#2	7-621-255-25	SCREW +PTT 2X4 (S)	
#3	7-621-775-20	SCREW +B 2.6X5	
#4	7-623-921-01	RING, RETAINING, CAPSTAN	
#5	7-682-547-09	SCREW +BVTT 3X6 (S)	
#6	7-682-550-09	SCREW +BVTT 3X12 (S) (H450)	
#7	7-685-133-19	SCREW +P 2.6X6 TYPE2	
#8	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#10	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#11	7-685-870-01	SCREW +BVTT 3X5 (S)	
#12	7-688-001-01	W 2, SMALL	
#13	7-621-255-15	SCREW +P 2X3	

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

English
94B18108-1
Printed in Japan

Published by Audio Sector Quality Assurance Dept.

9-959-372-11

Sony Corporation
Audio Group

HCD-H450/H450M

SONY
SERVICE MANUAL

US Model
Canadian Model
UK Model
HCD-H450M
AEP Model
HCD-H450/H450M
E Model
Australian Model
HCD–H450

SUPPLEMENT-1

File this supplement with the service manual.

9-959-372-81

Sony Corporation
Audio Group

English
94C18108-1
Printed in Japan

Published by Audio Sector Quality Assurance Dept.

1. MECHANICAL ADJUSTMENTS

1. Clean the following parts with a denatured alcohol-moistened swab:
   record/playback heads — pinch rollers
   erase heads — rubber belts
   capstan — idlers
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 with the rated power supply voltage unless otherwise noted.

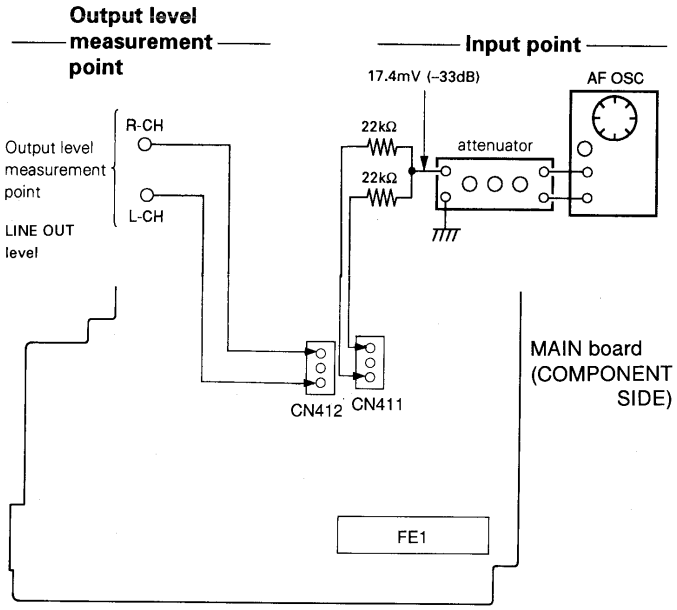
Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30—70g•cm (0.42—0.97oz•inch)
FWD Back tension	CQ-102C	1.5—5.5g•cm (0.020—0.076oz•inch)
FF. REW	CQ-201B	63g•cm or more (0.87oz•inch)

2. ELECTRICAL ADJUSTMENTS

DECK SECTION

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
   • Switch position
   DOLBY NR switch : OFF (AEP, German, Italian, East European, UK model)
   FUNCTION button : CD
3. Input point and output level measurement point.



• **Test Tape**

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

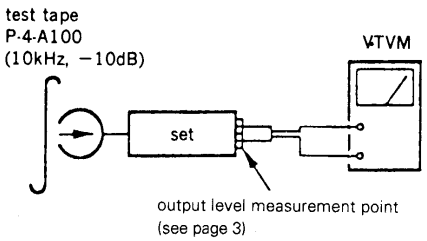
0dB = 0.775V

Record/Playback Head Azimuth Adjustment

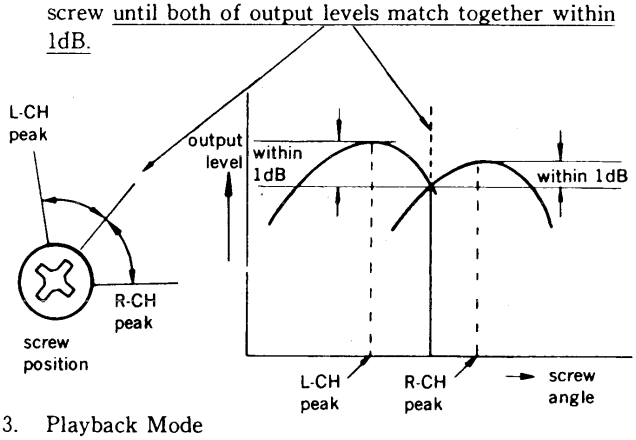
DECK A **DECK B**

Procedure :

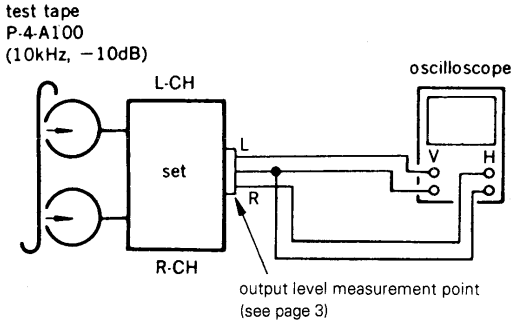
1. Forward Playback Mode

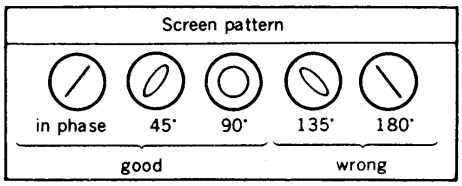


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



3. Playback Mode

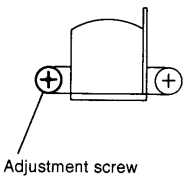


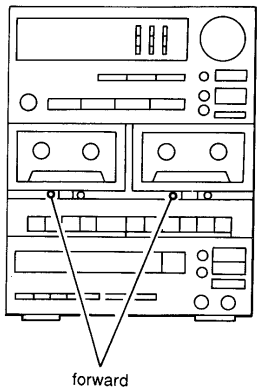


4. After the adjustment, lock the adjustment screw with suitable locking compound.

Adjustment Location :

—record/playback head (deck A and B)

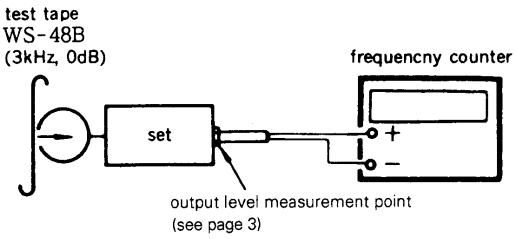




Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback



1. Set to FWD playback mode.
2. Adjust RV451 so that the frequency counter reading becomes 3,000 ± 10Hz.

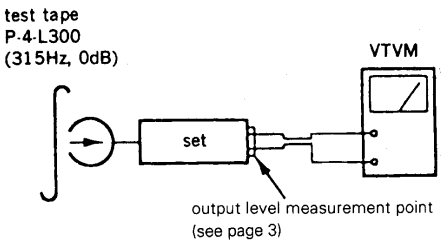
Frequency difference between the begining and the end of the tape should be within ±3%.
Frequency difference between deck A and deck B the biginning of the tape should be within 1.5%.

Adjustment Location : MAIN board
(see page 6)

Playback Level Adjustment DECK A DECK B

Procedure :

Mode : playback



Deck A is RV301 (L-CH) and RV401 (R-CH), deck B is RV311 (L-CH) and RV411 (R-CH) so that adjustment within adjustment level as follows.

Adjustment Level :
LINE OUT level : –13.9 ± 0.5dB (0.148 to 0.166V)
Level Difference between Channels : within 0.5dB.

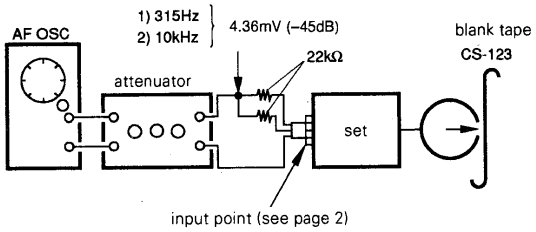
Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : MAIN board
(see page 6)

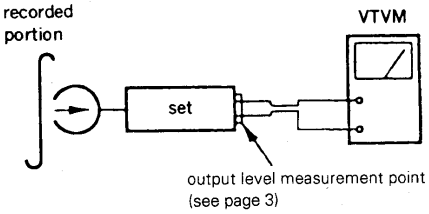
Record Bias Adjustment DECK B

Procedure :

1. record mode



2. playback mode



Confirm playback the signal recorded in step 1 become adjustment level as follows.
If these levels do not adjustment level, adjustment the RV304 (L-CH) and RV404 (R-CH) to repeat step 1 and 2.

Adjusment level : Playback output of 315Hz to playback output of 10kHz : – 0.5dB to 0.5dB.
(0.732 to 0.821V)

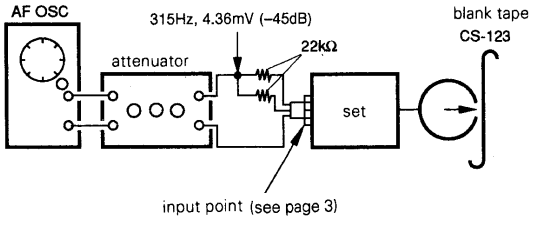
Adjustment Location : MAIN board
(see page 6)

Record Level Adjustment DECK B

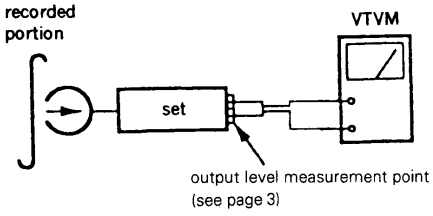
FUNCTION button: CD

Procedure :

1. record mode



2. playback mode



Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV303 (L-ch), RV403 (R-ch) and repeat the step 1 and 2.

Adjustment Value :

LINE OUT level : −30 ± 0.5dB (23.1 to 26mV)

Adjustment Location : MAIN board
(see page 6)

TUNER SECTION

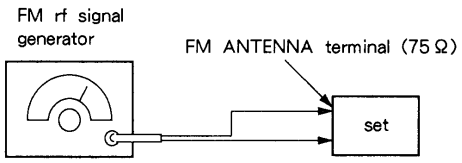
Precautions in Repairing

If the front end unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

FM SECTION ADJUSTMENT

Setting:

STEREO/MUTE : OFF



Carrier frequency : 98MHz
Output level : 22μV (27dBμ)
Modulation : 1kHz, 75kHz deviation

FM Tuned Level Adjustment

Band : FM

Procedure:

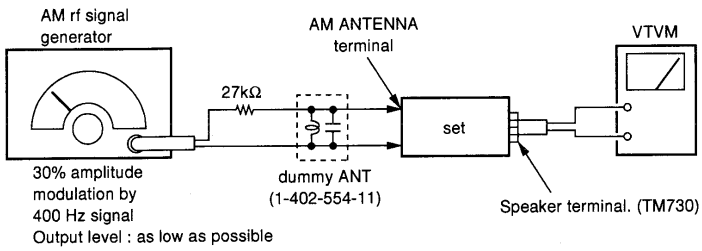
1. Tune the set to 98MHz.
2. Adjust RV51 to the point where "TUNED" sign on FL501 just turns light.

Adjustment Location : MAIN board (see page 6)

SW SECTION ADJUSTMENTS

H450 : E, Australian, Saudi Arabia, Malaysia, Singapore model

Setting :



SW Tracking Adjustment

Repeat operation a few times, make waveform indicates maximum.

Band : SW

Adjust for maximum reading on VTVM.	
7MHz	T1
17MHz	CV1

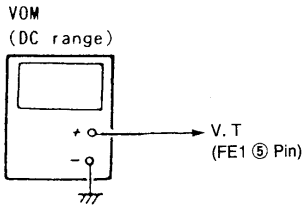
SW OSC Voltage adjustment

Repeat operation a few times, arrange so that Vt satisfy standard.

Band:SW

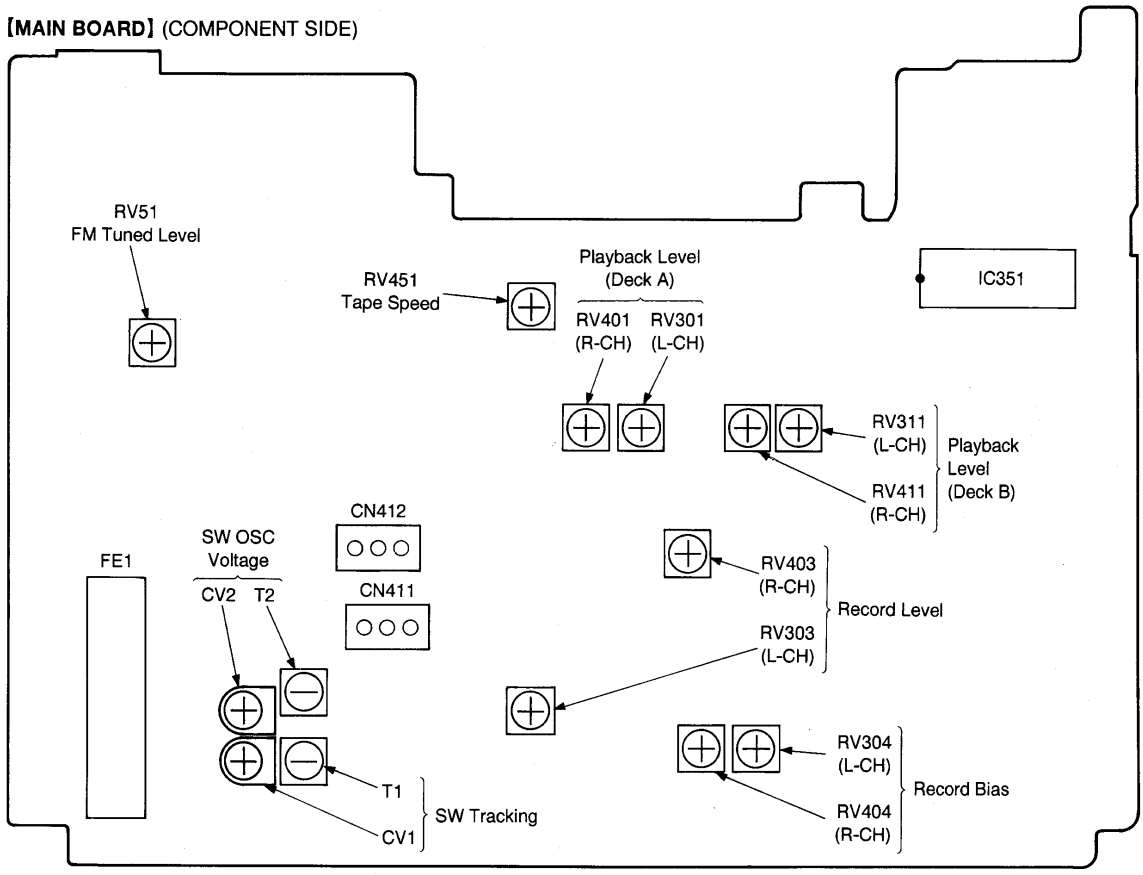
Procedure:

1. Press TUNING (+, −) button for 5.95MHz.
   Adjust T2 for 0.9 — 1.1V VOM reading.
2. Press the button for 17.9MHz.
   Adjust CV2 for 8.3 — 8.7V VOM reading.



Adjustment Location : MAIN board (see page 6)

Adjustment Location :

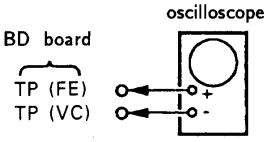


CD SECTION

Note :

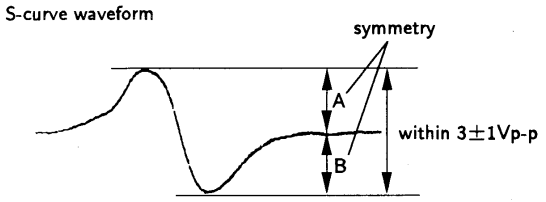
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-Curve Check



Procedure :

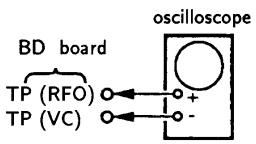
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1Vp-p.



6. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

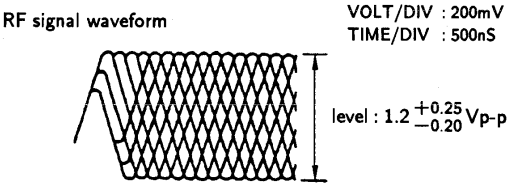


Procedure :

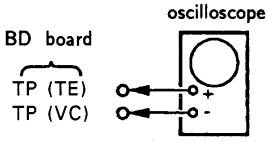
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

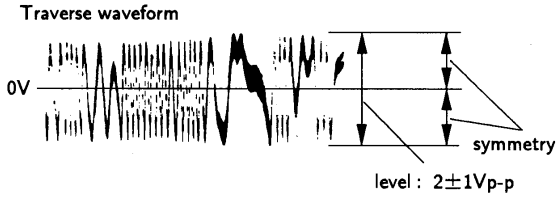


E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) to ground and TP (TEI) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the osilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

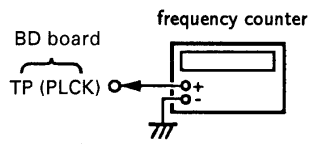


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point (PLCK) with lead wire.

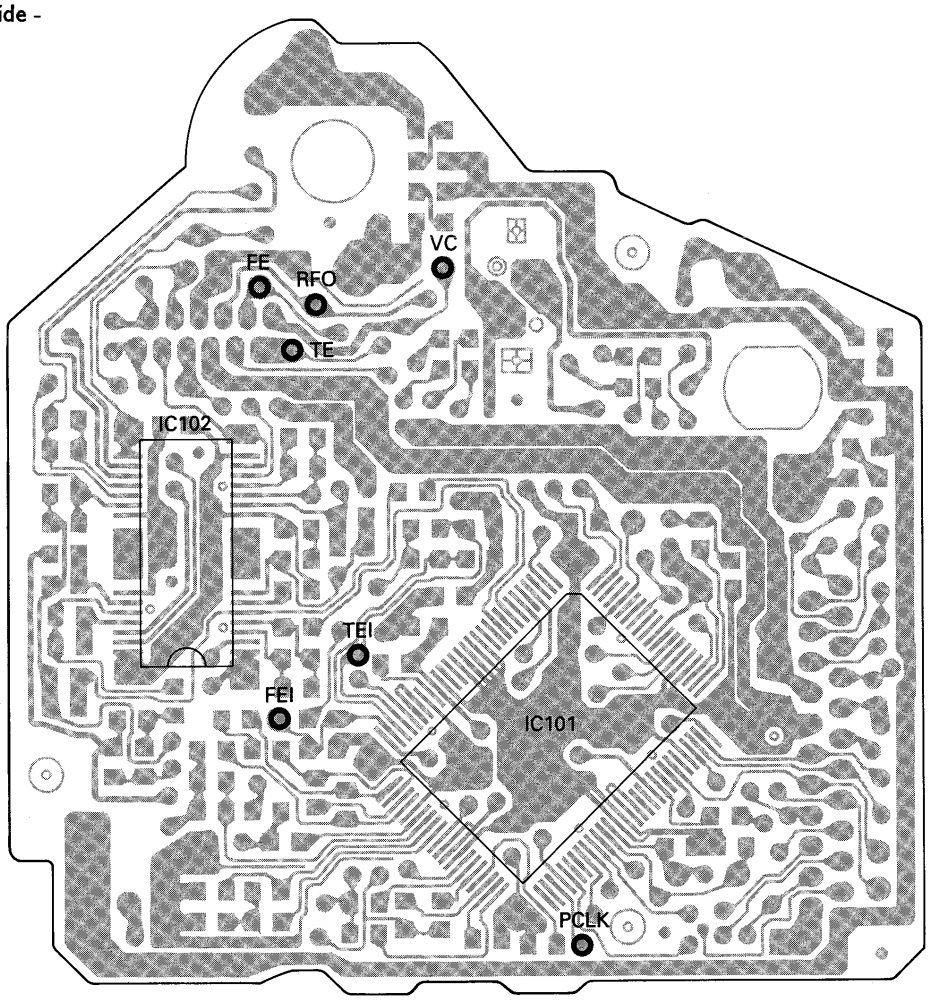


2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

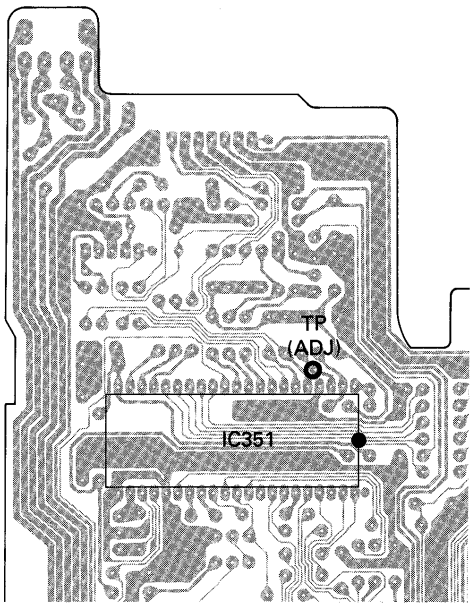
【BD BOARD】

- Conductor side -



【MAIN BOARD】

- Conductor side -

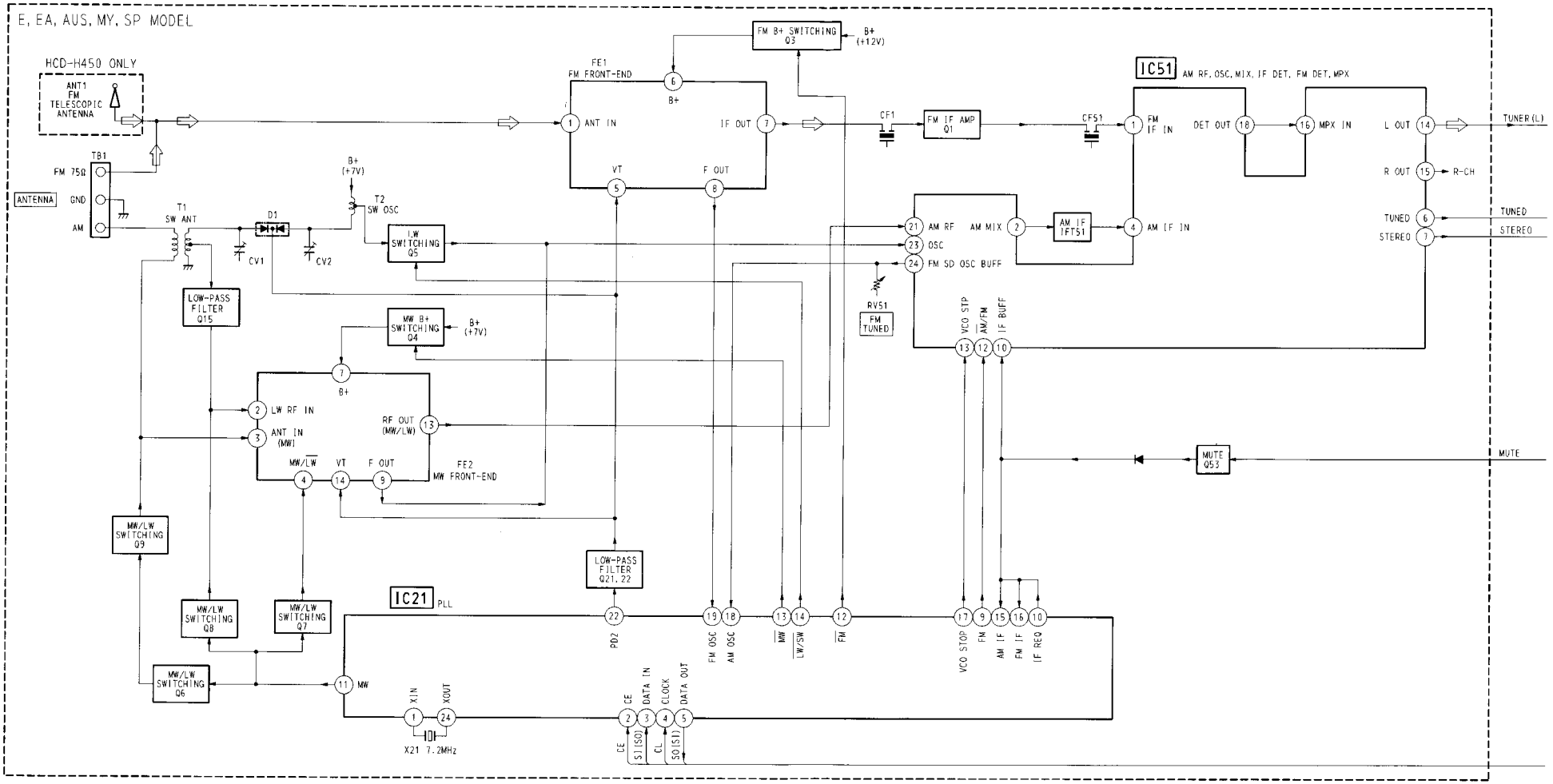


3. BLOCK DIAGRAM

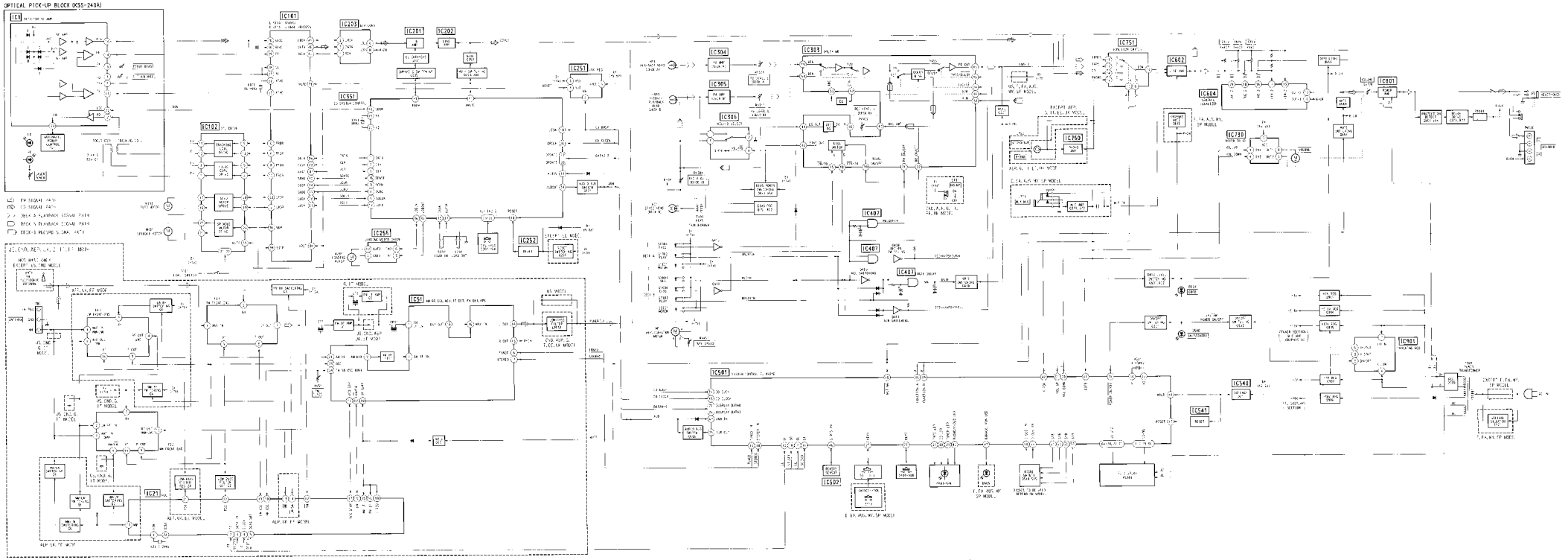
●Abbreviations

G:German AUS:Australian
IT:Italian EA:Saudi Arabia
MY:Malaysia EE:East European
SP:Singapore

-TUNER BLOCK-



HCD-H450/H450M



HCD-H450/H450M

SONY®
SERVICE MANUAL

US Model
Canadian Model
UK Model
HCD-H450M
AEP Model
HCD-H450/H450M
E Model
Australian Model
HCD-H450

SUPPLEMENT-1

File this supplement with the service manual.

1. MECHANICAL ADJUSTMENTS

1. Clean the following parts with a denatured alcohol-moistened swab:
   - record/playback heads
   - erase heads
   - capstan
   - pinch rollers
   - rubber belts
   - idlers
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 with the rated power supply voltage unless otherwise noted.

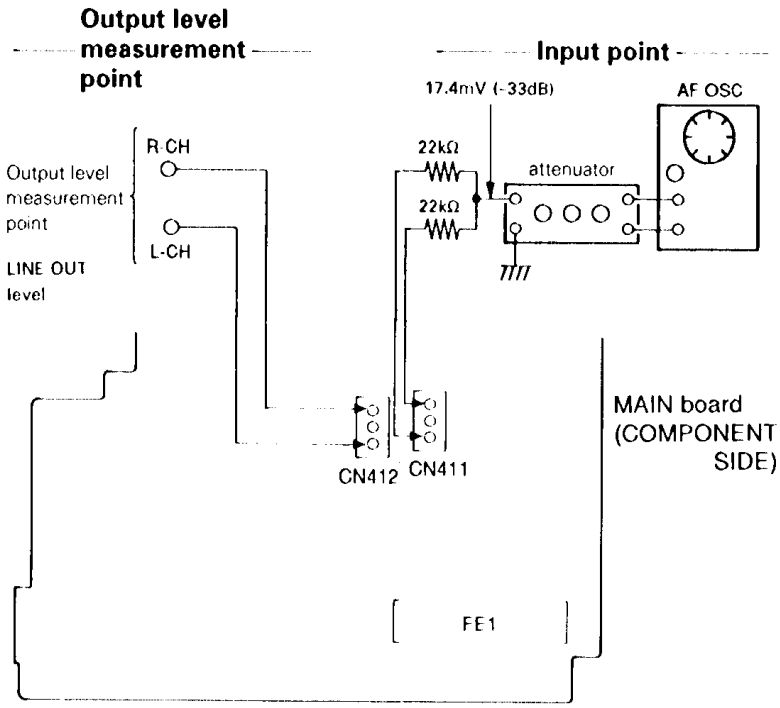
Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30 - 70g•cm (0.42 - 0.97oz•inch)
FWD Back tension	CQ-102C	1.5 - 5.5g•cm (0.020 - 0.076oz•inch)
FF, REW	CQ-201B	63g•cm or more (0.87oz•inch)

2. ELECTRICAL ADJUSTMENTS

DECK SECTION

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
   - Switch position
     DOLBY NR switch : OFF (AEP, German, Italian, East European, UK model)
     FUNCTION button : CD
3. Input point and output level measurement point.



- **Test Tape**

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

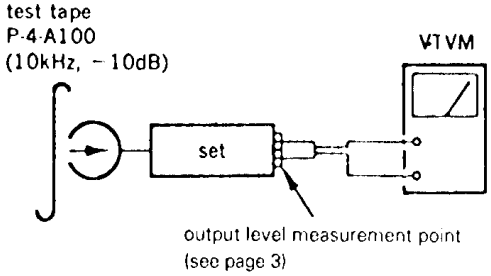
0dB = 0.775V

Record/Playback Head Azimuth Adjustment

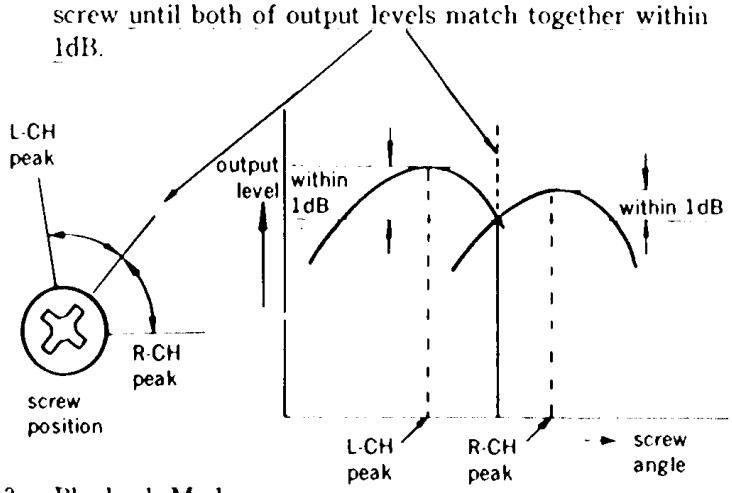
DECK A **DECK B**

Procedure :

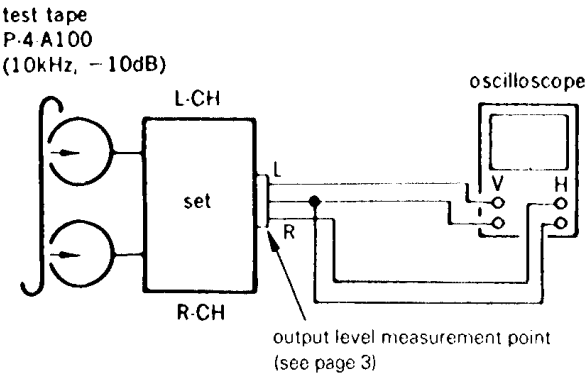
1. Forward Playback Mode

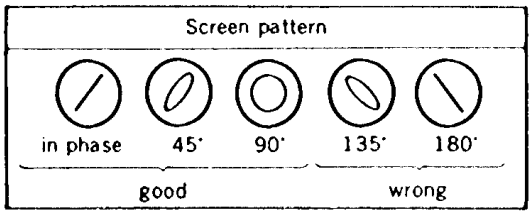


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



3. Playback Mode

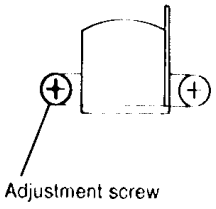


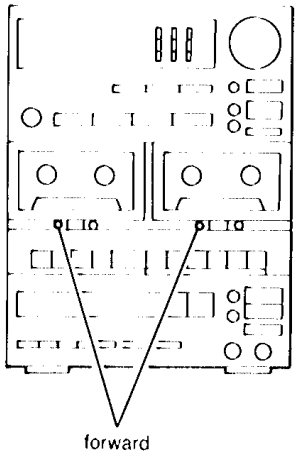


4. After the adjustment, lock the adjustment screw with suitable locking compound.

Adjustment Location :

- record/playback head (deck A and B)

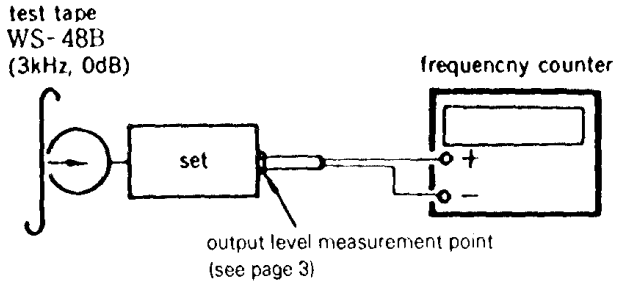




Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback



1. Set to FWD playback mode.
2. Adjust RV451 so that the frequency counter reading becomes 3,000 ± 10Hz.

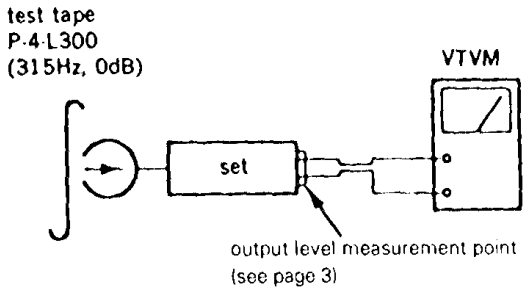
Frequency difference between the begining and the end of the tape should be within ± 3%.
Frequency difference between deck A and deck B the biginning of the tape should be within 1.5%.

Adjustment Location : MAIN board
(see page 6)

Playback Level Adjustment DECK A DECK B

Procedure :

Mode : playback



Deck A is RV301 (L-CH) and RV401 (R-CH), deck B is RV311 (L-CH) and RV411 (R-CH) so that adjustment within adjustment level as follows.

Adjustment Level :
LINE OUT level : -13.9 ± 0.5dB (0.148 to 0.166V)
Level Difference between Channels : within 0.5dB.

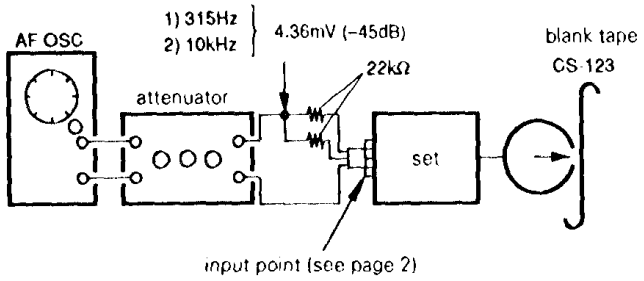
Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : MAIN board
(see page 6)

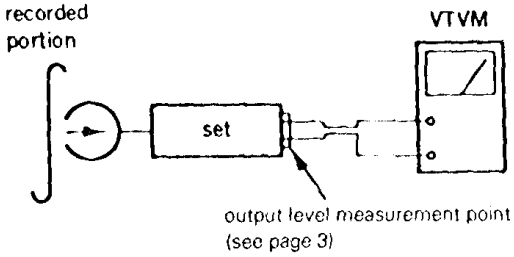
Record Bias Adjustment DECK B

Procedure :

1. record mode



2. playback mode



Confirm playback the signal recorded in step 1 become adjustment level as follows.
If these levels do not adjustment level, adjustment the RV304 (L-CH) and RV404 (R-CH) to repeat step 1 and 2.

Adjusment level : Playback output of 315Hz to playback output of 10kHz : - 0.5dB to 0.5dB.
(0.732 to 0.821V)

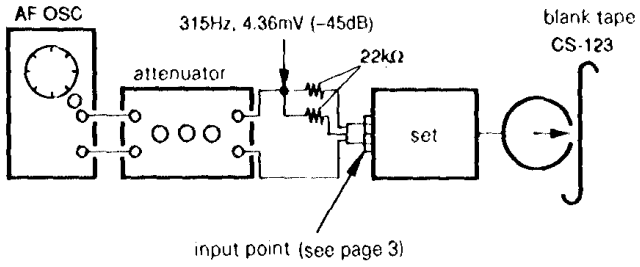
Adjustment Location : MAIN board
(see page 6)

Record Level Adjustment DECK B

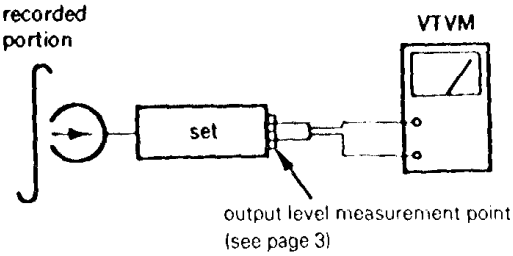
FUNCTION button: CD

Procedure :

1. record mode



2. playback mode



Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV303 (L-ch), RV403 (R-ch) and repeat the step 1 and 2.

Adjustment Value :

LINE OUT level : −30 ± 0.5dB (23.1 to 26mV)

Adjustment Location : MAIN board

(see page 6)

TUNER SECTION

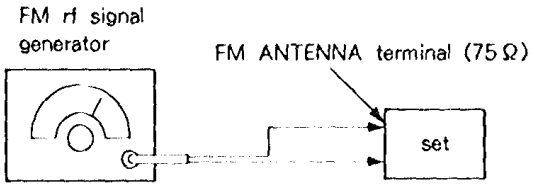
Precautions In Repairing

If the front end unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

FM SECTION ADJUSTMENT

Setting:

STEREO/MUTE : OFF



Carrier frequency : 98MHz
Output level : 22μV (27dBμ)
Modulation : 1kHz, 75kHz deviation

FM Tuned Level Adjustment

Band : FM

Procedure:

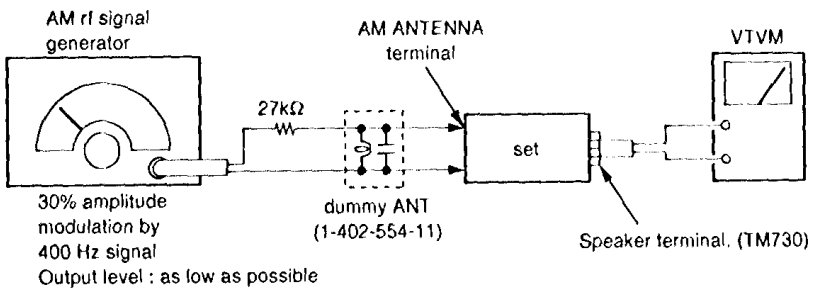
1. Tune the set to 98MHz.
2. Adjust RV51 to the point where "TUNED" sign on FL501 just turns light.

Adjustment Location : MAIN board (see page 6)

SW SECTION ADJUSTMENTS

H450 : E, Australian, Saudi Arabia, Malaysia, Singapore model

Setting :



SW Tracking Adjustment

Repeat operation a few times, make waveform indicates maximum.

Band : SW

Adjust for maximum reading on VTVM.	
7MHz	T1
17MHz	CV1

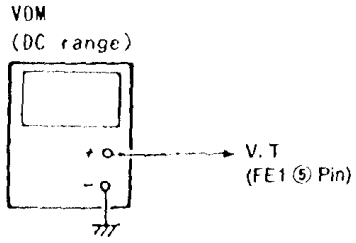
SW OSC Voltage adjustment

Repeat operation a few times, arrange so that Vt satisfy standard.

Band:SW

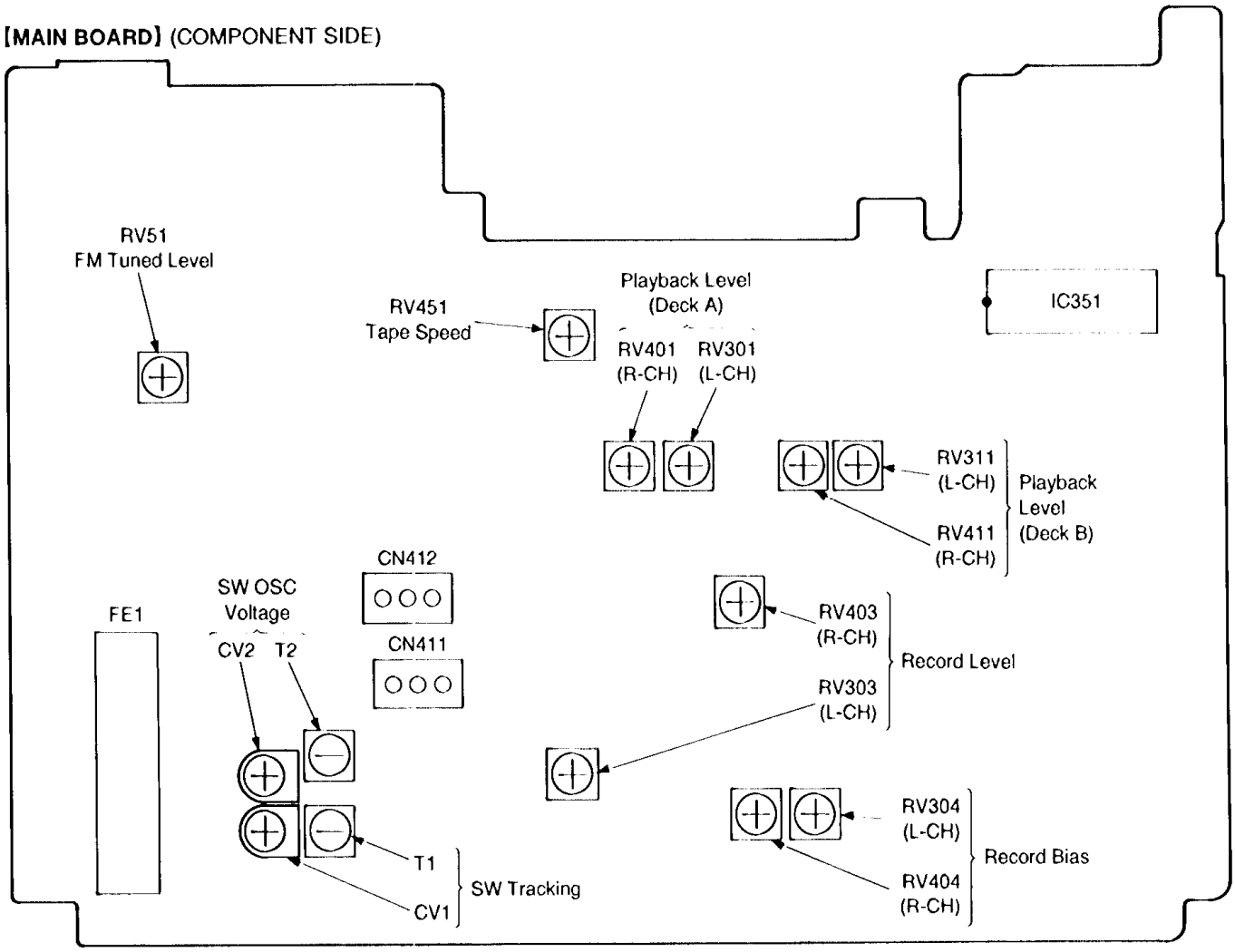
Procedure:

1. Press TUNING (+, −) button for 5.95MHz.
   Adjust T2 for 0.9 – 1.1V VOM reading.
2. Press the button for 17.9MHz.
   Adjust CV2 for 8.3 – 8.7V VOM reading.



Adjustment Location : MAIN board (see page 6)

Adjustment Location :

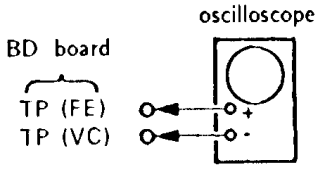


[CD SECTION]

Note :

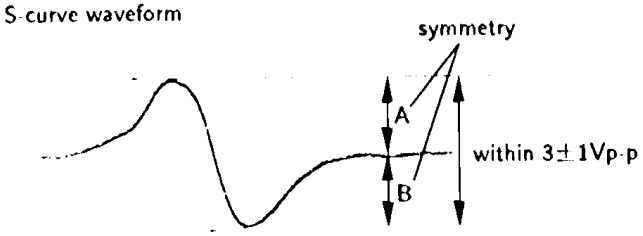
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-Curve Check



Procedure :

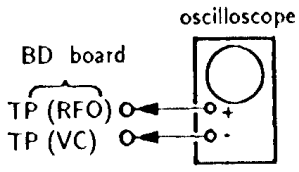
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FE) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3± 1Vp-p.



6. After check, remove the lead wire connected in step 2.

Note :
- Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

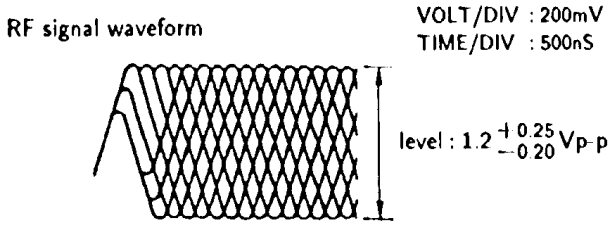


Procedure :

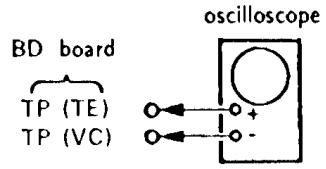
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

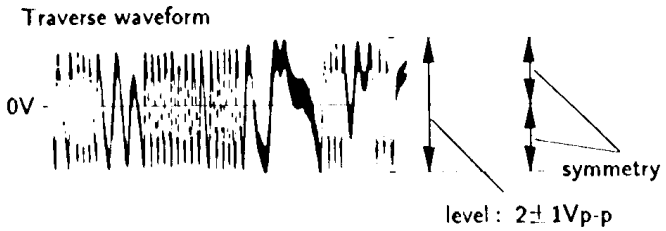


E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) to ground and TP (TEI) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the osilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

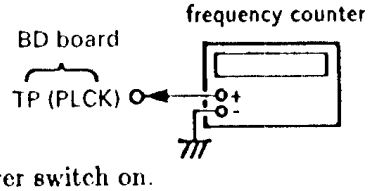


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point (PLCK) with lead wire.



2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.