

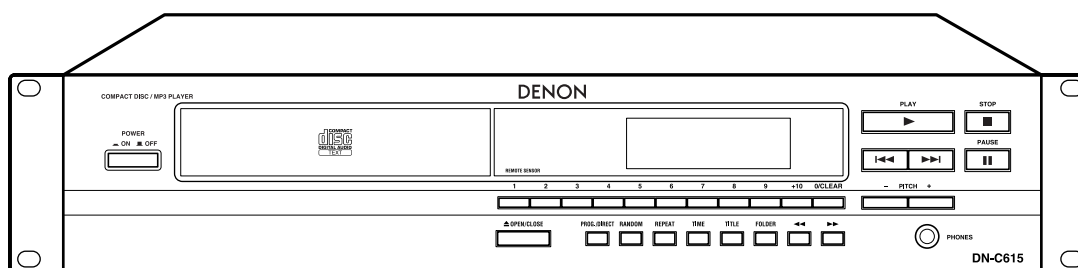
DENON

For U.S.A., Canada, Europe,
Korea model

SERVICE MANUAL

MODEL DN-C615

STEREO CD/MP3 PLAYER



● Some illustrations using in this service manual are slightly different from the actual set.

DENON, Ltd.

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SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

SPECIFICATIONS

■ CD SECTION

Type:	Single-mechanism compact disc player
Audio channel:	2 channel stereo
Quantization:	16-bit Liner
Sampling Frequency:	44.1kHz at Normal Pitch
Oversampling Ratio:	8 times
Frequency Response:	20 to 20,000Hz
Total Harmonic Distortion:	0.007%
Signal-to-noise Ratio:	107dB
Dynamic Range:	98dB
Channel Separation:	90dB
Analog Output:	RCA jack
Output Level:	2.0 V at 0 dB disc
Load Impedance:	10k Ω /kohms or more
Digital Output:	RCA jack
Signal Format:	SPDIF or IEC-958 Type II
Variable Pitch Control:	$\pm 12\%$ max.
Frame Search Accuracy:	1/75 second
Discs:	Standard compact discs (12cm and 8 cm)
CD Mechanism Service Life:	1000 hours (continuous playback)

■ REMOTE

Wired Remote Control Connection (Stereo mini jack)
Remote Control Sensor

■ GENERAL

Headphone Output:	Stereo
Outputs Level:	410mW
Load Impedance:	33 Ω /ohms
Power supply:	120V AC $\pm 10\%$, 60Hz (for U.S.A & Canada models) 230V AC $\pm 10\%$, 50Hz (for European & U.K. models)
Power Consumption:	13W
Dimensions:	482 (W) x 88 (H) x 280 (D) mm
Installation:	19-inch rack mountable (2U)
Mass:	4.7kg

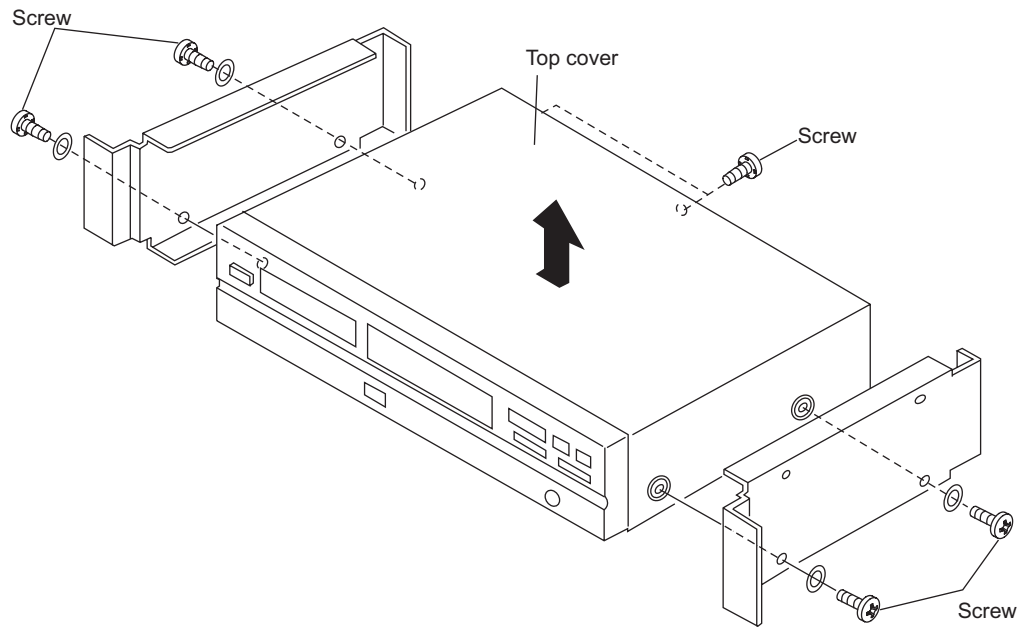
*For improvement purposes, specifications and design are subject to change without notice.

DISASSEMBLY

(To reassemble, reverse disassembly)

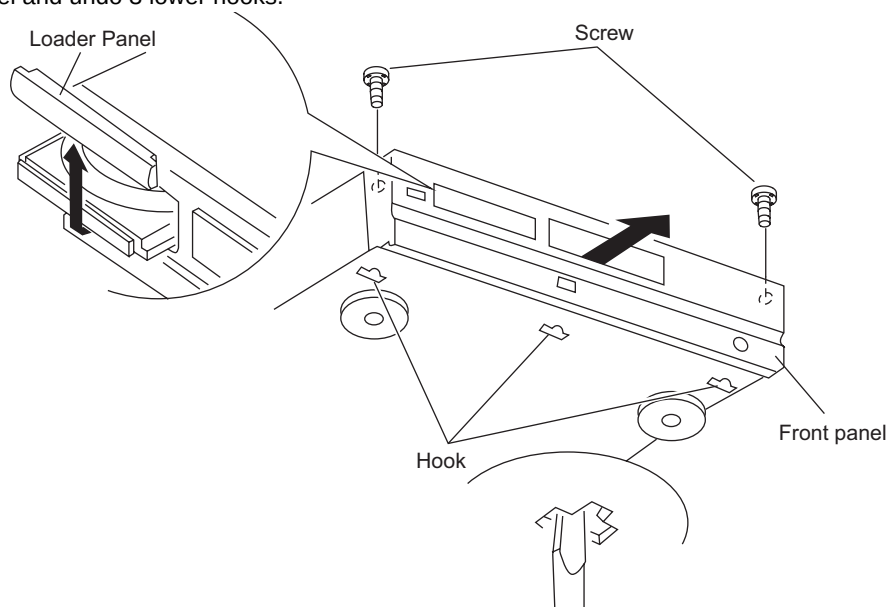
1. TOP COVER

- (1) Remove 4 screws from both sides and 2 screws from back Panel.



2. FRONT PANEL

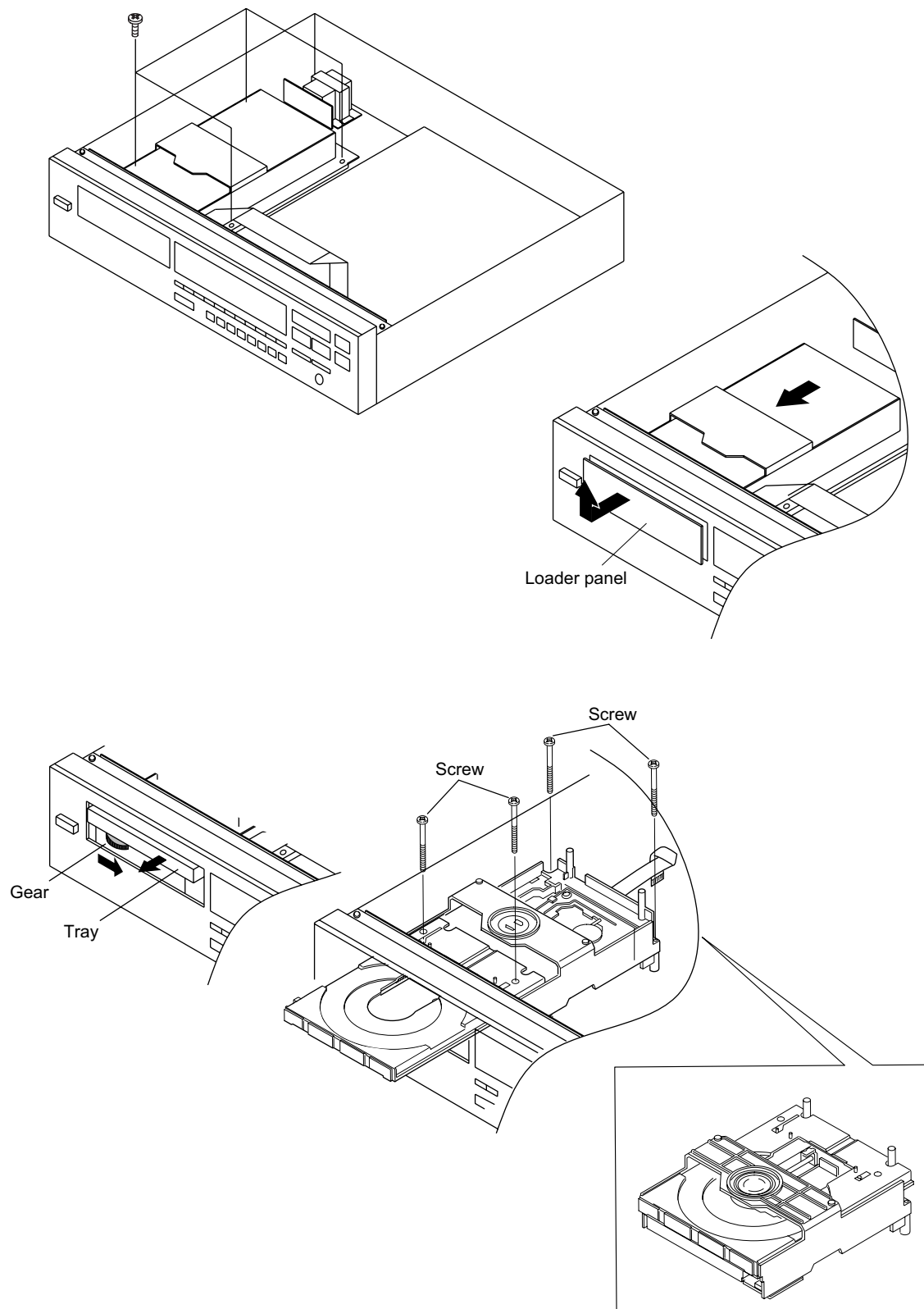
- (1) Pull Loader frame frontward, and remove loader panel.
- (2) Remove 2 front panel upper screws.
- (3) Undo 2 front panel upper hooks.
- (4) Pull front panel and undo 3 lower hooks.



3. MECHANISM UNIT

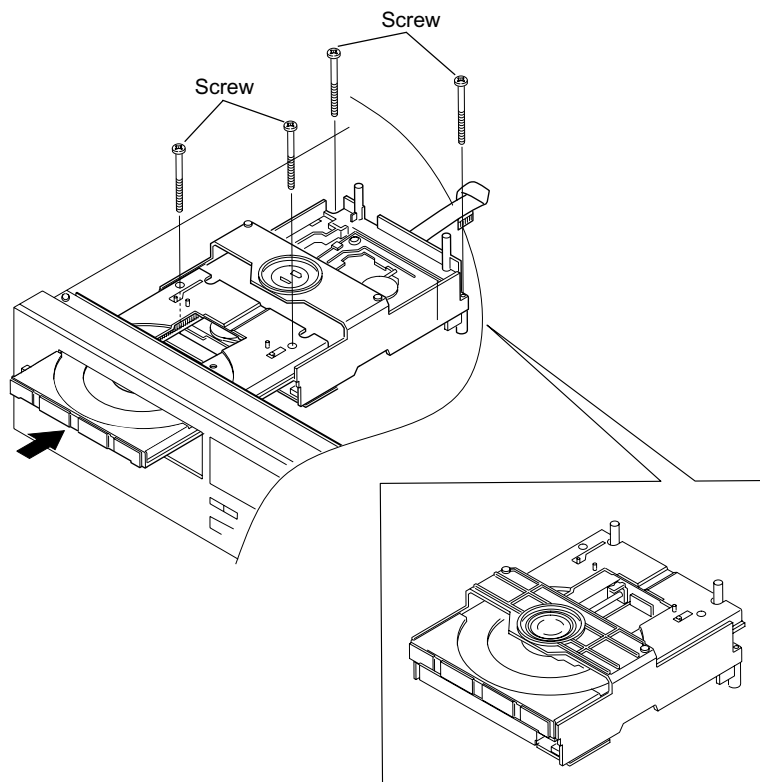
3.1. How to remove a mechanism unit in case a power supply is not turned on.

- (1) Remove 4 screws on the Mecha base.
- (2) Remove the CD Mecha to the arrow direction.
- (3) Detach the Loader panel to the arrow direction.
- (4) A gear is turned and a tray is turned in the direction of an arrow.
- (5) A tray is pinched and it turns in the direction of an arrow.
- (6) Remove 4 screws on the Mechanism unit



3.2. How to remove a mechanism unit in case a power supply is turned on.

- (1) Remove 4 screws.



SERVICE PROGRAM

1. REQUIRED MEASURING IMPLEMENT

- Reference disc (TCD784 or CO-74176)

1.1. What is Service Program

Service program is a special program intended for confirming servo functions etc.

1.2. μ com Version Check

- Refer to "Preset Functions and Operations" of the instruction manual.
- You can check the μ com version.

1.3. B.E.R. Checks and Automatic Servo Adjustment Call

- Switch on the power while pushing the 5 button and 6 button at the same time. And Loading a disc by OPEN/CLOSE button.
- (1) Block Error Rate
Press the PLAY button. B.E.R. is displayed.
01Tr **m XXXX XXXX: Block Error Rate
You can select the track by the $\lll$, $\ggg$ button.
 - (2) Tracking balance and Focus balance data
Press the 2 button. Tracking balance and Focus balance data is displayed.
 $2 \pm XXX \pm @@@$ XXX: Tracking balance
@@@: Focus balance
 - (3) Focus gain data
Press the 3 button. Focus gain data is displayed.
3 XXXX XXXX: Focus gain
 - (4) Tracking gain data
Press the 4 button. Tracking gain data is displayed.
4 XXXX XXXX: Tracking gain
 - (5) Tracking offset and Focus offset data
Press the 5 button. Tracking offset and Focus offset data is displayed.
 $5 \pm XXX \pm @@@$ XXX: Tracking offset
@@@: Focus offset
 - (6) Press the 1 button to select the Block Error Rate data.
 - (7) To stop the B.E.R. Check and Automatic Servo Adjustment Call mode, please turn off the POWER switch.

	Adjustment Item	Adjustment Value indicator
1	Tracking Balance	-025 ~ +025
2	Focus Balance	-030 ~ +030
3	Focus Gain	0576 ~ 2304
4	Tracking Gain	0392 ~ 1569
5	Tracking Offset	-005 ~ +005
6	Focus Offset	-005 ~ +005

1.4. Test Mode (Heat Run mode)

- Switch on the power while pushing the 3 button and 4 button at the same time. "000TroHR0000" is displayed. And the tray is opened

- Hold the disc by the edges and place it on the disc tray.
- Starting with the OPEN/CLOSE button, it repeats open/close of the tray and playback.

***TrxHRXXX ***: Track No.

x : o, c, s, t, r, and p

XXXX: Cycle quantity

All tracks are played back if the track count is less than 20. Only the first and last tracks are played back if the tracks are more than 21. When any errors, it stops and indicates error code (Refer to the Error Code Table).

- To stop the Test mode, please turn off the POWER switch.

1.5. Error Code Table

Error Code	CONTENTS
Error 01	Unable to close the loader tray in the regulation time.
Error 02	Unable to open the loader tray in the regulation time.
Error 03	Inner circle switch ON error even if the time is over.
Error 04	Inner circle switch OFF error even if the time is over.
Error 05	The focus offset adjustment result is outside the regulation range.
Error 06	Unable to adjust the focus offset in the regulation time.
Error 07	The tracking offset adjustment result is outside the regulation range.
Error 08	Unable to adjust the tracking offset in the regulation time
Error 09	The FE peak is outside the regulation range.
Error 0A	The FE peak is outside the regulation range.
Error 0B	Unable to adjust the focus rough gain in the regulation time.
Error 0C	The focus rough gain is outside the regulation range.
Error 0D	Unable to actuate focus in the regulation time.
Error 0E	Unable to actuate tracking in the regulation time.
Error 0F	Unable to adjust the tracking rough gain in the regulation time.
Error 10	The tracking rough gain is outside the regulation range.
Error 11	Unable to adjust the tracking balance in the regulation time.
Error 12	The tracking balance adjustment result is outside the regulation range.
Error 13	Focus servo down during automatic adjustment.
Error 14	Focus servo down during automatic adjustment.
Error 15	Unable to adjust the focus balance in the regulation time.
Error 16	The focus balance adjustment result is outside the regulation range.
Error 17	Track servo down during automatic adjustment.
Error 18	Unable to adjust the focus fine gain in the regulation time.

Error Code	CONTENTS
Error 19	The focus fine gain is outside the regulation range.
Error 1A	Unable to adjust the tracking fine gain in the regulation time.
Error 1B	The tracking fine gain is outside the regulation range.
Error 1C	Unable to adjust automatically in the regulation time.
Error 1D	Unable to read the subcode Q in the regulation time.
Error 1E	Unable to read the TOC in the regulation time.
Error 1F	Focus servo down during search (over the regulation time).
Error 20	Track servo down during search (over the regulation time).
Error 2116	Servo error during search.
Error 2103	Search error (over the regulation time).
Error 22	Discontinuity occurred, during write to the DRAM.
Error 23	The error which cannot be corrected to the read data.
Error 24	Unable to do the level detect.
Error 25	Unable to join data in the regulation time.
Error 26	The error rate when recording on the memory is over the regulation value.
Error 27	The subcode jump more than regulation.

2. μ COM VERSION UPGRADE

System μ com can be upgraded in the following manner.

Version Upgrade Method

- (1) Record the version upgrade software on a CD-R or CD-RW disc, only as one file with the format ISO9660 Mode-1. The file name of the supplied version upgrade software should be used as is and this disc needs to finalize.
- (2) Hold the disc by the edges and place it on the disc tray.
- (3) Press the OPEN/CLOSE button to start the version upgrade.

"Version Up" → "Push Play!" "xxxx->XXXX" are displayed.

xxxx : current version

XXXX : upgrade version

- (4) Press the PLAY button.

"Now Writing" → "Writing-XXX" are displayed.

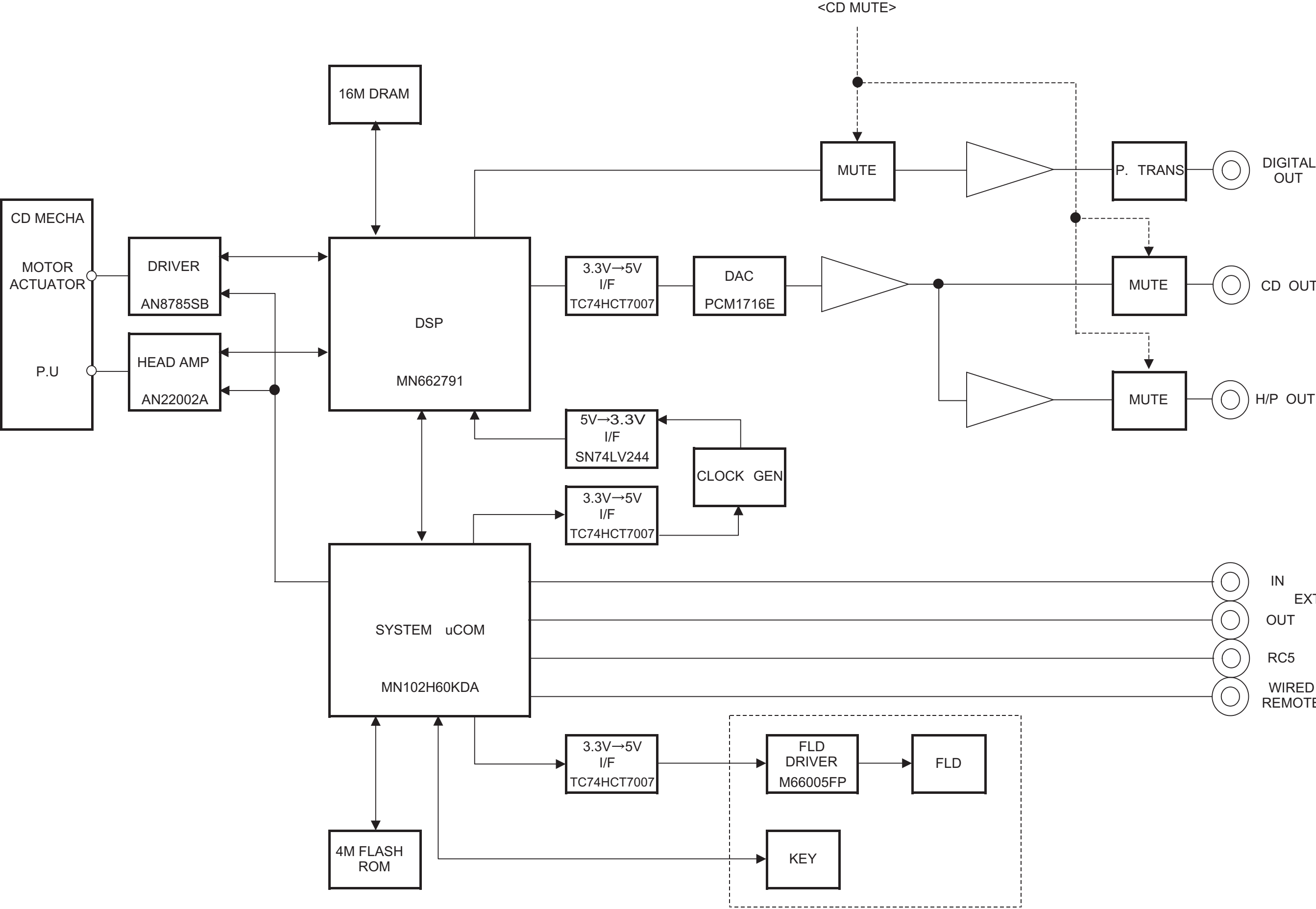
XXX : count up from 000 to129

- (5) When the version upgrade is finished, "Complete!" is indicated.
- (6) Turn off the power once and turn on again. Press the OPEN/CLOSE button and remove the disc.

NOTE:

When the power is turned off before "Complete!" is displayed, μ con version is not written correctly.

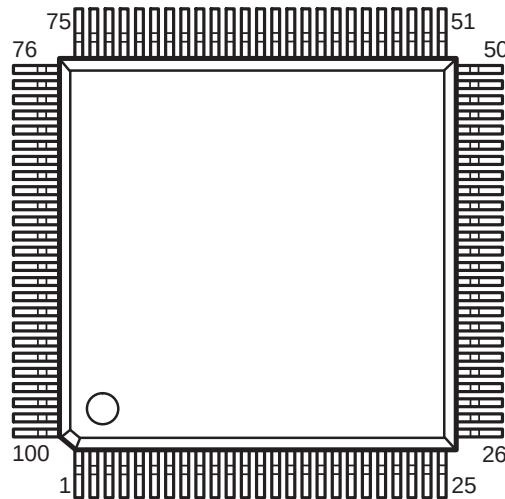
BLOCK DIAGRAM



SEMICONDUCTORS

● IC's

MN102H60KDA
(IC101)

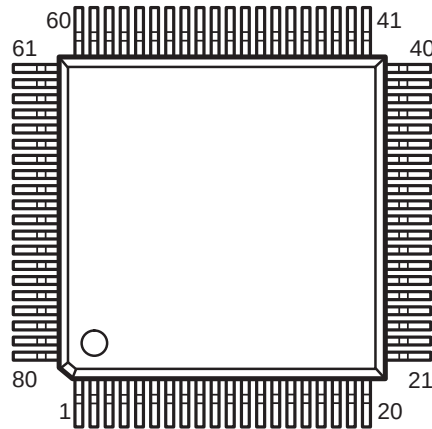


MN102H60KDA Terminal Function

Pin No.	Pin Name	Symbol	I/O	Det	Ext	Res	Ini	Function
1	P60, WAIT, SBT2	PCDMUTE	O	-	Pd	L	L	Mute for CD
2	P61, _RE	_RD	O	-	-	Hi-Z	-	Read signal
3	P62, _WEL	_WEL	O	-	-	Hi-Z	-	Write signal
4	P63, _WE, _WEH	PEXTIN	I	-	-	Hi-Z	-	EXT.IN signal
5	_CS0, TM13OA	_CS0	O	-	-	Hi-Z	-	Chip select signal (MASK ROM operation : Input port)
6	_CS1, TM13OB	_CS1	O	-	-	Hi-Z	-	Chip select signal (IN/OUT)
7	_CS2, TM14OA	_CS2	O	-	-	Hi-Z	-	Chip select signal (Normal operation : Input port, MASK ROM operation : F.ROM Chip select)
8	_CS3, TM14OB	_CS3	O	-	-	Hi-Z	-	Deck (Input/Output)
9	P54, _BREQ	PEXTOUT	O	-	-	Hi-Z	H	EXT.OUT signal
10	P55, _BRACK	PRMTOUT	O	-	-	Hi-Z	H	Remote output signal
11	P56, ALE, _ALE, _BSTRE, TM15IA	PMON2	I	-	-	Hi-Z	-	Monitor signal 2
12	P57, _WORD	_WORD	I	-	H	H	H	Data bit bus width select 'H': 8bit
13	P20,A00,SBT2	A00	A/O	-	-	Unfix	-	Address bus
14	P21,A01,SBI2	A01	A/O	-	-	Unfix	-	Address bus
15	P22,A02,SBO2	A02	A/O	-	-	Unfix	-	Address bus
16	P23,A03	A03	A/O	-	-	Unfix	-	Address bus
17	Vdd	Vdd	-	-	-	-	-	Power supply (+3.3V)
18	BOSC,BIBT1, BIBT2,PB0	PIRINH	O	-	-	Hi-Z	L	Infrared remote 'L': Enable / 'H': Inhibit
19	Vss	Vss	-	-	-	-	-	GND(0V)
20	XI,PB1	PCE	O	-	-	Hi-Z	L	Chip select 'L': MN662791 / 'H': BU2618
21	XO	XO	-	-	-	-	-	Not used. OPEN
22	Vdd	Vdd	-	-	-	-	-	Power supply (+3.3V)
23	OSCI	OSCI	I	-	-	-	-	
24	OSCO	OSCO	O	-	-	-	-	OSCI output
25	MODE	MODE	I	-	L	L	L	Mode select 'L': Processor mode
26	P24,A04,TM15IA	A04	A/O	-	-	Unfix	-	Address bus
27	P25,A05	A05	A/O	-	-	Unfix	-	Address bus
28	P26,A06	A06	A/O	-	-	Unfix	-	Address bus
29	P27,A07	A07	A/O	-	-	Unfix	-	Address bus
30	P30,A08,_K10	A08	A/O	-	-	Unfix	-	Address bus
31	P31,A09,_K11	A09	A/O	-	-	Unfix	-	Address bus
32	P32,A10,_K12	A10	A/O	-	-	Unfix	-	Address bus

Pin No.	Pin Name	Symbol	I/O	Det	Ext	Res	Ini	Function
33	P33,A11,_KI3	A11	A/O	-	-	Unfix	-	Address bus
34	AVDD	AVDD	-	-	-	-	-	Analog power supply terminal
35	P34,A12,_KI4	A12	A/O	-	-	Unfix	-	Address bus
36	P35,A13,_KI5	A13	A/O	-	-	Unfix	-	Address bus
37	P36,A14,_KI6	A14	A/O	-	-	Unfix	-	Address bus
38	P37,A15,_KI7	A15	A/O	-	-	Unfix	-	Address bus
39	P40,A16	A16	A/O	-	-	Unfix	-	Address bus
40	P41,A17	A17	A/O	-	-	Unfix	-	Address bus
41	P42,A18	A18	A/O	-	-	Unfix	-	Address bus
42	P43,A19	A19	A/O	-	-	Unfix	-	Address bus
43	Vref-	Vref-	-	-	-	-	-	Standard analog power supply
44	P44,AN4,A20	PPARA1	I	Lv	-	Unfix	-	Parallel input 1 (Use A/D converter)
45	P45,AN5,A21	PPARA2	I	Lv	-	Unfix	-	Parallel input 2 (Use A/D converter)
46	P46,AN6,STOP, A22	PPARA3	I	Lv	-	Hi-Z	-	Parallel input 3 (Use A/D converter)
47	P47,AN7,WDOOT, A23	PSDA	I/O	-	-	Hi-Z	-	Not used.
48	P80,TM14OA	PSCL	O	-	-	Hi-Z	H	Not used.
49	P81,TM14OB	PDUB	O	-	-	Hi-Z	H	Dubbing signal 'L': Dubbing
50	P82,TM0IO,SBI2, SBT3,SCL3	PMON1	I	-	-	Hi-Z	-	Monitor signal 1
51	P83,TM4IO,SBI3	RxD	I	-	-	Hi-Z	-	Serial port (9600bps by xxMHz)
52	P84,TM7IO,SBO3, SDA3	TxD	O	-	-	Hi-Z	H	Serial port (9600bps by xxMHz)
53	P85,TM9IOA,SBO2, SBT4,SCL4	PFLCLK	O	-	-	Hi-Z	H	To FL driver SCK
54	Vref+	Vref+	-	-	-	-	-	Standard analog power supply
55	P86,TM9IOB,SBI4	PFLCS	O	-	-	Hi-Z	H	To FL driver CS
56	P87,TM9IC,SBO4, SDA4	PFLSD	O	-	-	Hi-Z	H	To FL driver SDATA
57	P90,TM8IOA,BIBT1, _DMAREQ1	PBIAS	O	-	Pd	L	L	Bias signal 'H': BIAS ON
58	P91,TM10IOA,BIBT2, _DMAACK1	PRMUTE	O	-	Pu	H	H	Rec mute change signal 'H': MUTE ON
59	P92,TM10IOB, _DMAREQ0	PLRCK	I	Ed	-	Hi-Z	-	LRCK : Use for time code creation during MP3 playback.
60	P93,TM10IC, _DMAACK0	PNRST	O	-	Pd	L	L	Round IC reset signal
61	Vss	Vss	-	-	-	-	-	GND (0V)
62	P94,AN0	PADINL	I	Lv	Pd	L	-	Use A/D converter
63	P95,AN1	PADINR	I	Lv	Pd	L	-	Use A/D converter
64	P96,AN2	PREMO1	I	Lv	-	Hi-Z	-	Use A/D converter
65	P97,AN3	PREMO2	I	Lv	-	Hi-Z	-	Use A/D converter
66	Vdd	Vdd	-	-	-	-	-	Power supply (+3.3V)
67	P70,SBT0,_RAS	PMCLK	O	-	-	Hi-Z	H	DSP interface Clock (clock synchronous formula)
68	P71,SBI0,_CAS, _LCAS	PSTAT	I	-	-	Hi-Z	-	DSP interface Reception (clock synchronous formula)
69	P72,SBO0,_UCAS	PMDAT	O	-	-	Hi-Z	H	DSP interface Transmission (clock synchronous formula)
70	P73,SBT1,DUMX	PTXTCLK	O	-	-	Hi-Z	H	Use during CD-TEXT data read (clock synchronous formula)
71	P74,SBI1	PTXTD	I	-	-	Hi-Z	-	Use during CD-TEXT data read (clock synchronous formula)
72	P75,SBO1	PMLD	O	-	-	Hi-Z	H	DSP interface latch
73	TEST1	TEST1	I	-	Pu	-	-	Pull up 33 - 50K
74	TEST2	TEST2	I	-	Pu	-	-	Pull up 33 - 50K
75	_NMI	_NMI	I	Lv	-	Hi-Z	-	Need pull up
76	PA0,_IRQ0	PBLKCK	I	Ed	-	Hi-Z	-	Sub code clock interruption
77	PA1,_IRQ1	PDQSY	I	Ed	-	Hi-Z	-	CD-TEXT DQSY Interruption
78	PA2,_IRQ2	PPLS	I	Ed	-	Hi-Z	-	Count by DOWN EDGE. One rotation by three counts.
79	PA3,_IRQ3	PREMOTE	I	Ed	-	Hi-Z	-	RC-5/Infrared remote signal input
80	PA4,_IRQ4,TM15IB	PCHGOFT	O	-	Pu	H	L	Off track signal
81	PA5,ADSEP	ADSEP	I	-	H	H	H	'H': Address data separation mode / 'L': Address data common mode

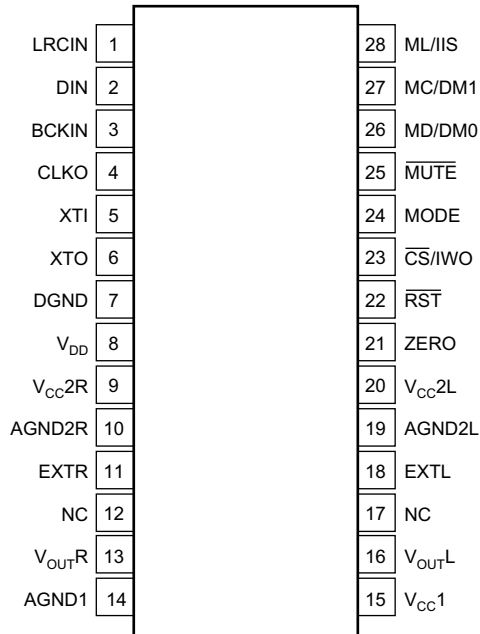
Pin No.	Pin Name	Symbol	I/O	Det	Ext	Res	Ini	Function
82	RST	_RESET	I	Lv	-	L	-	Reset signal 'L': RESET
83	Vdd	Vdd	-	-	-	-	-	Power supply (+3.3V)
84	P00,D00,AD00	D00	D/O	-	-	Hi-Z	-	Data bus
85	P01,D01,AD01	D01	D/O	-	-	Hi-Z	-	Data bus
86	P02,D02,AD02	D02	D/O	-	-	Hi-Z	-	Data bus
87	P03,D03,AD03	D03	D/O	-	-	Hi-Z	-	Data bus
88	P04,D04,AD04	D04	D/O	-	-	Hi-Z	-	Data bus
89	P05,D05,AD05	D05	D/O	-	-	Hi-Z	-	Data bus
90	P06,D06,AD06	D06	D/O	-	-	Hi-Z	-	Data bus
91	P07,D07,AD07	D07	D/O	-	-	Hi-Z	-	Data bus
92	Vss	Vss	-	-	-	-	-	GND(0V)
93	P010,D08,AD08, TM8IOB	PMIX	O	-	Pd	L	L	Deck line out 'H': Mix out of CD+DECK
94	P011,D09,AD09, TM8IC	PPOFF	I	-	-	H	-	'L': Power failure detection
95	P012,D10,AD10, TM11IOA	PDECKM UT	O	-	Pd	L	L	Deck line mute 'L': MUTE ON
96	P013,D11,AD11, TM11IOB	POPEN	I	-	-	Hi-Z	-	OPEN switch
97	P014,D12,AD12, TM11IC	PCLOSE	I	-	-	Hi-Z	-	CLOSE switch
98	P015,D13,AD13, TM12IOA	PLOAD	O	-	-	Hi-Z	H	OPEN/CLOSE signal (PWM out put) (During Pnrst='L', out put PWM(50%))
99	P016,D14,AD14, TM12IOB		O	-	-	Hi-Z	H	
100	P017,D15,AD15, TM12IC	PINSW	I	-	-	Hi-Z	-	Inner circle SW

MN6627911AC
(IC201)

MN6627911AC Terminal Function

Pin No.	Pin Name	I/O	Function
1	DRVDD	I	Power supply for DRAM interface (Pin No.2 - 18, 80)
2	D0	I/O	Data I/O signal 0 for DRAM
3	D1	I/O	Data I/O signal 1 for DRAM
4	WE	O	Write enable signal for DRAM
5	RAS	O	RAS control signal for DRAM
6	D2	I/O	Data I/O signal 2 for DRAM
7	D3	I/O	Data I/O signal 3 for DRAM
8	CAS	O	CAS control signal 0 for DRAM
9	A10	O	Address signal 10 for DRAM
10	A8	O	Address signal 8 for DRAM
11	A7	O	Address signal 7 for DRAM
12	A6	O	Address signal 6 for DRAM
13	A5	O	Address signal 5 for DRAM
14	A4	O	Address signal 4 for DRAM
15	A9	O	Address signal 9 for DRAM
16	A0	O	Address signal 0 for DRAM
17	A1	O	Address signal 1 for DRAM
18	A2	O	Address signal 2 for DRAM
19	A3	O	Address signal 3 for DRAM
20	DVSS2	I	GND for digital
21	DVDD2	I	Power supply for digital
22	SPOUT	O	Spindle motor drive signal
23	TRVP	O	Traverse drive signal
24	TRVM	O	Not used
25	TRP	O	Tracking drive
26	GCNTL	O	Gain control signal for CD-RW
27	FOP	O	Focus drive
28	CHGICO	O	EQ select signal
29	IOVDD1	I	Power supply for IO
30	TBAL	O	Tracking balance adjust
31	FBAL	O	Focus balance adjust
32	FE	I	Focus error signal (Analog input)
33	TE	I	Tracking error signal (Analog input)
34	RFENV	I	RF envelope signal (Analog input)
35	OFT	I	Off track signal H : OFF TRACK
36	NRFDET	I	RF detect signal H : DETECT
37	BDO	I	Drop out signal H : DROP OUT
38	LDON	O	Laser ON signal H : ON
39	ARF	I	RF signal
40	IREF	I	Standard current input terminal
41	ADPVCC	I	Voltage for power supply monitor

Pin No.	Pin Name	I/O	Function
42	DSLIF	O	Loop filter for DSL
43	RFSW	I	Loop filter for DSL
44	PLLIF	O	Loop filter for PLL
45	PLLFO	O	Loop filter for PLL
46	AVDD2	I	Power supply for analog (DSL, PLL, AD)
47	AVSS2	I	GND for analog (DSL, PLL, AD)
48	OUTL	O	Not used
49	AVSS1	I	GND for analog (Audio output)
50	OUTR	O	Not used
51	AVDD1	I	Power supply for analog (Audio output)
52	DVSS3	I	GND for digital
53	DVDD3	I	Power supply for digital
54	TMOD2	I	Test terminal L : Normal
55	MON2	O	Serial monitor signal 2
56	BCLK	O	Bit clock for serial data
57	SRDATA	O	Serial data signal
58	LRCK	O	L, R discernment signal
59	IOVDD2	I	Power supply for IO
60	TX	O	Digital audio interface signal
61	MCLK	I	ucon command clock signal
62	MDATA	I	ucon command data signal
63	MLD	I	ucon command load signal L : LOAD
64	BLKCK	O	Sub code block clock signal (f=75Hz : Normal speed playback)
65	PWMSEL	I	PWM output mode select L : Direct H : 3 values
66	SMCK	O	Not used
67	SBCK	I	Not used
68	STAT	O	Status signal
69	NRST	I	Reset L : RESET
70	SPPOL	O	Not used
71	PMCK	O	Not used
72	DQSY	O	Pack signal for CD TEXT data
73	TXTD	O	CD TEXT data signal
74	TXTCK	O	Ext. clock signal input for CD TEXT resister
75	NTEST	I	Test terminal H : Normal
76	X2	O	Not used
77	X1	I	16.9344MHz input terminal
78	DVSS1	I	GND for digital
79	DVDD1	I	Power supply for digital
80	MON1	O	Serial monitor signal

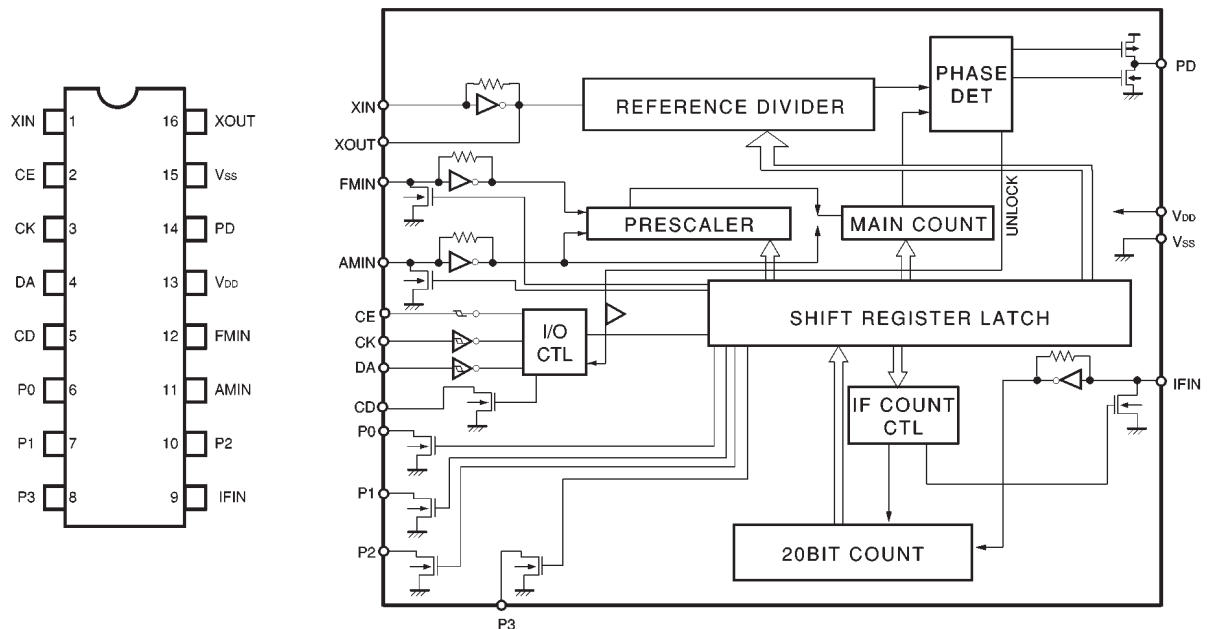
PCM 1716E (IC206)



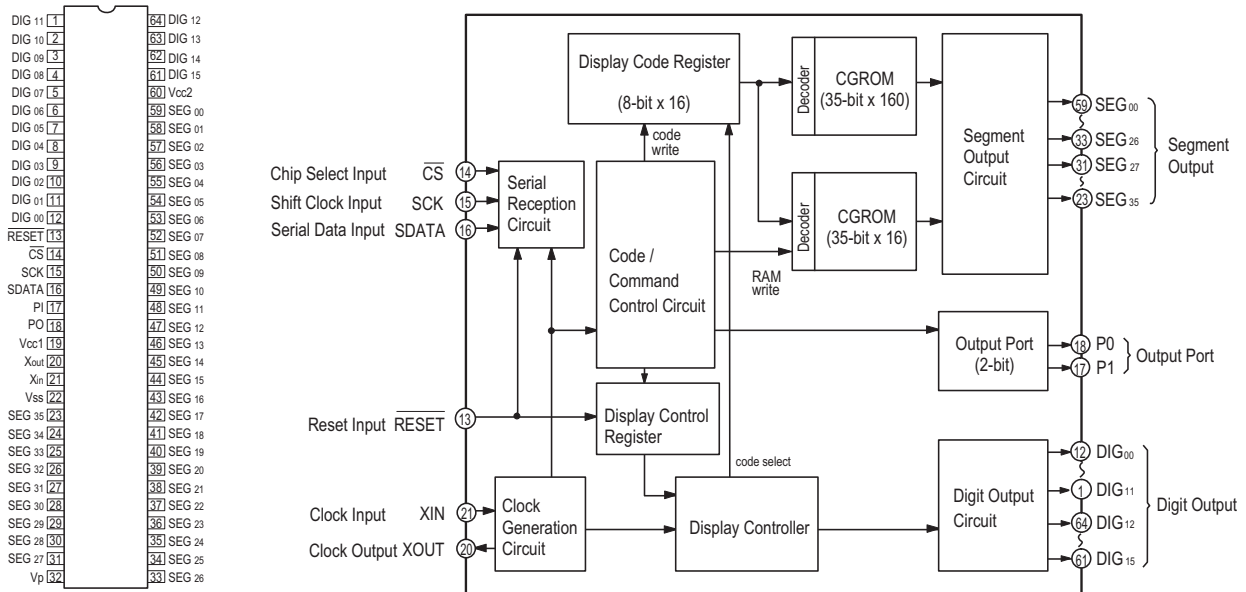
PIN	NAME	I/O	DESCRIPTION
1	LRCIN	IN	Left and Right Clock Input. This clock is equal to the sampling rate - f_s . ⁽¹⁾
2	DIN	IN	Serial Audio Data Input ⁽¹⁾
3	BCKIN	IN	Bit Clock Input for Serial Audio Data. ⁽¹⁾
4	CLKO	OUT	Buffered Output of Oscillator. Equivalent to System Clock.
5	XTI	IN	Oscillator Input (External Clock Input)
6	XTO	OUT	Oscillator Output
7	DGND	-	Digital Ground
8	V _{DD}	-	Digital Power +5V
9	V _{CC2R}	-	Analog Power +5V
10	AGND2R	-	Analog Ground
11	EXTR	OUT	Rch, Common Pin of Analog Output Amp
12	NC	-	No Connection
13	V _{OUTR}	OUT	Rch, Analog Voltage Output of Audio Signal
14	AGND1	-	Analog Ground
15	V _{CC1}	-	Analog Power +5V
16	V _{OUTL}	OUT	Lch, Analog Voltage Output of Audio Signal
17	NC	-	No Connection
18	EXTL	OUT	Lch, Common Pin of Analog Output Amp
19	AGND2L	-	Analog Ground
20	V _{CC2L}	-	Analog Power +5V
21	ZERO	OUT	Zero Data Flag
22	RST	IN	Reset. When this pin is low, the DF and modulators are held in reset. ⁽²⁾
23	CS/IWO	IN	Chip Select/Input Format Selection. When this pin is low, the Mode Control is effective. ⁽³⁾
24	MODE	IN	Mode Control Select. (H: Software, L: Hardware) ⁽²⁾
25	MUTE	IN	Mute Control
26	MD/DM0	IN	Mode Control, DATA/De-emphasis Selection 1 ⁽²⁾
27	MC/DM1	IN	Mode Control, BCK/De-emphasis Selection 2 ⁽²⁾
28	ML/I ² S	IN	Mode Control, WDCK/Input Format Selection ⁽²⁾

NOTES: (1) Pins 1, 2, 3; Schmitt Trigger input. (2) Pins 22, 24, 25, 26, 27, 28; Schmitt Trigger input with pull-up resistor. (3) Pin 23; Schmitt Trigger input with pull-down resistor.

BU2618FV (IC113)



M66005FP (IC701)



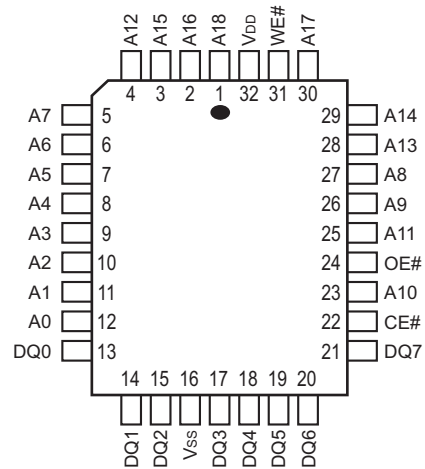
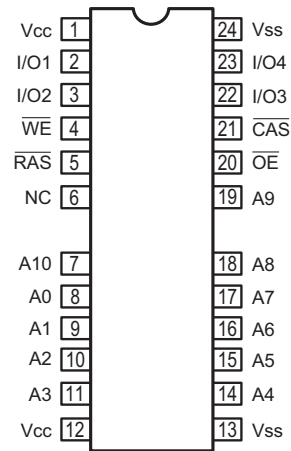
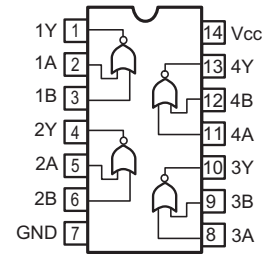
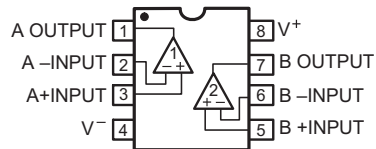
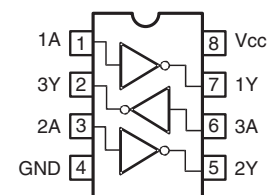
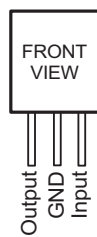
M66005FP Terminal Function

Symbol	Name	Function
RESET	Reset Input	Initializes internal state of M66005.
CS	Chip Select Input	Able to communicate with MCU in "L" mode. Command from MCU will be disregarded in "H" mode.
SCK	Shift Clock Input	Shifts input data at rise from "L" to "H".
SDATA	Serial Data Input	Inputs character code or command data needed to display from MSB.
XIN	Clock Input	Sets oscillation frequency by connecting external resistor and capacitor (maximum oscillation frequency fosc (max)=1MHz). Also feasible to apply external clock. In this case, inject external clock to Xin terminal and open Xout terminal.
XOUT	Clock Output	
DIG 00~DIG 15	Digit Output	Connect to digit terminal of VFD. DIG00~DIG15 correspond to the 1st figure to 16th figure respectively.
SEG 00~SEG 35	Segment Output	Connect to segment terminal of VFD. For corresponding SEG00~SEG35 to segment terminal of VFD, refer to the figure right.
P0, P1		Output port (static operation).
VCC1		Positive power supply terminal for internal logic.
VCC2		Positive power supply terminal for high tension output port.
Vss		GND terminal.
Vp		Negative power supply terminal for VFD drive.

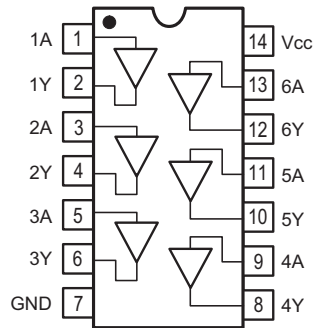
(Forwarding connection of segment output terminal.)

□ in the right figure indicates 1 dot of segment, the figure in □ shows the segment output terminal number (00~35) to be connected.

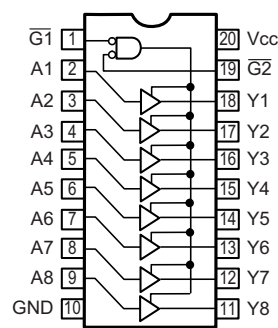
00	01	02	03	04
05	06	07	08	09
10	11	12	13	14
15	16	17	18	19
20	21	22	23	24
25	26	27	28	29
30	31	32	33	34
				35

4M FLASH MEMORY (IC111)**16M DRAM (IC204)****SN74LV02APW (IC107)****BA15218F (IC102,207)****NJM78M05FA(S) (IC118,902)
BA033T (IC901)****TC7WU04F****NJM78L05AT (IC903)****NJM79L05AT (IC904)****PST600C (IC301)**

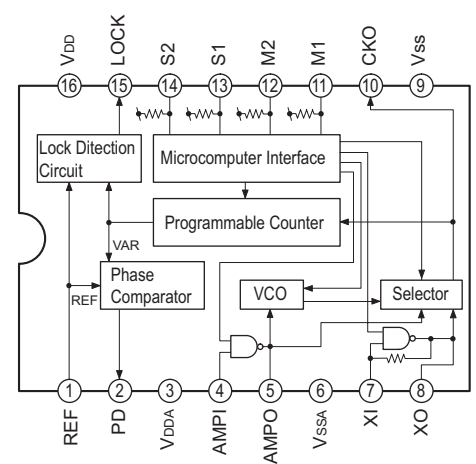
TC74HCT7007AF (IC109, 112)



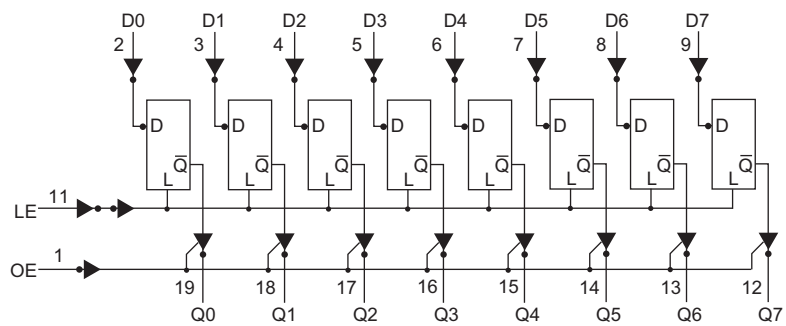
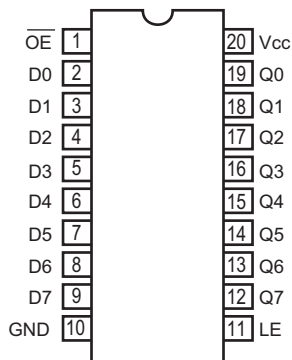
SN74LV541APW (IC104)



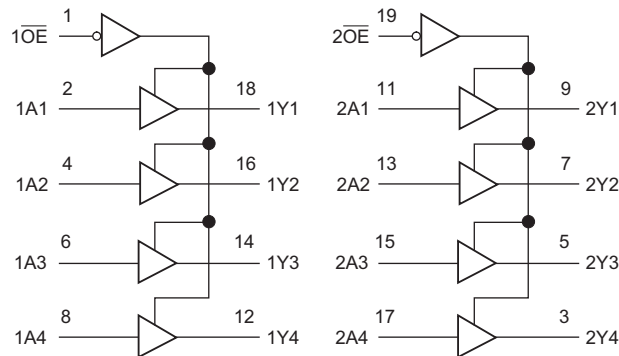
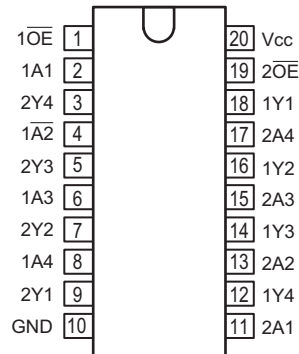
TC9246F (IC114)



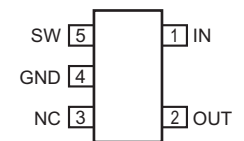
SN74LV573APW (IC103)



SN74LV244APW (IC116)



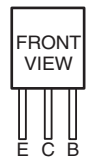
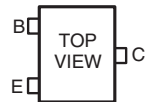
AN80L18RMS (IC205)



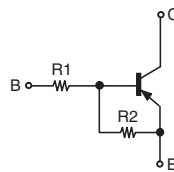
● TRANSISTORS

DTA114EK
DTC114EK
2SB709A
KTC2875B

DTA144ES

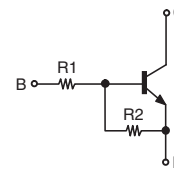


DTA Series



	R1	R2
DTA114EK	10kohm /	10kohm /
DTA144ES	47kohm /	47kohm /

DTC Series



	R1	R2
DTC114EK	10kohm /	10kohm /

2SB562(C)
2SD2144



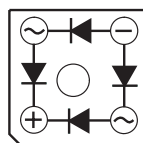
● DIODES/LED

1SS355
1SR35-400A



S4VB20

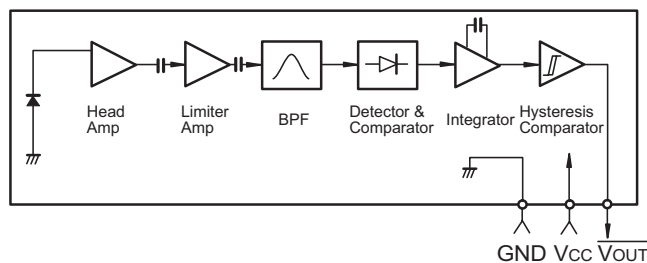
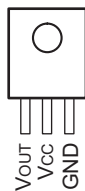
TOP VIEW



● OTHERS

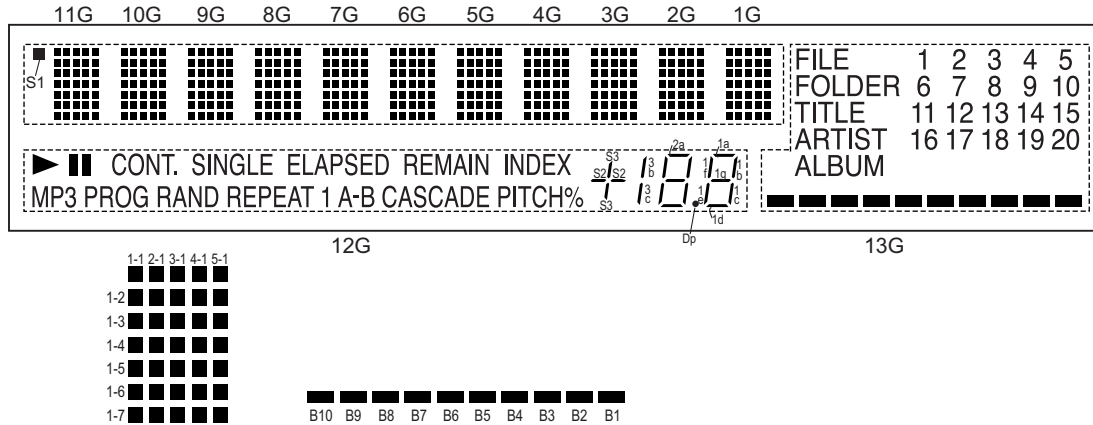
GP1UM271XK (Remote Control Sensor)
(IC702)

TOP VIEW



● FL DISPLAY

BJ896GN(FL701)



Pin connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Connection	F1	F1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1

Pin No.	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152
Connection	N53	N54	N55	N56	N57	N58	N59	N60	N61	N62	N63	N64	N65	N66	N67	N68	N69	N70	N71	N72	N73	N74	N75	N76	N77	N78	N79	N80	N81	N82	N83	N84	N85	N86	N87	N88	N89	N90	N91	N92	N93	N94	N95	N96	N97	N98	N99	N100	N101	N102	N103	N104	N105	N106	N107	N108	N109	N110	N111	N112	N113	N114	N115	N116	N117	N118	N119	N120	N121	N122	N123	N124	N125	N126	N127	N128	N129	N130	N131	N132	N133	N134	N135	N136	N137	N138	N139	N140	N141	N142	N143	N144	N145	N146	N147	N148	N149	N150	N151	N152

Anode connection

	1G~10G	11G	12G	13G
P1	1-1	1-1	MP3	1
P2	2-1	2-1	▶	2
P3	3-1	3-1	■	3
P4	4-1	4-1	PROG	4
P5	5-1	5-1	CONT.	5
P6	1-2	1-2	RAND	6
P7	2-2	2-2	SINGLE	7
P8	3-2	3-2	REPEAT	8
P9	4-2	4-2	ELAPSED	9
P10	5-2	5-2	1	10
P11	1-3	1-3	A-B	11
P12	2-3	2-3	CASCADE	12
P13	3-3	3-3	REMAIN	13
P14	4-3	4-3	PITCH%	14
P15	5-3	5-3	INDEX	15
P16	1-4	1-4	S2	16
P17	2-4	2-4	S3	17
P18	3-4	3-4	3b,3c	18
P19	4-4	4-4	2d	19
P20	5-4	5-4	2e	20
P21	1-5	1-5	2c	FILE
P22	2-5	2-5	2g	FOLDER
P23	3-5	3-5	2f	TITLE
P24	4-5	4-5	2b	ARTIST
P25	5-5	5-5	2a	ALBUM
P26	1-6	1-6	Dp	B1
P27	2-6	2-6	1d	B2
P28	3-6	3-6	1e	B3
P29	4-6	4-6	1c	B4
P30	5-6	5-6	1g	B5
P31	1-7	1-7	1f	B6
P32	2-7	2-7	1b	B7
P33	3-7	3-7	1a	B8
P34	4-7	4-7	-	B9
P35	5-7	5-7	-	B10
P36	-	S1	-	-

NOTE 1) F1,F2 :Filament
 2) NP :No pin
 3) NC :No connection
 4) DL :Datum Line
 5) 1G~14G :Grid
 6) IC :Internal connection

PRINTED WIRING BOARD

DN-C615

22

1

2

3

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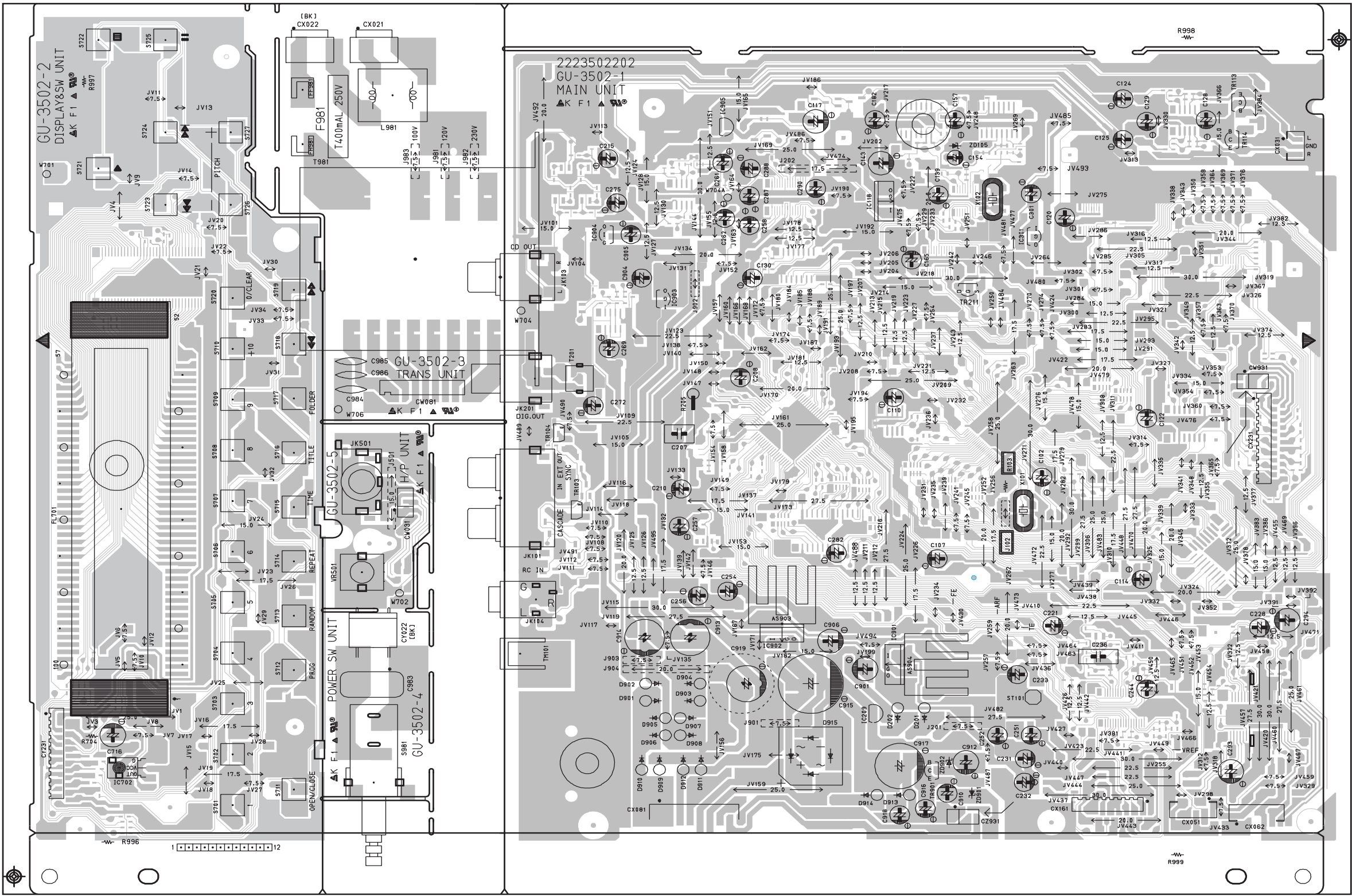
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GU-3502 MAIN UNIT Ass'y

Parts List



A

B

C

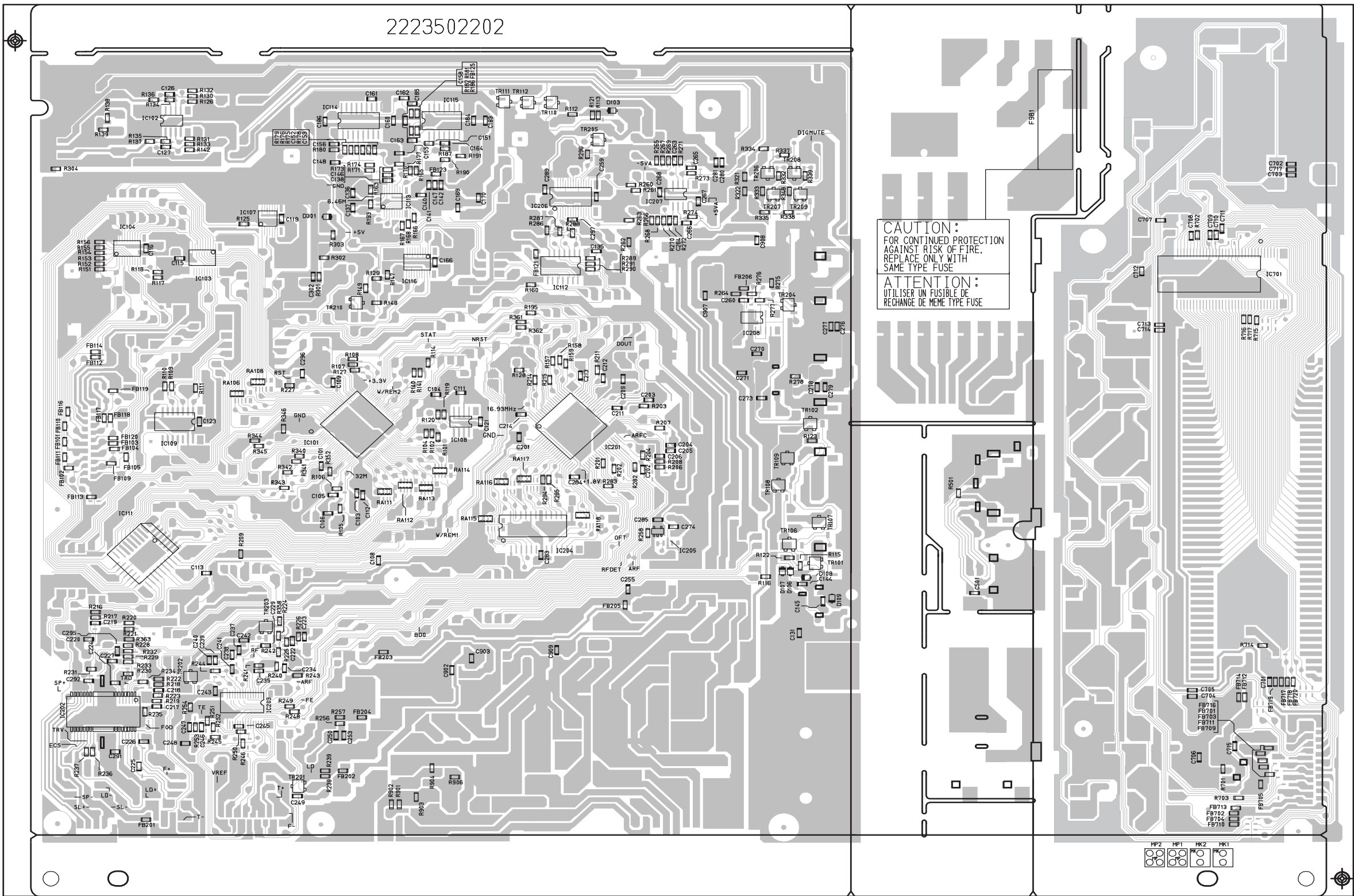
D

E

COMPONENT SIDE

GU-3502 MAIN UNIT Ass'y

Parts List



NOTE FOR PARTS LIST

- Part indicated with the mark "⊙" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film $\pm 5\%$, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN 14K 2E 182 G FR
Type Shape Power Resist- Allowable Others
 and per-
 formance

RD : Carbon	2B : 1/8W	F : $\pm 1\%$	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : $\pm 2\%$	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : $\pm 5\%$	NB : Non-burning type
RW : Winding	3A : 1W	K : $\pm 10\%$	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : $\pm 20\%$	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

* Resistance

1 8 2 $\Rightarrow$ 1800 ohm = 1.8 kohm
↑ ↑ ↑
Indicates number of zeros after effective number.
2-digit effective number.

• Units: ohm

1 R 2 $\Rightarrow$ 1.2 ohm
↑ ↑ ↑
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: ohm

● Capacitors

Ex.: CE 04W 1H 2R2 M BP
Type Shape Dielectric Capacity Allowable Others
 and per-
 formance strength error

CE : Aluminum foil electrolytic	0J : 6.3V	F : $\pm 1\%$	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : $\pm 2\%$	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : $\pm 5\%$	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : $\pm 10\%$	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : $\pm 20\%$	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : $+80\%$	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : $+100\%$	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : $\pm 0.25\text{pF}$	
	2E : 250V	D : $\pm 0.5\text{pF}$	
	2H : 500V	= : Others	
	2J : 630V		

* Capacity (electrolyte only)

2 2 2 $\Rightarrow$ 2200 μF
↑ ↑ ↑
Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

2 R 2 $\Rightarrow$ 2.2 μF
↑ ↑ ↑
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: μF .

* Capacity (except electrolyte)

2 2 2 $\Rightarrow$ 2200pF=0.0022 μF
↑ ↑ ↑ (More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

2 2 1 $\Rightarrow$ 220pF
↑ ↑ ↑ (0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PARTS LIST OF P.W.B. UNIT ASS'Y

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
SEMICONDUCTORS GROUP						
	IC101	262 3171 000	MN102H60KDA			
	IC102	263 0615 902	BA15218F-DXE2			
	IC103	262 2642 909	SN74LV573APW-EL2			
	IC104	262 2641 900	SN74LV541APW-EL2			
	IC107	262 2729 903	SN74LV02APW-EL2			
	IC109	262 2376 903	TC74HCT7007AF(TP1)			
	IC111	GEN 6292	C615 SYSTEM ROM 4M FLASH MEM.(PLCC)			
	IC112	262 2376 903	TC74HCT7007AF(TP1)			
	IC113	262 2651 903	BU2618FV(E2)			
	IC114	262 1883 905	TC9246F-TP1			
	IC116	262 2959 906	SN74LV244APW			
	IC118	263 0800 005	NJM78M05FA(S)			
	IC201	262 3158 007	MN6627911AC			
	IC202	262 3159 909	AN8785SB			
	IC203	262 3160 901	AN22002A			
	IC204	262 2881 003	16M DRAM(3.3V)			
	IC205	263 1178 901	AN80L18RMS			
	IC206	262 2490 902	PCM1716E(TAPE)			
	IC207	263 0615 902	BA15218F-DXE2			
	IC208	262 1953 903	TC7WU04F			
	IC301	263 0913 905	PST600C TP			
	IC701	262 2951 904	M66005FP			
	IC702	499 0303 004	GP1UM271XK			
	IC901	263 1048 002	BA033T			
	IC902	263 0800 005	NJM78M05FA(S)			
	IC903	263 0432 907	NJM78L05AT			
	IC904	263 0722 905	NJM79L05AT			
	TR101,102	269 0082 902	DTC114EKT96			
	TR103,104	269 0093 904	DTA144ES (47K-47K) T			
	TR106	269 0083 901	DTA114EKT96			
	TR107	269 0082 902	DTC114EKT96			
	TR108	269 0083 901	DTA114EKT96			
	TR109-111	269 0082 902	DTC114EKT96			
	TR112	269 0083 901	DTA114EKT96			
	TR113,114	274 0160 907	2SD2144STPU			
	TR201	272 0125 904	2SB709A			
	TR202,203	269 0144 905	DTC114YK-T146			
	TR204	273 0460 905	KTC2875B-RTK			
	TR206-209	273 0460 905	KTC2875B-RTK			
	TR901	272 0025 907	2SB562(C)TF			
	D103	276 0717 903	1SS355 TE-17			
	D106-109	276 0717 903	1SS355 TE-17			
	D301	276 0717 903	1SS355 TE-17			
	D901	276 0704 903	1SR35-400A(T93X)			
	D903	276 0704 903	1SR35-400A(T93X)			
	D905	276 0704 903	1SR35-400A(T93X)			
	D907	276 0704 903	1SR35-400A(T93X)			
	D913,914	276 0704 903	1SR35-400A(T93X)			
	D915	276 0338 007	S4VB20F			
	ZD105	276 0450 901	HZS2B-1TD			

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	ZD901	276 0643 983	MTZJ5.1A T77			
	ZD902	276 0762 929	MTZJ30B T77			
RESISTORS GROUP						
	R101,102	247 2011 942	RM73B--473JT			
	R104	247 2011 942	RM73B--473JT			
	R105	247 2005 987	RM73B--221JT			
	R107,108	247 2011 942	RM73B--473JT			
	R109-111	247 2003 989	RM73B--330JT			
	R112	247 2005 903	RM73B--101JT			
	R113	247 2009 912	RM73B--512JT			
	R114	247 2009 983	RM73B--103JT			
	R115,116	247 2007 943	RM73B--102JT			
	R117,118	247 2011 942	RM73B--473JT			
	R121	247 2009 912	RM73B--512JT			
	R122	247 2011 942	RM73B--473JT			
	R123	247 2012 925	RM73B--104JT			
	R125	247 2018 903	RM73B--0R0KT			
	R126	247 2009 996	RM73B--113JT			
	R127	247 2011 942	RM73B--473JT			
	R128	247 2004 988	RM73B--820JT			
	R129	247 2007 943	RM73B--102JT			
	R130	247 2009 967	RM73B--822JT			
	R131	247 2009 996	RM73B--113JT			
	R132	247 2009 983	RM73B--103JT			
	R133	247 2009 967	RM73B--822JT			
	R134,135	247 2008 968	RM73B--332JT			
	R136,137	247 2005 903	RM73B--101JT			
	R138,139	247 2009 983	RM73B--103JT			
	R140,141	247 2011 942	RM73B--473JT			
	R142	247 2009 983	RM73B--103JT			
	R151-156	247 2009 983	RM73B--103JT			
	R157-160	247 2005 903	RM73B--101JT			
	R163	247 2018 903	RM73B--0R0KT			
	R165	247 2009 983	RM73B--103JT			
	R166-168	247 2005 903	RM73B--101JT			
	R171	247 2009 925	RM73B--562JT			
	R173,174	247 2012 925	RM73B--104JT			
	R175	247 2012 912	RM73B--913JT			
	R176	247 2012 983	RM73B--184JT			
	R177	247 2005 903	RM73B--101JT			
	R178	247 2013 937	RM73B--304JT			
	R179	247 2008 939	RM73B--242JT			
	R180	247 2009 912	RM73B--512JT			
	R182	247 2004 920	RM73B--470JT			
	R186	247 2007 943	RM73B--102JT			
	R190,191	247 2003 947	RM73B--220JT			
	R193	247 2014 965	RM73B--105JT			
	R195	247 2005 903	RM73B--101JT			
	R201,202	247 2008 968	RM73B--332JT			
	R203,204	247 2010 972	RM73B--243JT			
	R205	244 2043 937	RS14B3A100JNBST(S)			
	R206	247 2010 927	RM73B--153JT			
	R207	247 2006 986	RM73B--561JT			
	R208	247 2010 927	RM73B--153JT			
	R209	247 2010 901	RM73B--123JT			
	R211	247 2010 985	RM73B--273JT			

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	R214	247 2010 985	RM73B--273JT			
	R215	247 2011 900	RM73B--333JT			
	R216	247 2010 927	RM73B--153JT			
	R217	247 2010 969	RM73B--223JT			
	R218	247 2011 926	RM73B--393JT			
	R219	247 2010 927	RM73B--153JT			
	R220,221	247 2009 925	RM73B--562JT			
	R222	247 2007 943	RM73B--102JT			
	R223	247 2009 925	RM73B--562JT			
	R224	247 2018 903	RM73B--0R0KT			
	R225,226	247 2012 925	RM73B--104JT			
	R227,228	247 2009 983	RM73B--103JT			
	R229,230	247 2012 925	RM73B--104JT			
	R231	247 2009 983	RM73B--103JT			
	R232,233	247 2012 925	RM73B--104JT			
	R234,235	247 2008 984	RM73B--392JT			
	R236,237	247 2009 983	RM73B--103JT			
	R238	247 2001 981	RM73B--4R7KT			
	R239	247 2011 926	RM73B--393JT			
	R240	247 2008 955	RM73B--302JT			
	R241	247 2007 969	RM73B--122JT			
	R242	247 2006 986	RM73B--561JT			
	R243	247 2018 903	RM73B--0R0KT			
	R244	247 2014 949	RM73B--824JT			
	R245,246	247 2009 967	RM73B--822JT			
	R248	247 2018 903	RM73B--0R0KT			
	R249	247 2009 941	RM73B--682JT			
	R250	247 2010 956	RM73B--203JT			
	R251	247 2011 997	RM73B--753JT			
	R252	247 2018 903	RM73B--0R0KT			
	R254	247 2018 903	RM73B--0R0KT			
	R256,257	247 2004 991	RM73B--910JT			
	R258	247 2010 985	RM73B--273JT			
	R260	247 2018 903	RM73B--0R0KT			
	R263	247 2018 903	RM73B--0R0KT			
	R264	247 2005 987	RM73B--221JT			
	R265,266	247 2011 942	RM73B--473JT			
	R267-274	247 2009 983	RM73B--103JT			
	R275	247 2010 956	RM73B--203JT			
	R276	247 2006 960	RM73B--471JT			
	R277	247 2014 965	RM73B--105JT			
	R278	247 2004 975	RM73B--750JT			
	R282	247 2009 925	RM73B--562JT			
	R283	247 2010 901	RM73B--123JT			
	R286-288	247 2003 989	RM73B--330JT			
	R289-291	247 2005 903	RM73B--101JT			
	R294,295	247 2003 989	RM73B--330JT			
	R301	247 2018 903	RM73B--0R0KT			
	R302	247 2007 943	RM73B--102JT			
	R303	247 2006 915	RM73B--271JT			
	R304	247 2018 903	RM73B--0R0KT			
	R321,322	247 2012 925	RM73B--104JT			
	R332,333	247 2009 983	RM73B--103JT			
	R334,335	247 2005 945	RM73B--151JT			
	R337,338	247 2005 945	RM73B--151JT			
	R339	247 2009 983	RM73B--103JT			
	R340-345	247 2003 989	RM73B--330JT			

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	R346	247 2011 942	RM73B--473JT			
	R348	247 2009 983	RM73B--103JT			
	R352	247 2011 942	RM73B--473JT			
	R358	247 2013 940	RM73B--334JT			
	R361,362	247 2018 903	RM73B--0R0KT			
	R363	247 2009 925	RM73B--562JT			
	R501	247 2018 903	RM73B--0R0KT			
	R701	247 2009 983	RM73B--103JT			
	R702	247 2010 985	RM73B--273JT			
	R703	247 2018 903	RM73B--0R0KT			
	R714,715	247 2009 983	RM73B--103JT			
	R716,717	247 2018 903	RM73B--0R0KT			
	R901,902	247 2005 903	RM73B--101JT			
	R903	247 2011 942	RM73B--473JT			
	R904	247 2008 968	RM73B--332JT			
	R906	247 2012 925	RM73B--104JT			
CAPACITORS GROUP						
	C101	257 0512 903	CK73F1E104ZT			
	C102	254 4533 921	CE04W0J101MT SMG/RE3			
	C103	257 0511 904	CK73F1H103ZT			
	C104	257 0512 903	CK73F1E104ZT			
	C105	257 0503 912	CC73CH1H9R0DT			
	C106	257 0503 925	CC73CH1H100DT			
	C107	254 4533 921	CE04W0J101MT SMG/RE3			
	C108,109	257 0512 903	CK73F1E104ZT			
	C110	254 4533 921	CE04W0J101MT SMG/RE3			
	C111	257 0512 903	CK73F1E104ZT			
	C112	257 0511 904	CK73F1H103ZT			
	C113	257 0512 903	CK73F1E104ZT			
	C114	254 4536 915	CE04W1A470MT SMG/RE3			
	C115,116	257 0512 903	CK73F1E104ZT			
	C117	254 4538 955	CE04W1C221MT SMG/RE3			
	C119	257 0512 903	CK73F1E104ZT			
	C120	254 4536 915	CE04W1A470MT SMG/RE3			
	C122	254 4536 915	CE04W1A470MT SMG/RE3			
	C123	257 0512 903	CK73F1E104ZT			
	C124,125	254 4536 915	CE04W1A470MT SMG/RE3			
	C126,127	257 0506 951	CC73CH1H101JT			
	C128,129	254 4536 928	CE04W1A101MT SMG/RE3			
	C130	254 4536 915	CE04W1A470MT SMG/RE3			
	C131	257 0512 903	CK73F1E104ZT			
	C135	257 0512 903	CK73F1E104ZT			
	C136,137	257 0503 967	CC73CH1H150JT			
	C138	257 0511 904	CK73F1H103ZT			
	C139	254 4536 928	CE04W1A101MT SMG/RE3			
	C140	257 0511 904	CK73F1H103ZT			
	C141,142	257 0512 903	CK73F1E104ZT			
	C143	254 4536 944	CE04W1A331MT SMG/RE3			
	C144-146	257 0512 903	CK73F1E104ZT			
	C147	257 0511 904	CK73F1H103ZT			
	C148	257 0507 992	CC73CH1H391JT			
	C151	247 2018 903	RM73B--0R0KT			
	C152	257 0506 951	CC73CH1H101JT			
	C154	254 4305 955	CE04W1HR68MT(SRE)			
	C156	257 0512 903	CK73F1E104ZT			
	C157	254 4536 931	CE04W1A221MT SMG/RE3			

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	C158	257 0512 903	CK73F1E104ZT			
	C160	257 0511 904	CK73F1H103ZT			
	C161	257 0512 903	CK73F1E104ZT			
	C165	254 4536 915	CE04W1A470MT SMG/RE3			
	C166	257 0512 903	CK73F1E104ZT			
	C169,170	257 0512 903	CK73F1E104ZT			
	C182	254 4536 928	CE04W1A101MT SMG/RE3			
	C183	257 0511 904	CK73F1H103ZT			
	C184	257 0509 929	CK73B1H102KT			
	C185	257 0511 904	CK73F1H103ZT			
	C186	257 0512 903	CK73F1E104ZT			
	C201	257 0512 903	CK73F1E104ZT			
	C202	257 0509 929	CK73B1H102KT			
	C203	257 0512 903	CK73F1E104ZT			
	C204	257 0509 929	CK73B1H102KT			
	C205	257 0516 909	CK73B1E223KT			
	C206	257 0512 903	CK73F1E104ZT			
	C207	256 1058 984	CF93A1H124JT (JL)			
	C208	254 4536 915	CE04W1A470MT SMG/RE3			
	C209	257 0512 903	CK73F1E104ZT			
	C210	254 4533 934	CE04W0J221MT SMG/RE3			
	C211-214	257 0512 903	CK73F1E104ZT			
	C215	254 4538 900	CE04W1C100MT SMG/RE3			
	C217-220	257 0509 990	CK73B1H222KT			
	C221	254 4538 900	CE04W1C100MT SMG/RE3			
	C222,223	257 0516 909	CK73B1E223KT			
	C224	257 0512 903	CK73F1E104ZT			
	C227	257 0512 903	CK73F1E104ZT			
	C228	254 4538 939	CE04W1C470MT SMG/RE3			
	C229	257 0506 935	CC73CH1H820JT			
	C231,232	254 4536 915	CE04W1A470MT SMG/RE3			
	C233	254 4533 950	CE04W0J471MT SMG/RE3			
	C234	257 0512 903	CK73F1E104ZT			
	C236	256 1059 912	CF93A1H224JT (JL)			
	C237	257 0512 903	CK73F1E104ZT			
	C238	257 0501 914	CK73B1H123KT			
	C239	257 0510 947	CK73B1H562KT			
	C240	257 0516 909	CK73B1E223KT			
	C241	257 0501 927	CK73B1H153KT			
	C242	257 0506 948	CC73CH1H910JT			
	C243	257 0512 903	CK73F1E104ZT			
	C244	254 4533 921	CE04W0J101MT SMG/RE3			
	C245	257 0507 950	CC73CH1H271JT			
	C246	257 0506 993	CC73CH1H151JT			
	C250	257 0512 903	CK73F1E104ZT			
	C251	254 4524 969	CE04W1H3R3MT SMG/RE3			
	C252	254 4536 928	CE04W1A101MT SMG/RE3			
	C253	257 0512 903	CK73F1E104ZT			
	C254	254 4536 928	CE04W1A101MT SMG/RE3			
	C255	257 0512 903	CK73F1E104ZT			
	C256-258	254 4538 900	CE04W1C100MT SMG/RE3			
	C259	257 0512 903	CK73F1E104ZT			
	C260	257 0509 929	CK73B1H102KT			
	C261,262	254 4524 956	CE04W1H2R2MT SMG/RE3			
	C263-266	257 0507 976	CC73CH1H331JT			
	C267,268	257 0512 903	CK73F1E104ZT			
	C269	254 4536 928	CE04W1A101MT SMG/RE3			

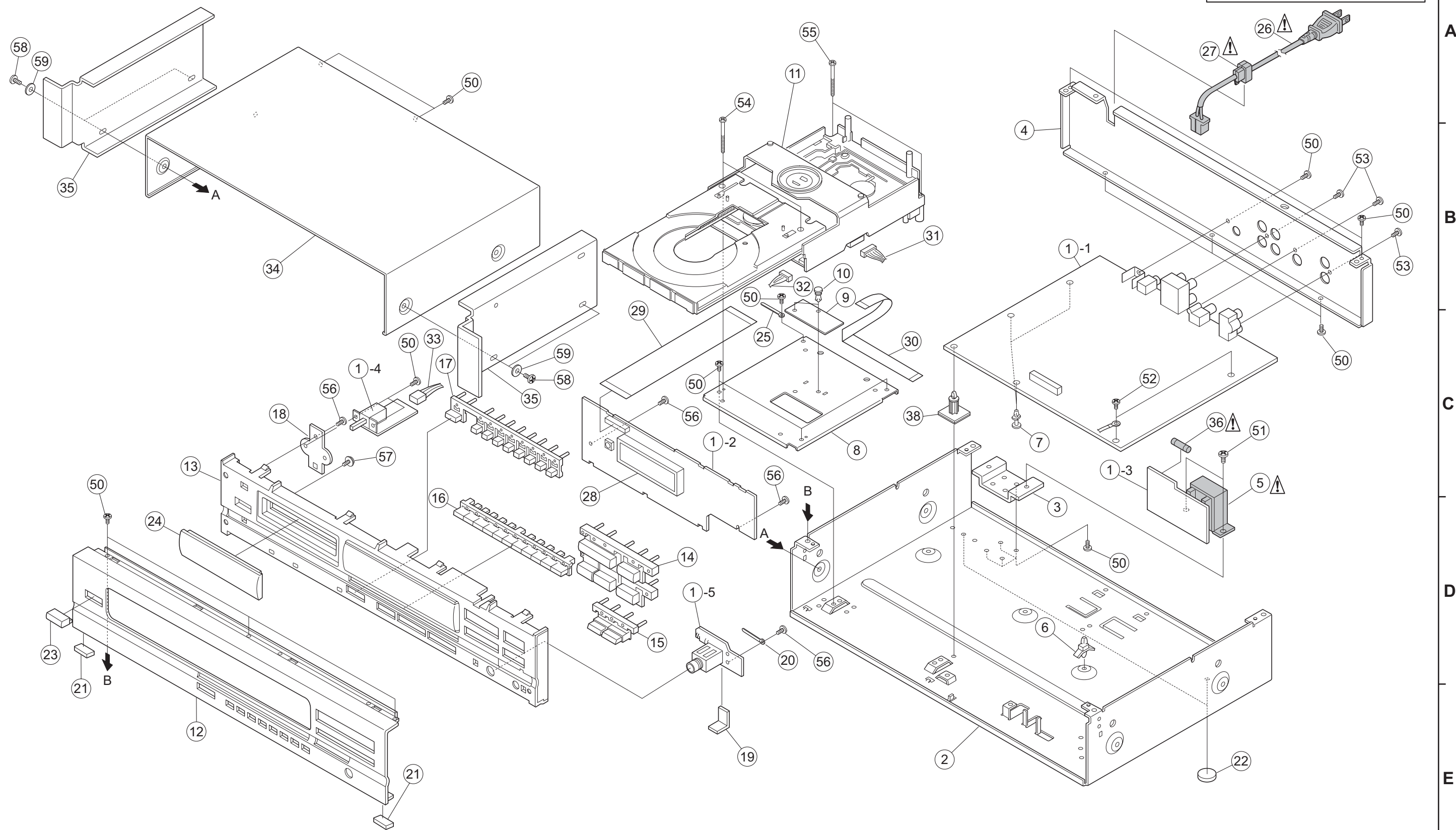
	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	C270	257 0501 901	CK73B1H103KT (1608)			
	C271	257 0512 903	CK73F1E104ZT			
	C272	254 4538 926	CE04W1C330MT SMG/RE3			
	C273	257 0501 901	CK73B1H103KT (1608)			
	C274	257 0512 903	CK73F1E104ZT			
	C275	254 4538 900	CE04W1C100MT SMG/RE3			
	C276	257 0501 901	CK73B1H103KT (1608)			
	C277	257 0512 903	CK73F1E104ZT			
	C279,280	257 0512 903	CK73F1E104ZT			
	C281	257 0511 904	CK73F1H103ZT			
	C282	254 4536 928	CE04W1A101MT SMG/RE3			
	C283	257 0513 902	CK73F1A105ZT			
	C284,285	257 0512 903	CK73F1E104ZT			
	C287,288	254 4538 900	CE04W1C100MT SMG/RE3			
	C289	257 0512 903	CK73F1E104ZT			
	C290	254 4538 900	CE04W1C100MT SMG/RE3			
	C291,292	257 0512 903	CK73F1E104ZT			
	C293,294	254 4538 955	CE04W1C221MT SMG/RE3			
	C295,296	257 0512 903	CK73F1E104ZT			
	C297	257 0511 904	CK73F1H103ZT			
	C301	254 4538 900	CE04W1C100MT SMG/RE3			
	C302	257 0509 929	CK73B1H102KT			
	C701	257 0512 903	CK73F1E104ZT			
	C703-705	257 0511 920	CK73F1H473ZT			
	C706	257 0511 904	CK73F1H103ZT			
	C707	257 0511 920	CK73F1H473ZT			
	C708	257 0506 951	CC73CH1H101JT			
	C709	257 0512 903	CK73F1E104ZT			
	C711,712	257 0512 903	CK73F1E104ZT			
	C713,714	257 0511 920	CK73F1H473ZT			
	C715	257 0512 903	CK73F1E104ZT			
	C716	254 4300 963	CE04W0J101MT(SRE)			
	C901	254 4536 957	CE04W1A471MT SMG/RE3			
	C902,903	257 0512 903	CK73F1E104ZT			
	C904,905	254 4536 928	CE04W1A101MT SMG/RE3			
	C906	254 4536 957	CE04W1A471MT SMG/RE3			
	C907-909	257 0512 903	CK73F1E104ZT			
	C910	254 4524 985	CE04W1H100MT SMG/RE3			
	C912	254 4525 913	CE04W1H470MT SMG/RE3			
	C913,914	254 4538 971	CE04W1C471MT SMG/RE3			
	C915	254 4442 708	CE04W1C682MC (SMG)			
	C917	254 4540 710	CE04W1J471MC SMG/RE3			
	C983	253 8022 707	CK45F2EAC103MC			
OTHER PARTS GROUP						
	CW31	203 4834 017	3P KR-DA CON CORD		1	
	CW81	204 2451 039	8P EH-SCN CON.CORD		1	*
	CW931	203 5308 005	3P DA-DA CON CORD		1	
	CX21	205 0581 001	2P VH CONNECTOR BASE		1	
	CX22	205 0768 002	2P VH CON.BASE (BLK)		1	
	CX31	205 0343 032	3P CONN.BASE(KR-PH)		1	
	CX51	205 0343 058	5P CONN.BASE(KR-PH)		1	
	CX62	205 0343 061	6P CONN.BASE(KR-PH)		1	
	CX81	205 0233 087	8P EH CON BASE		1	
	CX161	205 0892 033	16P FFC BASE (P=1)		1	

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	CX231	205 1100 009	23P FFC BASE(P=1)		1	
	CY22	205 0453 016	2P VH CONN BASE(L)		1	
	CY231	205 1100 009	23P FFC BASE(P=1)		1	
⚠	F981	206 1087 057	FUSE (ET0.4A)		1	*
	FB101-105	235 0130 903	CHIP EMIFIL(11A121)		5	
	FB109-114	235 0130 903	CHIP EMIFIL(11A121)		6	
	FB116-121	235 0130 903	CHIP EMIFIL(11A121)		6	
	FB123	235 0130 903	CHIP EMIFIL(11A121)		1	
	FB125	235 0130 903	CHIP EMIFIL(11A121)		1	
	FB202-206	235 0130 903	CHIP EMIFIL(11A121)		5	
	FB701-705	235 0130 903	CHIP EMIFIL(11A121)		5	
	FB709-714	235 0130 903	CHIP EMIFIL(11A121)		6	
	FB716-720	235 0130 903	CHIP EMIFIL(11A121)		5	
	FF981	202 0040 909	FUSE CLIP (TAPE)		1	
	FH981	202 0040 909	FUSE CLIP (TAPE)		1	
	FL701	393 8067 002	FL TUBE(BJ899GN)		1	*
	JK101	204 8663 009	4P PIN JACK(SLD BK)		1	
	JK103	204 8553 009	2P PIN JACK (FG-ANA)		1	
	JK104	204 8416 007	MINI JACK		1	
	JK201	204 8551 014	1P PIN JACK (OR)		1	
	JK501	204 8364 007	H/P JACK		1	
	L981	235 0159 007	PLH10AN3711ROP2B		1	
	S701-727	212 5604 907	TACT SWITCH-TA(ALPS)		27	
⚠	S981	212 1030 009	POWER SWITCH (TV-5)		1	
	ST101	205 0452 017	STYLE PIN		1	
⚠	T201	231 8063 009	PULSE TRANS		1	
	TM101	205 1034 007	M3 SCREW TERMINAL		1	
	W701	203 0322 031	1P CONTACT ASS'Y		1	
	X101	399 0794 009	X'TAL (32.00M)		1	
	X102	399 0595 004	X'TAL(8.4672MHZ)		1	
	RA106	247 9002 909	MNR14=330JE0AB		1	
	RA108	247 9002 909	MNR14=330JE0AB		1	
	RA111-118	247 9002 909	MNR14=330JE0AB		8	
	AS903,904	417 0476 007	RADIATOR		2	
		415 0299 000	CONDENSER COVER		1	
		461 1142 007	FL SPACER		2	
		471 3304 015	3X8 CBS-Z		2	

EXPLODED VIEW OF CABINETW

Parts List

WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.



PARTS LIST OF EXPLODED VIEW

Note: The symbols in the column "Remarks" indicate the following destinations.

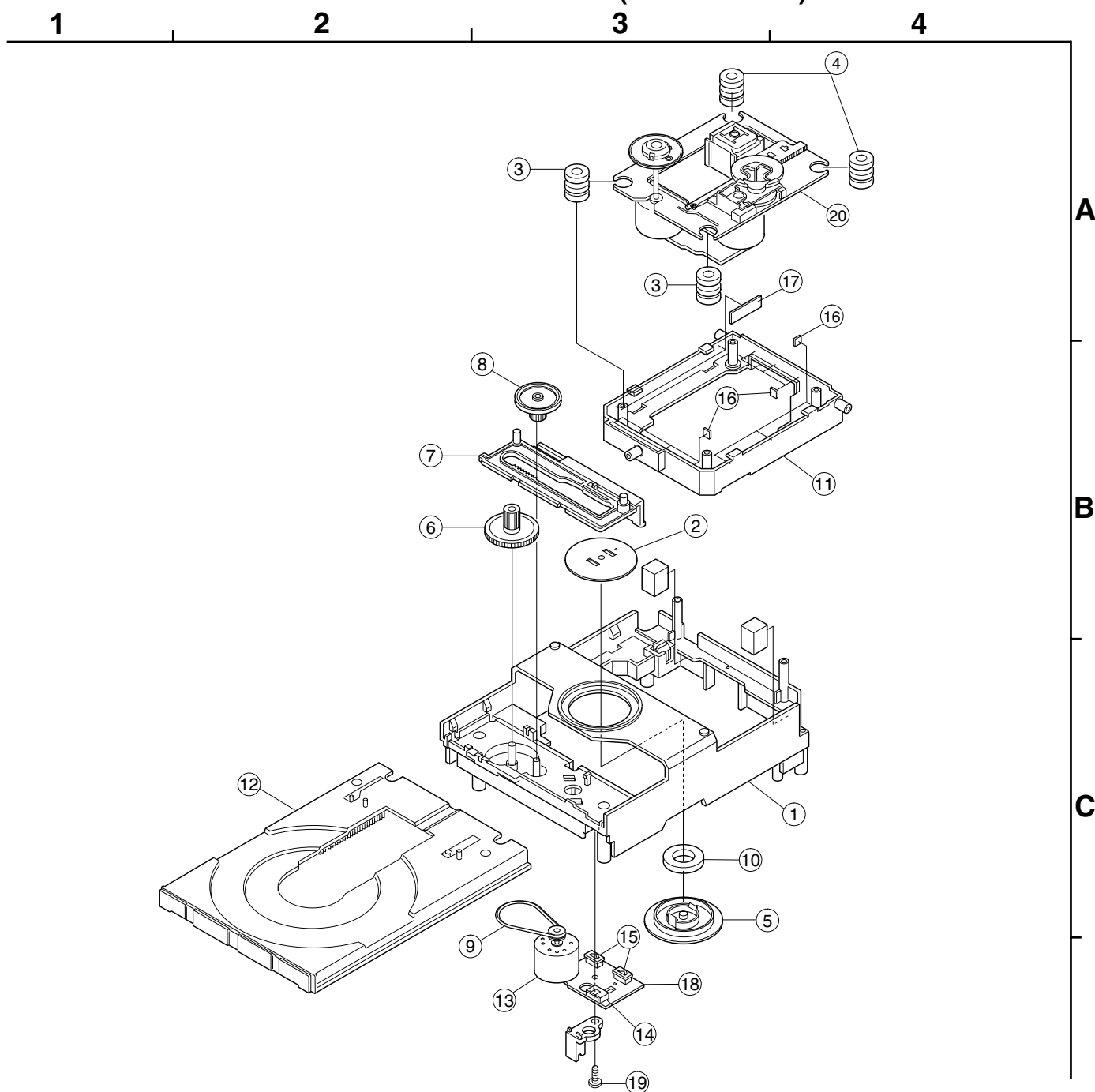
E3:U.S.A. & Canada model E2: Europe model

E2K:Korea model

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	1	GU-3502	MAIN UNIT			
	1-1		MAIN UNIT			
	1-2		DISPLAY SW UNIT			
	1-3		TRANS UNIT			
	1-4		POWER SW UNIT			
	1-5		H/P UNIT			
	2	411 0962 856	CHASSIS		1	*
	3	412 5001 003	TRANS BRACKET		1	
	4	105 1419 005	BACK PANEL	For E3	1	*
	4	105 1419 018	BACK PANEL	For E2,E2K	1	*
⚠	5	233 6440 002	POWER TRANS		1	
	6	443 0518 003	P.C.B.HOLDER		1	
	7	412 2814 057	CARD SPACER (L=12)		3	
	8	411 2025 005	MECHA BASE		1	*
	9	461 1143 006	FFC COVER		1	
	10	479 0003 025	PUSH RIVET		2	
	11	337 0100 006	CD MECHA(CD11FTA3N)		1	
	12	144 2411 117	FRONT PANEL		1	*
	13	146 1392 673	SUB PANEL ASS'Y		1	*
	14	113 1541 000	FUNCTION KNOB		1	
	15	113 1561 006	MANUAL SEARCH KNOB		1	
	16	113 9245 201	TENKEY		1	
	17	113 1540 108	SERIES KNOB		1	
	18	412 4998 007	SW BRACKET		1	
	19	461 1134 002	EMI GASKET UC-3E0690		40	
	20	445 8028 009	CORD HOLDER		1	
	21	461 0706 114	FOOT SHEET		2	
	22	461 0740 002	SHEET		2	
	23	113 1895 002	POWER KNOB		1	
	24	146 2297 007	LOADER PANEL		1	*
	25	445 8028 009	CORD HOLDER		1	
	26	206 2155 001	AC CORD W/CON.E3	For E3	1	
	26	206 2089 106	AC CORD W/CON.E2	For E2	1	
	26	206 2178 004	KOREA AC CORD VH	For E2K	1	
	27	445 0084 009	CORD BUSH	For E3	1	
	27	445 0056 008	CORD BUSH	For E2,E2K	1	
	28	393 8067 002	FL TUBE(BJ899GN)		1	*
	29	009 0235 063	23P FFC (1.0)		1	*
*	30	009 0241 002	16P FFC CABLE		1	*
	31	204 0307 091	6P KR-KR CON.CORD		1	
	32	203 8305 034	5P KR-KR CON.CORD		1	
	33	203 5307 022	3P VH-VH CON.CORD		1	*
	34	102 0425 237	TOP COVER		1	
	35	412 4999 006	MOUNT BRACKET		2	*
	36	206 1087 057	FUSE (ET0.4A)	For E3	1	*
	36	206 1087 060	FUSE (ET0.2A)	For E2,E2K	1	*
*	37	513 3736 039	FUSE LABEL (0.2A)		1	
	38	449 0201 004	P.W.B. HOLDER		1	
*	39	513 3826 004	E2 LASER CAUTION	For E2	1	
*	40	513 3745 004	EMI LABEL (KOREA)	For E2K	1	
*	41	513 2303 007	VERSION LABEL		1	
*	42	513 1519 009	MANUFAC.DATE LABEL	For E3	1	
*	43	513 3809 047	RATING SHEET	For E3	1	*

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
★	43	GEN 6131-2	R. SHEET E2 SUB ASS'Y	For E2	1	*
	43	GEN 6212	R. SHEET(K) SUB ASS'Y	For E2K	1	*
	SCREWS					
	50	473 7015 018	3X8 CBTS (S)-B		20	
	51	473 7004 003	4X8 CBTS (S)-Z		2	
	52	473 8007 025	3X8 CUP SCREW		2	
	53	477 0064 107	FIXING SCREW		3	
	54	473 7032 004	3X25 CPTS(S)-Z		2	
	55	473 7523 005	3X35 CBTS(S)-B		2	
	56	473 7508 017	3X10 CBTS (P)-B		4	
	57	477 0262 006	SPECIAL SCREW		1	
	58	473 7007 071	4X12 CBTS (S) ZNB		4	
	59	475 1189 001	4W (16X4.5X1) BK		4	

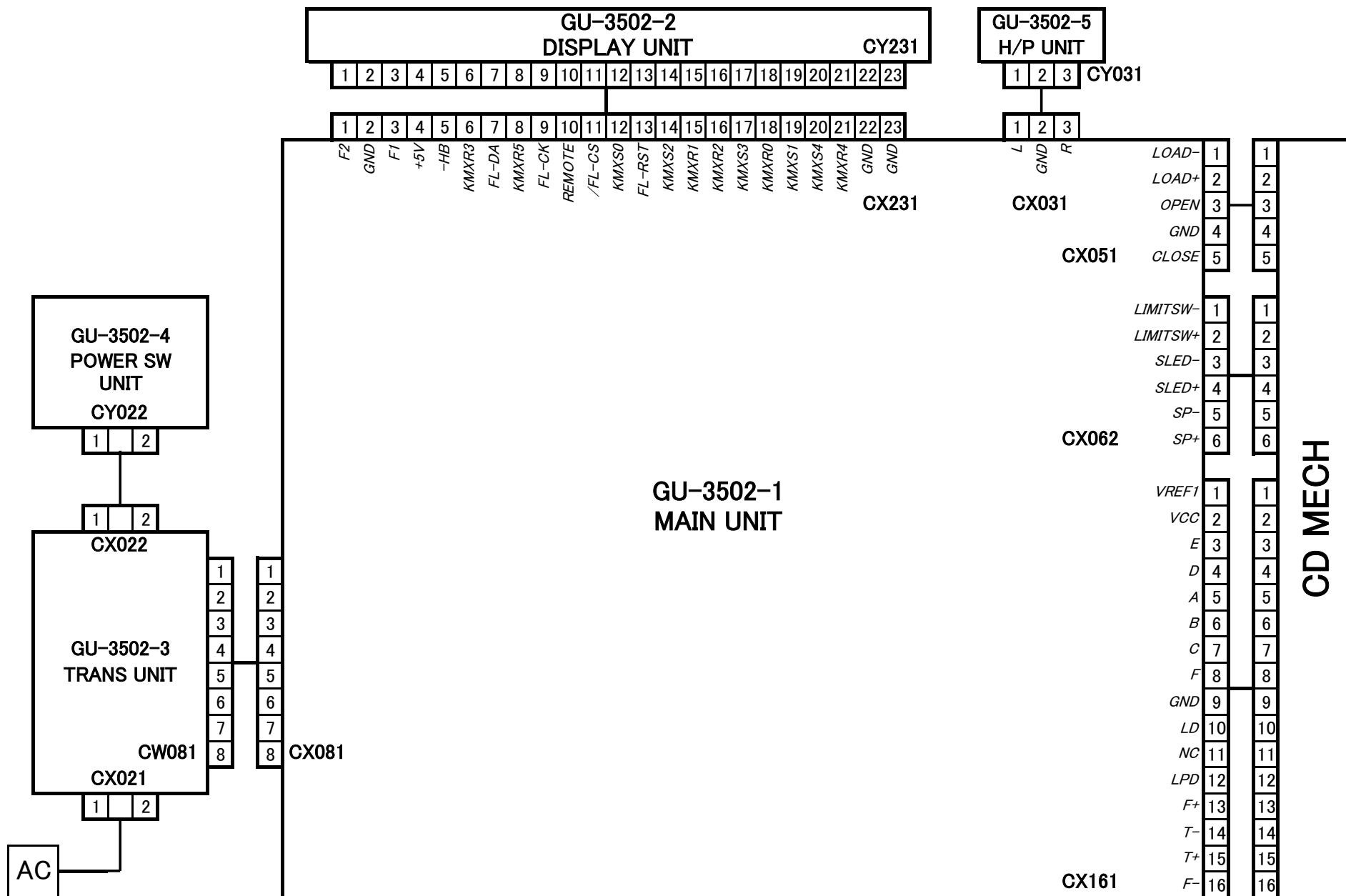
EXPLODED VIEW OF CD MECHANISM UNIT (CD11FTA3N)



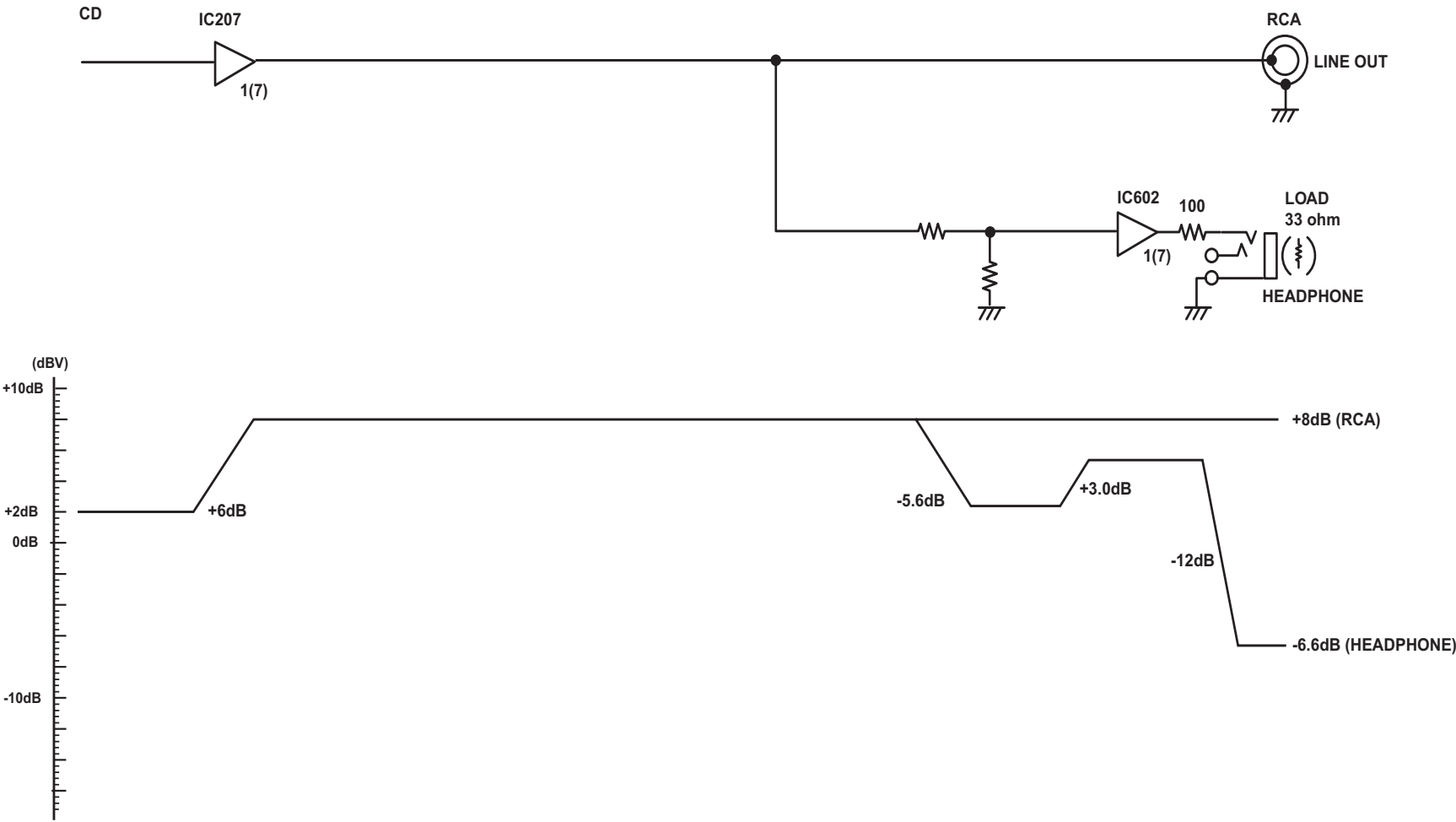
PARTS LIST OF CD MECHANISM UNIT

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	964 0009 006	Frame chassis		1	11	964 0010 008	Mecha lifter		1
2	964 0009 103	Magnet plate		1	12	964 0010 105	Loading table		1
3	964 0009 200	Rubber cushion		2	13	964 0010 901	Loading motor		1
4	964 0009 307	Rubber cushion		2	14	964 0010 202	5P Plug		1
5	964 0009 404	Magnet holder		1	15	964 0010 309	Push switch 2-1		2
6	964 0009 501	Drive gear		1	16	964 0010 406	Cushion		9
7	964 0009 608	Slide gear		1	17	964 0010 503	Cushion		2
8	964 0009 705	Pulley gear		1	18	964 0010 600	Motor P.W.B.		2
9	964 0009 802	Square belt		1	19	964 0010 707	Screw 3×8 SCR S-TPG BIN		1
10	964 0009 909	Magnet		1	20	964 0011 007	Mecha DA11T3CN		1

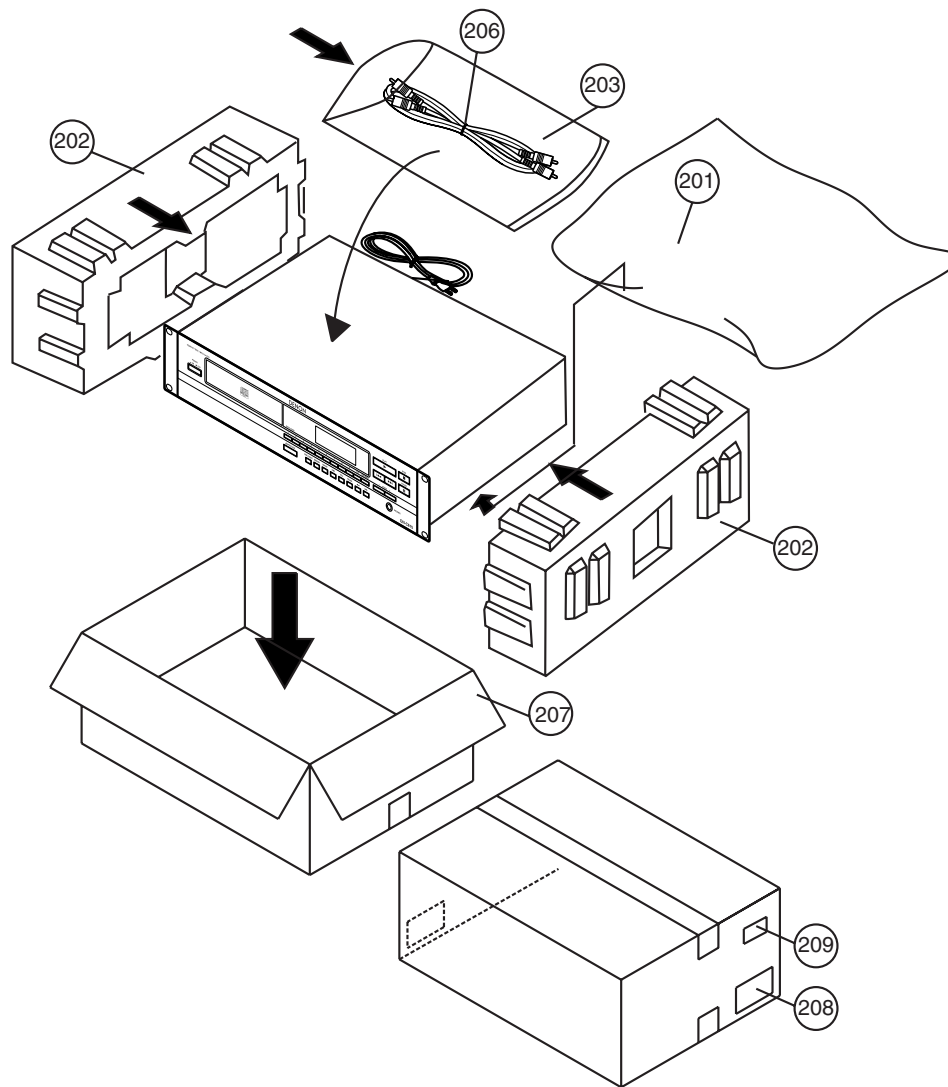
WIRING DIAGRAM



LEVEL DIAGRAM



PACKING VIEW



PARTS LIST OF PACKING & ACCESSORIES

Note: The symbols in the column "Remarks" indicate the following destinations.

E3: U.S.A. & Canada model E2: Europe model

E2K: Korea model

	Ref. No.	Part No.	Part Name	Remarks	Q'ty	NEW
	201	505 0102 092	STYLEN PAPER		1	
	202	503 1130 009	CUSHION		2	
	203	505 0038 030	POLY COVER		1	
*	204	511 3969 004	INST. MANUAL		1	.
*	205	515 0923 100	S.S.LIST COM.(EX)		1	
	206	203 2360 004	2P PIN CORD		1	
	207	501 2226 000	CARTON CASE		1	*
	208	-	CONT.CARD (L) SUB ASS'Y		1	
	209	-	BARCODE LABEL ASS'Y		1	
*	210	515 0945 007	WARRANTY (COM.)	For E3	1	

SCHEMATIC DIAGRAMS (1/2)

