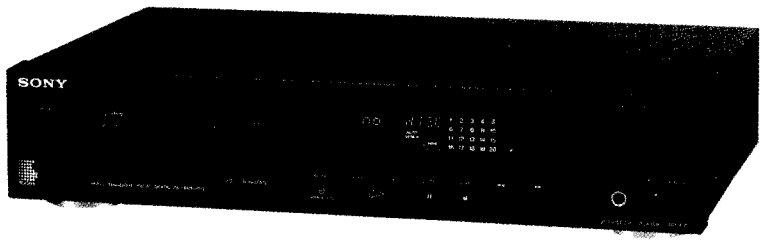
CDP-770

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model



SPECIFICATIONS

Compact disc player

System	Compact disc digital audio system
Laser	Semiconductor laser (λ = 780 nm) Emission duration: continuous
Laser output	Max. 44.6 μW* * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.
Frequency response	2Hz – 20,000 Hz (±0.3 dB)
Signal-to-noise ratio	More than 102 dB
Dynamic range	More than 95 dB
Harmonic distortion	Less than 0.003% (1kHz)
Channel separation	More than 98 dB (1kHz)

Outputs

LINE OUT (Fixed) (phono jacks)	Output level 2 V (at 50 kiloohms) Load impedance over 10 kiloohms
DIGITAL OUT (OPTICAL) (optical output connector)	Wave length 660 nm Output level – 18 dBm
HEADPHONES (stereo phono jack)	Output level max. 15 mW
	Load Impedance 32 ohms

General

Power requirements	120 V AC, 60Hz
Power consumption	12W
Dimensions (approx.) (w/h/d)	430 × 95 × 275 mm (17 × 3¾ × 10⅞ inches) including projecting parts and controls
Weight (approx., net)	3.5 kg (7 lbs 11 oz)

Model Name Using Similar Mechanism	**CDP-208ESD**
CD Transport Mechanism Type	**KSS-150A(RP)**
Optical Pick-Up Block Type	**BU-5C**

Supplied accessories

Audio signal connecting cord	1 (2 phono plugs – 2 phono plugs)
Remote commander	1
Sony SUM-3 (NS) batteries	2

Remote commander

Remote control system	Infrared control
Power requirements	3 V DC with two size AA (R6) batteries
Dimensions	67 × 20 × 175 mm (w/h/d) (2¾ × 13/16 × 7 inches)
Weight	135 g (5 oz) including batteries

Design and specifications subject to change without notice.

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.

MICROFILM

COMPACT DISC PLAYER

SONY®

TABLE OF CONTENTS

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)

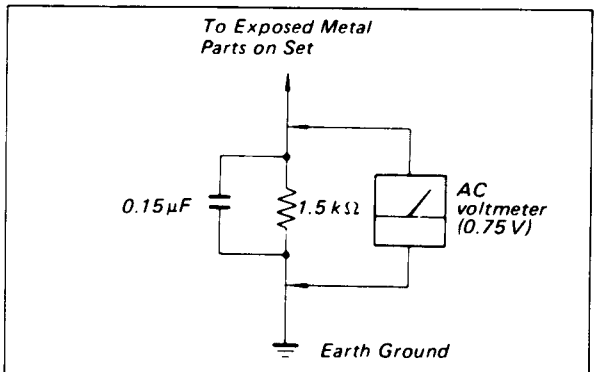


Fig. A. Using an AC voltmeter to check AC leakage.

SERVICING NOTE

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

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown 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.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

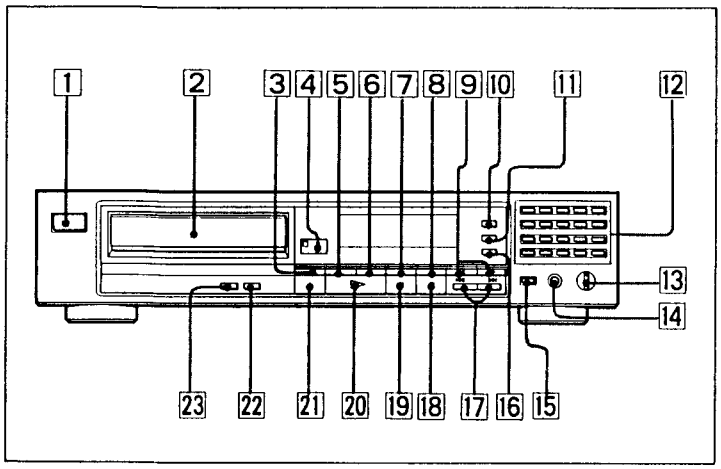
NOTES ON LASER DIODE EMISSION CHECK

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.

SECTION 1
GENERAL

1-1. LOCATION OF CONTROLS

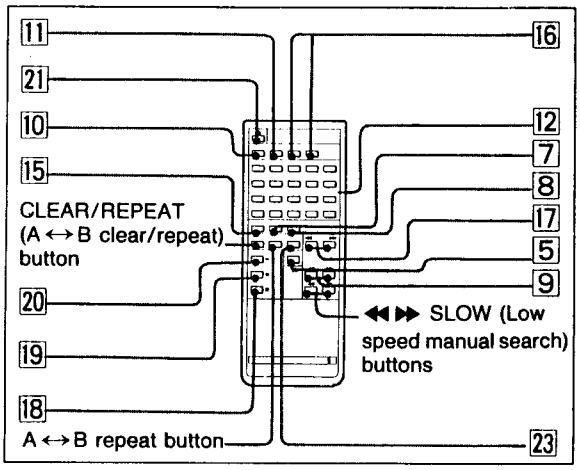
Front Panel



1 POWER switch
2 Disc compartment
3 REPEAT button
4 REMOTE sensor
5 FADER (FADE IN/FADE OUT) button
6 EDIT/TIME FADE button
7 CHECK (program check) button
8 CLEAR (program clear) button
9 ◀◀ ▶▶ (manual search) buttons
10 PROGRAM or PGM button
11 SHUFFLE button
12 Numeric buttons
13 HEADPHONE VOL control
14 PHONES jack
15 > 20 (over 20) button
16 CONTINUE/SINGLE button
17 ⏮ ⏭ (AMS*) buttons
18 ■ (stop) button
19 II (pause) button
20 ▶ (play) button
21 ⏏ (open/close) button
22 AUTO SPACE button
23 TIME button

*AMS is the abbreviation of Automatic Music Sensor.

Remote Commander



This indicates a function available only on the main unit.

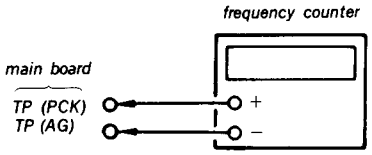
This indicates a function available only on the remote commander.

SECTION 2
ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 (Part No : 3-702-101-01) disc unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.

RF PLL Frequency Adjustment/Lock Frequency Check

Procedure :

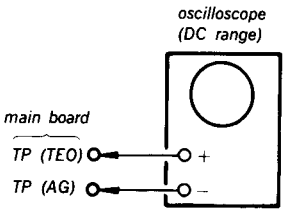


1. Connect test point TP (ASY) to ground with lead wire.
2. Turn POWER switch on.
3. Connect the frequency counter to test point TP (PCK) and TP (AG).
4. Adjust RV201 so that the reading on the frequency counter is 4.3218MHz±30kHz..... (RF PLL frequency adjustment).
5. Remove lead wire connecting TP (ASY) to ground.
6. Put disc (YEDS-18) in and press ▷ button.
7. Confirm that the reading on frequency counter is 4.3218MHz..... (Lock frequency check).

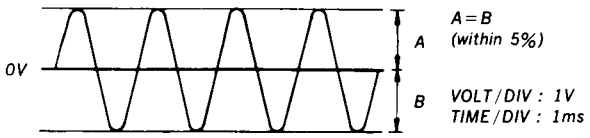
E-F Balance Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

Procedure :



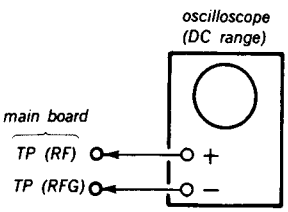
1. Connect test point TP (ADJ) and test point TP (TEI) to ground with lead wire.
2. Connect oscilloscope to test point TP (TEO) and TP (AG).
3. Turn POWER switch on.
4. Put disc (YEDS-18) in and press ▷ button.
5. Adjust RV101 so that the traverse waveform is symmetrical above and below.
6. After adjustment, remove the lead wire connected in step 5.



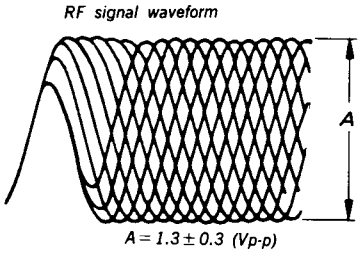
Focus Bias Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

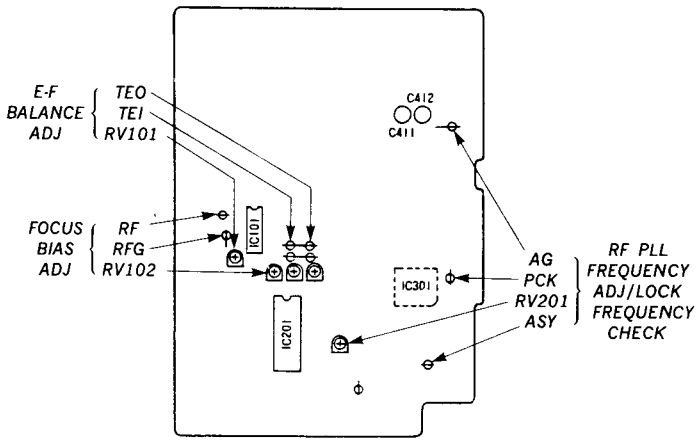
Procedure :



1. Connect oscilloscope to test point TP (RF) and TP (RFG).
2. Turn POWER switch on.
3. Put disc (YEDS-18) in and press ▷ button.
4. Adjust RV102 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.



Adjustment Location : main board



REFERENCE

Focus/Tracking Gain Adjustments

A frequency responce analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow up (vertical and horizontal) relative to mechanical noise and shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

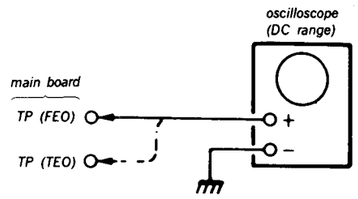
Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for ■ → ▷ or automatic selection. (⏮, ⏭ buttons pressed.) (Normally takes about 1 seconds.)	low	low or high
• Music does not start and disc continues to rotate for ■ → ▷ or automatic selection. (⏮, ⏭ buttons pressed.)	–	low
• Disc table opens shortly after ■ → ▷ .	low or high	–
• Sound is interrupted during PLAY or time counter display stops progressing.	–	low
• More noise during 2-axis device operation.	high	high

The following is a simple adjustment method.

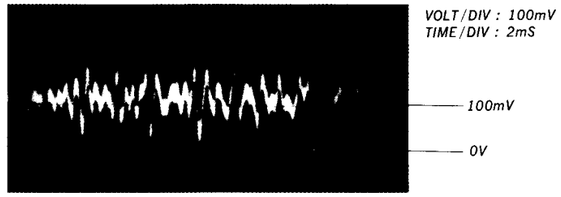
–Primary Adjustment–

Note : Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the position after the primary adjustment are only a little different, return the controls to the original position.

Procedure :

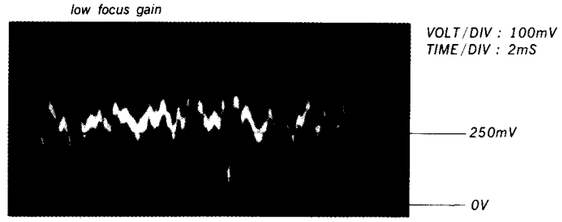


1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2-axis device.)
2. Insert disc (YEDS-18 : Fifth Selection) and press ▷ button.
3. Connect oscilloscope to main board TP (FEO).
4. Adjust RV103 so that the waveform is as shown in the figure below. (focus gain adjustment)
5. Connect oscilloscope to main board TP (TEO).
6. Adjust RV104 so that the waveform is as shown in the figure below. (tracking gain adjustment)

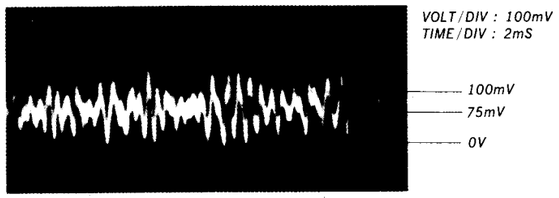


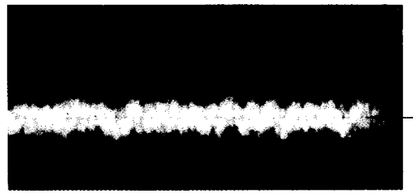
- Incorrent Examples (DC level changes more than on adjusted waveform)

low focus gain



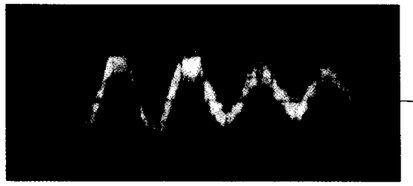
high focus gain





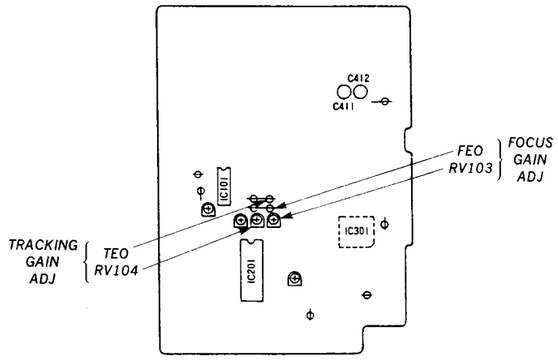
- Incorrect Examples (fundamental wave appears)

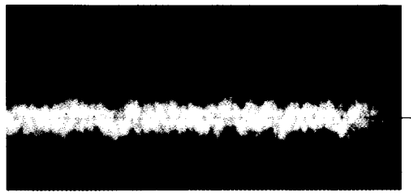
low tracking gain



high tracking gain
higher fundamental wave than for low gain)

Adjustment Location : main board



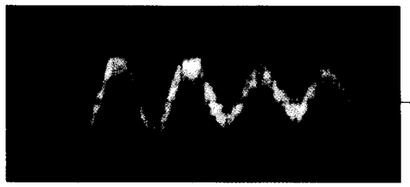


VOLT/DIV : 1V
TIME/DIV : 2mS

0V

• Incorrect Examples (fundamental wave appears)

low tracking gain



VOLT/DIV : 1V
TIME/DIV : 2mS

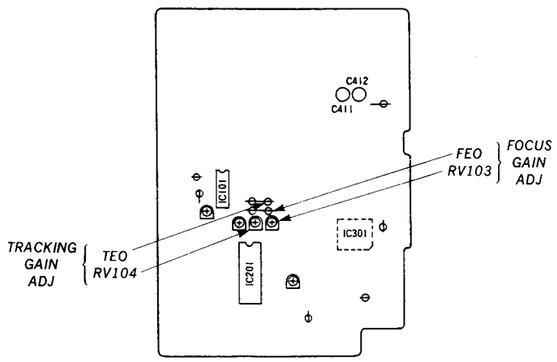
0V

high tracking gain
higher fundamental wave than for low gain)

VOLT/DIV : 1V
TIME/DIV : 2mS

0V

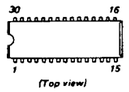
Adjustment Location : main board



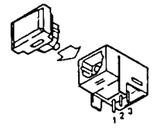
SECTION 3
DIAGRAMS

3-1. SEMICONDUCTOR LEAD LAYOUTS

CXA1081S

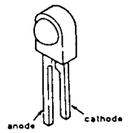


GP1F31T

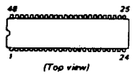


M5231TL

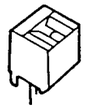
BR4361F



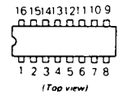
CXA1082BS



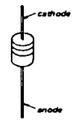
GP1U52



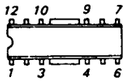
M5294P
PCM56P-S



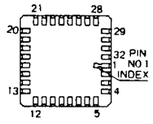
HZS9B2L
RD5.1ESB2
1SS132



CXA1291P

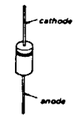


LC9600P-144

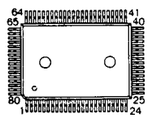


NJM4556S

US1060M
10E2

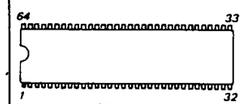


CXD1125Q



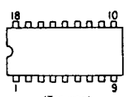
MARKING SIDE VIEW

MSC6458-36SS



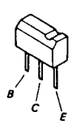
DTA144ES
DTC114ES
DTC143TS
DTC144ES

CXD2550P



M5218P
M74HC6004P

DTC114EF



3-2. PRINTED WIRING BOARDS

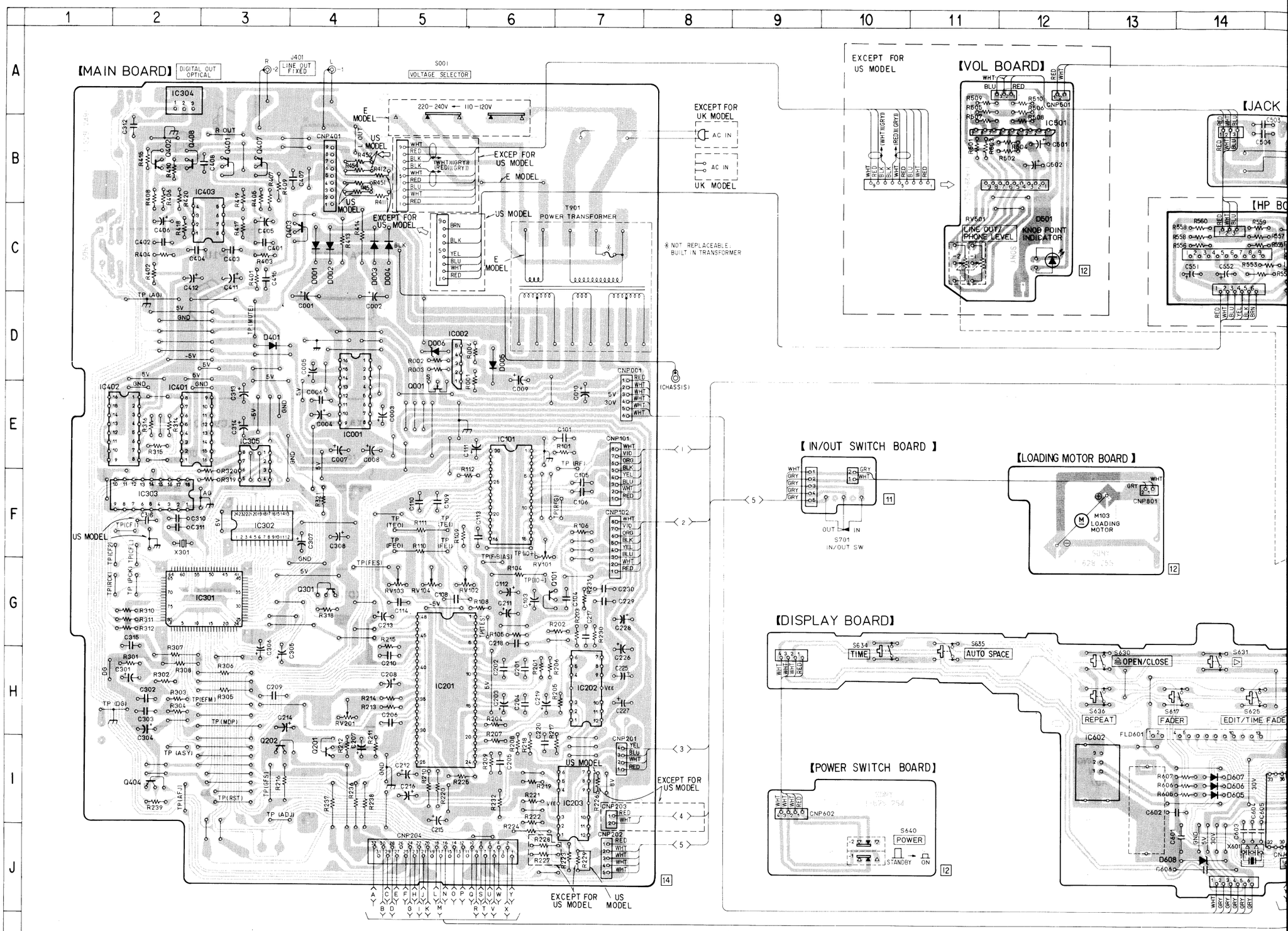
• Refer to page7 for Semiconductor Lead Layouts.

• Semicouductor Location

Ref. No.	Location
D001	C-4
D002	C-4
D003	C-4
D004	C-5
D005	D-6
D006	D-5
D401	D-3
D501	C-12
D601	I-18
D602	I-17
D603	I-17
D604	I-17
D605	I-14
D606	I-14
D607	I-14
D608	J-14
IC001	E-4
IC002	D-5
IC101	E-6
IC201	H-5
IC202	H-7
IC203	I-7
IC301	G-3
IC302	F-3
IC303	F-2
IC304	A-2
IC305	E-3
IC401	E-2
IC402	E-2
IC403	C-3
IC501	B-12
IC601	I-16
IC602	I-13
Q001	E-5
Q101	G-6
Q201	I-4
Q202	I-3
Q301	G-4
Q401	B-3
Q402	B-2
Q403	C-4
Q404	I-2
Q407	B-3
Q408	B-2
Q601	I-15
Q602	I-15
Q603	I-15

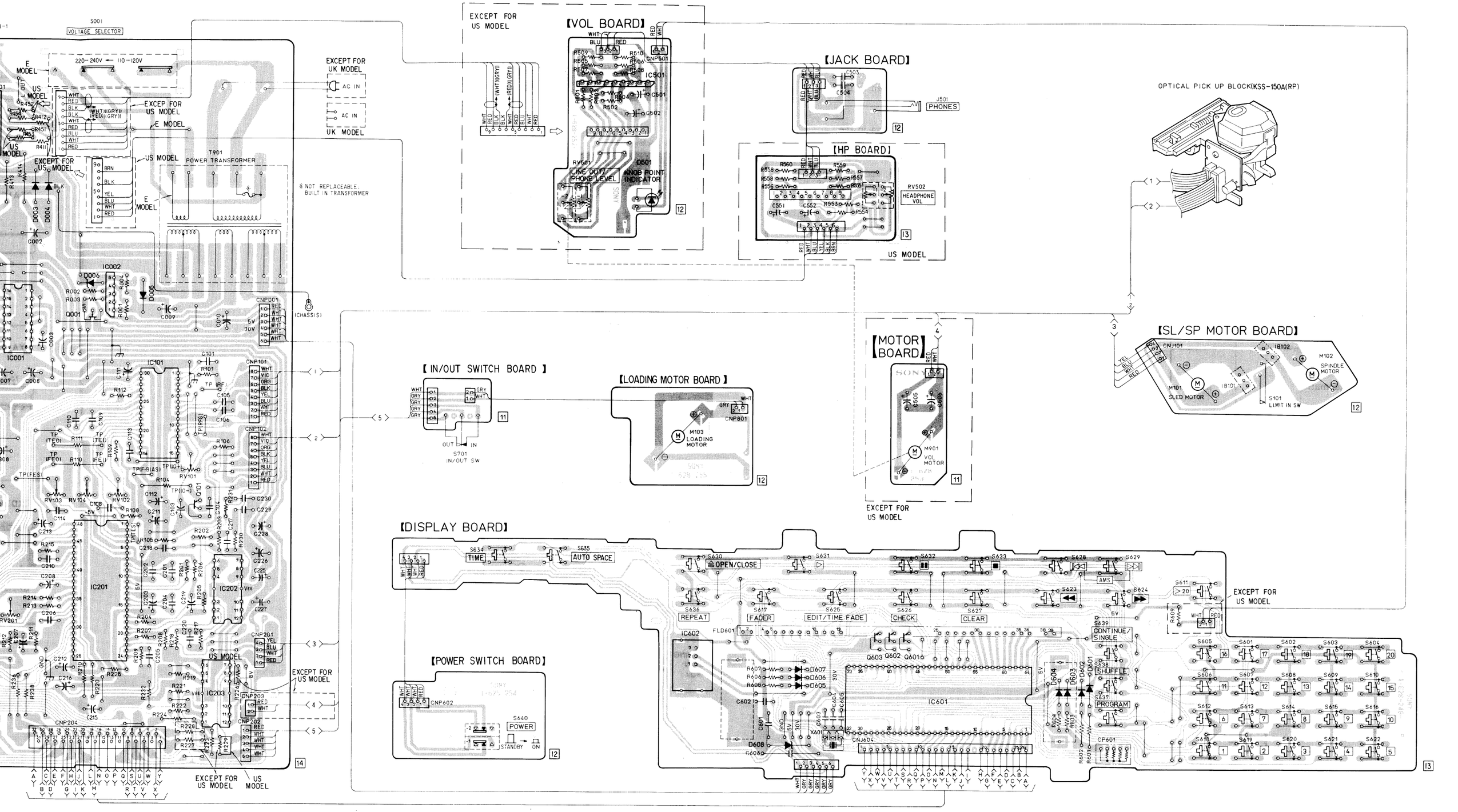
• ○—— : parts extracted from the component side.

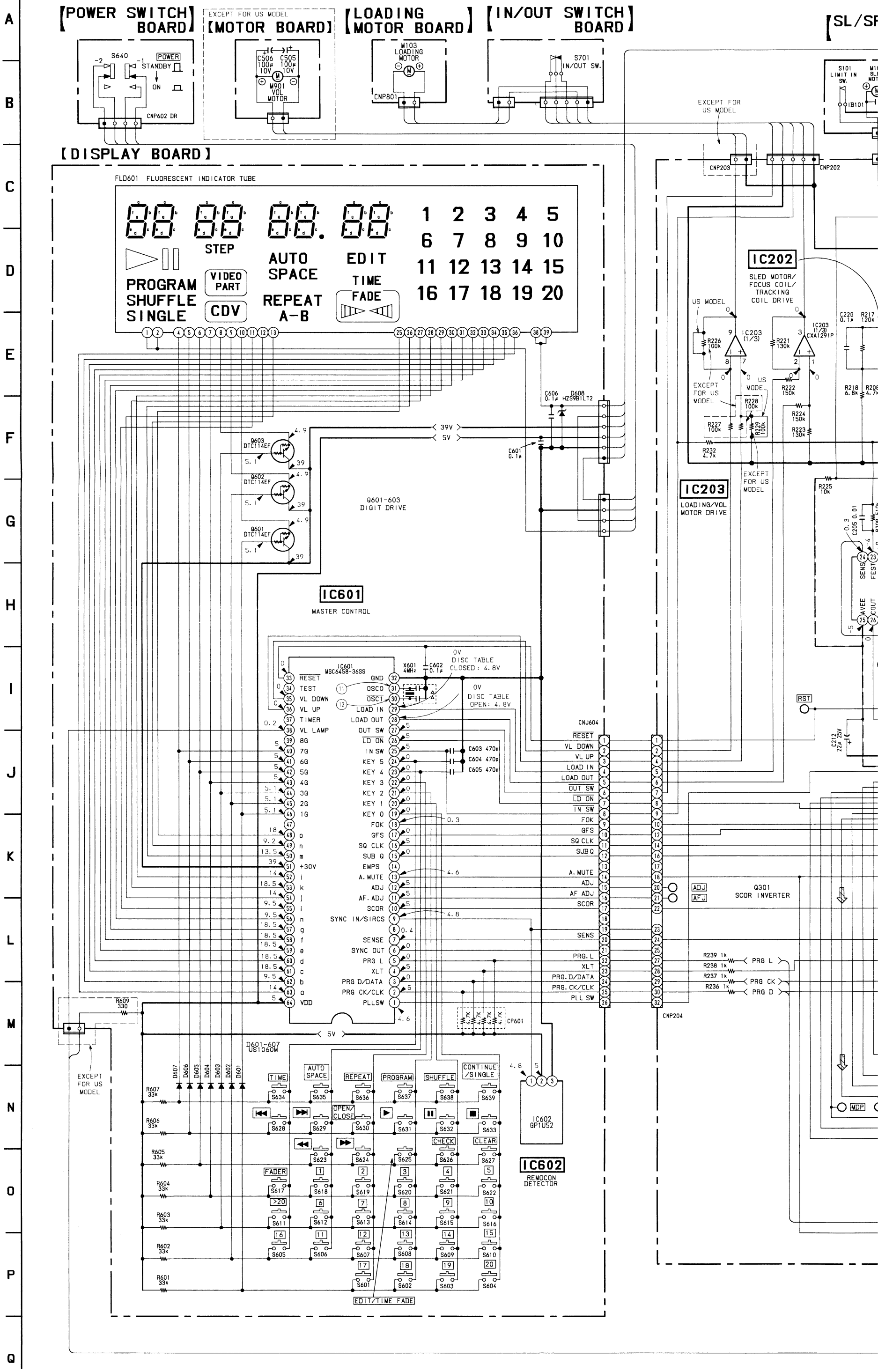
• ○—●—○ : Jumper wire connected to the ground pattern on the component side.



to page7 for Semiconductor Lead Layouts.

4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22




【POWER SWITCH BOARD】
S640
POWER
STANDBY
ON
CNP602 DR
EXCEPT FOR US MODEL
【MOTOR BOARD】
C506 100μ 10V
C505 100μ 10V
M901 VOL MOTOR
【LOADING MOTOR BOARD】
M103 LOADING MOTOR
CNP801
【IN/OUT SWITCH BOARD】
S701 IN/OUT SW.
【SL/SP
S101 LIMIT IN SW.
IB101
EXCEPT FOR US MODEL
CNP203
CNP202
【DISPLAY BOARD】
FLD601 FLUORESCENT INDICATOR TUBE
STEP
AUTO SPACE
EDIT
TIME FADE
PROGRAM SHUFFLE SINGLE
VIDEO PART
CDV
REPEAT A-B
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
IC202
SLED MOTOR/ FOCUS COIL/ TRACKING COIL DRIVE
US MODEL
IC203 (1/3)
IC203 (1/3) CXA1291P
R226 100k
R221 130k
R222 150k
R228 100k
R227 100k
R224 150k
R223 130k
R232 4.7k
R225 10k
EXCEPT FOR US MODEL
IC203
LOADING/VOL MOTOR DRIVE
C220 0.1μ
R217 120k
R218 6.8k
R208 4.7k
C205 0.01
C606 0.1μ
D608 HZS9B1LT2
C601 0.1μ
39V
5V
Q603 DTC114EF
Q602 DTC114EF
Q601 DTC114EF
Q601-603 DIGIT DRIVE
IC601
MASTER CONTROL
IC601 MSC6458-36SS
X601 4MHz
C602 0.1μ
0V DISC TABLE CLOSED : 4.8V
0V DISC TABLE OPEN: 4.8V
RESET
TEST
VL DOWN
VL UP
TIMER
VL LAMP
8G
7G
6G
5G
4G
3G
2G
1G
+30V
GND
OSCO
OSCI
LOAD IN
LOAD OUT
OUT SW
LD ON
IN SW
KEY 5
KEY 4
KEY 3
KEY 2
KEY 1
KEY 0
FOK
GFS
SQ CLK
SUB Q
EMPS
A. MUTE
ADJ
AF. ADJ
SCOR
SYNC IN/SIRCS
SENSE
SYNC OUT
PRG L
XLT
PRG D/DATA
PRG CK/CLK
PLLSW
C603 470p
C604 470p
C605 470p
CNJ604
RESET
VL DOWN
VL UP
LOAD IN
LOAD OUT
OUT SW
LD ON
IN SW
FOK
GFS
SQ CLK
SUB Q
A. MUTE
ADJ
AF ADJ
SCOR
SENS
PRG. L
XLT
PRG. D/DATA
PRG. CK/CLK
PLL SW
CNP204
RST
C212 22μ 25V
ADJ
AFJ
Q301 SCOR INVERTER
R239 1k
R238 1k
R237 1k
R236 1k
PRG L
PRG CK
PRG D
MDP
R609 330
EXCEPT FOR US MODEL
D601-607 US1060M
CP601
IC602 GP1US52
IC602
REMOCON DETECTOR
TIME
AUTO SPACE
REPEAT
PROGRAM
SHUFFLE
CONTINUE /SINGLE
OPEN/ CLOSE
CHECK
CLEAR
FADER
EDIT/TIME FADE
R607 33k
R606 33k
R605 33k
R604 33k
R603 33k
R602 33k
R601 33k

[SWITCH BOARD]

[SL/SP MOTOR BOARD]

S701 N/OUT SW.

OPTICAL PICK UP BLOCK (KSS-150A (RP))

S101 LIMIT IN SW. · M101 SLED MOTOR · M102 SPINDLE MOTOR · TRACKING FOCUS COIL · LASER DIODE · DETECTOR

IB101 · IB102 · CNJ101 · CNP201 · CNP102 · CNP101 · CNP202 · CNP203

EXCEPT FOR US MODEL

C105 10p · C106 10p

-8V · 8V · 5V · -5V

Q101 AUTOMATIC POWER CONTROL

C226 100µ 16V · C228 100µ 16V · C225 100µ 16V · C227 100µ 16V

IC202
SLED MOTOR/ FOCUS COIL/ TRACKING COIL DRIVE

US MODEL · EXCEPT FOR US MODEL · US MODEL · EXCEPT FOR US MODEL

R226 100k · R228 100k · R227 100k · R229 100k · R232 4.7k · R221 130k · R222 150k · R224 150k · R223 130k

IC203 (1/3) · IC203 (1/3) CXA1291P · IC202 CXA1291P · IC203 (1/3) · VEE

C220 0.1µ · R217 120k · C230 0.1µ · R231 10 · C229 0.1µ · R230 10 · R218 6.8k · R208 4.7k · R205 270k · C217 2200p · C219 10µ 50V · R206 33k · R202 18k · R203 18k · C218 560p · R220 47k · R219 33k

Q101 2SB1013 · C104 1000p · R104 22 · C103 47µ 16V · R105 91 · IO- · IO+

IC203
SPINDLE MOTOR DRIVE

E-F BALANCE · FOCUS BIAS

RV101 22k · R106 22k · R101 24k · C101 2200p · C113 0.033µ · R108 18k · RV102 4.7k · R109 18k · C109 0.01µ · C110 0.01µ · C112 22µ 25V · C111 22µ 25V

RFG · RF

IC101
RF AMP

Q001 SWITCHING

IC001
+/-5V REG

C003 4.7µ 50V · C008 470µ 10V · C007 470µ 10V · C004 4.7µ 50V · C005 10µ 50V · C006 0.1

DEL · +3.4 · P.HA · -VCC · G · -5 · BAL · -VCC · RST · R.D · SW · +5 · +V · +5 · VREF · +VCC

IC001 M5294P

R004 10k · D006 RD5.1ES

IC203
LOADING/VOL MOTOR DRIVE

R225 10k · C205 0.01 · R209 510k · R207 3.3k · R204 82k · C204 0.1µ · C203 3.3µ 50V · R201 130k · C202 0.033µ · C201 0.1µ

TRACKING GAIN · FOCUS GAIN · TEO · TES · FES · RV104 22k · R111 4.7k · C108 2200p · RV103 22k · C114 4700p · R110 4.7k

TE1 · FEO · FE1

IC201
FOCUS/TRACKING/SLED/SPINDLE SERVO

IC201 CXA1082BS

SENS · FEST · SSTOP · SL- · SLO · SL+ · TA- · TAO · AVCC · TBA · TBO · SRCH · FE- · FEO · FLB · FS3 · FGD · VG · FE+ · ATSC · TZC · TE+ · DFCT · DVEE

AVEE · COUT · DIRC · XRST · DATA · XLT · CLK · DGND · BW · PDI · SET · VCOF · 3.5V · B.64 · LOCK · MDP · MON · FSW · DVCC · SPDL- · SPDLO · MDCK · FOK · MIRR

C206 4700p · R211 560 · C207 47µ 50V · R213 100k · R214 3.6k F · C209 1000p · RV201 1k · RF PLL · C208 47µ 16V · R210 1k · R212 22k · R215 100k · C210 100p · C216 1µ 50V · C214 1µ 50V · C213 22µ 25V · C212 22µ 25V · C215 1µ 50V · R216 10k

Q201, 202 PLL SWITCHING · Q201 2SC3402 · Q202 2SC3399

RST · GFS

CNJ604

RESET · VL DOWN · VL UP · LOAD IN · LOAD OUT · OUT SW · LD ON · IN SW · FOK · GFS · SQ CLK · SUBQ · A. MUTE · ADJ · AF ADJ · SCOR · SENS · PRG. L · XLT · PRG. D/DATA · PRG. CK/CLK · PLL SW

CNP204

ADJ · AFJ · Q301 SCOR INVERTER · Q301 2SC3399 · R318 10k

PRG L · PRG CK · PRG D

R239 1k · R238 1k · R237 1k · R236 1k

IC301
DIGITAL SIGNAL PROCESSOR

IC301 CXD1125

SCOR · SUBQ · SBSO · EXCX · CRCF · MUTG · SENSE · CNIN · XRST · DATA · XLT · CLK · VSS · PDO · TEST · VCOI · VCOO · LOCK · ASY · EFM · MDS · MDP · MON · FSW

SQCK · SQEX · DOUT · GFS · DB08 · DB07 · DB06 · DB05 · VDD · DB04 · DB03 · DB02 · DB01 · RA01 · RA02 · RA03

C305 1µ 50V · C306 1µ 50V · R308 100k F · R307 100k F · R306 10k · R305 100k · R304 100k · R303 10k · R302 22k · C304 0.47µ 50V · C303 0.01 · C301 0.47µ 50V · R301 1M · C302 0.033µ · C315 0.47µ

MDP · EFM · ASY

RCK · MDCK · DATA · C2IQ · C2IQ · C4LR · RAOV · VDD · GTOP · VGFS · PLCK · WFCK · RFCK · C2PO · C2FL · C2F2

PCK · RCK · CFL

RA04 · RA05 · RA06 · RA07 · RA08 · RA09 · RA10 · RA11 · RAWE · RACS · C4W · VSS · XTAL · XTAO · MD1 · MD2 · MD3 · SLOB · PSSL · APTR · APTL · C1F1 · C1F2 · C2F1

CF1 · CF2

IC302
RAM

IC302 LC9600PM-144

C307 22µ 25V · C308 22µ 25V

GND · I/O6 · I/O7 · I/O8 · I/O5 · I/O4 · CS · I/O9 · OE · WE · A10 · A11 · VCC · A01 · A02 · A03 · A04 · A05 · A06 · A07 · A08

DG

US MODEL

IC303 CXD2550P

TST1 · LRCK · DATA L · X IN · DATA R · VSS · VDD · BCK · DATA · PRG D · LRCK · PRG CK · INIT · PRG L · BCK

C311 15p · C310 16p · C316 0.1 · X301 · R316 470 · R314 470

L-CH · R-CH

IC305
INVERTER

C313 100µ 10V · C314 100µ 10V

IC305 M74HC6004P · R320 330 · R319 330

EXCEPT FOR US MODEL

[VOL BOARD]

LINE OUT / PHONE LEVEL

IC501 NJM4556S

R501 33k · R503 18k · R505 2.7k · R507 15k · R509 56 · C502 47µ 16V

R504 18k · R506 2.7k · R508 15k · R510 56 · RV501 10k/10k · R502 33k · C501 47µ 16V

D501 BR4361F KNOB POINT INDICATOR

CNP501

IC501
PHONE AMP

CK UP
150A (RP))

DETECTOR

CNP101

CNP001
DR

【MAIN BOARD】

T901
POWER TRANSFORMER

C105 10p
C106 10p

-8V
5V
8V
39V

Q101
AUTOMATIC
POWER CONTROL

IC203
SPINDLE MOTOR
DRIVE

E-F BALANCE

RV101 22k
R106 22k
R101 24k
C101 2200p

IC101 CXA1081S

FOCUS BIAS

R108 18k
RV102 4.7k
R109 18k
C109 0.01μ
C110 0.01μ
C111 22μ 25V
C112 22μ 25V
C113 0.033μ
R112 1k

C114 4700p
R110 4.7k
RV103 22k

TE1
FE0
FE1

IC201
FOCUS/TRACKING/SLED/SPINDLE
SERVO

IC101
RF AMP

Q001
SWITCHING

IC001
+/-5V REG

C003 4.7μ 50V
C008 470μ 10V
C007 470μ 10V
C004 4.7μ 50V
C005 10μ 50V
C006 0.1

IC001 M5294P

IC002
30V REG

IC002 M5231TL
R001 68k
R004 10k
R003 1k
R002 3.3k
D006 RD5.1ES
C010 100μ 50V
C009 100μ 63V
D005 10E2

Q001
2SK381-TP

D003 10E2
D004 10E2
D002 10E2
D001 10E2
C002 3300μ 16V
C001 6800μ 16V

AC 4.5V
AC 39V
AC 7.5V
AC 7.5V

UK MODEL
AC IN
AC IN
EXCEPT FOR UK MODEL

S001
VOLTAGE SELECTOR
220-240V 110-120V
E MODEL

※ NOT REPLACEABLE : BUILT IN TRANSFORMER.

IC304
DIGITAL OUT
OPTICAL

R321 330
C312 0.1μ

IC304 GP1F31T

IC304
DIGITAL AMP

CNP401
L-CH
R-CH
US MODEL
EXCEPT FOR US MODEL

R453 22k
R451 560
R454 22k
R452 560
R413 100
R414 100
R41 560
R412 560

IC305
INVERTER

IC401
D/A CONVERTER

C313 100μ 10V
C314 100μ 10V

IC305 M74HC6004P
R320 330
R319 330

IC401 PCM56P-S
IC402 PCM56P-S

IC403
AF AMP

Q401, 402
Q407, 408
MUTING

C401 0.0068
C403 0.0022
C411 470/16V AVF
C405 22μ 25V AVF
C407 0.0022
C412 470/16V AVF
C404 0.0022
C402 0.0068
C406 22μ 25V AVF
C408 0.0022
C415 1000p

R401 680
R403 680
R405 330k
R407 220
R409 220
R415 100k
R417 1k
R419 27k
R420 27k
R418 1k
R402 680
R404 680
R406 330k
R408 220
R410 220

Q401 2SA1L3Z
Q407 2SA1L3Z
Q402 2SA1L3Z
Q408 2SA1L3Z
Q403 2SA1345

IC403 M5218P

J401
LINE OUT
FIXED

C307 22μ 25V
C308 22μ 25V

IC302 LC960PM-144

IC302
RAM

IC303 CXD2550P

X301
C311 15p
C310 16p
C316 0.1

R314 470
R315 470
R316 470

US MODEL

IC303
DIGITAL FILTER

D401 1SS132T-73

MUTE

Q404 2SC3399

IC402
D/A CONVERTER

Q404
MUTING SWITCH

Q403
MUTING SWITCH

【VOL BOARD】

LINE OUT / PHONE LEVEL

IC501 NJM4556S

R501 33k
R503 18k
R505 2.7k
R507 15k
R509 56
C502 47μ 16V
R504 18k
R506 2.7k
R508 15k
R510 56
RV501 10k/10k
R502 33k
C501 47μ 16V

CNP501
D501
BR4361F
KNOB POINT
INDICATOR

IC501
PHONE AMP

EXCEPT FOR US MODEL

【HP BOARD】

IC501 NJM4556S
RV502 20k/20k
HEADPHONE VOL
R553 1k
R559 56
C552 47μ 16V
R557 2.7k
R555 10k
R556 10k
R558 2.7k
R554 1k
R560 56
C551 47μ 16V

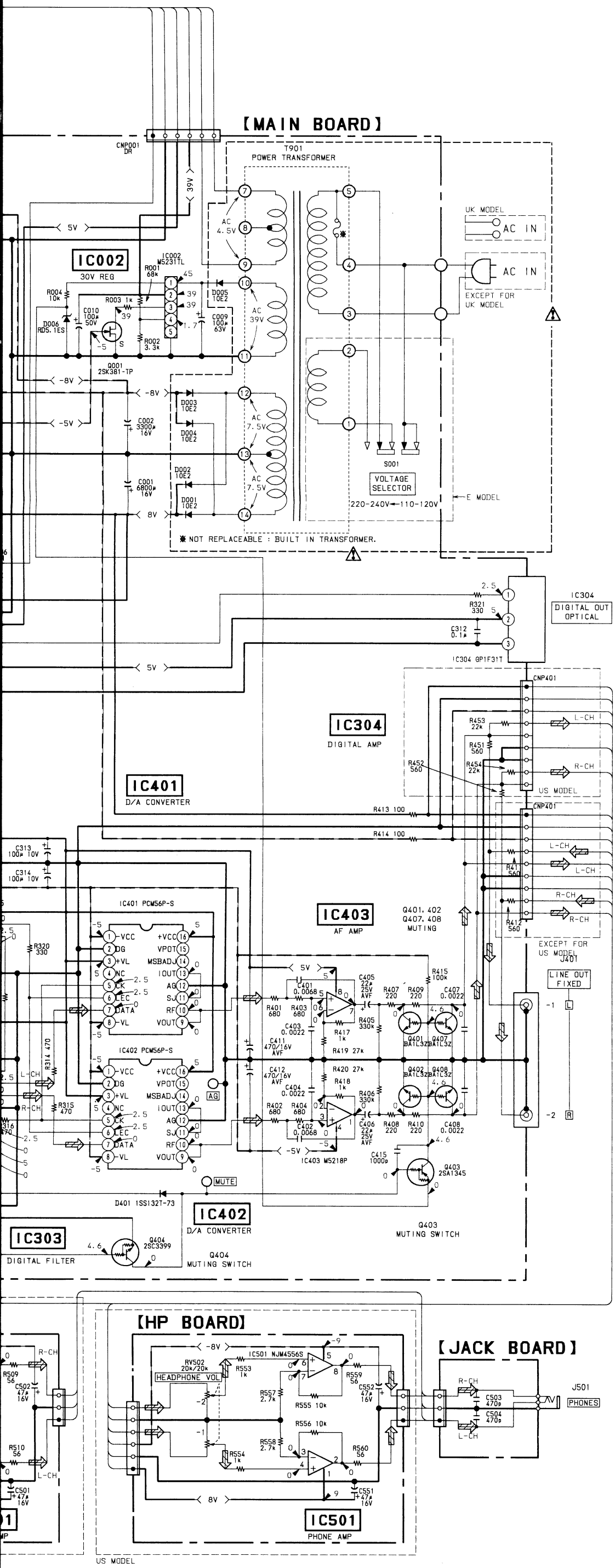
IC501
PHONE AMP

US MODEL

【JACK BOARD】

J501
PHONES
C503 470p
C504 470p

PCK RCK CFL



• WAVEFORMS

① RF PLAY: 1.05Vp-p	⑤ MDS PLAY: 5V 0V 140μSEC	⑨ X OUT ⑩ X IN 600nSEC ⑨ 4.4Vp-p ⑩ 3.6Vp-p 0V
② FE PLAY: 0V APPROX. 100mVp-p	⑥ MDP PLAY: 540μSEC 5V 2.6V	⑪ OSC O 250nSEC 4V -0.6V
③ TE PLAY: 0V APPROX. 500mVp-p	⑦ LRCK 23μSEC 5Vp-p 0V	⑫ OSC I 250nSEC 5.2V -0.2V
④ VCO I 100nSEC 4.5V 0.6V	⑧ C210 480nSEC 5V 0V	

- 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
- ▬ ▬ : B− Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
- 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

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

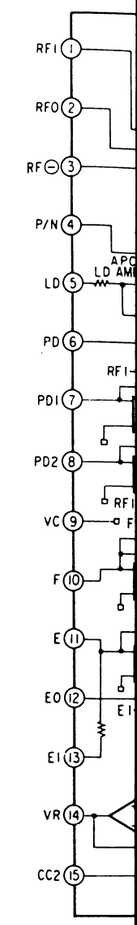
3-4. EXPLANATION OF IC601 (MSC6458-36SS)

IC601 have function of digit signal output to operation key, SUB Q signal taking in and management, tube (FLD) and control of servo system, etc.

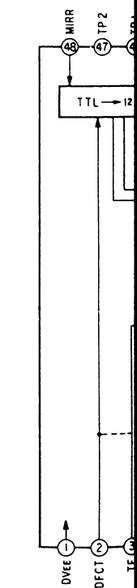
3-4-1. Pin Description

Pin No.	Symbol	I/O	Description
1	PLL SW	O	In play "L", in serch "H".
2	CLK	O	Command transmission clock to SSP (IC201) and DSP (IC301).
3	DATA	O	Command transmission data to SSP (IC201) and DSP (IC301).
4	XLT	O	Command transmission ratch to SSP (IC201) and DSP (IC301).
5	PRGL	O	Command transmission ratch to DFIL (IC303).
6	SYNC OUT	O	NC
7	SENSE	I	SENSE information of SSP (IC201) and DSP (IC301).
8	———	I	NC
9	SIRCS	I	Remote control signal input.
10	$\overline{\text{SCOR}}$	I	Q code read timing.
11	AF ADJ	I	NC
12	ADJ	I	Test mode on "L".
13	AMUTE	O	To MUTG of all mute DSP (IC301).
14	E MPS	O	NC
15	SUBQ	I	Subcode data.
16	SQCLK	O	Subcode data readout clock.
17	GFS	I	In CLV rock "H".
18	FOK	I	In FOCUS ON "H".
19	KEY 0	I	Key matrix input "H" active.
20	KEY 1	I	Key matrix input "H" active.
21	KEY 2	I	Key matrix input "H" active.
22	KEY 3	I	Key matrix input "H" active.
23	KEY 4	I	Key matrix input "H" active.
24	KEY 5	I	Key matrix input "H" active.
25	$\overline{\text{INSW}}$	I	Loading in SW.
26	$\overline{\text{LDON}}$	O	Laser ON/OFF.
27	$\overline{\text{OUT SW}}$	I	Loading out SW.
28	LODOUT	O	Loading motor cortrol.
29	LODIN	O	Loading motor cortrol.
30	OSC I	I	Pulse input (4MHz)
31	OSC O	O	Pulse output (4MHz)
32	GND	—	GND
33	$\overline{\text{RESET}}$	I	Reset input : In POWER ON "Input".
34	TEST	—	NC
35	VL DOWN	—	NC
36	VL UP	O	Volume up sigual.
37	TIMER	O	NC
38	VL LAMP	O	Volume indicator.
39	8G	—	NC
40	7G	O	FLD timing output.
41	6G	O	FLD timing output.
42	5G	O	FLD timing output.
43	4G	O	FLD timing output.
44	3G	O	FLD timing output.
45	2G	O	FLD timing output.
46	1G	O	FLD timing output.
47	——	—	NC
48	o	O	FLD segment output.
49	n	O	FLD segment output.
50	m	O	FLD segment output.
51	+30V	—	+30V
52	l	O	FLD segment output.
53	k	O	FLD segment output.
54	j	O	FLD segment output.
55	i	O	FLD segment output.
56	h	O	FLD segment output.
57	g	O	FLD segment output.
58	f	O	FLD segment output.
59	e	O	FLD segment output.
60	d	O	FLD segment output.
61	c	O	FLD segment output.
62	b	O	FLD segment output.
63	a	O	FLD segment output.
64	VDD	—	Power supply (+5V)

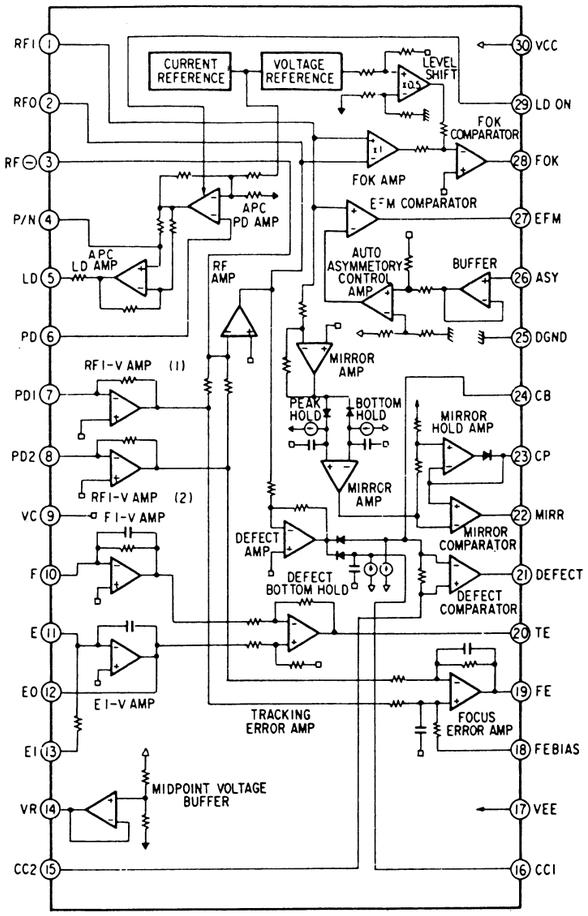
IC101 CXA10



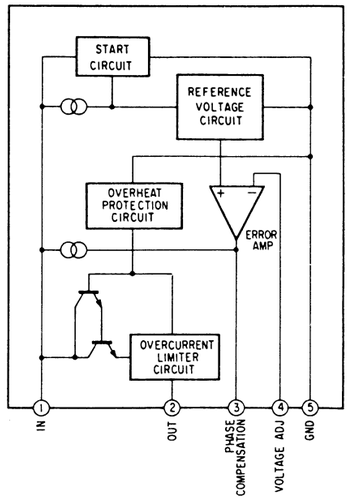
IC201 CXA10



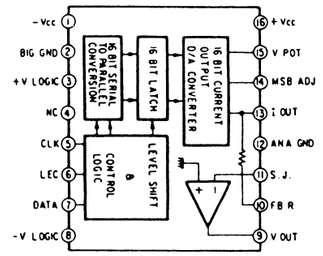
IC101 CXA1081S



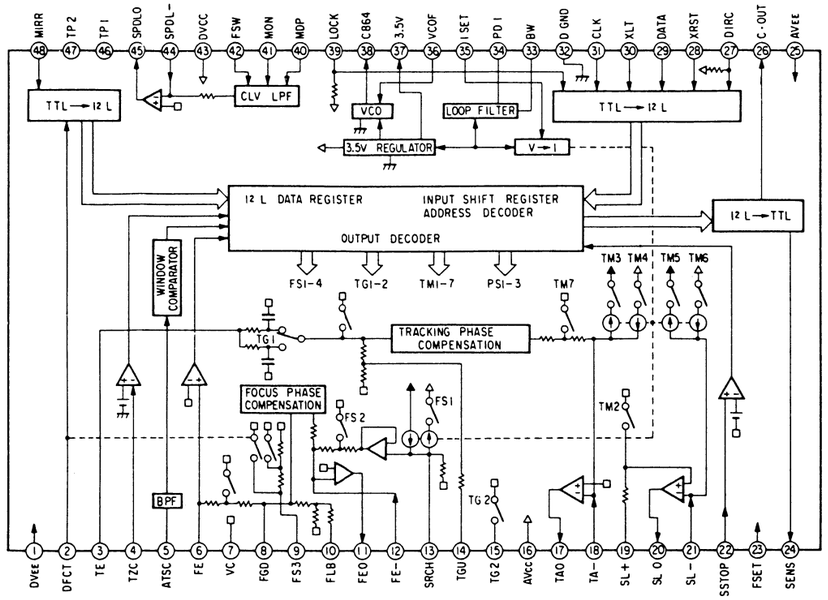
IC002 M5231TL



IC401, 402 PCM56P-S



IC201 CXA1082BS



SECTION 4
EXPLODED VIEWS

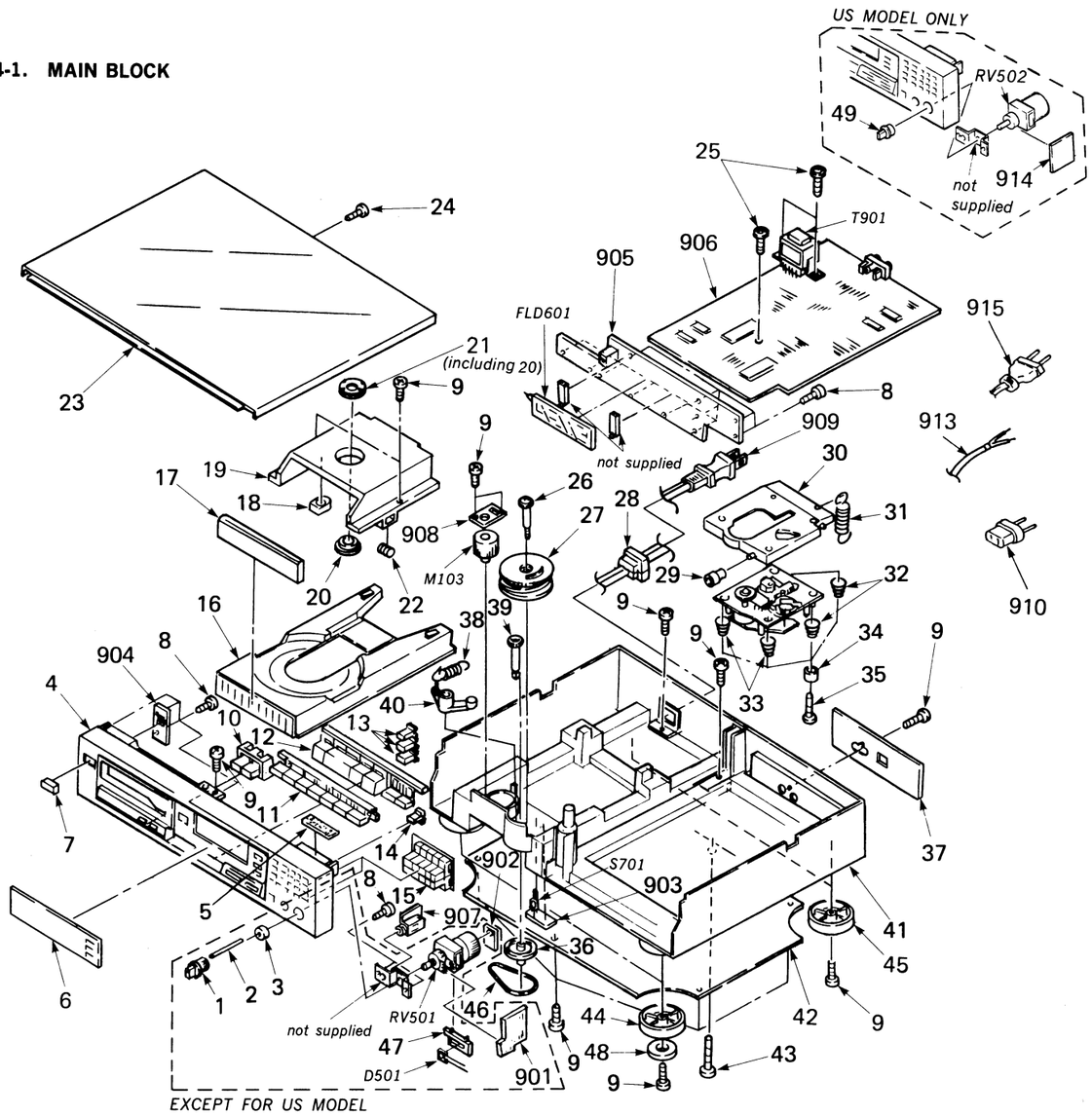
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

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

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

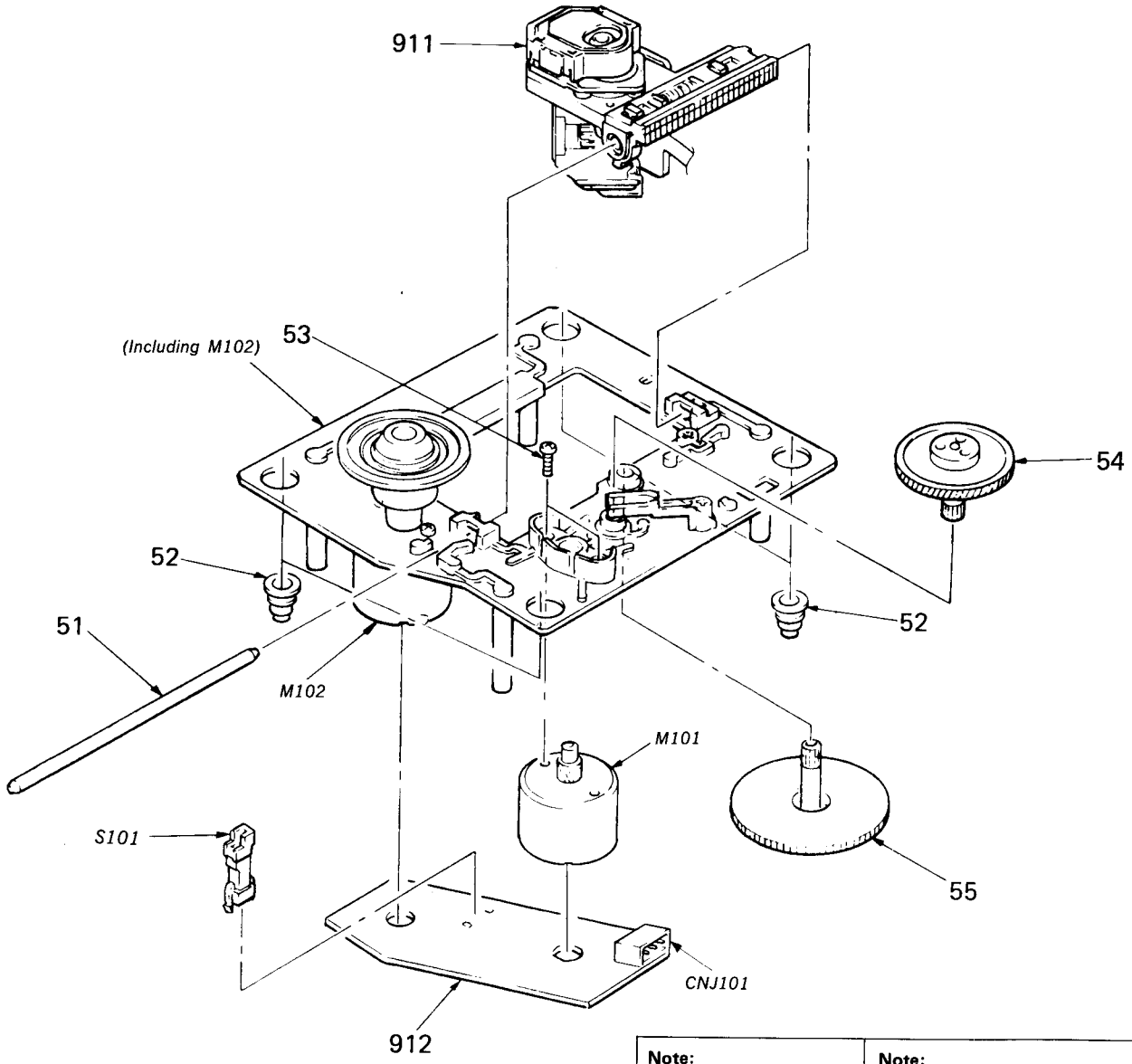
4-1. MAIN BLOCK



Ref.No	Part No.	Description	Remarks
1	4-922-977-01	(EXCEPT FOR US)....KNOB (HP)	
2	4-922-979-01	(EXCEPT FOR US)....INDICATOR	
3	4-922-978-01	(EXCEPT FOR US)....HOLDER (FIBER)	
4	A-4665-024-A	(AEP, UK, E)....PANEL ASSY, FRONT	
	X-4922-921-1	(US)....PANEL ASSY, FRONT	
	X-4922-922-1	(Canadian)....PANEL ASSY, FRONT	
5	3-831-441-XX	CUSHION	
6	4-922-966-01	PLATE, INDICATION	
7	4-922-921-01	BUTTON (POWER)	
8	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
9	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
10	4-922-964-01	BUTTON (T/R), CONTROL	
11	4-922-963-01	BUTTON (B), CONTROL	
12	4-922-962-01	BUTTON (A), CONTROL	
13	4-922-972-01	BUTTON (P/M)	
14	4-922-976-01	BUTTON (C)	
15	4-922-976-01	BUTTON (M/C)	
16	*4-925-307-01	TABLE, DISK	
17	4-922-965-11	PANEL, LOADING	
18	*4-922-529-01	DAMPER	
19	*4-925-345-01	HOLDER (MG)	
20	*4-918-679-04	PULLEY, PRESS	
21	A-4665-024-A	MAGNET ASSY	
22	4-925-335-01	SPRING, COMPRESSION	
23	4-925-348-01	CASE	
24	7-685-650-79	SCREW (2), TAPPING	
25	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
26	7-685-152-19	SCREW, STEP	
27	4-925-306-01	GEAR (LOADING)	
28	3-703-571-11	(E)....BUSHING (S) (4516), CORD	
	*3-703-244-00	(EXCEPT FOR E)....BUSHING (2104), CORD	
29	4-917-515-01	ROLLER	
30	*4-922-514-01	BRACKET (BU-5)	
31	4-917-526-01	SPRING, TENSION	
32	4-917-507-01	SPRING (H)	
33	4-917-541-01	SPRING (B)	
34	4-917-508-01	HOLDER, SP	
35	7-685-535-11	SCREW +BTP 2.6X10 TYPE2 N-S	
36	4-922-512-01	PULLEY	
37	*4-922-959-11	(US)....PLATE (JACK), INDICATION	
	*4-922-959-31	(Canadian)....PLATE (JACK), INDICATION	

Ref.No	Part No.	Description	Remarks
37	*4-922-959-41	(AEP)....PLATE (JACK), INDICATION	
	*4-922-959-51	(E)....PLATE (JACK), INDICATION	
	*4-922-959-61	(UK)....PLATE (JACK), INDICATION	
38	4-917-514-01	SPRING, TENSION	
39	4-922-508-01	GEAR (DRIVING)	
40	4-917-519-01	LEVER, SET	
41	*4-925-346-01	CHASSIS	
42	*4-922-960-01	PLATE, BOTTOM	
43	7-685-878-01	SCREW +BVTT 3X25 (S)	
44	X-4922-917-1	(AEP, UK)....FOOT ASSY (F)	
45	X-4922-918-1	(AEP, UK)....FOOT ASSY (R)	
46	4-917-522-02	BELT	
47	*4-922-980-01	(EXCEPT FOR US)....HOLDER (LED)	
48	4-922-942-01	(EXCEPT FOR UK)....FOOT (FELT)	
49	4-922-531-01	(US)....KNOB (A TYPE), LOV	
901	*1-628-252-11	(EXCEPT FOR US)....PC BOARD, VOL	
902	*1-628-253-11	(EXCEPT FOR US)....PC BOARD, MOTOR	
903	*1-625-256-11	PC BOARD, IN/OUT SWITCH	
904	*1-628-254-11	PC BOARD, POWER SWITCH	
905	*1-628-249-11	PC BOARD, DISPLAY	
906	*A-4617-057-A	(US).... MOUNTED PCB, MAIN	
	*A-4617-062-A	(E)....MOUNTED PCB, MAIN	
	*A-4651-217-A	(Canadian, AEP, UK)....MOUNTED PCB, MAIN	
907	*1-628-251-11	PC BOARD, JACK	
908	*1-628-255-11	PC BOARD, LOADING MOTOR	
909	⚠1-551-188-XX	(E)....CORD, POWER	
	⚠1-557-577-11	(US, Canadian)....CORD, POWER	
910	1-526-565-00	AC PLUG ADAPTOR	
913	⚠1-556-035-00	(UK)....CORD, POWER	
914	*1-628-257-11	(US)....PC BOARD, HP	
915	⚠1-555-795-00	(AEP)....CORD, POWER, EULO PLUG	
FLD601	1-519-475-11	INDICATOR TUBE, FLUORESCENT	
M103	A-4608-346-A	MOTOR ASSY, L (LOADING)	
RV501	1-238-314-11	(EXCEPT FOR US)....RES, VAR, CARBON 10K/10K (LINE OUT/PHONE LEVEL) (INCLUDING M901)	
RV502	1-238-478-11	(US)....RES, VAR, CARBON 20K/20K (HEADPHONE VOL)	
S701	1-571-300-11	SWITCH, ROTARY (IN/OUT)	
T901	⚠1-449-024-11	(US, Canadian)....TRANSFORMER, POWER	
T901	⚠1-449-025-11	(AEP, UK)....TRANSFORMER, POWER	
T901	⚠1-449-026-11	(E)....TRANSFORMER, POWER	

4-2. OPTICAL PICK-UP BLOCK (BU-5C)



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.

Ref.No	Part No.	Description	Remarks
51	4-917-565-01	SHAFT, SLED	
52	4-917-562-01	INSULATOR	
53	7-621-255-15	SCREW +P 2X3	
54	4-917-567-01	GEAR (M)	
55	4-917-564-01	GEAR (P), FLATNESS	
911	⚠8-848-062-01	DEVICE, OPTICAL KSS-150A(RP)	

Ref.No	Part No.	Description	Remarks
912	*1-626-304-11	PC BOARD, SL/SP MOTOR	
CNJ101	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P	
M101	X-4917-504-1	MOTOR ASSY (SLED)	
M102	X-4917-523-1	MOTOR ASSY (SPINDLE)	
S101	1-571-274-11	SWITCH, LEAF (LIMIT IN)	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

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

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

Ref.No	Part No.	Description
901	*1-628-252-11	(EXCEPT FOR US)....PC BOARD, VOL
902	*1-628-253-11	(EXCEPT FOR US)....PC BOARD, MOTOR
903	*1-625-256-11	PC BOARD, IN/OUT SWITCH
904	*1-628-254-11	PC BOARD, POWER SWITCH
905	*1-628-249-11	PC BOARD, DISPLAY
906	*A-4617-057-A	(US)....MOUNTED PCB, MAIN
	*A-4617-062-A	(E)....MOUNTED PCB, MAIN
	*A-4651-217-A	(Canadian, AEP, UK)....MOUNTED PCB, MAIN
907	*1-628-251-11	PC BOARD, JACK
908	*1-628-255-11	PC BOARD, LOADING MOTOR
909	⚠1-551-188-XX	(E)....CORD, POWER
	⚠1-557-577-11	(US, Canadian)....CORD, POWER
910	1-526-565-00	AC PLUG ADAPTOR
911	⚠8-848-062-01	DEVICE, OPTICAL KSS-150A(RP)
912	*1-626-304-11	PC BOARD, SL/SP MOTOR
913	⚠1-556-035-00	(UK)....CORD, POWER
914	*1-628-257-11	(US)....PC BOARD, HP
915	⚠1-555-795-00	(AEP)....CORD, POWER, EULO PLUG

CAPACITOR

C001	1-126-017-11	ELECT	6800MF	20%	16V
C002	1-124-887-00	ELECT	3300MF	20%	16V
C003	1-124-927-11	ELECT	4.7MF	20%	50V
C004	1-124-927-11	ELECT	4.7MF	20%	50V
C005	1-123-875-11	ELECT	10MF	20%	50V
C006	1-164-159-11	CERAMIC	0.1MF		50V
C007	1-124-472-11	ELECT	470MF	20%	10V
C008	1-124-472-11	ELECT	470MF	20%	10V
C009	1-124-572-11	ELECT	100MF	20%	63V
C010	1-124-122-11	ELECT	100MF	20%	50V
C101	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C103	1-124-477-11	ELECT	47MF	20%	16V
C104	1-162-294-31	CERAMIC	0.001MF	10%	50V
C105	1-162-199-31	CERAMIC	10PF	5%	50V
C106	1-162-199-31	CERAMIC	10PF	5%	50V
C108	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C109	1-136-153-00	FILM	0.01MF	5%	50V
C110	1-136-153-00	FILM	0.01MF	5%	50V
C111	1-126-233-11	ELECT	22MF	20%	25V
C112	1-126-233-11	ELECT	22MF	20%	25V
C113	1-136-159-00	FILM	0.033MF	5%	50V
C114	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C201	1-136-165-00	FILM	0.1MF	5%	50V
C202	1-136-159-00	FILM	0.033MF	5%	50V
C203	1-123-382-00	ELECT	3.3MF	20%	50V
C204	1-136-165-00	FILM	0.1MF	5%	50V
C205	1-161-379-00	CERAMIC	0.01MF	20%	16V
C206	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C207	1-124-927-11	ELECT	4.7MF	20%	50V
C208	1-124-477-11	ELECT	47MF	20%	16V
C209	1-162-294-31	CERAMIC	0.001MF	10%	50V
C210	1-162-282-31	CERAMIC	100PF	10%	50V
C211	1-126-233-11	ELECT	22MF	20%	25V
C212	1-126-233-11	ELECT	22MF	20%	25V
C213	1-126-233-11	ELECT	22MF	20%	25V
C214	1-124-499-11	ELECT	1MF	20%	50V
C215	1-124-499-11	ELECT	1MF	20%	50V
C216	1-124-499-11	ELECT	1MF	20%	50V
C217	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C218	1-162-291-31	CERAMIC	560PF	10%	50V
C219	1-123-875-11	ELECT	10MF	20%	50V
C220	1-136-165-00	FILM	0.1MF	5%	50V
C225	1-126-101-11	ELECT	100MF	20%	16V
C226	1-126-101-11	ELECT	100MF	20%	16V
C227	1-126-101-11	ELECT	100MF	20%	16V
C228	1-126-101-11	ELECT	100MF	20%	16V
C229	1-164-159-11	CERAMIC	0.1MF		50V
C230	1-164-159-11	CERAMIC	0.1MF		50V
C301	1-124-902-00	ELECT	0.47MF	20%	50V
C302	1-136-159-00	FILM	0.033MF	5%	50V
C303	1-161-379-00	CERAMIC	0.01MF	20%	16V
C304	1-124-902-00	ELECT	0.47MF	20%	50V
C305	1-124-499-11	ELECT	1MF	20%	50V
C306	1-124-499-11	ELECT	1MF	20%	50V
C307	1-126-233-11	ELECT	22MF	20%	25V
C308	1-126-233-11	ELECT	22MF	20%	25V
C310	1-162-204-31	CERAMIC	16PF	5%	50V
C311	1-162-203-31	CERAMIC	15PF	5%	50V
C312	1-164-159-11	CERAMIC	0.1MF		50V
C313	1-124-443-00	ELECT	100MF	20%	10V
C314	1-124-443-00	ELECT	100MF	20%	10V
C315	1-136-173-00	FILM	0.47MF	5%	50V
C316	1-164-159-11	(US)....CERAMIC	0.1MF		50V
C401	1-130-481-00	MYLAR	0.0068MF	5%	50V
C402	1-130-481-00	MYLAR	0.0068MF	5%	50V
C403	1-130-475-00	MYLAR	0.0022MF	5%	50V
C404	1-130-475-00	MYLAR	0.0022MF	5%	50V
C405	1-123-330-00	ELECT	22MF	20%	25V
C406	1-123-330-00	ELECT	22MF	20%	25V
C407	1-130-475-00	MYLAR	0.0022MF	5%	50V
C408	1-130-475-00	MYLAR	0.0022MF	5%	50V
C411	1-126-103-11	ELECT	470MF	20%	16V
C412	1-126-103-11	ELECT	470MF	20%	16V
C415	1-162-294-31	CERAMIC	0.001MF	10%	50V
C501	1-124-477-11	(EXCEPT FOR US) ....ELECT	47MF	20%	16V
C502	1-124-477-11	(EXCEPT FOR US) ....ELECT	47MF	20%	16V
C503	1-162-290-31	CERAMIC	470PF	10%	50V
C504	1-162-290-31	CERAMIC	470PF	10%	50V
C505	1-124-443-00	(EXCEPT FOR US) ....ELECT	100MF	20%	10V
C506	1-124-443-00	(EXCEPT FOR US) ....ELECT	100MF	20%	10V
C551	1-124-589-11	(US)....ELECT	47MF	20%	16V
C552	1-124-589-11	(US)....ELECT	47MF	20%	16V
C601	1-164-159-11	CERAMIC	0.1MF		50V
C602	1-164-159-11	CERAMIC	0.1MF		50V
C603	1-162-290-31	CERAMIC	470PF	10%	50V
C604	1-162-290-31	CERAMIC	470PF	10%	50V

Ref.No	Part No.	Description			
C605	1-162-290-31	CERAMIC	470PF	10%	50V
C606	1-164-159-11	CERAMIC	0.1MF		50V
CNJ101	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CNJ604	1-535-743-11	JUMPER, FILM (WITH TERMINAL)			
CNP001	*1-564-340-00	PIN, CONNECTOR 6P			
CNP102	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNP201	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP202	*1-564-339-00	PIN, CONNECTOR 5P			
CNP203	*1-564-336-61	(EXCEPT FOR US)....PIN, CONNECTOR 2P			
CNP204	1-566-908-11	SOCKET, CONNECTOR 32P			
CNP401	*1-564-711-11	PIN, CONNECTOR (SMALL TYPE) 9P			
CNP501	*1-564-336-00	(EXCEPT FOR US)....PIN, CONNECTOR 2P			
CNP602	*1-564-497-11	PIN, CONNECTOR 4P			
CNP801	*1-564-495-11	PIN, CONNECTOR 2P			
D001	⚠8-719-200-02	DIODE 10E2			
D002	⚠8-719-200-02	DIODE 10E2			
D003	⚠8-719-200-02	DIODE 10E2			
D004	⚠8-719-200-02	DIODE 10E2			
D005	⚠8-719-200-02	DIODE 10E2			
D006	8-719-109-85	DIODE RD5.1ES-B2			
D401	8-719-107-94	DIODE 1SS202-1			
D501	8-719-970-49	(EXCEPT FOR US)....DIODE BR4361F			
D601	8-719-000-26	DIODE US1060M			
D602	8-719-000-26	DIODE US1060M			
D603	8-719-000-26	DIODE US1060M			
D604	8-719-000-26	DIODE US1060M			
D605	8-719-000-26	DIODE US1060M			
D606	8-719-000-26	DIODE US1060M			
D607	8-719-000-26	DIODE US1060M			
D608	8-719-933-57	DIODE HZS9B2L			
FLD601	1-519-475-11	INDICATOR TUBE, FLUORESCENT			
IB101	1-233-171-11	COMPOSITION CIRCUIT BLOCK			
IB102	1-233-171-11	COMPOSITION CIRCUIT BLOCK			
IC001	8-759-631-40	IC M5294P			
IC002	8-759-605-43	IC M5231TL			
IC101	8-752-034-00	IC CXA1081S			
IC201	8-752-032-30	IC CXA1082BS			
IC202	8-752-035-28	IC CXA1291P			
IC203	8-752-035-28	IC CXA1291P			
IC301	8-752-328-62	IC CXD1125Q			
IC302	8-752-323-64	IC CXK5816M-12L			
IC303	8-752-328-72	IC CXD2550P			
IC304	8-759-977-71	IC GP1F31T (DIGITAL OUT OPTICAL)			
IC305	8-759-605-44	IC M74HC6004P			
IC401	8-759-937-95	IC PCM56P-S			
IC402	8-759-937-95	IC PCM56P-S			
IC403	8-759-945-58	IC RC4558P			
IC501	8-759-981-89	IC RC4556S			
IC601	8-759-980-34	IC MSC6458-36SS			
IC602	8-749-920-03	IC GP1U52			
J401	*1-562-999-21	JACK, PIN 2P (LINE OUT FIXED)			
J501	1-507-796-71	JACK, LARGE TYPE (PHONES)			
M101	X-4917-504-1	MOTOR ASSY (SLED)			
M102	X-4917-523-1	MOTOR ASSY (SPINDLE)			
M103	A-4608-346-A	MOTOR ASSY, L (LOADING)			
Q001	8-729-600-95	TRANSISTOR 2SK381-C			
Q101	8-729-801-83	TRANSISTOR 2SB1013			
Q201	8-729-900-80	TRANSISTOR DTC114ES			
Q202	8-729-900-89	TRANSISTOR DTC144ES			
Q301	8-729-900-89	TRANSISTOR DTC144ES			
Q401	8-729-900-74	TRANSISTOR DTC143ES			
Q402	8-729-900-74	TRANSISTOR DTC143ES			
Q403	8-729-900-65	TRANSISTOR DTA144ES			
Q404	8-729-900-89	TRANSISTOR DTC144ES			
Q407	8-729-900-74	TRANSISTOR DTC143ES			
Q408	8-729-900-74	TRANSISTOR DTC143ES			
Q601	8-729-900-45	TRANSISTOR DTC114EF			
Q602	8-729-900-45	TRANSISTOR DTC114EF			
Q603	8-729-900-45	TRANSISTOR DTC114EF			

RESISTOR

R001	1-249-439-11	CARBON	68K	5%	1/4W
R002	1-249-423-11	CARBON	3.3K	5%	1/4W
R003	1-249-417-11	CARBON	1K	5%	1/4W
R004	1-249-429-11	CARBON	10K	5%	1/4W
R101	1-247-864-11	CARBON	24K	5%	1/4W
R104	1-249-397-11	CARBON	22	5%	1/4W
R105	1-247-806-11	CARBON	91	5%	1/4W
R106	1-249-433-11	CARBON	22K	5%	1/4W
R108	1-249-432-11	CARBON	18K	5%	1/4W
R109	1-249-432-11	CARBON	18K	5%	1/4W
R110	1-249-425-11	CARBON	4.7K	5%	1/4W
R111	1-249-425-11	CARBON	4.7K	5%	1/4W
R112	1-249-417-11	CARBON	1K	5%	1/4W
R201	1-247-882-11	CARBON	130K	5%	1/4W
R202	1-249-432-11	CARBON	18K	5%	1/4W
R203	1-249-432-11	CARBON	18K	5%	1/4W
R204	1-249-440-11	CARBON	82K	5%	1/4W
R205	1-247-889-00	CARBON	270K	5%	1/4W
R206	1-249-435-11	CARBON	33K	5%	1/4W
R207	1-249-423-11	CARBON	3.3K	5%	1/4W
R208	1-249-425-11	CARBON	4.7K	5%	1/4W
R209	1-247-896-11	CARBON	510K	5%	1/4W
R210	1-249-417-11	CARBON	1K	5%	1/4W
R211	1-249-414-11	CARBON	560	5%	1/4W
R212	1-249-433-11	CARBON	22K	5%	1/4W
R213	1-249-441-11	CARBON	100K	5%	1/4W
R214	1-215-434-00	METAL	3.6K	1%	1/6W
R215	1-249-441-11	CARBON	100K	5%	1/4W
R216	1-249-429-11	CARBON	10K	5%	1/4W
R217	1-247-881-00	CARBON	120K	5%	1/4W
R218	1-249-427-11	CARBON	6.8K	5%	1/4W
R219	1-249-435-11	CARBON	33K	5%	1/4W
R220	1-249-437-11	CARBON	47K	5%	1/4W
R221	1-247-882-11	CARBON	130K	5%	1/4W
R222	1-247-883-00	CARBON	150K	5%	1/4W
R223	1-247-882-11	CARBON	130K	5%	1/4W
R224	1-247-883-00	CARBON	150K	5%	1/4W
R225	1-249-429-11	CARBON	10K	5%	1/4W
R226	1-249-441-11	(EXCEPT FOR US) ....CARBON	100K	5%	1/4W
R227	1-249-441-11	(EXCEPT FOR US) ....CARBON	100K	5%	1/4W
R228	1-249-441-11	(EXCEPT FOR US) ....CARBON	100K	5%	1/4W
R229	1-249-441-11	(EXCEPT FOR US) ....CARBON	100K	5%	1/4W
R230	1-249-393-11	CARBON	10	5%	1/4W
R231	1-249-393-11	CARBON	10	5%	1/4W
R232	1-249-425-11	CARBON	4.7K	5%	1/4W
R236	1-249-417-11	CARBON	1K	5%	1/4W
R237	1-249-417-11	CARBON	1K	5%	1/4W
R238	1-249-417-11	CARBON	1K	5%	1/4W
R239	1-249-417-11	CARBON	1K	5%	1/4W
R301	1-247-903-00	CARBON	1M	5%	1/4W
R302	1-249-433-11	CARBON	22K	5%	1/4W
R303	1-249-429-11	CARBON	10K	5%	1/4W

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

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

Ref.No	Part No.	Description			
R304	1-249-441-11	CARBON	100K	5%	1/4W
R305	1-249-441-11	CARBON	100K	5%	1/4W
R306	1-249-429-11	CARBON	10K	5%	1/4W
R307	1-215-469-00	METAL	100K	1%	1/6W
R308	1-215-469-00	METAL	100K	1%	1/6W
R310	1-249-421-11	CARBON	2.2K	5%	1/4W
R311	1-249-421-11	CARBON	2.2K	5%	1/4W
R312	1-249-421-11	CARBON	2.2K	5%	1/4W
R314	1-249-413-11	CARBON	470	5%	1/4W
R315	1-249-413-11	CARBON	470	5%	1/4W
R316	1-249-413-11	CARBON	470	5%	1/4W
R318	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-249-411-11	CARBON	330	5%	1/4W
R320	1-249-411-11	CARBON	330	5%	1/4W
R321	1-249-411-11	CARBON	330	5%	1/4W
R401	1-249-415-11	CARBON	680	5%	1/4W
R402	1-249-415-11	CARBON	680	5%	1/4W
R403	1-249-415-11	CARBON	680	5%	1/4W
R404	1-249-415-11	CARBON	680	5%	1/4W
R405	1-247-891-00	CARBON	330K	5%	1/4W
R406	1-247-891-00	CARBON	330K	5%	1/4W
R407	1-249-409-11	CARBON	220	5%	1/4W
R408	1-249-409-11	CARBON	220	5%	1/4W
R409	1-249-409-11	CARBON	220	5%	1/4W
R410	1-249-409-11	CARBON	220	5%	1/4W
R411	1-249-414-11	(EXCEPT FOR US) ....CARBON	560	5%	1/4W
R412	1-249-414-11	(EXCEPT FOR US) ....CARBON	560	5%	1/4W
R413	1-249-405-11	CARBON	100	5%	1/4W
R414	1-249-405-11	CARBON	100	5%	1/4W
R415	1-249-441-11	CARBON	100K	5%	1/4W
R417	1-249-417-11	CARBON	1K	5%	1/4W
R418	1-249-417-11	CARBON	1K	5%	1/4W
R419	1-249-434-11	CARBON	27K	5%	1/4W
R420	1-249-434-11	CARBON	27K	5%	1/4W
R451	1-249-414-11	(US)....CARBON	560	5%	1/4W
R452	1-249-414-11	(US)....CARBON	560	5%	1/4W
R453	1-249-433-11	(US)....CARBON	22K	5%	1/4W
R454	1-249-433-11	(US)....CARBON	22K	5%	1/4W
R501	1-249-435-11	(EXCEPT FOR US) ....CARBON	33K	5%	1/4W
R502	1-249-435-11	(EXCEPT FOR US) ....CARBON	33K	5%	1/4W
R503	1-249-432-11	(EXCEPT FOR US) ....CARBON	18K	5%	1/4W
R504	1-249-432-11	(EXCEPT FOR US) ....CARBON	18K	5%	1/4W
R505	1-249-422-11	(EXCEPT FOR US) ....CARBON	2.7K	5%	1/4W
R506	1-249-422-11	(EXCEPT FOR US) ....CARBON	2.7K	5%	1/4W
R507	1-249-431-11	(EXCEPT FOR US) ....CARBON	15K	5%	1/4W
R508	1-249-431-11	(EXCEPT FOR US) ....CARBON	15K	5%	1/4W
R509	1-249-402-11	(EXCEPT FOR US) ....CARBON	56	5%	1/4W
R510	1-249-402-11	(EXCEPT FOR US) ....CARBON	56	5%	1/4W
R553	1-249-417-11	(US)....CARBON	1K	5%	1/4W
R554	1-249-417-11	(US)....CARBON	1K	5%	1/4W
R555	1-249-429-11	(US)....CARBON	10K	5%	1/4W
R556	1-249-429-11	(US)....CARBON	10K	5%	1/4W
R557	1-249-422-11	(US)....CARBON	2.7K	5%	1/4W
R558	1-249-422-11	(US)....CARBON	2.7K	5%	1/4W
R559	1-249-402-11	(US)....CARBON	56	5%	1/4W

Ref.No	Part No.	Description			
R560	1-249-402-11	(US)....CARBON	56	5%	1/4W
R601	1-249-435-11	CARBON	33K	5%	1/4W
R602	1-249-435-11	CARBON	33K	5%	1/4W
R603	1-249-435-11	CARBON	33K	5%	1/4W
R604	1-249-435-11	CARBON	33K	5%	1/4W
R605	1-249-435-11	CARBON	33K	5%	1/4W
R606	1-249-435-11	CARBON	33K	5%	1/4W
R607	1-249-435-11	CARBON	33K	5%	1/4W
R609	1-249-411-11	(EXCEPT FOR US) ....CARBON	330	5%	1/4W
RV101	1-228-995-00	RES, ADJ, CARBON 22K			
RV102	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV103	1-228-995-00	RES, ADJ, CARBON 22K			
RV104	1-228-995-00	RES, ADJ, CARBON 22K			
RV201	1-228-990-00	RES, ADJ, METAL GLAZE 1K			
RV501	1-238-314-11	(EXCEPT FOR US)....RES, VAR, CARBON 10K/10K (LINE OUT/PHONE LEVEL) (INCLUDING M901)			
RV502	1-238-478-11	(US)....RES, VAR, CARBON 20K/20K (HEADPHONE VOL)			
S001	⚠1-571-722-11	(E)....SWITCH, VOLTAGE SELECTION (VOLTAGE SELECTOR)			
S101	1-571-274-11	SWITCH, LEAF (LIMIT IN)			
S601	1-554-596-21	SWITCH, KEY BOARD (17)			
S602	1-554-596-21	SWITCH, KEY BOARD (18)			
S603	1-554-596-21	SWITCH, KEY BOARD (19)			
S604	1-554-596-21	SWITCH, KEY BOARD (20)			
S605	1-554-596-21	SWITCH, KEY BOARD (16)			
S606	1-554-596-21	SWITCH, KEY BOARD (11)			
S607	1-554-596-21	SWITCH, KEY BOARD (12)			
S608	1-554-596-21	SWITCH, KEY BOARD (13)			
S609	1-554-596-21	SWITCH, KEY BOARD (14)			
S610	1-554-596-21	SWITCH, KEY BOARD (15)			
S611	1-554-596-21	SWITCH, KEY BOARD (▷20)			
S612	1-554-596-21	SWITCH, KEY BOARD (6)			
S613	1-554-596-21	SWITCH, KEY BOARD (7)			
S614	1-554-596-21	SWITCH, KEY BOARD (8)			
S615	1-554-596-21	SWITCH, KEY BOARD (9)			
S616	1-554-596-21	SWITCH, KEY BOARD (10)			
S617	1-554-596-21	SWITCH, KEY BOARD (FADER)			
S618	1-554-596-21	SWITCH, KEY BOARD (1)			
S619	1-554-596-21	SWITCH, KEY BOARD (2)			
S620	1-554-596-21	SWITCH, KEY BOARD (3)			
S621	1-554-596-21	SWITCH, KEY BOARD (4)			
S622	1-554-596-21	SWITCH, KEY BOARD (5)			
S623	1-554-596-21	SWITCH, KEY BOARD (◀◀)			
S624	1-554-596-21	SWITCH, KEY BOARD (▶▶)			
S625	1-554-596-21	SWITCH, KEY BOARD (EDIT/TIME FADE)			
S626	1-554-596-21	SWITCH, KEY BOARD (CHECK)			
S627	1-554-596-21	SWITCH, KEY BOARD (CLEAR)			
S628	1-554-596-21	SWITCH, KEY BOARD (⏮)			
S629	1-554-596-21	SWITCH, KEY BOARD (⏭)			
S630	1-554-596-21	SWITCH, KEY BOARD (⏏OPEN/CLOSE)			
S631	1-554-596-21	SWITCH, KEY BOARD (▶)			
S632	1-554-596-21	SWITCH, KEY BOARD (❚❚)			
S633	1-554-596-21	SWITCH, KEY BOARD (■)			
S634	1-554-596-21	SWITCH, KEY BOARD (TIME)			
S635	1-554-596-21	SWITCH, KEY BOARD (AUTO SPACE)			
S636	1-554-596-21	SWITCH, KEY BOARD (REPEAT)			
S637	1-554-596-21	SWITCH, KEY BOARD (PROGRAM)			
S638	1-554-596-21	SWITCH, KEY BOARD (SHUFFLE)			
S639	1-554-596-21	SWITCH, KEY BOARD (CONTINUE/SINGLE)			
S640	1-571-305-11	SWITCH, PUSH (1 KEY) (POWER)			
S701	1-571-300-11	SWITCH, ROTARY (IN/OUT)			
T901	⚠1-449-024-11	(US, Canadian)....TRANSFORMER, POWER			
T901	⚠1-449-025-11	(AEP, UK)....TRANSFORMER, POWER			

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

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

Ref.No	Part No.	Description
T901	⚠ 1-449-026-11	(E)....TRANSFORMER, POWER
X301	1-567-926-11	VIBRATOR, CRYSTAL
X601	1-577-082-11	VIBRATOR, CERAMIC (4MHz)

ACCESSORY & PACKING MATERIAL
****

	1-465-049-11	(EXCEPT FOR US)....REMOTE COMMANDER
	1-465-051-11	(US)....REMOTE COMMANDER
	1-558-543-11	CORD, CONNECTION
	1-559-533-11	CORD, CONNECTION
*	3-704-339-01	SHEET (STANDARD), PROTECTION
	3-786-456-11	(EXCEPT FOR US)....MANUAL, INSTRUCTION
	3-786-456-21	(US)....MANUAL, INSTRUCTION
	3-786-456-41	(AEP)....MANUAL, INSTURUCTION
*	3-795-629-11	(AEP)....INSTRUCTION
	4-928-079-01	COVER, BATTERY
*	4-885-838-00	(AEP, UK, E)....LABEL, CLASS 1
*	4-925-388-41	INDIVIDUAL CARTON
*	4-925-389-01	CUSHION

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

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