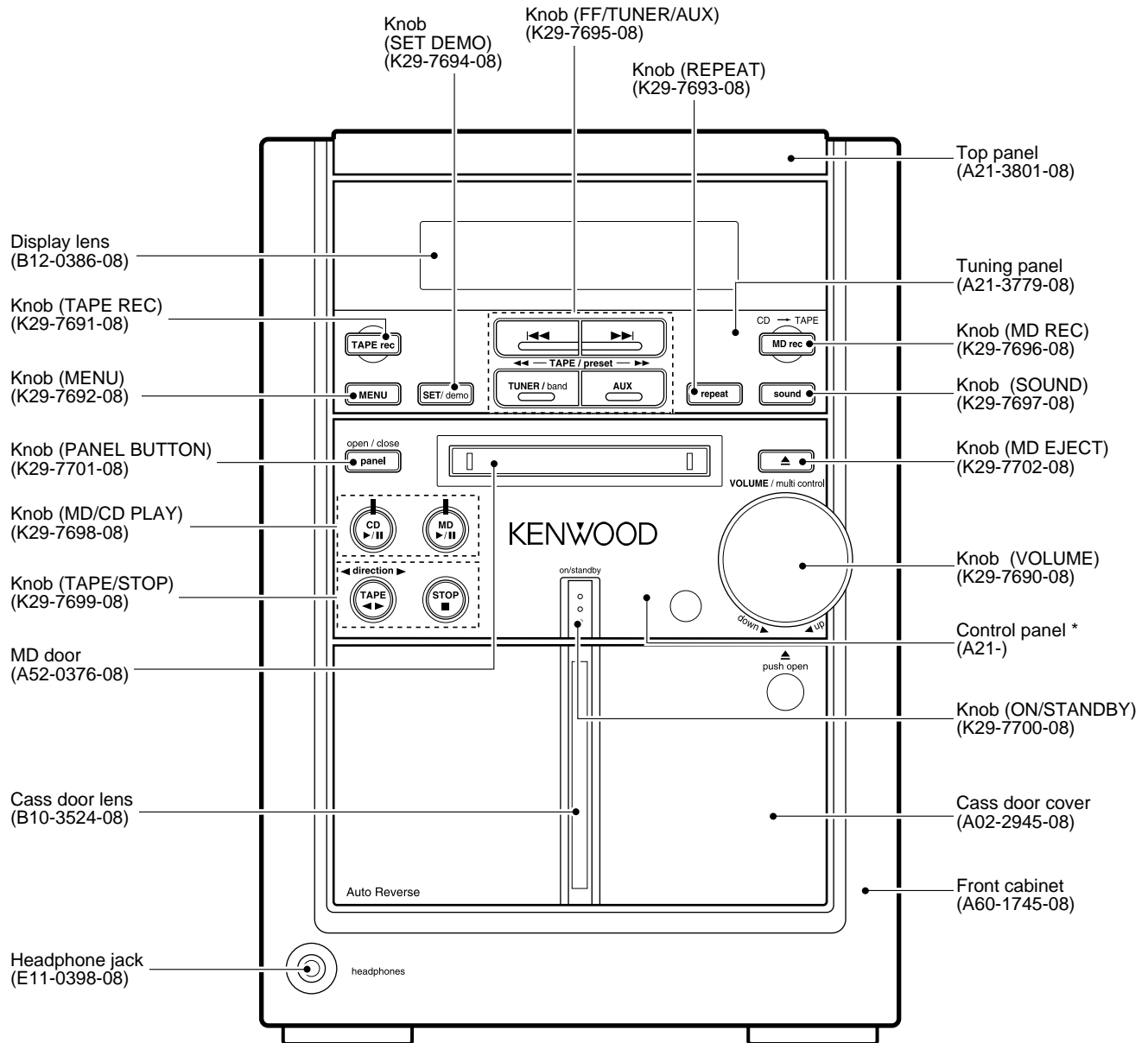


MICRO HiFi COMPONENT SYSTEM
**RXD-M31MD/
 LS-M31(M)**
SERVICE MANUAL
 (HM-381MD)

KENWOOD

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* Refer to parts list on page 42.

In compliance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Crop. certifies this equipment conforms to DHHS Regulations No. 21 DFR 1040. 10, Chapter 1, Subchapter J.
DANGER : Laser radiation when open and interlock defeated.
AVOID DIRECT EXPOSURE TO BEAM



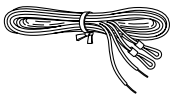
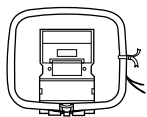
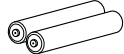
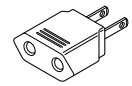
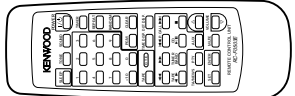
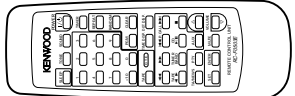
RXD-M31MD

CONTENTS / ACCESSORIES / CAUTIONS

Contents

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Accessories

<p>FM indoor antenna (1) (T90-0801-05)</p> 	<p>Loop antenna (1) (T90-0846-08)</p> 	<p>Batteries (R6/AA) (2)</p> 	<p>* AC plug adaptor (1) (E03-0115-05)</p>  <p>* Use to adapt the plug on the power cord to the shape of the wall outlet. (Accessory only for regions where use is necessary.)</p>
<p>Remote control unit (1) (A70-1241-05) : RC-F503 (K,P,M) (A70-1287-05) : RC-M0505E (E,T)</p> 			
<p>Battery cover (A09-1114-08)</p> 			

System configuration

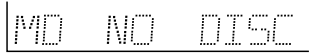
SYSTEM	MAIN UNIT	SPEAKER
HM-381MD	RXD-M31MD	※LS-M31(M)

※ Refer number for LS-M31(M), refer to parts list on page 52.

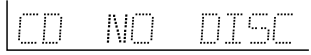
Cautions

Note related to transportation and movement
Before transporting or moving this unit, carry out the following operations.

- Remove the CD or MD from the unit.
- Press the ►/|| key of the MD.



- Press the ►/|| key of the CD.
- Wait for some time and verify that the display becomes as shown in the figure.



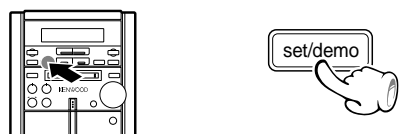
- Wait a few seconds and turn the unit OFF.

Operation to reset

The microcomputer may fall into malfunction (impossibility to operate, erroneous display, etc.) when the power cord is unplugged while unit is ON or due to an external factor. In this case, execute the following procedure to reset the microcomputer and return it to normal condition.

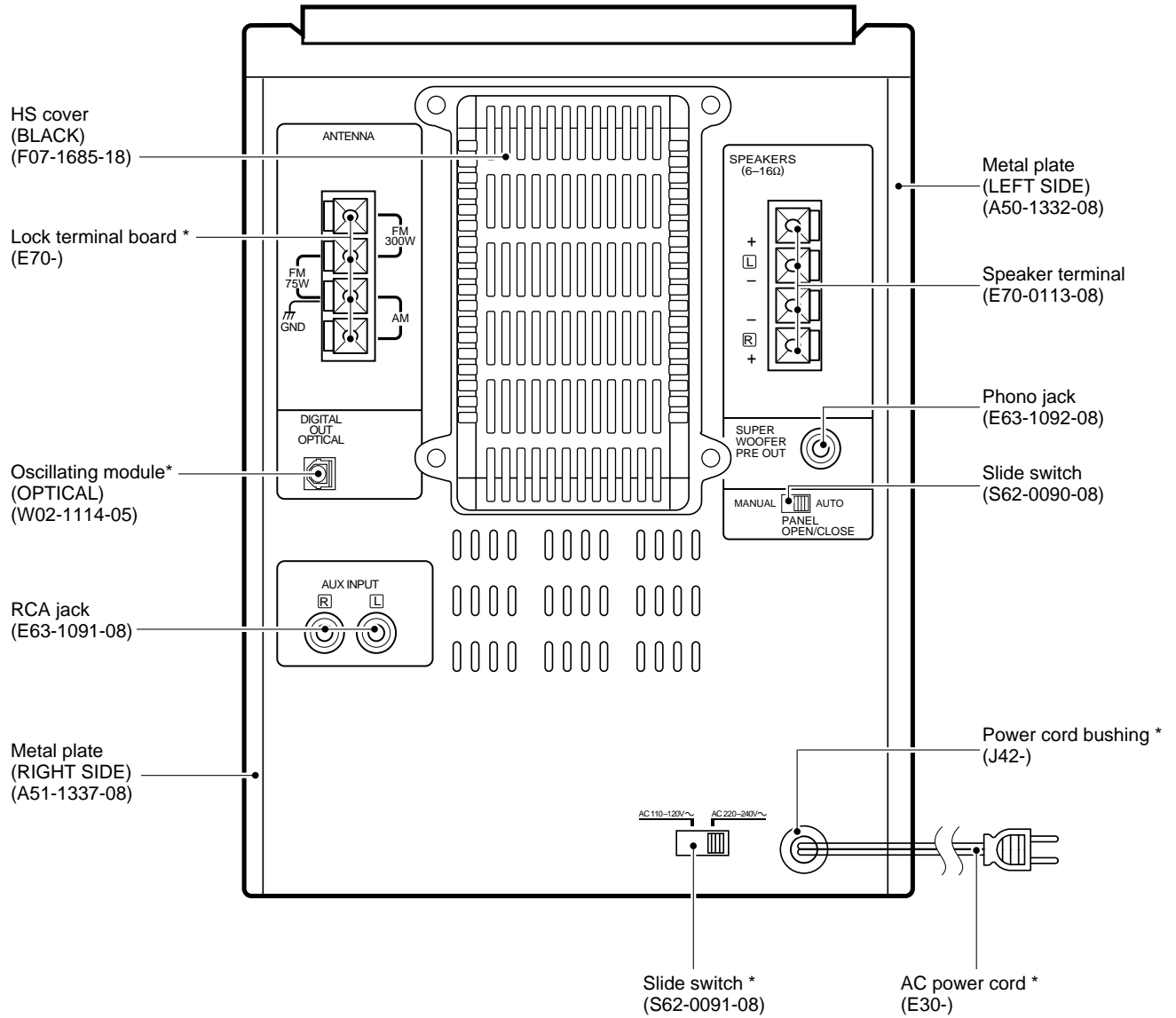
- Please note that resetting the microcomputer clears the contents stored in and it returns to condition when it left the factory.

Unplug the power cord from the power outlet then, while holding the "set/demo" key depressed, plug the power cord again.

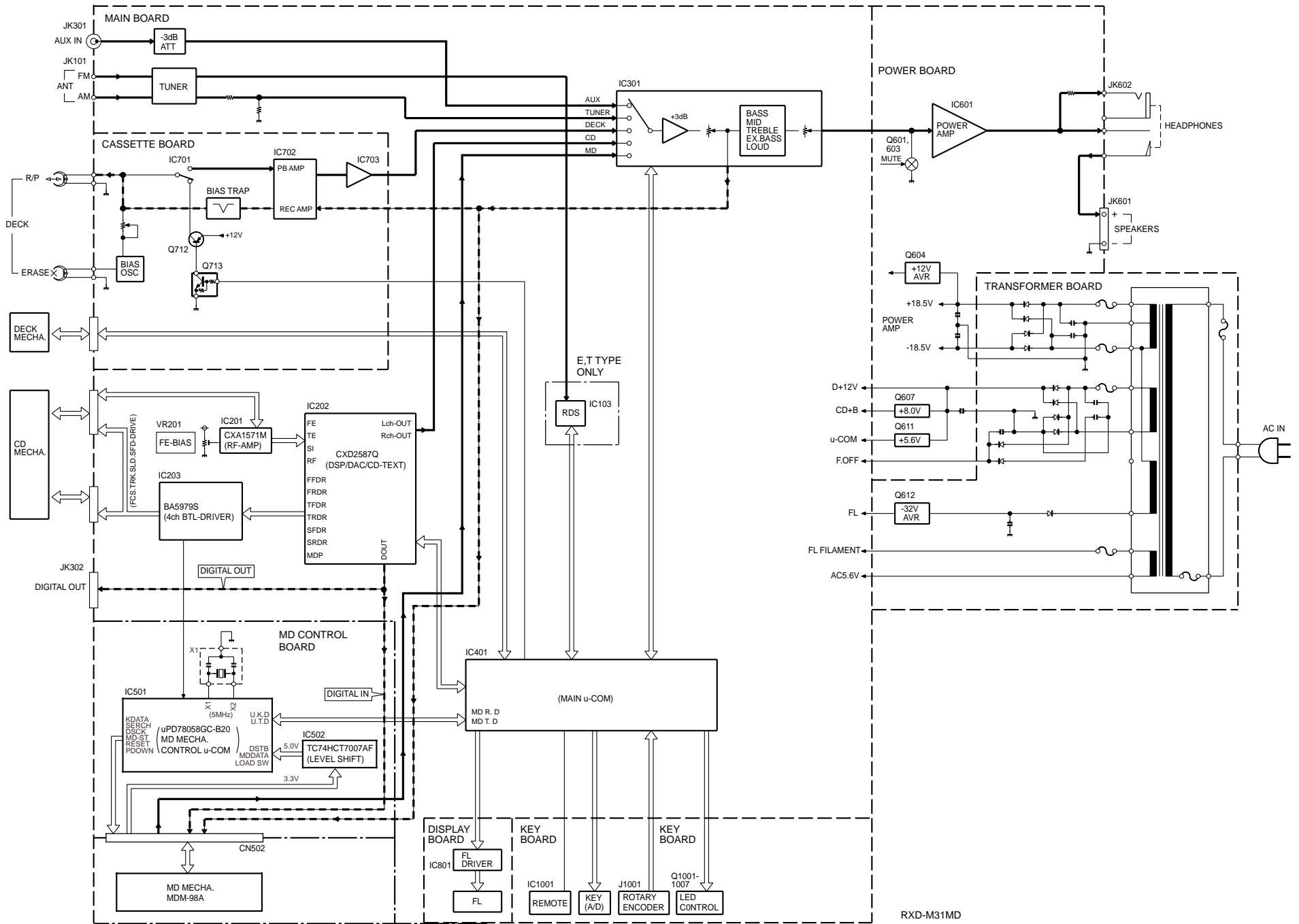


RXD-M31MD

EXTERNAL VIEW



* Refer to parts list on page 42.



1. Initialization

1-1 Setting of initial conditions

While pressing the [SET] key, plug the AC power cord into an AC power outlet.

1-2 Initializing operation

- A microcomputer is initialized for start when the AC power is turned on while pressing the [SET] key. At that time, CD mechanism, MD mechanism and CASSETTE mechanism are also initialized.
- During the initial operation, the display shows "INITIALIZE" and normal indication, after that it goes off immediately.

1-3 Initial items and back up data

ITEMS		
AMP	※POWER	OFF
	※VOLUME	15
	※BALANCE	CENTER
	LOUDNESS	OFF
	EX. BASS	ON
	※INPUT SEL	TUNER
TUNER	※AUX INPUT	0
	※BASS	0
	※TREBLE	0
	※BAND	FM
	※LAST f	LIMIT
	※LAST Pch	---
CLOCK TIMER	※AUTO/MONO	AUTO
	※Pch	TEST f
	CLOCK	AM 12 : 00
	※PROG ON	AM 12 : 00
	※PROG OFF	AM 12 : 00
	※PRO MODE	PLAY
	※SOURCE	TUNER
	※Pch	1
	※EXE	OFF
	※OTT	OFF
CD	SLEEP	OFF
	PLAY MODE	TRACK
	REPEAT	OFF
	RANDOM	OFF
DECK	PLAY MODE	STOP
	※DIRECTION	FORWARD
	※RVS MODE	▷
OPERATION MODE	STOP	

※back up data

1-4 Mechanism initialization

1-4-1 CD mechanism

- If a mechanism error occurs, "C" is indicated on the display.

1-4-2 MD mechanism

- The MD ON code is input within 4 seconds after turned the power port on, the MD initial code (D122H) is output.
- If the MD on code is not input, the error indication is displayed as "M" on the display.

1-4-3 CASSETTE mechanism

- If a mechanism error occurs, "X" is indicated on the display.

2. TUNER preset frequency

ch	Destination		
	K2	E2	E1/H
1	FM 97.50MHz	FM 97.50MHz	FM 97.50MHz
2	FM 108.00MHz	FM 108.00MHz	FM 108.00MHz
3	AM 630kHz	AM 630kHz	AM 630kHz
4	AM 1000kHz	AM 999kHz	AM 999kHz
5	AM 1440kHz	AM 1440kHz	AM 1440kHz
6	AM 1610kHz	AM 1602kHz	AM 1602kHz
7	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
8	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
9	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
10	FM 89.10MHz	FM 89.10MHz	FM 89.10MHz
11	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
12	FM 90.00MHz	FM 90.00MHz	FM 90.00MHz
13	FM 106.00MHz	FM 106.00MHz	FM 106.00MHz
14	AM 530kHz	AM 531kHz	AM 531kHz
15	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
16	FM 98.00MHz	FM 98.00MHz	FM 98.00MHz
17	FM 98.50MHz	FM 98.50MHz	FM 98.50MHz
18	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
19	AM 990kHz	AM 990kHz	AM 990kHz
20	FM 97.40MHz	FM 97.40MHz	FM 97.40MHz
21	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
22	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
23	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
24	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
25	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
26	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
27	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
28	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
29	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
30	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
31	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
32	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
33	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
34	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
35	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
36	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
37	FM 87.50MHz	FM 87.50MHz	FM 87.50MHz
38	FM 87.50MHz	FM 87.50MHz	FML 74.00MHz
39	FM 87.50MHz	FM 87.50MHz	FML 65.00MHz
40	FM 87.50MHz	FM 87.50MHz	FML 69.00MHz

3. Destination list of TUNER

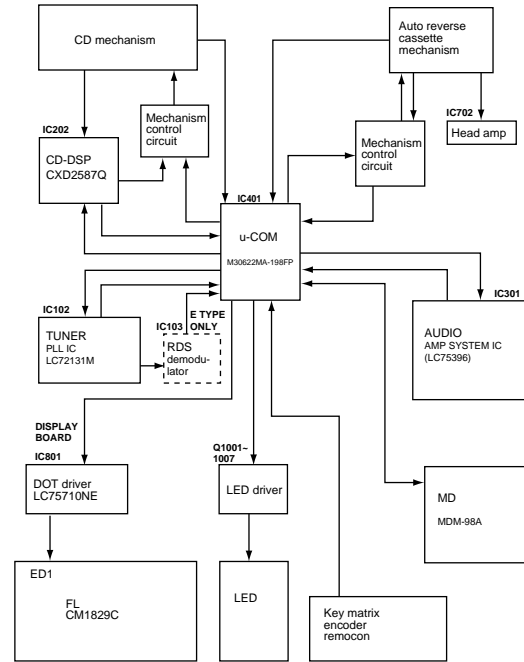
(DSW4=50pin, DSW3=49pin, DSW2=48pin)

Destination	U-COM Destination	Discrimination			Band	Receiving frequency range	Channel space	IF	RF
		DSW4	DSW3	DSW2					
K, P	K1	0	0	0	FM	87.5MHz~108.0MHz	100kHz	+10.7MHz	25kHz
					AM	530kHz~1700kHz	10kHz	+450kHz	10kHz
M, X	K2	0	0	1	FM	87.5MHz~108.0MHz	100kHz	+10.7MHz	25kHz
					AM	530kHz~1610kHz	10kHz	+450kHz	10kHz
J	J	0	1	0	FM	76.0MHz~108.0MHz	100kHz	-10.7MHz	25kHz
					AM	531kHz~1629kHz	9kHz	+450kHz	9kHz
E, T	E1 RDS	1	1	0	FM	87.5MHz~108.0MHz	50kHz	+10.7MHz	25kHz
					AM	531kHz~1602kHz	9kHz	+450kHz	9kHz

0=(input low) 1=(input high)

4. Main microprocessor M30622MA-198FP (MAIN BOARD IC401)

4-1 Microprocessor periphery block diagram



4-2 Key matrix

Vref = 5V

VOLTAGE [V]	0.357 < ≤1.061	1.061 < ≤1.726	1.726 < ≤2.437	2.437 < ≤3.156	3.156 < ≤3.827	3.827 < ≤4.586	4.586 <
A/D (hex)	12h < ≤36h	36h < ≤58h	58h < ≤7Ch	7Ch < ≤A1h	A1h < ≤C3h	C3h < ≤EAh	EAh <
KEY1 89PIN	SOUND	REPEAT	MENU	SET	POWER	-	KEY OFF
KEY2 90PIN	STOP ■	S. DOWN ◀◀	CD ▶▶	MD ▶▶	MD rec (AUX)	-	KEY OFF
KEY3 91PIN	S. UP ▶▶	EJECT ▲	TUNER/band ◀◀	AUX ▶▶	TAPE	TAPE REC	KEY OFF

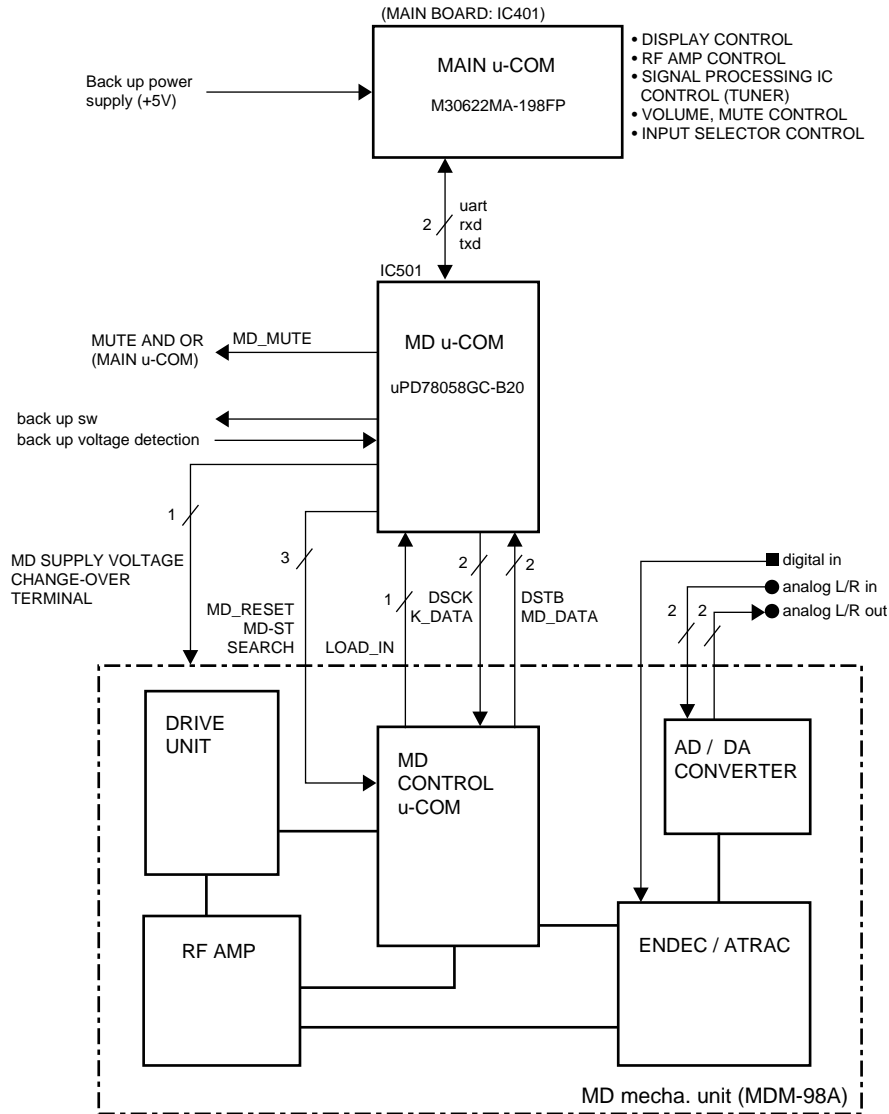
4-3 Pin description of main microprocessor

Pin No.	Name	I/O	Description
1	CE	O	SYSTEM IC(LC75396)/PLL IC(LC72131)CE
2	PLL DO	I	PLL data input.
3	SD	I	Tuner SD detector input. H: no tuned L: tuned
4	STEREO	I	Tuner stereo detector input. H: mono L: stereo
5	EMPHASIS	O	No used.
6	RDS DATA	I	RDS data input.(E/T type only)
7	CE	I	AC off detector input. H: AC on L: AC off
8	BYTE	I	Ground.
9	CNVSS	I	Ground.
10	XCIN	I	Timer clock(32.768kHz).
11	XCOUT	O	Timer clock(32.768kHz).
12	RESET	I	U-com reset signal input. H: normal L: reset
13	XOUT	O	Main clock.
14	VSS	-	Ground.
15	XIN	I	Main clock.
16	VCC	-	Power supply(+5.0V)
17	NMI	I	Power supply(+5.0V)
18	REMOCON	I	Remocon signal input.
19	RDX CLK	I	RDS clock input.(E/Ttype only)
20	SCOR	I	Sub code synchro signal input.
21	CD DC OFF	O	Power supply control for CD DSP. H: off L: on
22	SCLK	O	CD sense data read out clock.
23	SENSE	I	CD sense input.
24	CD CLK	O	CD DSP clock.
25	XLAT	O	CD DSP latch output.
26	CD DATA	O	CD DSP data output.
27	CD RST	O	CD DSP reset signal output. H: normal L: reset
28	SQCK	O	CD sub code clock.
29	SQSO	I	Input of CD sub code.
30	NC	O	No used.
31	FL DATA	O	Data output of FL driver.
32	NC	O	No used.
33	FL CLK	O	Clock output of FL driver.
34	CD ZD	-	No used.
35	UART1	O	Transmission data output to MD(UART).
36	UART2	I	Data input from MD(UART).
37	LCD	O	CD laser output control. H: off L: on
38	NC	O	No used.
39	MD RST	O	MD reset signal output. H: normal L: reset
40	CD MON	O	ON/OFF control output of disc monitor. H: on L: off
41	NC	O	No used.
42	DM SHORT	O	Same as CD power signal. H: off L: on
43	DOOR SW	I	Input port of CD door switch. H: open L: close
44,45	NC	O	No used.
46	MODEL	I	Input port of model discrimination.
47	DOLBY	I	No used.
48-50	CODE2-4	I	Discrimination of tuner destination.
51	FL RST	O	Reset signal output of FL driver.

Pin No.	Name	I/O	Description												
52	PWX33	O	Control port of MD CE.												
53	ENC1	I	Rotary encoder input(vol.A).												
54	ENC2	I	Rotary encoder input(vol.B).												
55	LED5	O	Control port of LED(MD). H: on L: off												
56	LED4	O	Control port of LED(CD). H: on L: off												
57	LED3	O	Control port of LED(standby,RED). H: off L: on												
58	LED2	O	Control port of LED(standby,GRN). H: off L: on												
59	LED1	O	Control port of LED(FWD). H: on L: off												
60	LED0	O	Control port of LED(RVS). H: on L: off												
61	FL CE	O	Output port of CE(FLdriver).												
62	VCC	-	Power supply.												
63	NC	O	No used.												
64	VSS	-	Ground.												
65	A/B-2	O	Deck activity choose mode. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>65</td> <td>66</td> <td></td> </tr> <tr> <td>H</td> <td>H</td> <td>REC</td> </tr> <tr> <td>L</td> <td>H</td> <td>REC PAUSE,ARM</td> </tr> <tr> <td>L</td> <td>L</td> <td>PLAY</td> </tr> </table>	65	66		H	H	REC	L	H	REC PAUSE,ARM	L	L	PLAY
65	66														
H	H	REC													
L	H	REC PAUSE,ARM													
L	L	PLAY													
66	A/B-1	O	Deck activity choose mode. <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>L</td> <td>H</td> <td>REC PAUSE,ARM</td> </tr> <tr> <td>L</td> <td>L</td> <td>PLAY</td> </tr> </table>	L	H	REC PAUSE,ARM	L	L	PLAY						
L	H	REC PAUSE,ARM													
L	L	PLAY													
67	CPM	O	Deck motor control. H: on L: off												
68	SOL	O	Deck solenoid control. H: on L: off												
69	REC F SW	I	Deck FWD REC switch input. H: off L: on												
70	REC R SW	I	Deck RVS REV switch input. H: off L: on												
71	PACK SW	I	Deck pack switch input. H: off L: on												
72	Cro2 SW	-	No used.												
73	PLAY SW	I	Deck play switch input. H: off L: on												
74	B1/2	-	No used.												
75	A120/70	-	No used.												
76	BIAS	O	Deck bias control. H: on L: off												
77	NOR	-	No used.												
78	REC/PLAY	-	No used.												
79	NR/ON	-	No used.												
80	S.CL	O	Clock output to system IC/PLL IC.												
81	PRT MD	I	MD protection. H: protection on												
82	FAN H/L	-	No used.												
83	FAN ON/OFF	-	No used.												
84	A MUTE	O	Audio muting control. H: off L: on												
85	CD A MUTE	O	CD analog muting control. H: on L: off												
86	TU.MT	O	Tuner muting control. H: on L: off												
87	PWR07	O	Power relay control. H: on L: off												
88	PRT07	I	Detection port of protection. H: protection on												
89-91	KEY1-KEY3	I	Key A/D input(1-3).												
92,93	A/DP1,A/DP2	-	No used.												
94	TA.MT	O	Muting control of DECK. H: on L: off												
95	RDS SLEVEL	I	RDS S-level input.(E/T type only)												
96	AVSS	-	Ground.												
97	PHOTO	I	Deck reel detector input.												
98	VREF	-	Reference voltage.(no back up)												
99	AVCC	-	Power supply.(back up)												
100	S.DI	O	Data output to system IC/PLL IC.												

5. Composition (MD section)

5-1 Microprocessor periphery block diagram



5-2 Pin description of MD u-com : UPD78058GC-B20(MD control board, IC501)

Pin No.	Name	I/O	Description
1	PDOWN	O	MDM-98A power down detector.
2	SEARCH	O	CD search output.
3	LOAD IN	I	Load switch input.
4	AVSS	-	A/D power supply(connected to ground).
5	GND	-	No used.
6	NC	-	No used.
7	AVREF1	-	D/A reference voltage(+5.0V).
8	UART2	I	Communiation from main u-com(UART RXD).
9	UART1	O	Communiation to main u-com(UART TXD).
10	NC	-	No used.
11	MD DATA	I	MD IC input data(MDM-98A input data).
12	K DATA	O	MD IC output data(MDM-98A output data).
13	DSCK	O	MD IC clock output(MDM-98A).
14	DSTB	I	Strobe input for MD IC(MDM-98A).
15	COMM ANS	I	No used.
16	COMM DIN	I	No used.
17	COMM DOUT	O	No used.
18	COMM CLK	I/O	No used.
19	COMM REQ	O	No used.
20-31	-	-	-
32	6.5/5.0V	O	Change-over of load voltage for MD unit. (disc load/eject : H other : L)
33	VSS	-	Ground.
34-43	-	-	No used.
44	INISW	I	Initial switch input.
45-52	-	-	No used.
53-55	GND	-	No used.
56-58	NC	-	No used.
59	SRESET	O	No used.
60	RESET	I	Reset signal input.
61	GND	-	No used.
62-66	-	-	No used.
67	CE	I	Detection signal input of AC OFF.
68	VDD	-	U-com power supply.
69	X2	-	5MHz oscillator.
70	X1	I	5MHz oscillator.
71	IC	-	No used.
72	NC	-	No used.
73	GND	-	No used.
74	AVDD	-	A/D power supply.
75	AVREFO	I	A/D reference voltage.
76	BACKUP	O	Detection signal(A/D) input for back up. (back up : more than 2.2V no back up : less than 2.2V)
77	AMUTE	O	Analog signal input. H : mute on L : mute off
78	BACKSW	O	Detection switch input for back up. H : on(in case of CE=H) L : off(in case of CE=L)
79	MD RESET	O	Reset signal input of MD u-com. H : normal L : MD u-com reset
80	MD ST	O	ST-ID output(MD ON).

6. Test mode

6-1 Test mode of the receiver

(1) Setting of the test mode.

While pressing the [Band] key, plug the AC power cord into an AC power outlet.

(2) Canceling of the test mode.

Unplug an AC power cord.

(3) Condition in test mode.

POWER ●●●●● ON

SELECTOR ●●● TUNER [BAND]

FL, LED ●●●●● All the fluorescent display indicate and LEDs light. (The all illuminated state is cleared by pressing any main unit key or remocon key.

EX. BASS ●●●●● OFF

(4) Basic operation in test mode.

- ① The muting during mode selection is not controlled in the test mode.
 - ② The test mode is cancelled when the AC power is turned OFF.
- (5) The operation of the keys in the test mode.

SERECTOR OPERATION KEY	TUNER	AUX		
MENU	NORMAL ACTIVITY	← DISPLAY →	DISPLAY →	DISPLAY →
◀◀	P.CALL : DOWN	VOLUME 1	INPUT-6(dB)	-
■	P.CALL : 10 STEP CHANGEOVER 10 → 20 → 30 → 40 → 01	VOLUME 40	INPUT 0 (dB)	-
▶▶	P.CALL : UP	VOLUME 80	INPUT+3(dB)	-
REPEAT	← EQU.MAX → EQU.MINI → EQU.FLAT			
SOUND (E.T only)	S-LEVEL DISPLAY ATT OFF * * ↓ ATT ON * * ↓ TUNER ATT OFF (NORMAL DISPLAY) * * : S-LEVEL A/D VALUE(HEX)	NORMAL ACTIVITY		

6-2 Test mode of DECK section

- (1) Setting
While pressing the TAPE key(DECK), plug the AC power cord into an AC power outlet.
- (2) Resetting
Disconnect the AC power cord from an AC power outlet or press the [ON/STANDBY] key.
- (3) Operation in TEST mode
- (a) Initial condition

Item	Condition
Power	ON
Selector	TAPE
Main VOL.	0dB (VOL. 80)
Input level(AUX)	-6dB(INPUT 0)
EX. bass	OFF
FL, LED, LCD	All the FLs, LEDs, and LCDs are turned on

- (b) 4-sec REC
- If the REC key is pushed, the system record for 4sec. Then, it rewinds to the REC starting position and plays back automatically.
 - If the REC key is pushed during the 4-sec REC operation, the system records further for 4-sec, then returns to the starting position of the first 4-sec REC operation and plays back.
- (c) Mechanism half switches indication

The mechanism half switches status are indicated "/" or "TAPE" on the display as shown below.

DOT (DISPLAY)	1st figure	2nd figure	3rd figure	4th figure
MECHA. HALF SWITCH	FWD REC INHIBIT DETECTION SW	RVS REC INHIBIT DETECTION SW	CRO2(TYPE II) DETECTION SW	CASSETTE HALF DETECTION SW
NG	/	/	/	/
OK	T	A	P	E

6-3 Test mode of MD player

No.	Contents of TEST mode	Keys	Operation & Indication	Remarks
6-3-1 Inspection mode Setting : While pressing the [MD REC] Key, plug the AC power cord into an AC power outlet. The "INSPECTION" shows on the display. Cancellation : Unplug the AC power cord from an AC power outlet.				
1	Analog through test mode	SOUND	<ul style="list-style-type: none"> • The "ANALOG" is indicated on the display for a second. • AUX input level→MID • Source indicator (MD) is turned ON . 	
2	Digital through test mode	SOUND	<ul style="list-style-type: none"> • The "DIGITAL1" is indicated on the display for a second. "DIGITAL1"→CD input • Source indicator (MD) is turned ON. 	

6-3-2 MD TEST mode for adjustment

1. Preparation for adjustment
Test disc

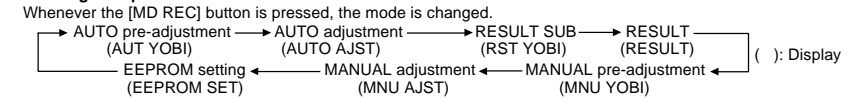
	Type	Test disc
1	High reflection disc	TGYS1 (SONY)
2	Low reflection disc	Recording minidisc
3	—————	Head Adjusting transparent

2. Test mode
Test mode setting method

1. While pressing the [MD PLAY] key, plug the AC power cord into the AC power outlet.
(Start from Ⓐ if no disc load, Ⓑ if disc load.)
- STEP Display
- Ⓐ MD
- ↓
- Ⓑ EJECT
- ↓
- Ⓒ AUT YOBI
- ↓
- Ⓓ tsm ○○○○e○○○ : Test mode STOP state
○○○○ : MD microprocessor version.
- Change to step Ⓓ if press <MD STOP> key. Return to Ⓒ if press <MD REC>key.

* Repair service is available for AUTO pre-adjustment and AUTO adjustment only.
Press MD STOP key to cancel the test mode if in needless test modes.

Entering the specific mode



Canceling the test mode

When the POWER button is pressed, the test mode is canceled, and the POWER OFF state is set.

• **Test Mode**

1. AUTO pre-adjustment mode	<ul style="list-style-type: none"> Automatic pre-adjustment is performed. (After adjustment the grating adjustment mode is set.) The adjustment value is output with the aid of system controller interface.
2. AUTO adjustment mode	<ul style="list-style-type: none"> Automatic adjustment is performed. The adjustment value is output with the aid of system controller interface. Continuous playback is performed. (Error rate indication, jump test)
3. RESULT sub-mode*	<ul style="list-style-type: none"> The measurement value, set value and calculated value are indicated. The set value is changed manually (in servo OFF state).
4. RESULT mode (final adjustment)*	<ul style="list-style-type: none"> The set value (after calculation) is indicated. The set value is changed manually (in servo OFF state).
5. MANUAL pre-adjustment mode*	<ul style="list-style-type: none"> RF side manual adjustment is performed. Focus and tracking signal ATT manual adjustment is performed. Focus and tracking signal offset setting is performed.
6. MANUAL adjustment mode*	<ul style="list-style-type: none"> Focus and tracking signal ATT manual adjustment is performed.
7. EEPROM setting mode*	<ul style="list-style-type: none"> Don't adjust.
8. TEST-PLAY mode*	<ul style="list-style-type: none"> Continuous playback from the specified address is performed. C1 error rate measurement,
9. TEST-REC mode*	<ul style="list-style-type: none"> Continuous recording from the specified address is performed. Change of record laser output (servo gain is also changed according to laser output)
10. EJECT mode*	<ul style="list-style-type: none"> TEMP setting (of EEPROM setting)

* This mode is not used for service.

1. AUTO pre-adjustment mode (Low reflection disc only)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[t s m○○○○ e ○○]
Step 2	Press once the MD REC button.	AUTO pre-adjustment menu	[ATU YOBI]
Step 3	Press once the MD PLAY button.	The slide moves to the innermost periphery, and automatic pre-adjustment is started. <ul style="list-style-type: none"> During automatic adjustment ※※※ changes as follows. HAO→RFG→SAG→SBg→PTG→PCH→GTG→GCH→RCG→SEG→RFG→SAG→HAO→HEO→TCO→LAO If adjustment is OK, Step 4. If adjustment is NG, Step 5. 	[※※※ : - - - - -]
	End of adjustment		
Step 4	Grating adjustment, adjustment value output Press once the MD STOP button.	STEP 2	[_ C O M P L E T E _]
Step 5	Adjustment value output Press once the MD STOP button.	STEP 2 AUTO pre-adjustment menu	[A U T Y O B I]

• ※※※ : Adjustment name, □□□□ : Address

2. AUTO adjustment mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[t s m○○○○ e ○○]
Step 2	Press the MD REC button two times.	AUTO adjustment menu	[A U T O _ A J S T _]
Step 3	Press once the MD PLAY button.	The slide moves to the innermost periphery, and automatic adjustment is started. <ul style="list-style-type: none"> In case of high reflection disc ※※※ changes as follows. PEG→HAG In case of low reflection disc ※※※ changes as follows. PEG→LAG→GCG→GEG→LAG If adjustment is OK, Step 4. If adjustment is NG, Step 7. 	[※※※ : - - - - -]
	End of adjustment		
Step 4	Adjustment value output Press the MD PLAY button. Press the MD STOP button.	STEP 5 STEP 2	[_ C O M P L E T E _]

Step No.	Setting Method	Remarks	Display
Step 5	Continuous playback (groove section)		[a □□□□○○○○]
Step 6	Press the MD STOP button.	STEP 2 AUTO adjustment menu	
Step 7	Adjustment value output Press the MD STOP button.	STEP 2 AUTO adjustment menu	[C a n ' t _ A D J .]

• ※※※ : Adjustment name, ○○ : Measurement value, □□□□ : Address

● **Mechanism Adjustment**

1. Optical pickup grating inspecting method

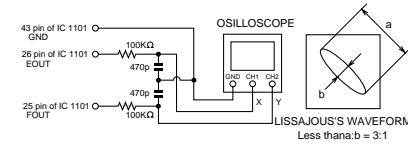


Figure 1-1 Optical Pickup Grating Deviation Measuring Method

After the automatic adjustment is performed in the AUTO mode (TEST mode) with the aid of high reflection MD disc ("COMPLATE" is displayed), the Lissajous's waveform (x-y) is adjusted.

- Slightly loosen the 3 screws of spindle moto, and make an adjustment, observing the Lissajous's waveform.
- After adjustment tighten the screw in order of ①, ②, ③.

2. Jitter adjustment and checking method

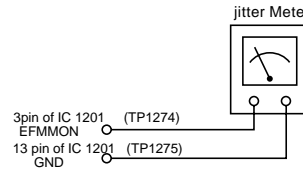


Figure 1-3 Jitter connection diagram

After performing automatic adjustment in AUTO mode of TEST mode using the low reflection MD disc, check this jitter in pit continuous playback and groove continuous playback mode.

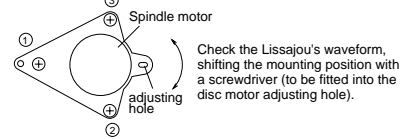
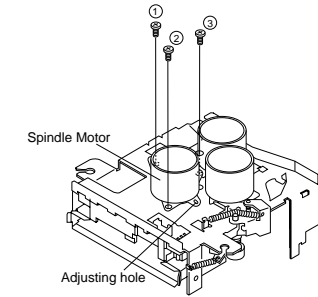


Figure 1-2

6-4 Test mode of CD player

6-4-1 Main unit

- (1) Setting of the test mode
While pressing the [CD PLAY] key, plug the AC power cord into an AC outlet.
- (2) Canceling of the test mode.
Unplug the AC power cord from AC power outlet.
- (3) Operation

KEY	DISPLAY	OPERATION															
[CD PLAY] +AC	CD 5 01	POWER ON, SEL CD Mecha. initialization															
STOP	CD 5 01	STOP															
PLAY/PAUSE PAUSE ↓ ↑ PLAY (Cyclically changed)	CD 5 05 PLAY MARK ON ▶	05 MODE															
	CD 5 03 PAUSE MARK ON ■	03 MODE (TRACKING SERVO OFF)															
SKIP DOWN	CD 5	Indication : Adjustment value/Mean value (stop mode only)/HEX <table border="1" style="font-size: small;"> <tr> <td>DOT section</td> <td>TNO section</td> <td>SEC. section</td> </tr> <tr> <td>TB/FB</td> <td>TB value</td> <td>FB value</td> </tr> <tr> <td>TG/FG</td> <td>TG value</td> <td>FG value</td> </tr> <tr> <td>FE/RF</td> <td>FE value</td> <td>RF value</td> </tr> <tr> <td>TE/VC</td> <td>TE value</td> <td>VC value</td> </tr> </table>	DOT section	TNO section	SEC. section	TB/FB	TB value	FB value	TG/FG	TG value	FG value	FE/RF	FE value	RF value	TE/VC	TE value	VC value
DOT section	TNO section	SEC. section															
TB/FB	TB value	FB value															
TG/FG	TG value	FG value															
FE/RF	FE value	RF value															
TE/VC	TE value	VC value															
SKIP UP	CD 5 06	Read TOC → play															

7. MD mechanism error message

DISPLAY	DESCRIPTION
BLANK DISC	Non Recorded disc
CANT COPY	Inhibit to record by SCMS
CANT EDIT	Inhibit to edit by MD standard
CANT REC	Inhibit to record by disc damage(10 or more defects/recordable cluster is 0)
DISC ERROR**	OR : UTOC read error or FTNO>LTNO (edit/record) permit ALL ERASE only DO : Start address TNO>endless TNO (playback) handle poor TNO as 1SG (edit/record) permit ALL ERASE only C0 : Write poor data in UTOC0 C1 : Write poor data in UTOC1 C2 : Write poor data in UTOC2 C4 : Write poor data in UTOC4 (play back) playback even if address roof(C0) (edit/record) permit ALL ERASE only
DISC FULL	No recordable area
MECH ERR**	10-13 : head poor down 20-23 : head poor up
no disc	No disc in the unit
NO TRACKS	Disc recorded title only
NOT AUDIO	Disc recorded audio signal.
PLAY ONLY	Record to music disc
PROTECTED	Record disc inhibited to record
READING	In mode of reading TOC or UTOC
SRCH ERR**	30 : Search time over in playback, FF or FB 31 : Search time over in REC-PAUSE 32 : Search time over in record
TEMP OVER	High temperature
TITLE FULL	Input over letter of title
UNIT ERROR	Hardware damage
UTOC W ERR	Error of writing to UTOC
WRITING	In writing to UTOC

Adjustment of tuner

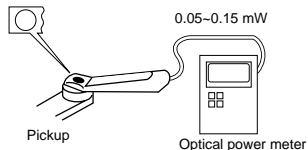
No.	ITEM	INPUT SETTING	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	TUNED LEVEL	(A) 98 MHz, 31.2dBf (ANT INPUT) 1kHz, ±40 kHz DEV	—	MONO 98.0 MHz	VR101	Adjust VR1 and stop at the point where ED1 (TUNED) goes ON.	

Adjustment of CD player

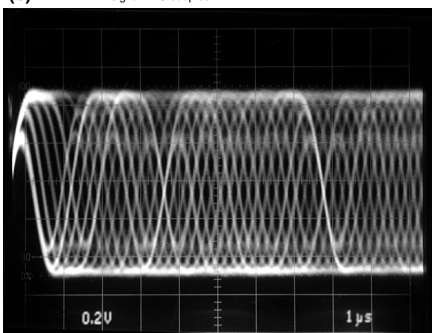
No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG.
TEST MODE : While pressing the [CD PLAY] key, plug the AC power cord into the AC outlet.							
1	LASER POWER	—	Set the sensor section of the optical power meter on the pickup lens.	Press the "PLAY" key to check that the display is "03".	—	On the power from 0.05 to 0.15mW, when the diffraction grating is correctly aligned with the RF level of 0.8Vp-p or more	(a)
2	FOCUS ERROR BIAS	Test disc Type 4	Connect an oscilloscope as follows. (+side : RF(IC201, 17pin) GND : VREF(test pin)	Press the "PLAY" key. Confirm that the display is "05".	VR201	Optimum eye pattern	(b)

Note:
Type 4disc : SONY YEDS-18 Test Disc or equivalent.
LPF : Around 47kΩ + 390pF or so.

(a) Laser Power



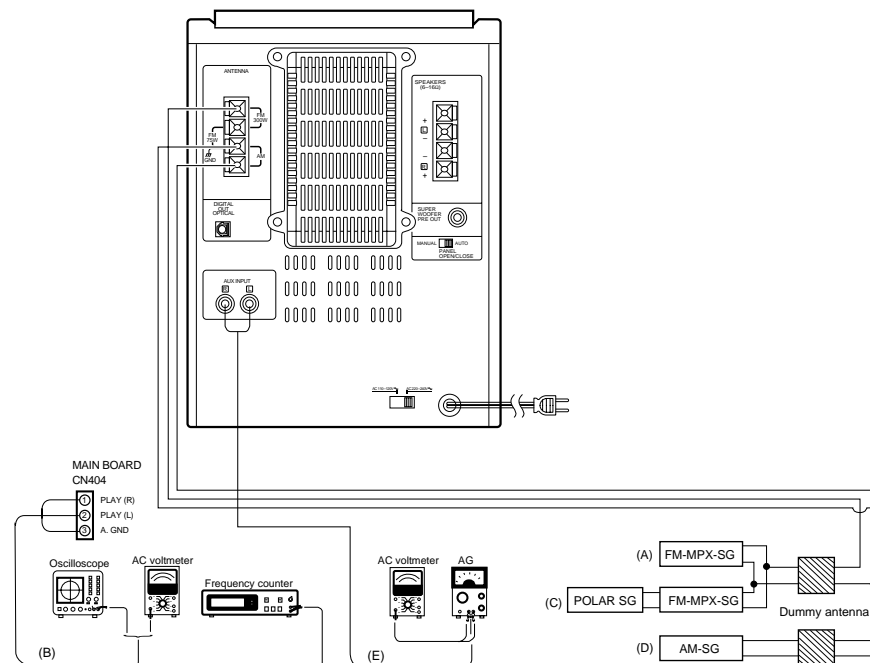
(b) RF signal : AC coupled



- RF signal in test mode (PLAY).
- Perform the tangential and focusing offset are focused into one point on the display. The crossing points above and below the center shall also be looked clearly.

Adjustment of cassette deck

NO.	ITEM	INPUT SETTING	OUTPUT SETTING	CASSETTE TAPE DECK SETTING	ALIGNMENT POINTS	ALIGN FOR	FIG.
Unless otherwise specified, set the respective switches as follows: TAPE : NORMAL DOLBY : OFF I Cassette mechanism unit (Adjustment of the REC / PLAY head)							0dBs = 0.775V
(1)	Demagnetization and cleaning	—	—	Power : OFF Demagnetization, cleaning, PLAY	Recording head, erase head, capstan pinch roller	Demagnetize the REC / PLAY head with the head eraser. Clean the REC / PLAY head, erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol.	
(2)	Azimuth of the REC / PLAY head	SCC-1727 TCC-153 MTT-114 10kHz, -10dB	(B)	PLAY		Adjust the output to maximum and adjust the azimuth adjustment screw for the Lissajours waveform pattern of the oscilloscope to become close to a 45° straight line.	
II PC board adjustment.							
(1)	BIAS CURRENT	(E) • Set the AUX input level to +3dB. • Adjust the AG for the output of the deck to become -20dB (400Hz/12.5kHz).	(B)	REC PLAY	VR701(L) VR702(R)	Record 400Hz and 12.5kHz alternately, and adjust the bias current adjustment potentiometer for the playback levels to become the same.	



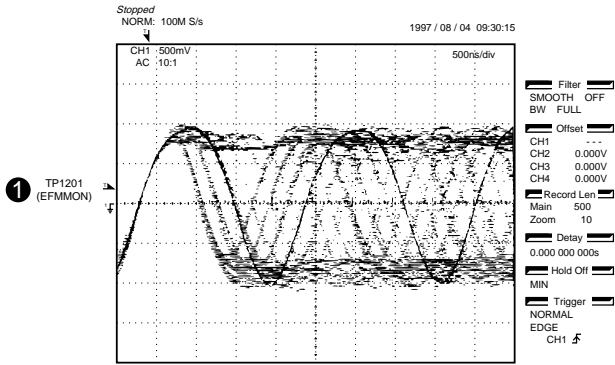
ADJUSTMENT

RXD-M31MD

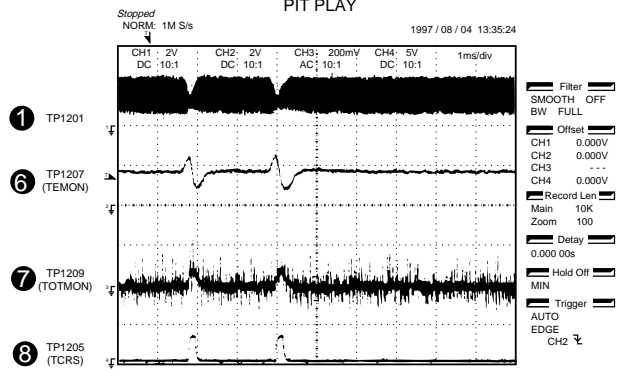
RXD-M31MD

WAVE FORM

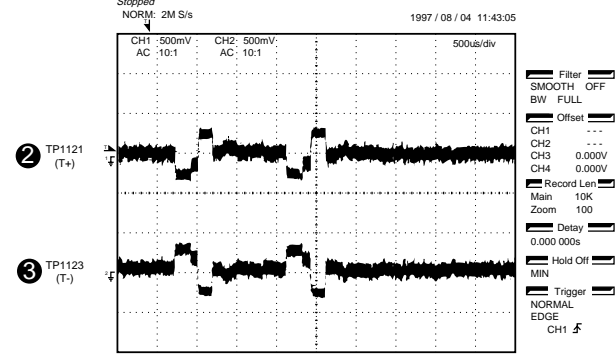
PLAY



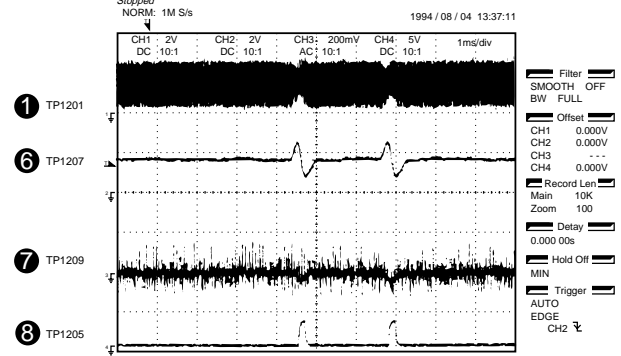
PIT PLAY



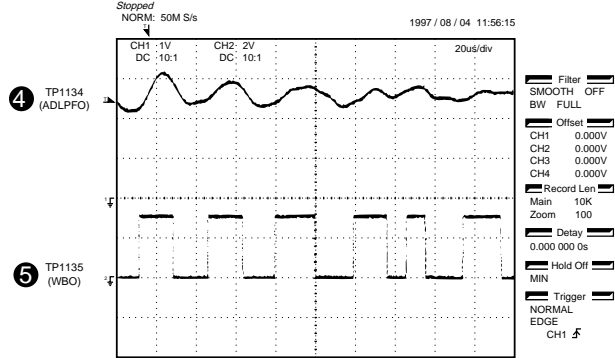
GROOVE PLAY



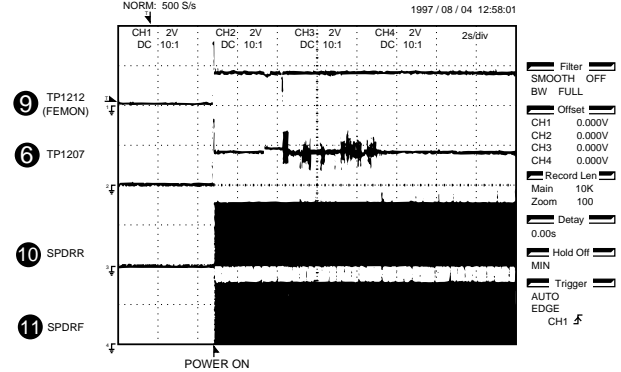
GROOVE PLAY



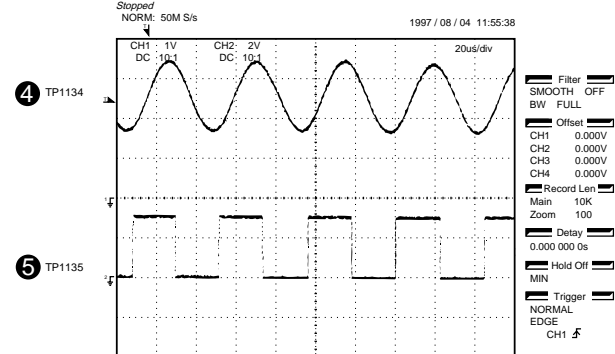
PIT PLAY



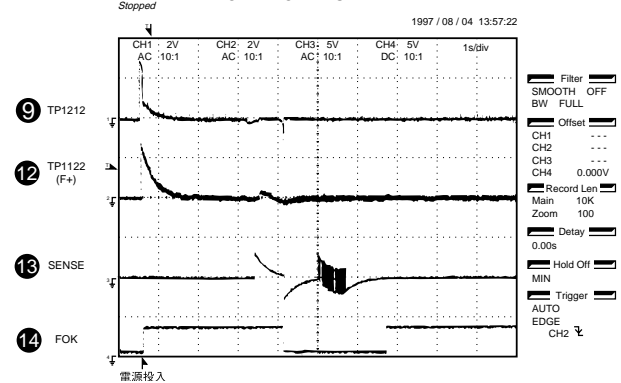
POWER OFF→STANDBY



GROOVE PLAY

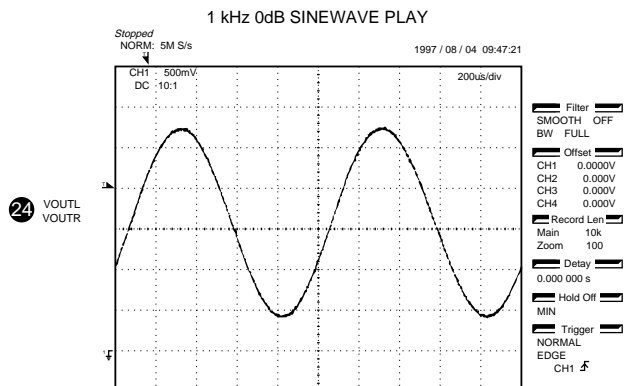
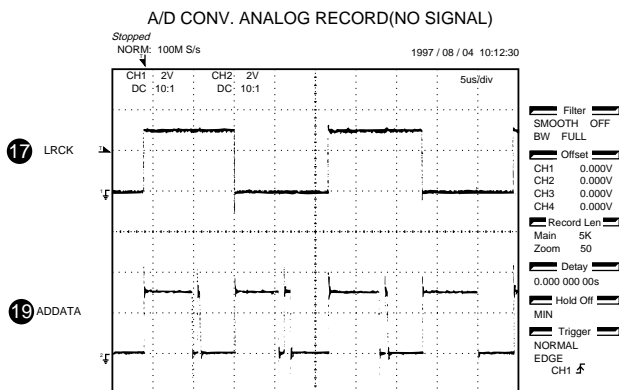
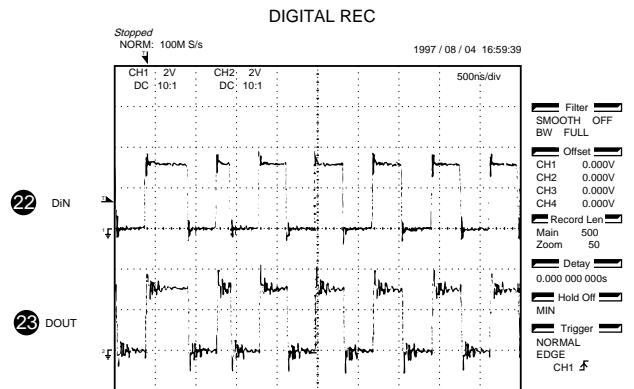
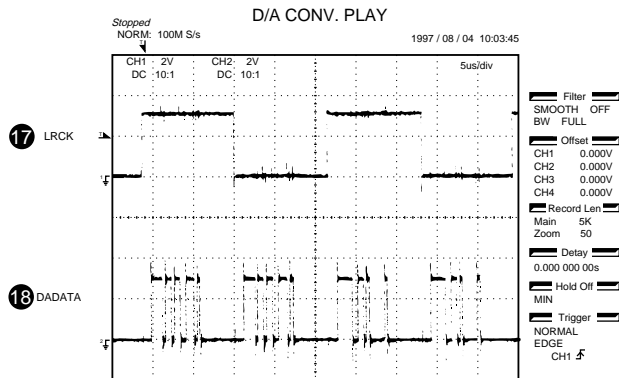
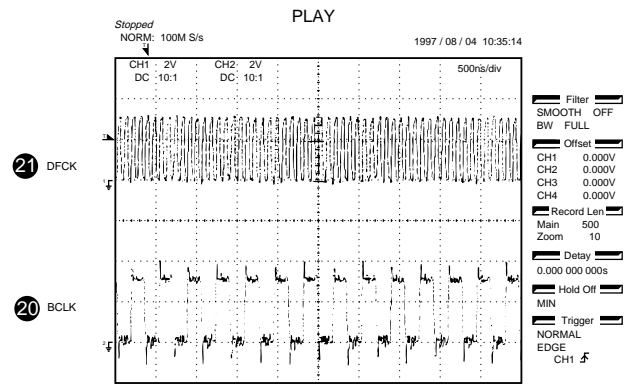
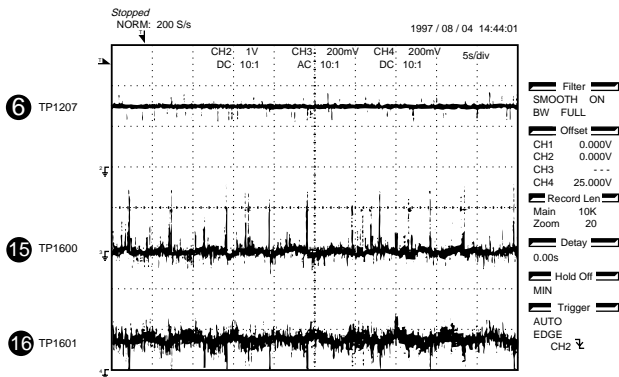
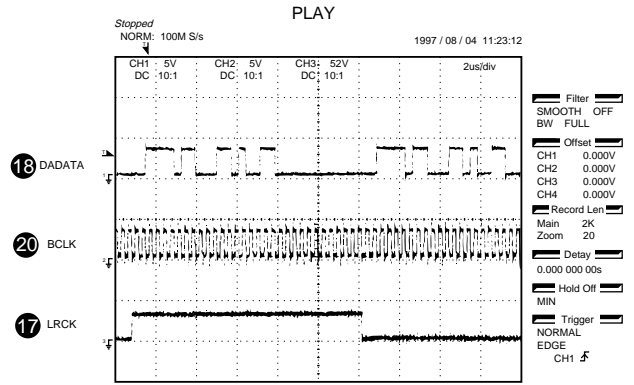
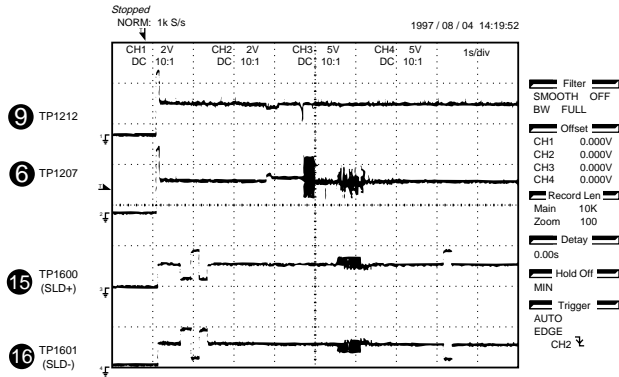


POWER OFF→STANDBY



RXD-M31MD

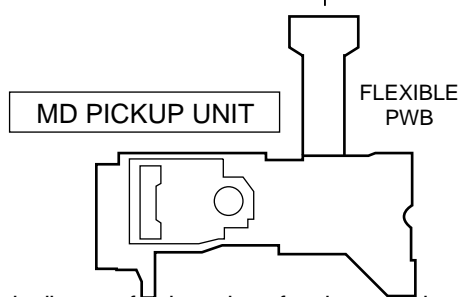
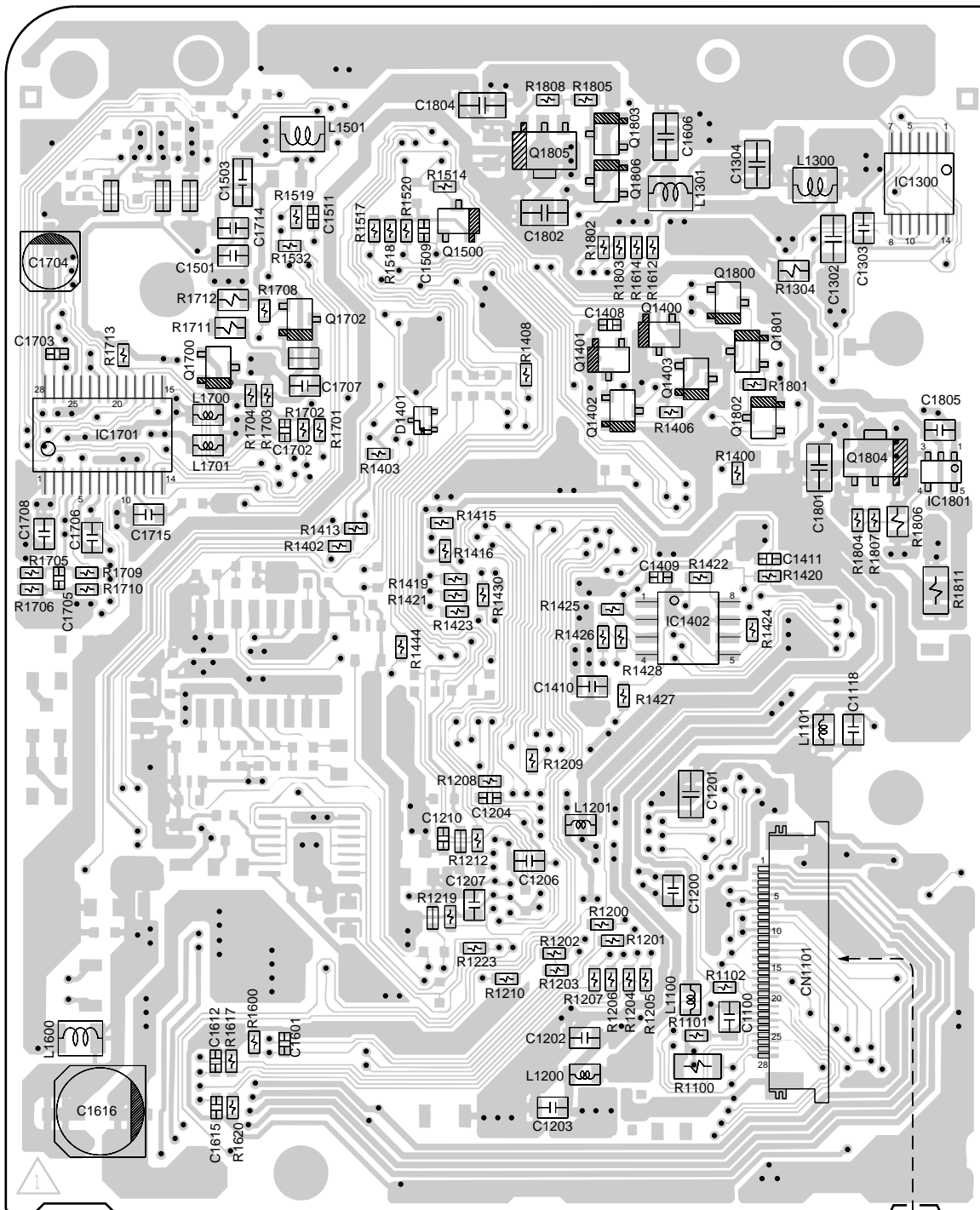
WAVE FORM



PC BOARD (Component side view)

MD MAIN PWB-A (TOP VIEW)

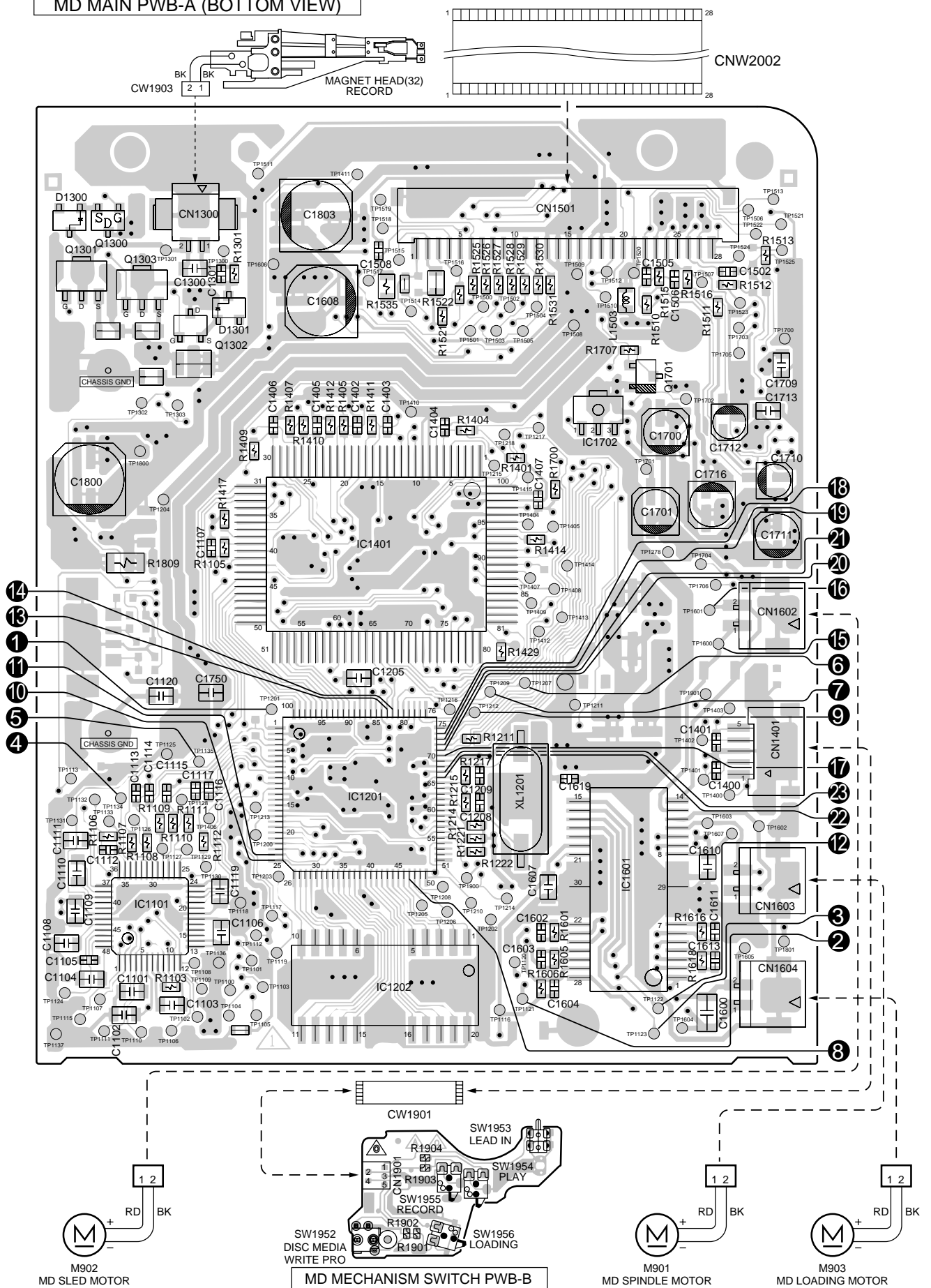
● Through hole.



Refer to the schematic diagram for the value of resistors and capacitors.

PC BOARD (Component side view)

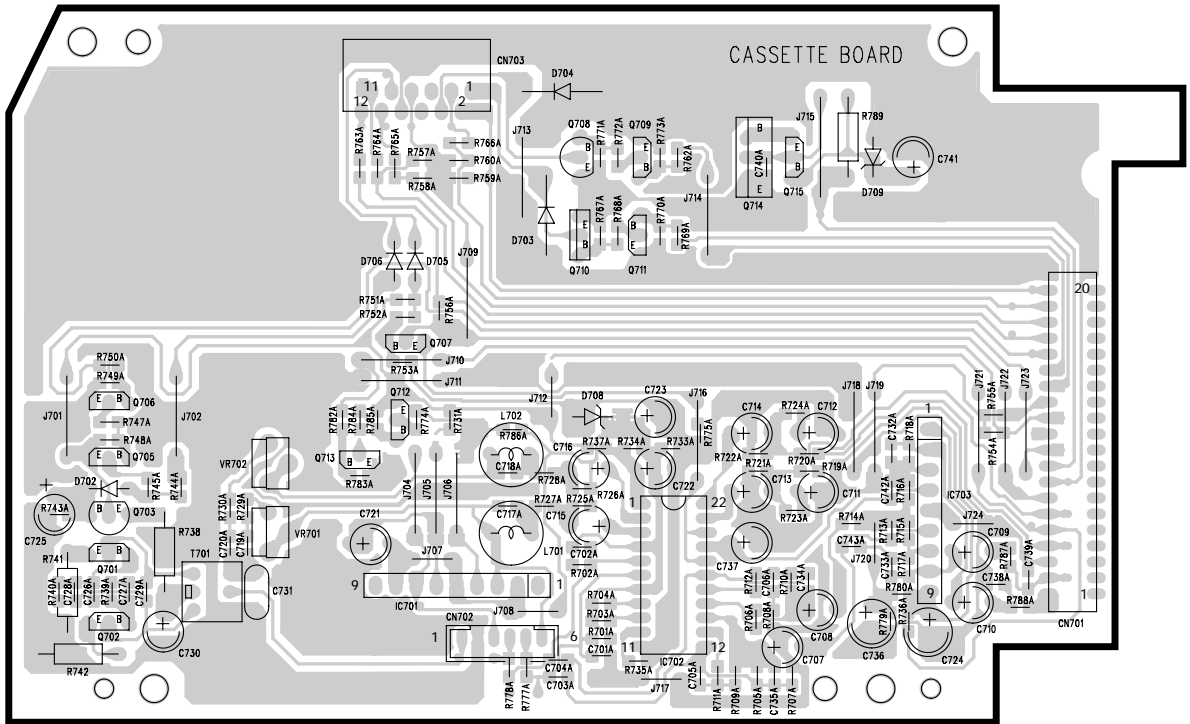
MD MAIN PWB-A (BOTTOM VIEW)



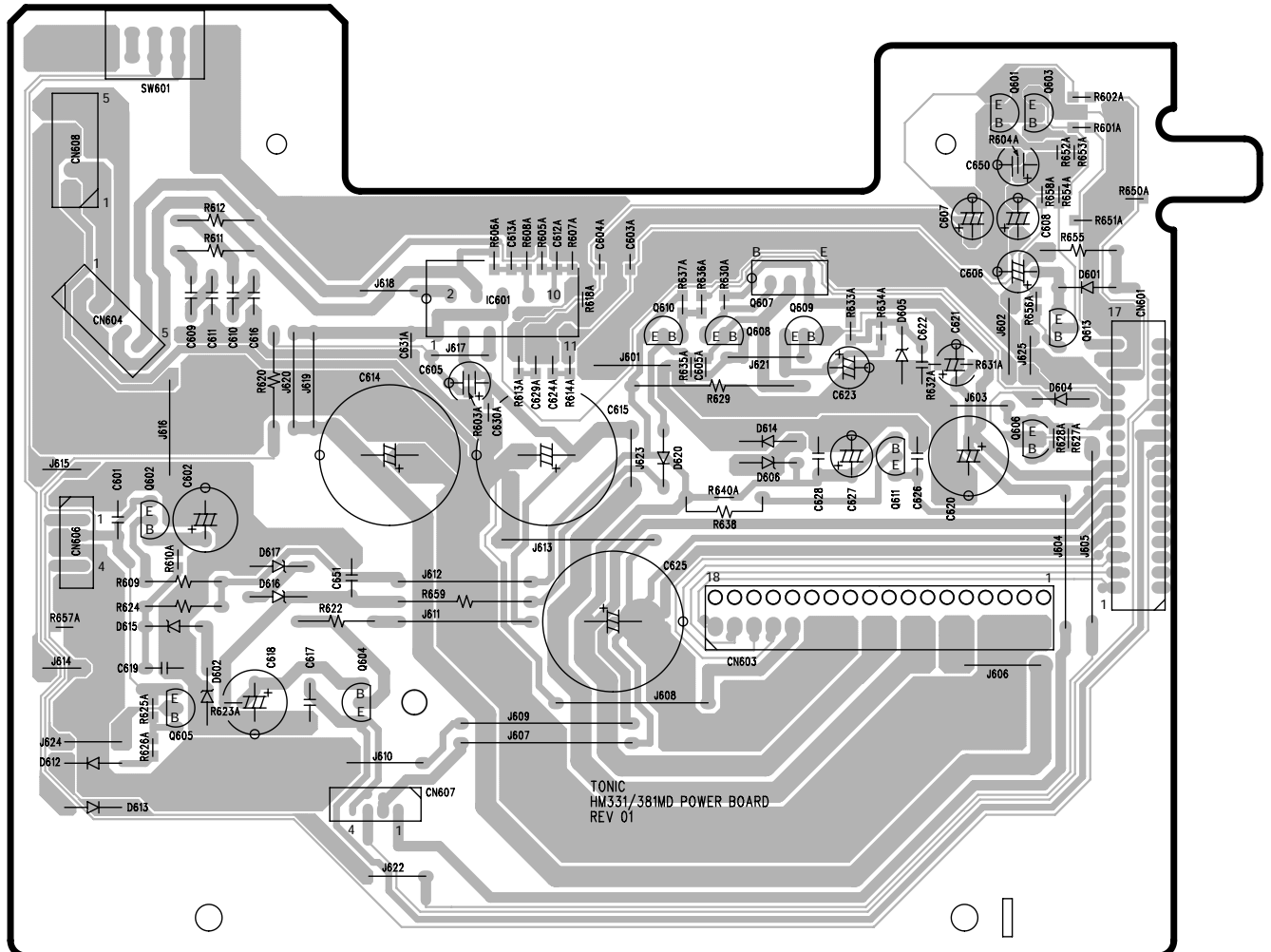
The numbers ① to ⑱ are waveform numbers shown in page 12,13.
Refer to the schematic diagram for the value of resistors and capacitors.

PC BOARD (Component side view)

CASSETTE DECK UNIT



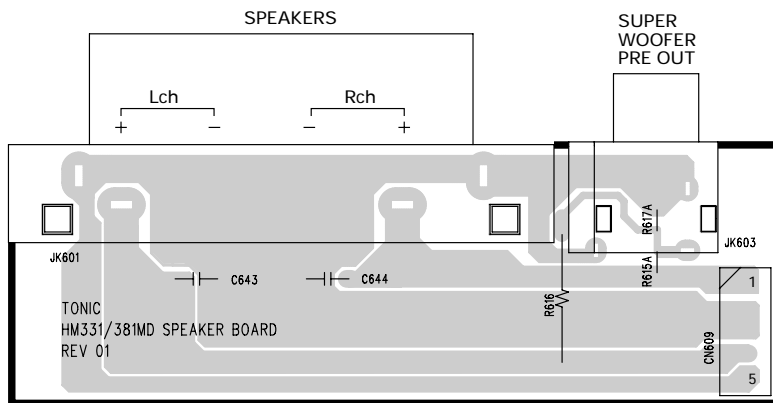
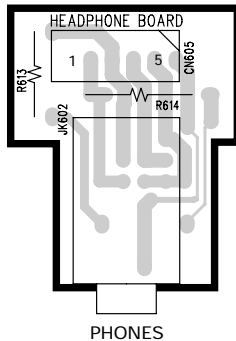
POWER UNIT



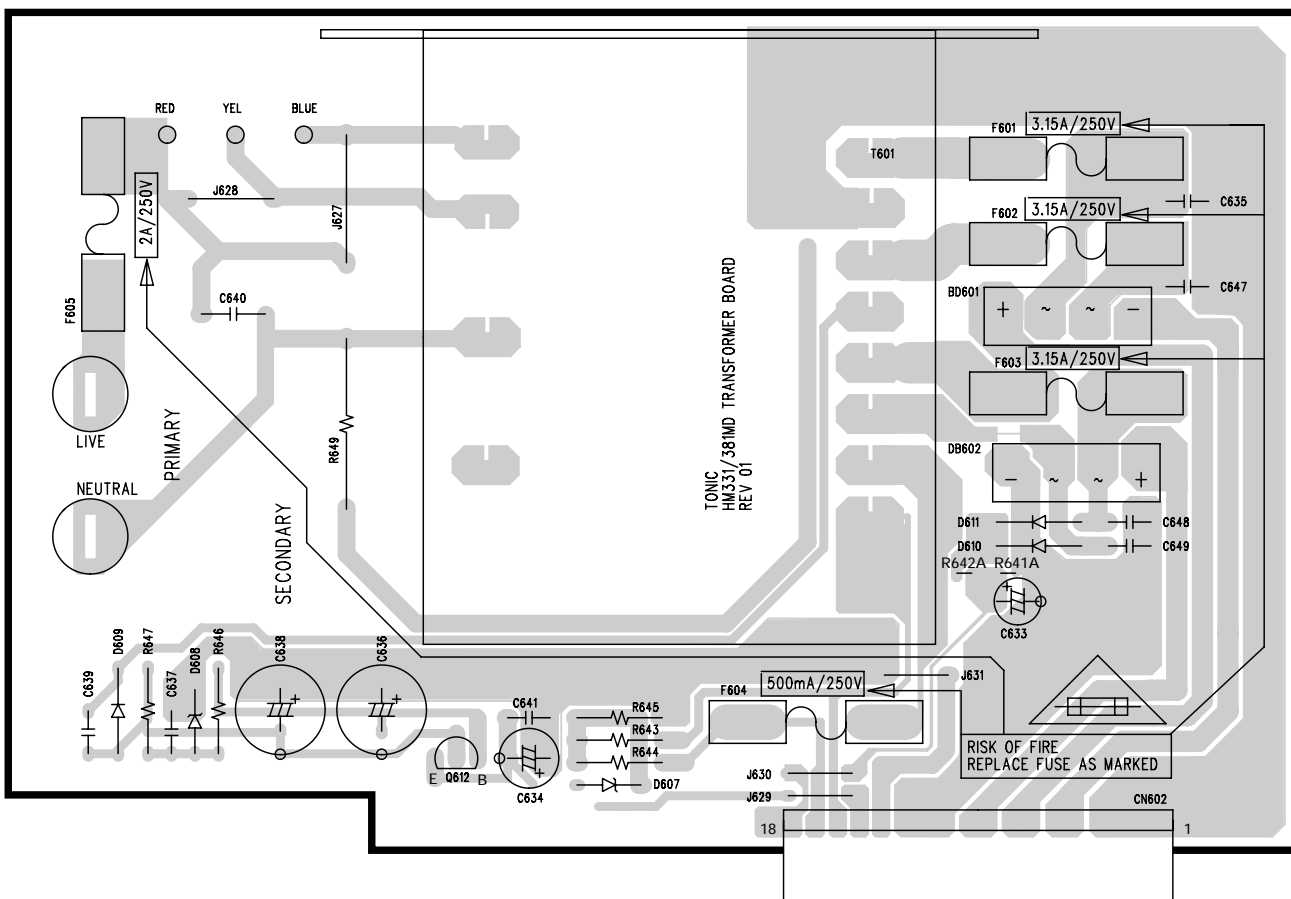
Refer to the schematic diagram for the value of resistors and capacitors.

PC BOARD (Component side view)

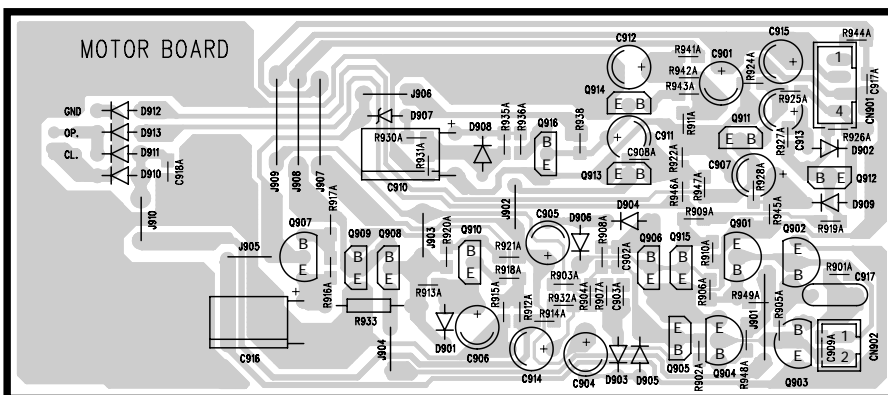
POWER UNIT



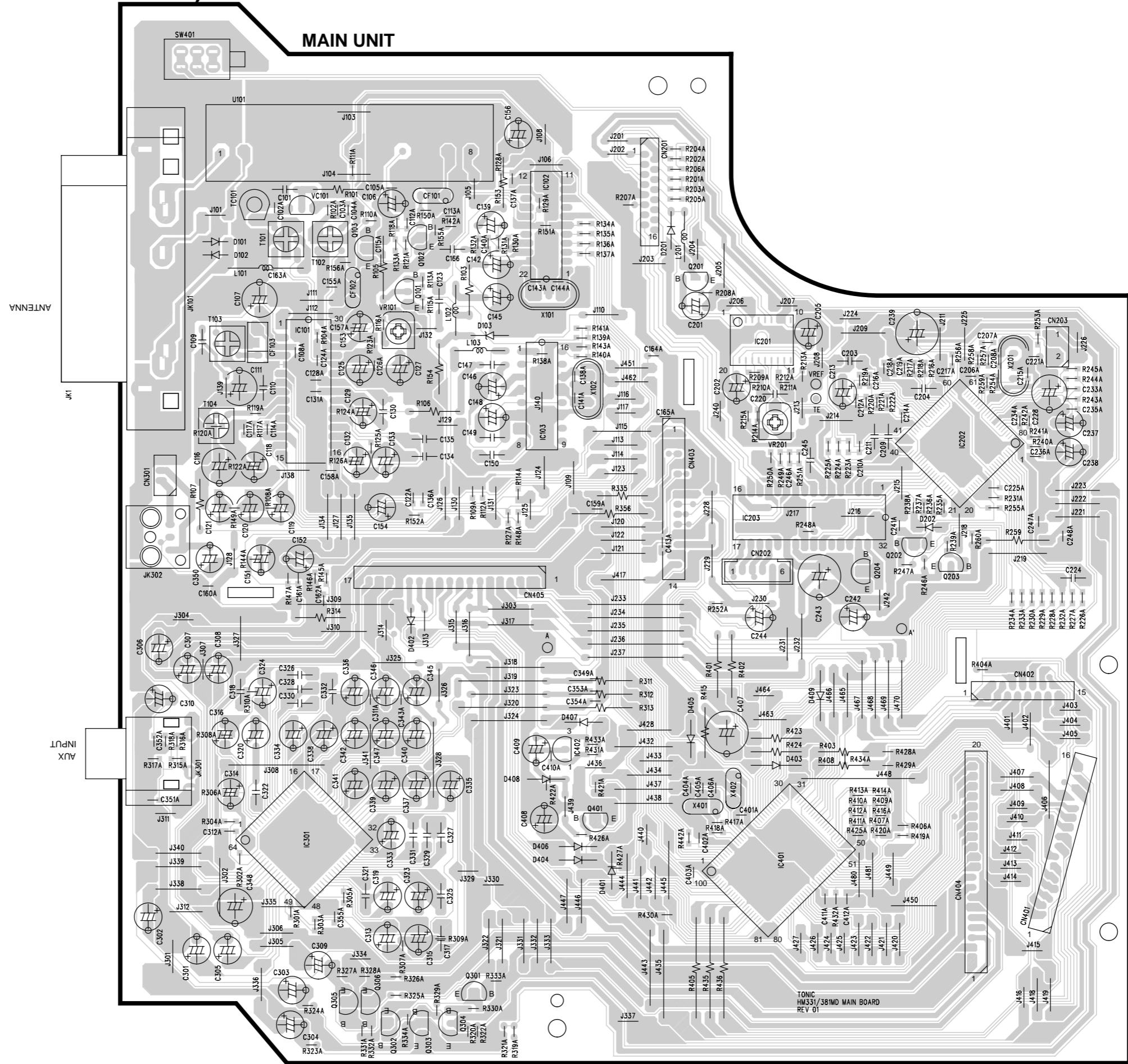
POWER UNIT



MAIN UNIT



PC BOARD(Component side view)

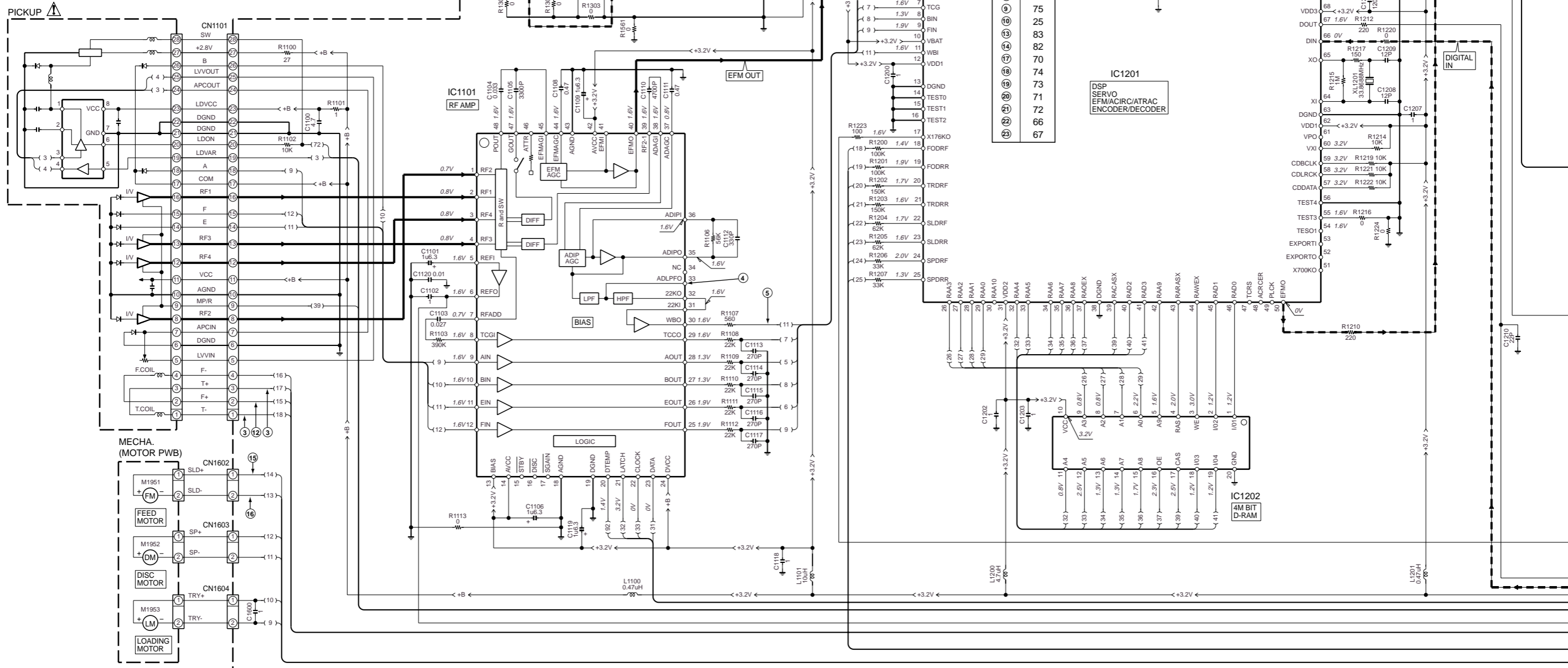
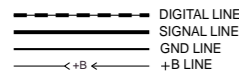


Refer to the schematic diagram for the value of resistors and capacitors.

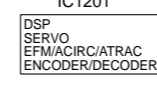
- IC1101 : IR3R55
- IC1201 : LR376484
- IC1202 : IX2474AF
- IC1300 : 74ACT02F
- IC1401 : IX0253AW
- IC1402 : S28294A
- IC1601 : BA5984FP
- IC1701 : UDA1344
- IC1702 : NJM431U
- IC1801 : XC62EP32

- Q1300,1302 : 2SK2909
- Q1301,1303 : 2SK1473
- Q1400,1401,1701 : RNC1404
- Q1402,1403 : RN2404
- Q1500,1800,1802 : RNC1407
- Q1700 : 2SC2412KR
- Q1702,1801 : 2SA1162G
- Q1803,1806 : RN1406
- Q1804,1805 : 2SA1314C

- D1300,1301 : SB0209CP
- D1401 : SB00703Q

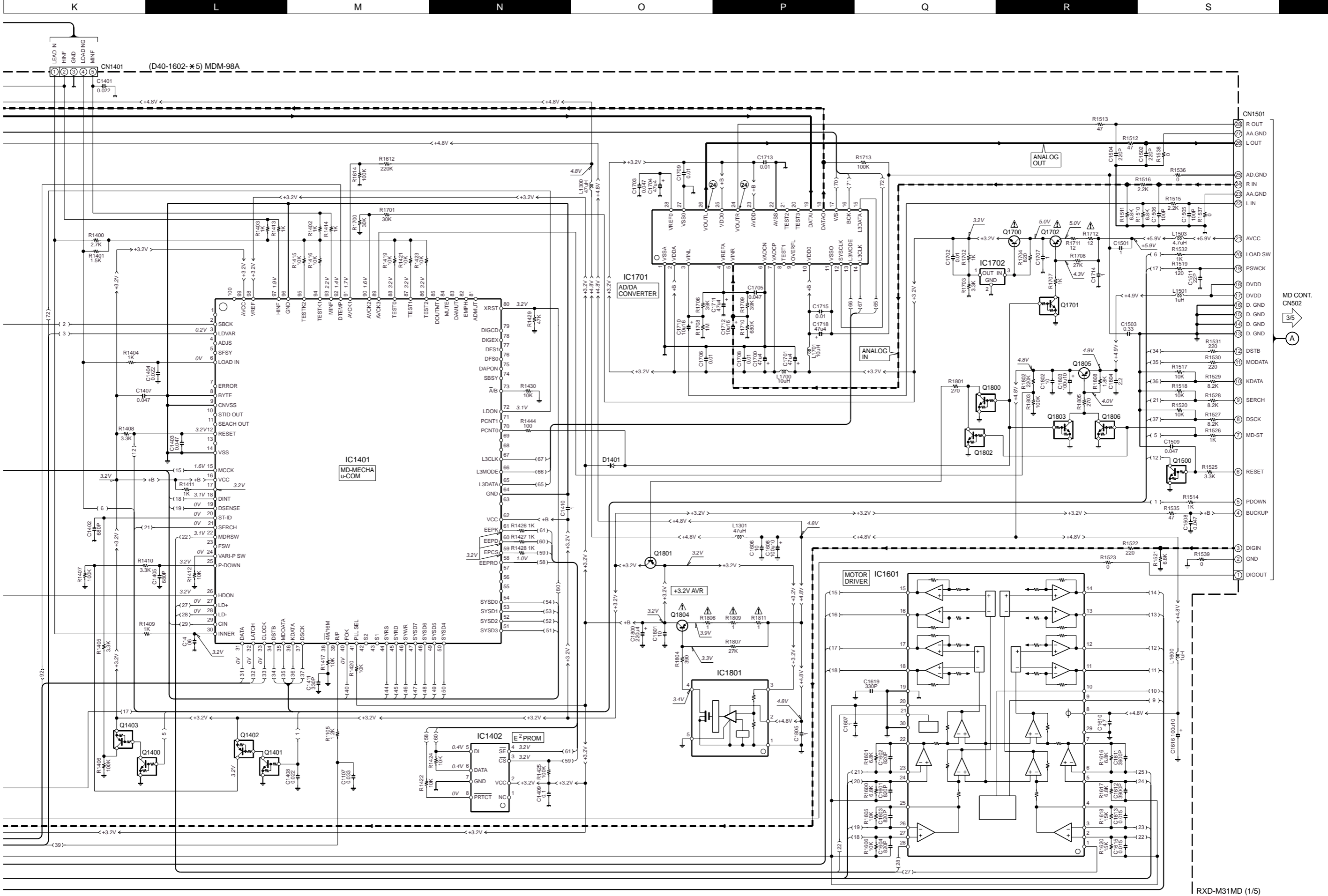


Wave form	Pin No.
①	1
②	77
③	76
④	47
⑤	75
⑥	25
⑦	83
⑧	82
⑨	70
⑩	74
⑪	73
⑫	72
⑬	66
⑭	67



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

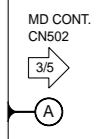
The DC voltage is an actual reading measured with a high impedance type voltmeter. The measurement value may vary depending on the measuring instruments used or on the product. Refer to the voltage during RECORDABLE MD PLAY unless otherwise specified; The value shown in () is the voltage measured at the moment of STOP. The voltage followed by (REC) refers to the value during MD RECORDING.

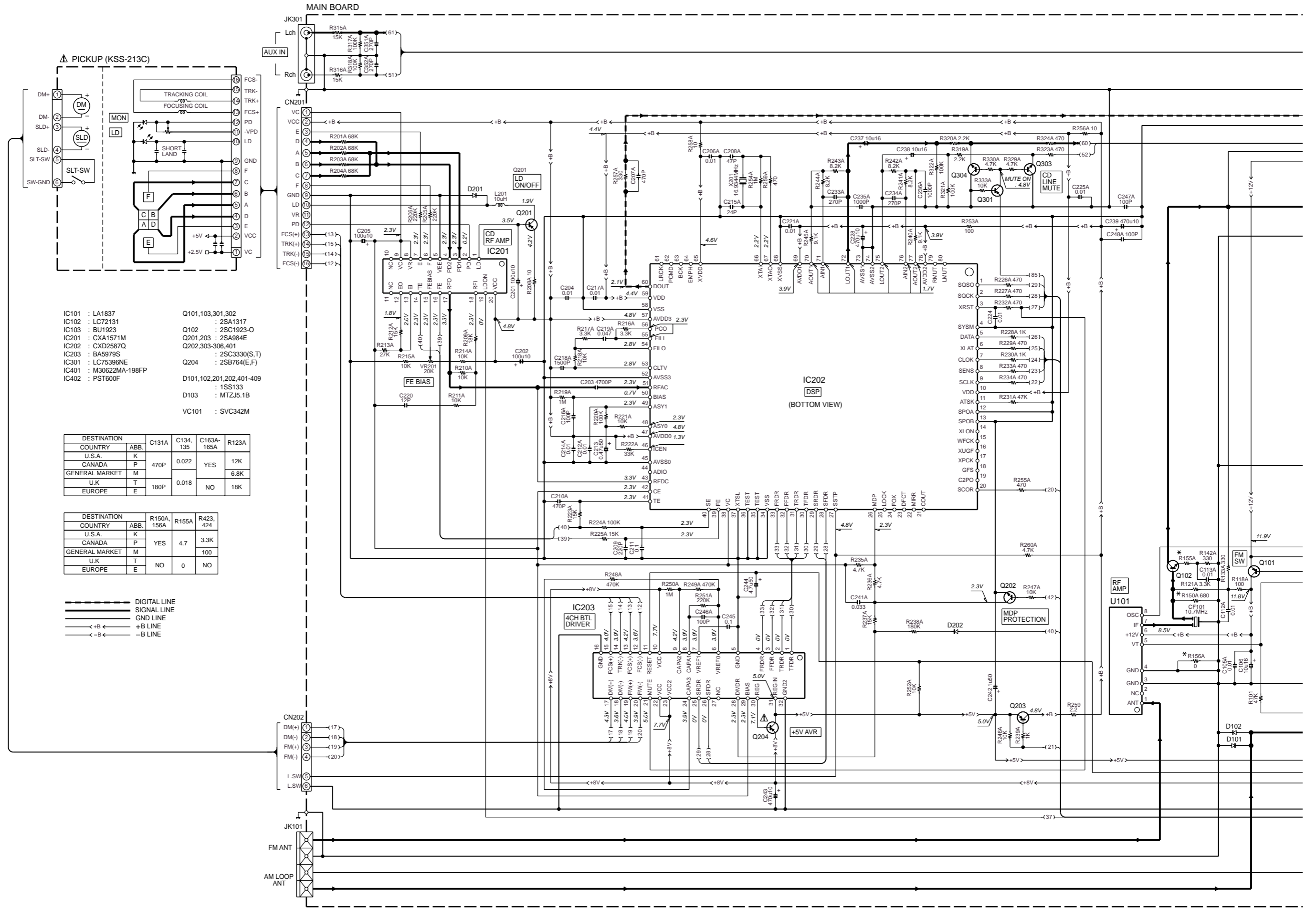


RXD-M31MD

Y39-3212-70

KENWOOD





- IC101 : LA1837
 - IC102 : LC72131
 - IC103 : BU1923
 - IC201 : CXA1571M
 - IC202 : CXD2587Q
 - IC203 : BA5979S
 - IC301 : LC75396NE
 - IC401 : M30622MA-198FP
 - IC402 : PST600F
- Q101,103,301,302 : 2SA1317
 - Q102 : 2SC1923-O
 - Q201,203 : 2SA984E
 - Q202,303-306,401 : 2SC3330(S,T)
 - Q204 : 2SB764(E,F)
 - D101,102,201,202,401-409 : 1SS133
 - D103 : MTZJ5.1B
 - VC101 : SVC342M

DESTINATION	COUNTRY	ABB.	C131A	C134, 135	C163A-165A	R123A
U.S.A.	K					
CANADA	P	470P	0.022	YES		12K
GENERAL MARKET	M					6.8K
U.K.	T	180P	0.018	NO		18K
EUROPE	E					

DESTINATION	COUNTRY	ABB.	R150A, 156A	R155A	R423, 424
U.S.A.	K				
CANADA	P	YES	4.7	3.3K	
GENERAL MARKET	M			100	
U.K.	T	NO	0	NO	
EUROPE	E				

- - - - - DIGITAL LINE
 _____ SIGNAL LINE
 _____ GND LINE
 <-+B< _____ +B LINE
 <-B< _____ -B LINE

IC202
DSP
(BOTTOM VIEW)

IC203
4CH BTL DRIVER

RF AMP
U101

+5V AVR
Q204

MDP PROTECTION
Q202

FM SW
Q101

CN202

JK101

FM ANT
AM LOOP ANT

+12V

+12V

+5V

+5V

+5V

2

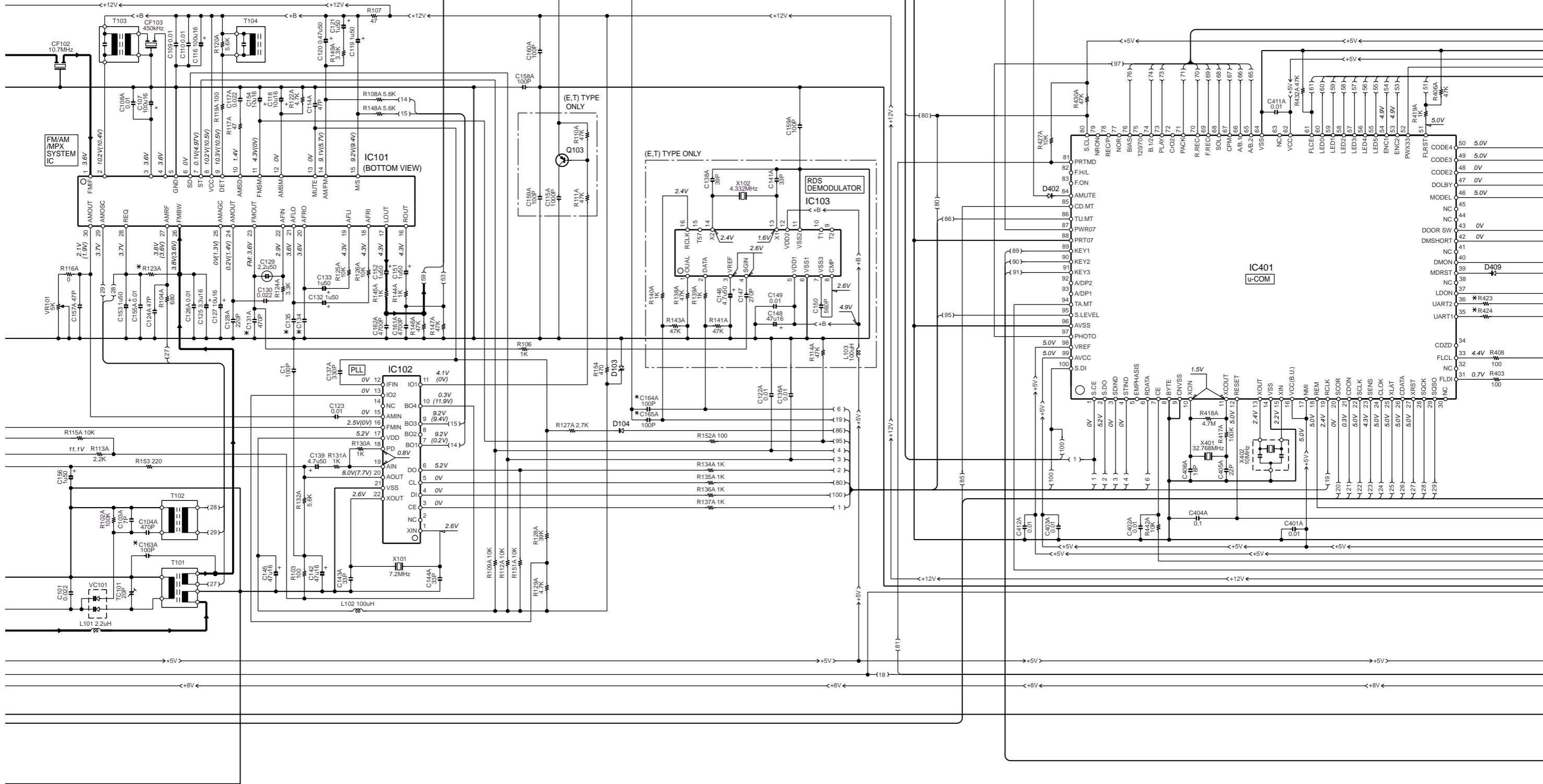
3

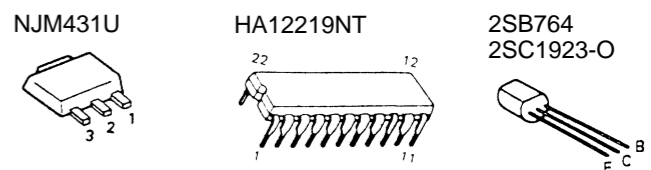
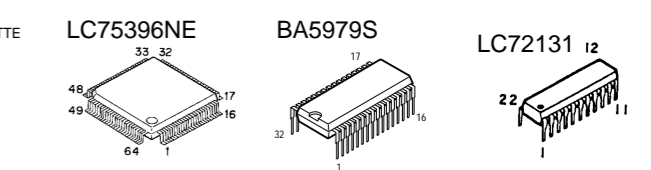
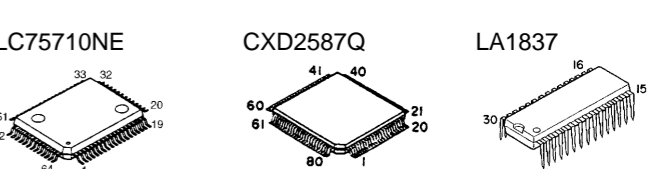
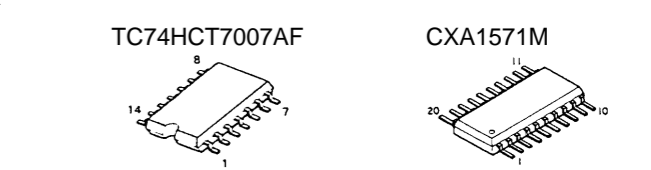
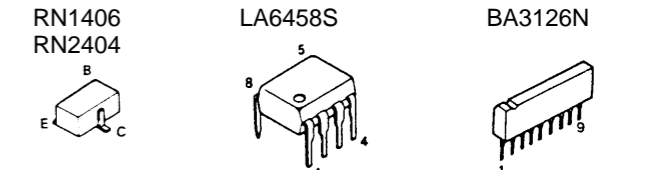
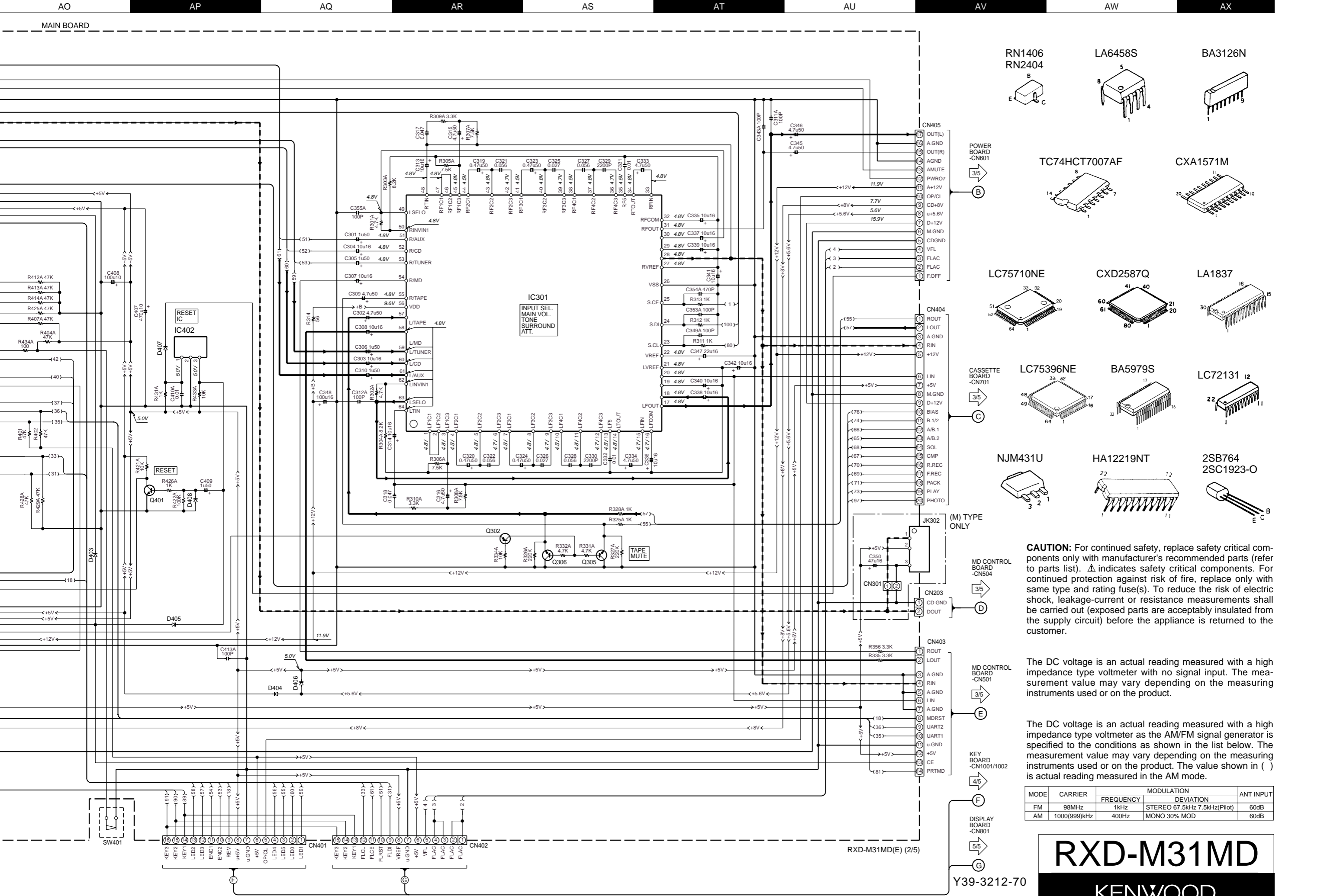
4

5

6

7





CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter with no signal input. The measurement value may vary depending on the measuring instruments used or on the product.

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in () is actual reading measured in the AM mode.

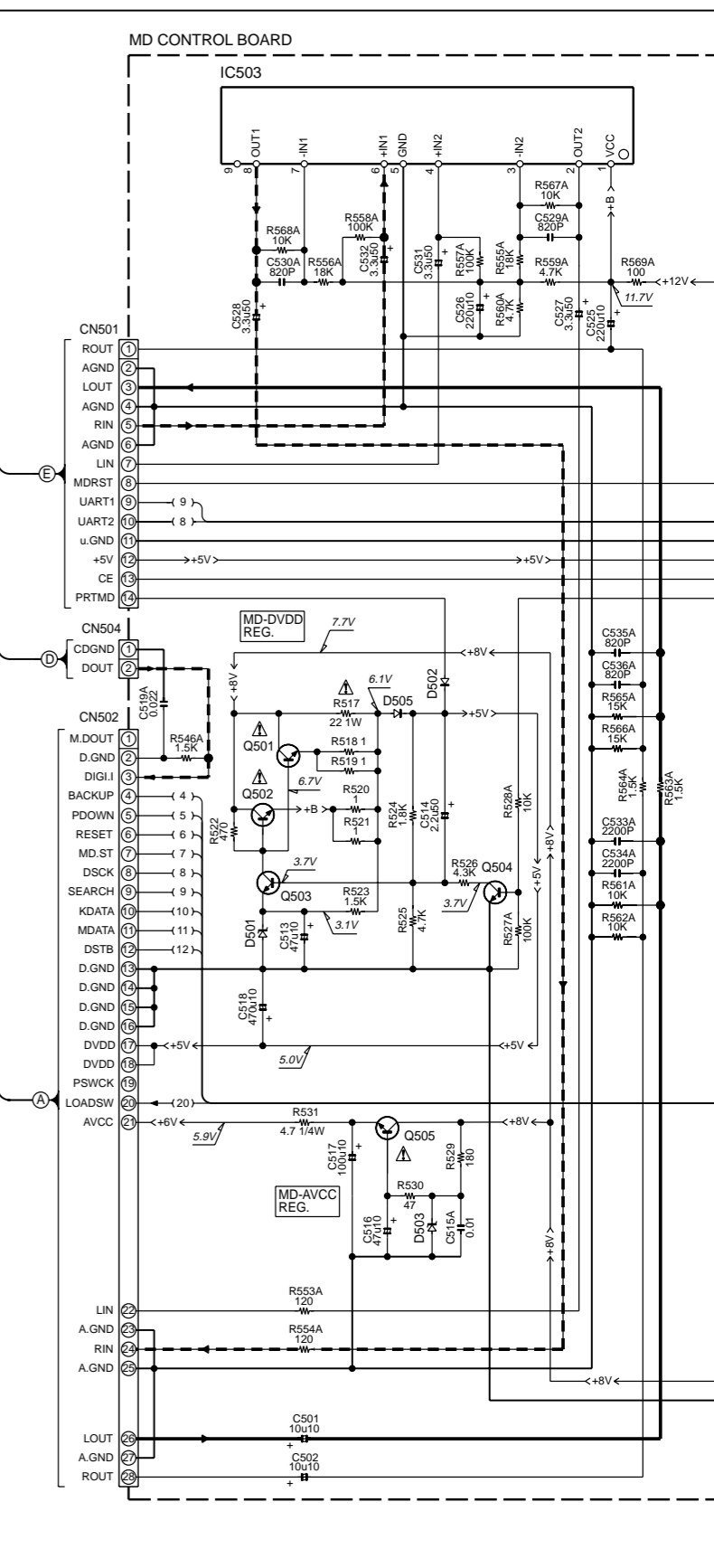
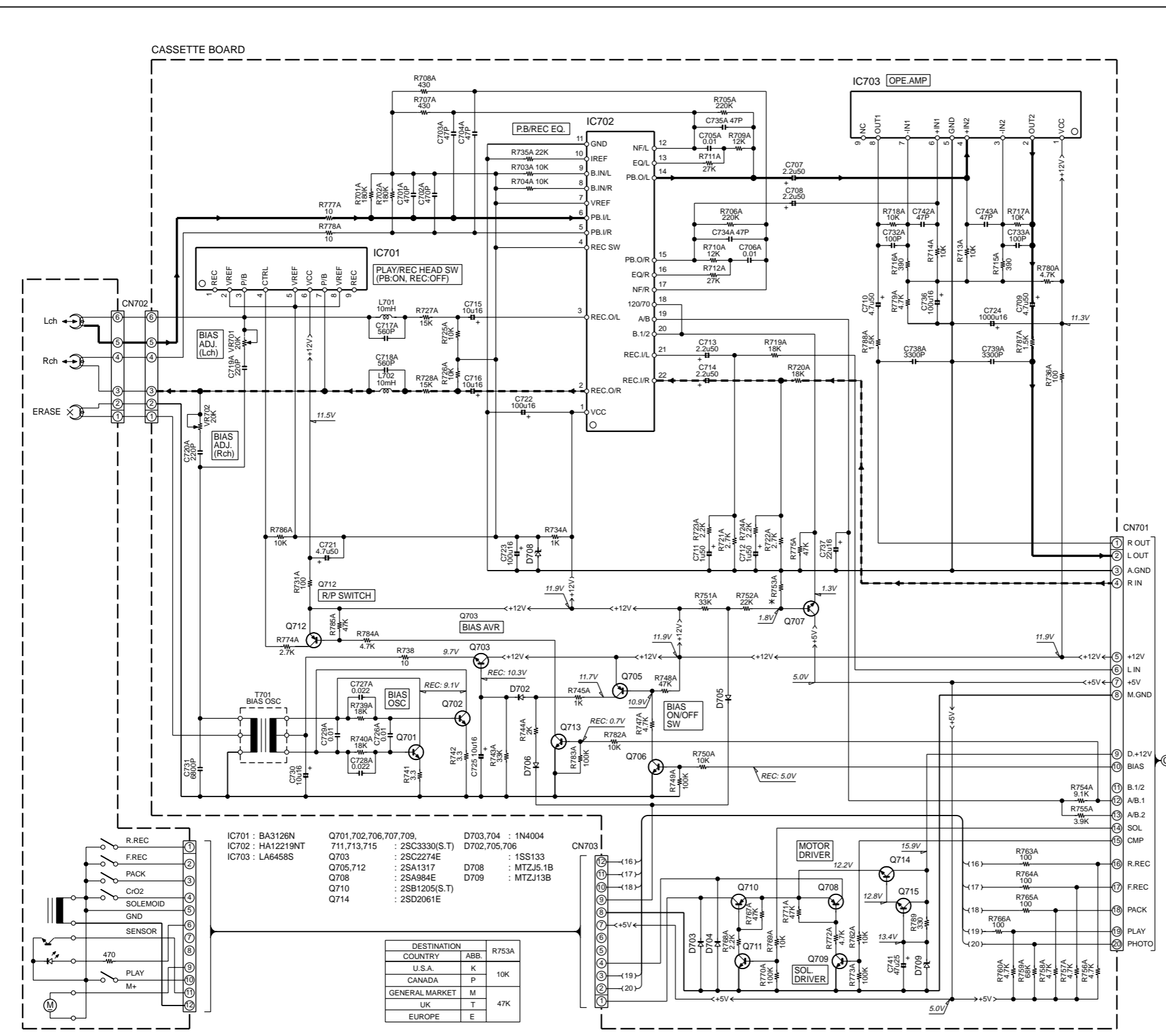
MODE	CARRIER	MODULATION		ANT INPUT
		FREQUENCY	DEVIATION	
FM	98MHz	1kHz	STEREO 67.5kHz 7.5kHz(Pilot)	60dB
AM	1000(999)kHz	400Hz	MONO 30% MOD	60dB

RXD-M31MD
KENWOOD

Y39-3212-70

MDM-98
-CN1501
1/5
A
MAIN BOARD
-CN405
2/5
B
MAIN BOARD
-CN404
2/5
C
MAIN BOARD
-CN203
2/5
D
MAIN BOARD
-CN403
2/5
E

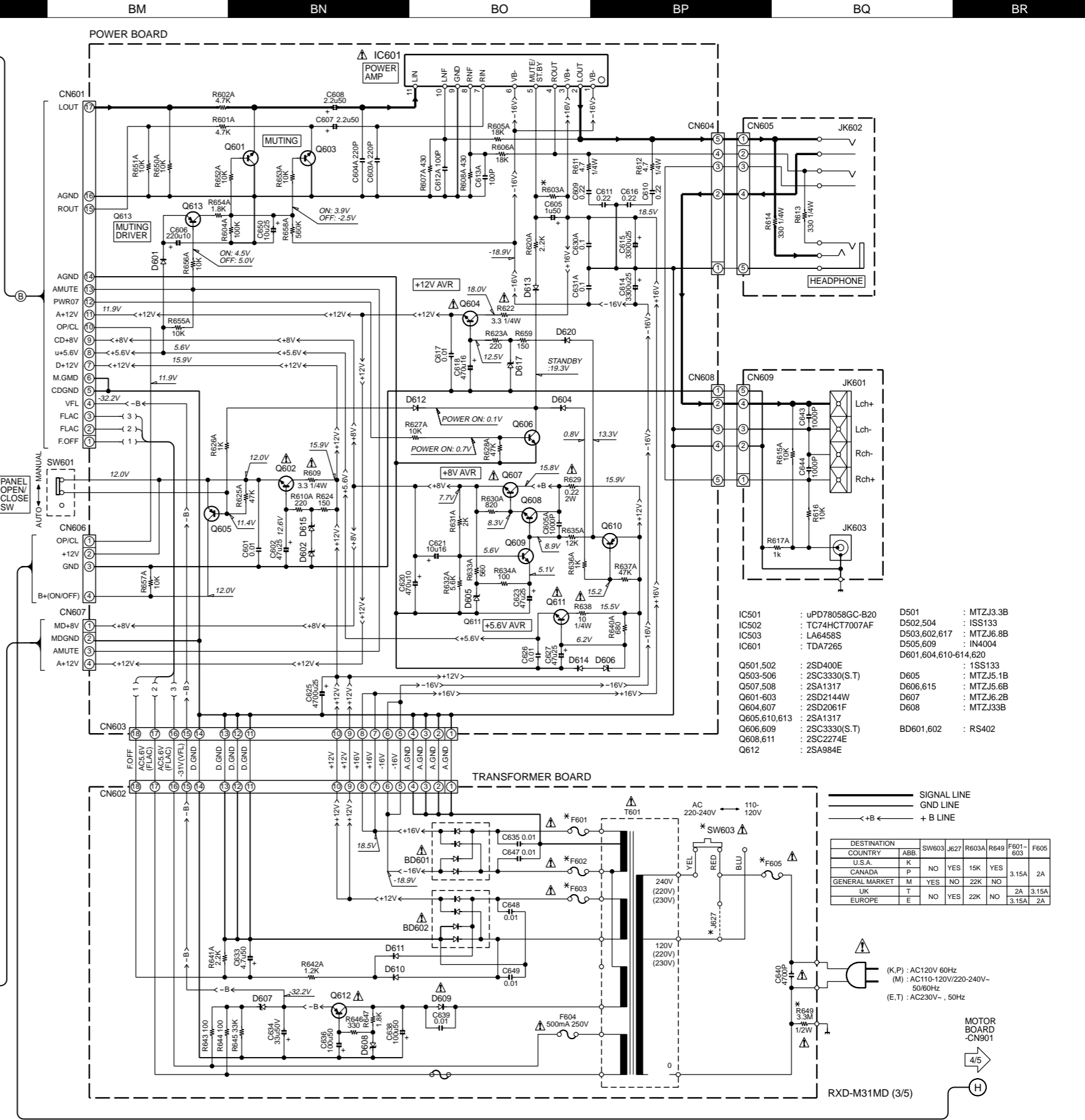
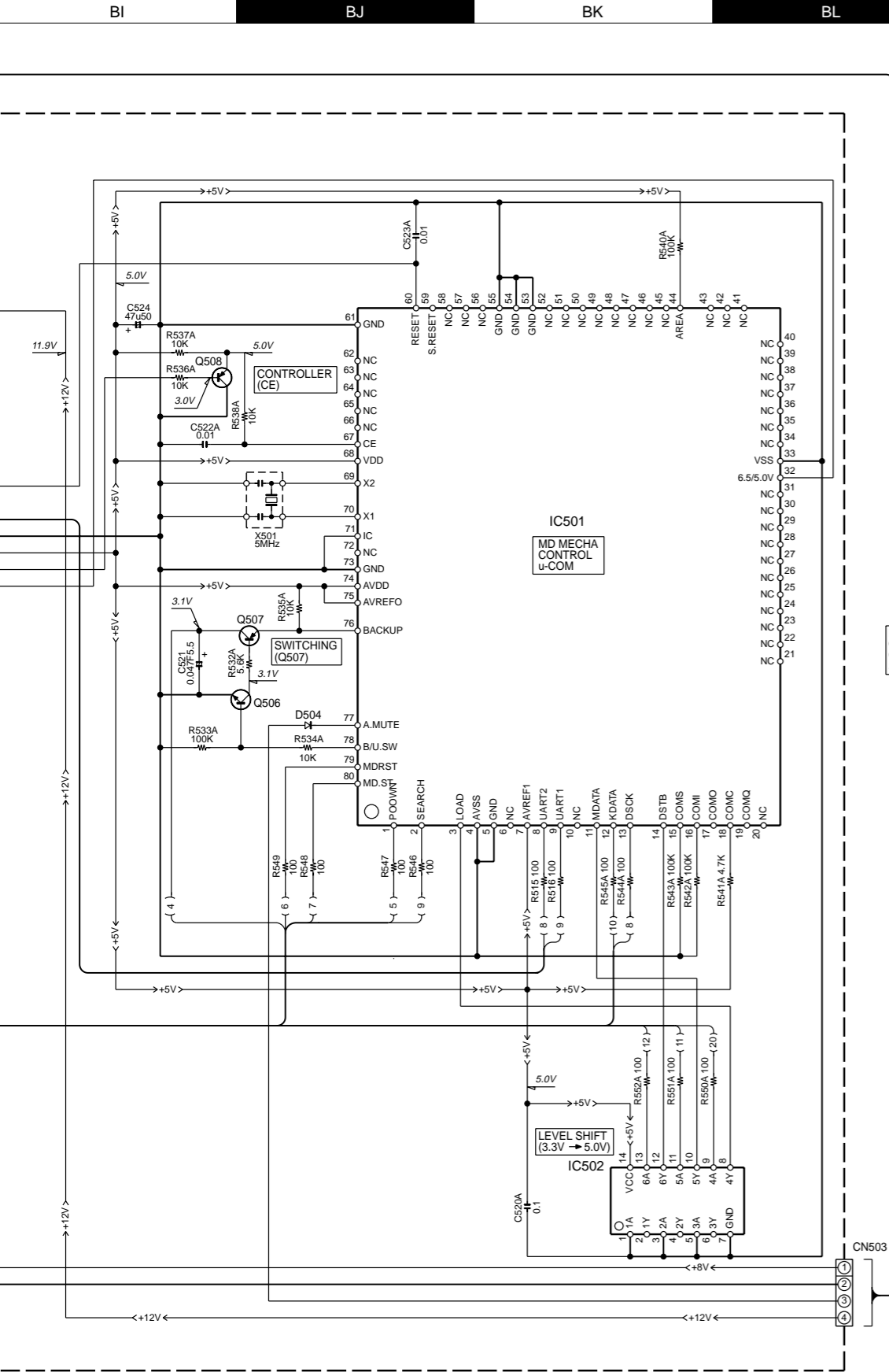
2
3
4
5
6



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter with a cassette loaded at playback mode. The measurement value may vary depending on the measuring instruments used or on the product. Bias circuit DC voltage is measured while in the record mode.

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- IC501 : uPD78058GC-B20
- IC502 : TC74HCT7007AF
- IC503 : LA6458S
- IC601 : TDA7265
- D501 : MTZJ3.3B
- D502,504 : 1SS133
- D503,602,617 : MTZJ6.8B
- D505,609 : 1N4004
- D601,604,610-614,620 : 1SS133
- D605 : 2SC3330(S,T)
- D606,615 : MTZJ5.6B
- D607 : MTZJ6.2B
- D608 : MTZJ333B
- BD601,602 : RS402

DESTINATION	COUNTRY	ABB.	SW603	J627	R603A	R649	F601-603	F605
U.S.A.	K		NO	YES	15K	YES	3.15A	2A
CANADA	P		NO	YES	22K	NO	2A	3.15A
GENERAL MARKET	M		YES	NO	22K	NO	2A	3.15A
UK	T		NO	YES	22K	NO	3.15A	2A
EUROPE	E		NO	YES	22K	NO	3.15A	2A

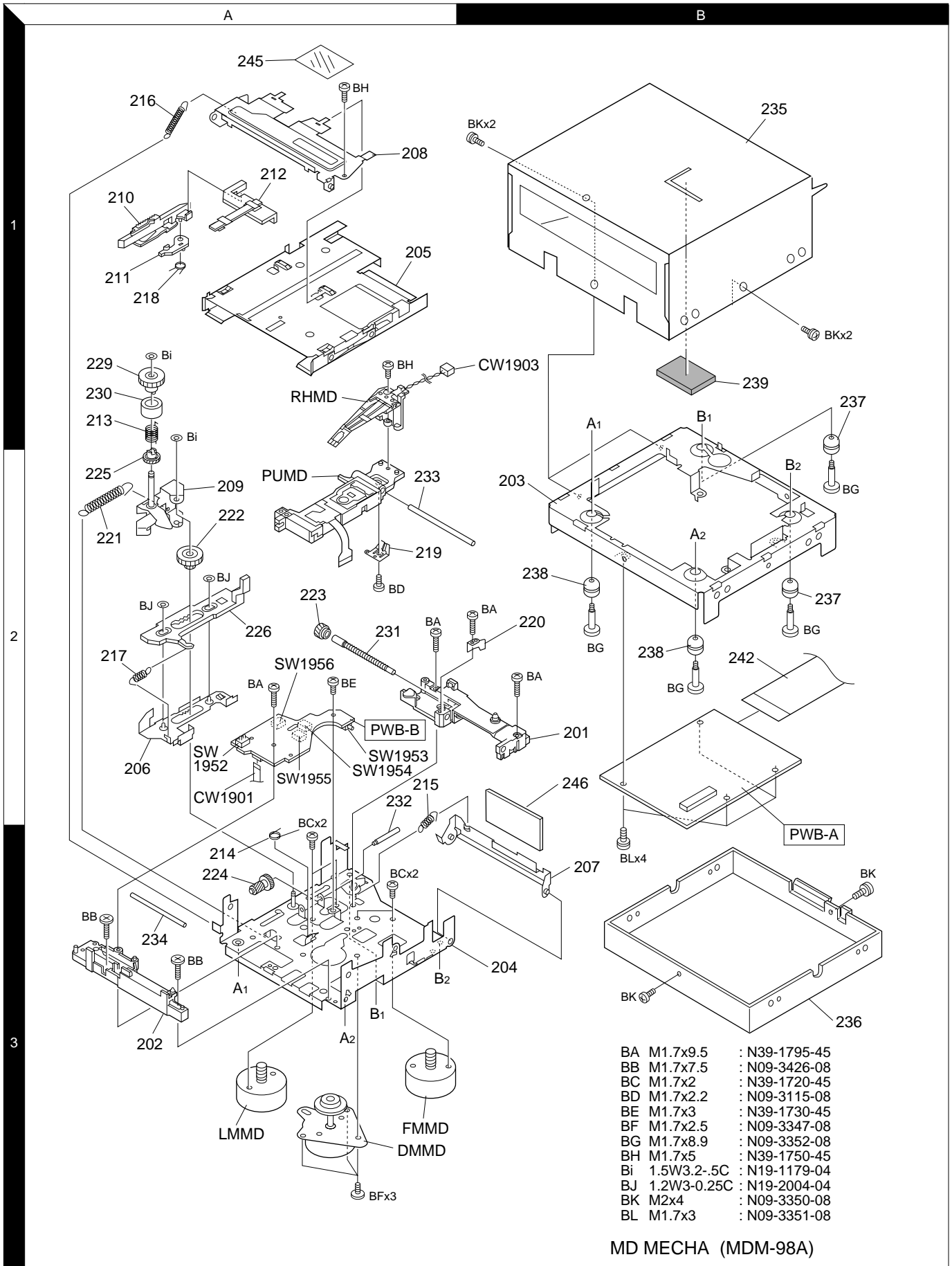
RXD-M31MD

KENWOOD

Y39-3212-70

RXD-M31MD

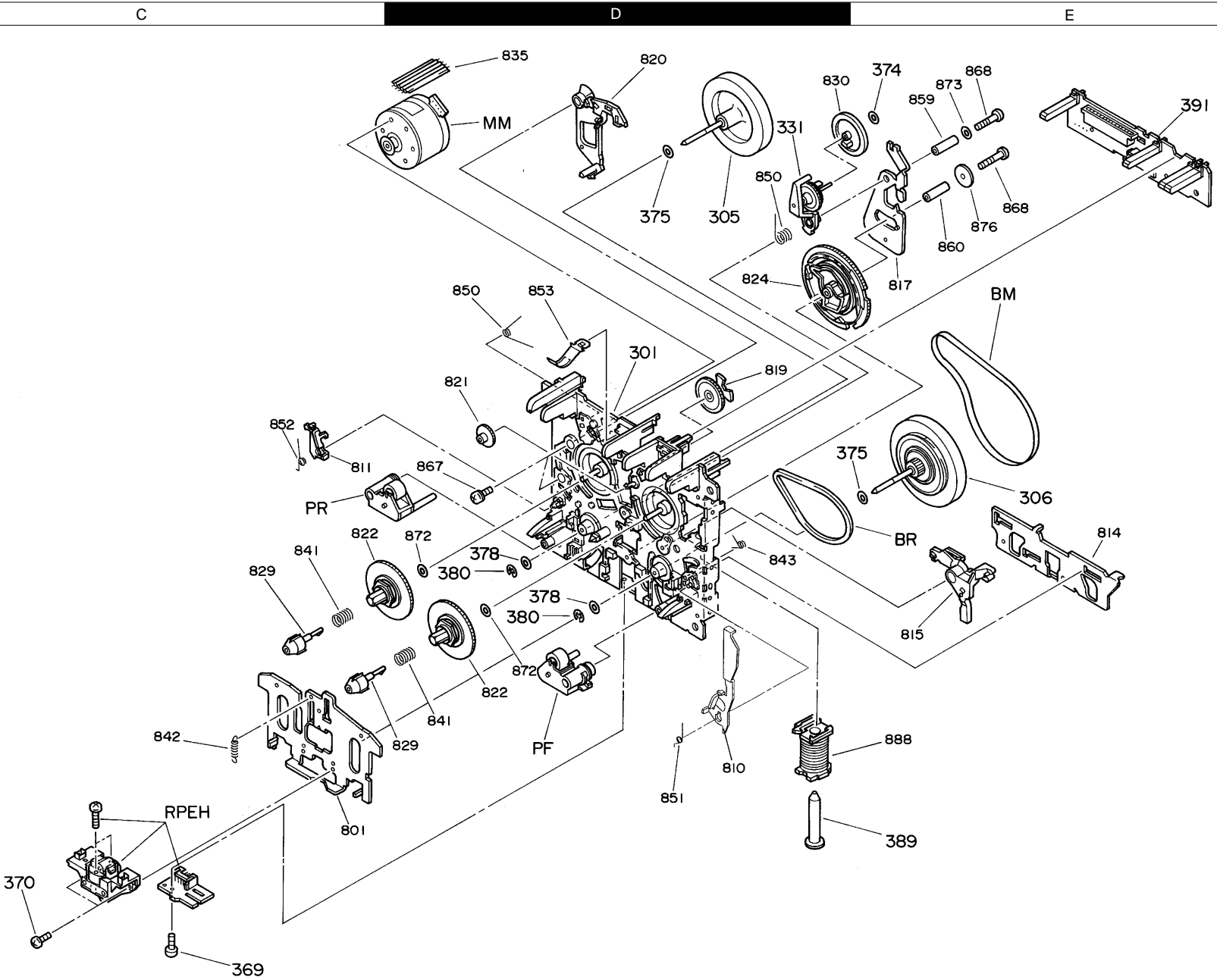
EXPLODED VIEW (MD MECHANISM)



Parts with exploded view numbers larger than 700 are not supplied.

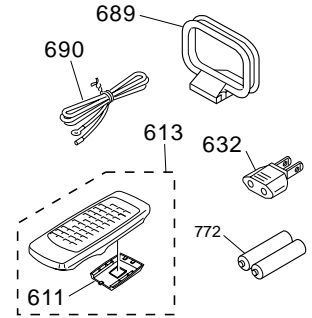
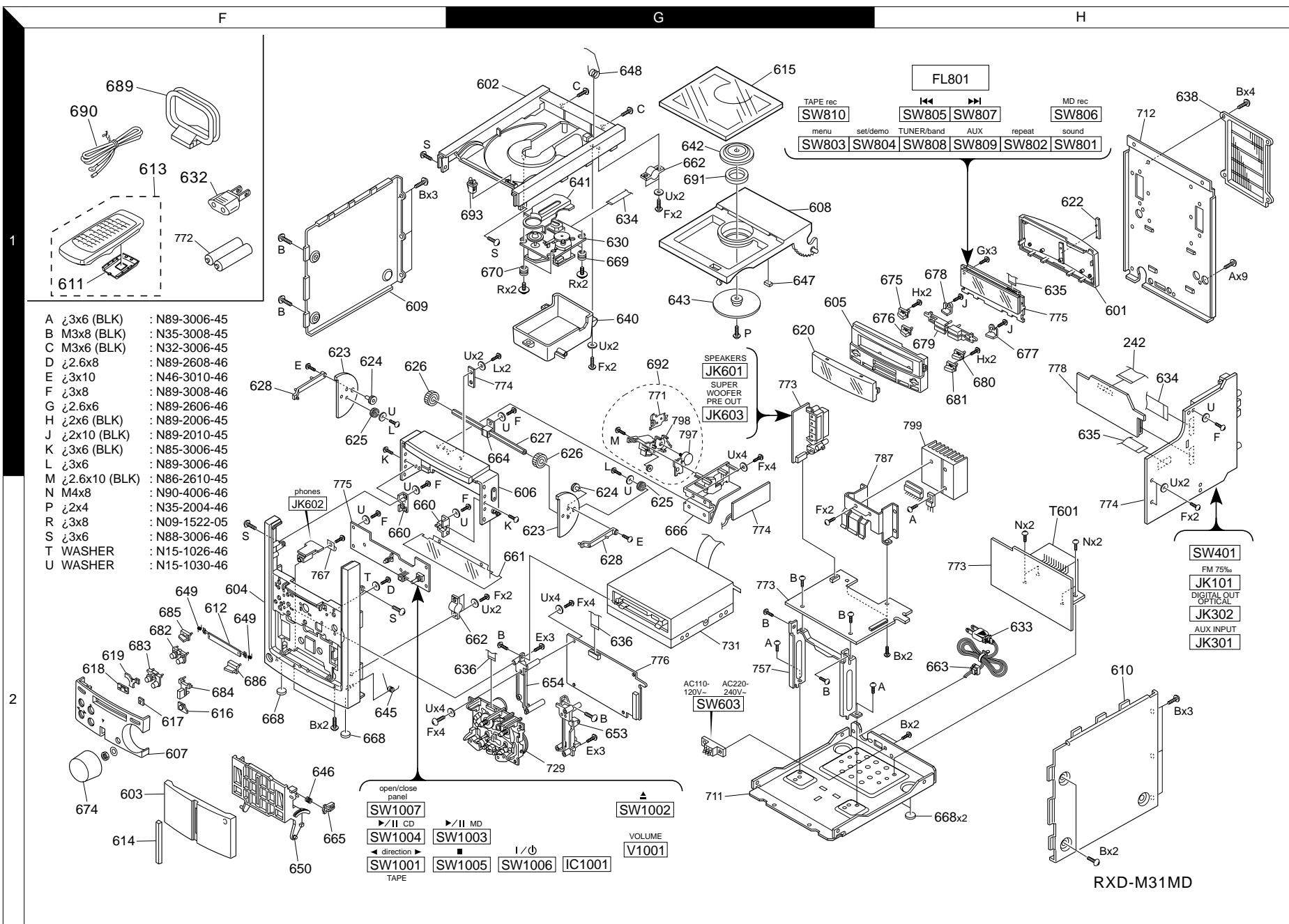
RXD-M31MD

EXPLODED VIEW (CASSETTE DECK MECHANISM)



Parts with exploded view numbers larger than 700 are not supplied.

Parts with exploded view numbers larger than 700 are not supplied.



- A 2x3x6 (BLK) : N89-3006-45
- B M3x8 (BLK) : N35-3008-45
- C M3x6 (BLK) : N32-3006-45
- D 2.6x8 : N89-2608-46
- E 3x10 : N46-3010-46
- F 3x8 : N89-3008-46
- G 2.6x6 : N89-2606-46
- H 2x6 (BLK) : N89-2006-45
- J 2x10 (BLK) : N89-2010-45
- K 3x6 (BLK) : N85-3006-45
- L 3x6 : N89-3006-46
- M 2.6x10 (BLK) : N86-2610-45
- N M4x8 : N90-4006-46
- P 2x4 : N35-2004-46
- R 3x8 : N09-1522-05
- S 3x6 : N88-3006-46
- T WASHER : N15-1026-46
- U WASHER : N15-1030-46

EXPLODED VIEW (UNIT)

RXD-M31MD

* New Parts
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Teile ohne **Parts No.** werden nicht geliefert.

5

Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
C310 C311A,312A C313,314 C315,316 C317,318			CE04KW1H010M CC73FSL1H101J CE04KW1C100M CE04KW1H4R7M CK45FB1H473Z	ELECTRO 1.0UF 50WV CHIP C 100PF J ELECTRO 10UF 16WV ELECTRO 4.7UF 50WV CERAMIC 0.047UF Z		
C319,320 C321,322 C323,324 C325,326 C327,328			CE04KW1HR47M CK45FF1H563Z CE04KW1HR47M CK45FB1H273K CK45FF1H563Z	ELECTRO 0.47UF 50WV CERAMIC 0.056UF Z ELECTRO 0.47UF 50WV CERAMIC 0.027UF K CERAMIC 0.056UF Z		
C329,330 C331,332 C333,334 C335-342 C343A			CK45FB1H222K CK45FB1H103Z CE04KW1H4R7M CE04KW1C100M CC73FSL1H101J	CERAMIC 2200PF K CERAMIC 0.010UF Z ELECTRO 4.7UF 50WV ELECTRO 10UF 16WV CHIP C 100PF J		
C345,346 C347 C348 C349A C350			CE04KW1H4R7M CE04KW1C220M CE04KW1C101M CC73FSL1H101J CE04KW1C470M	ELECTRO 4.7UF 50WV ELECTRO 22UF 16WV ELECTRO 100UF 16WV CHIP C 100PF J ELECTRO 47UF 16WV	M	
C351A,352A C353A C354A C355A C401A-403A			CK73FB1H271J CC73FSL1H101J CK73FB1H471K CC73FSL1H101J CK73FB1E103K	CHIP C 270PF J CHIP C 100PF J CHIP C 470PF K CHIP C 100PF J CHIP C 0.010UF K		
C404A C405A C406A C407 C408			CK73FB1E104K CC73FCH1H220J CC73FCH1H180J CE04KW1A471M CE04KW1A101M	CHIP C 0.10UF K CHIP C 22PF J CHIP C 18PF J ELECTRO 470UF 10WV ELECTRO 100UF 10WV		
C409 C410A-412A C413A C501,502 C513			CE04KW1H010M CK73FB1E103K CC73FSL1H101J CE04KW1C100M CE04KW1C470M	ELECTRO 1.0UF 50WV CHIP C 0.010UF K CHIP C 100PF J ELECTRO 10UF 16WV ELECTRO 47UF 16WV		
C514 C515A C516 C517 C518			CE04KW1H2R2M CK73FB1E103K CE04KW1C470M CE04KW1A101M CE04KW1A471M	ELECTRO 2.2UF 50WV CHIP C 0.010UF K ELECTRO 47UF 16WV ELECTRO 100UF 10WV ELECTRO 470UF 10WV		
C519A C520A C521 C522A,523A C524			CK73FB1E223K CK73FB1E104K C90-1827-05 CK73FB1E103K CE04KW1C470M	CHIP C 0.022UF K CHIP C 0.10UF K ELECTRO 0.047F 5.5WV CHIP C 0.010UF K ELECTRO 47UF 16WV		
C525,526 C527,528 C529A,530A C531,532 C533A,534A			CE04KW1C221M CE04KW1H3R3M CK73FB1H821J CE04KW1H3R3M CK73FB1E222K	ELECTRO 220UF 16WV ELECTRO 3.3UF 50WV CHIP C 820PF J ELECTRO 3.3UF 50WV CHIP C 2200PF K		
C535A,536 C601 C602 C603A,604A C605			CK73FB1H821J CK45FB1H103Z CE04KW1E470M CK73FB1H221J CE04KW1H010M	CHIP C 820PF J CERAMIC 0.010UF Z ELECTRO 47UF 25WV CHIP C 220PF J ELECTRO 1.0UF 50WV		

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6

Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
C605A C606 C607,608 C609-611 C612A,613A			CK73FB1H102K CE04KW1A221M CE04KW1H2R2M CK45FB1H224Z CC73FSL1H101J	CHIP C 1000PF K ELECTRO 220UF 10WV ELECTRO 2.2UF 50WV CERAMIC 0.22UF Z CHIP C 100PF J		
C614,615 C616 C617 C618 C620			CE04KW1E332M CK45FB1H224Z CK45FB1H103Z CE04KW1C471M CE04KW1A471M	ELECTRO 3300UF 25WV CERAMIC 0.22UF Z CERAMIC 0.010UF Z ELECTRO 470UF 16WV ELECTRO 470UF 10WV		
C621 C623 C625 C626 C627			CE04KW1C100M CE04KW1E470M CE04KW1E472M CK45FB1H103Z CE04KW1E470M	ELECTRO 10UF 16WV ELECTRO 47UF 25WV ELECTRO 4700UF 25WV CERAMIC 0.010UF Z ELECTRO 47UF 25WV		
C630A,631A C633 C634 C635 C636			CK45FB1H104Z CE04KW1H4R7M CE04KW1H330M CK45FB1H103Z CE04KW1H101M	CERAMIC 0.10UF Z ELECTRO 4.7UF 50WV ELECTRO 33UF 50WV CERAMIC 0.010UF Z ELECTRO 100UF 50WV		
C638 C639 C640 C643,644 C647-649			CE04KW1H101M CK45FB1H103Z C90-3862-08 CK45FB1H102K CK45FB1H103Z	ELECTRO 100UF 50WV CERAMIC 0.010UF Z CERAMIC 0.0047UF 250V CERAMIC 1000PF K CERAMIC 0.010UF Z	Δ	
C650 C701A,702A C703A,704A C705A,706A C707,708			CE04KW1E100M CK73FB1H471J CC73FSL1H470J CK73FB1E103K CE04KW1H2R2M	ELECTRO 10UF 25WV CHIP C 470PF J CHIP C 47PF J CHIP C 0.010UF K ELECTRO 2.2UF 50WV		
C709,710 C711,712 C713,714 C715,716 C717A,718A			CE04KW1H4R7M CE04KW1H010M CE04KW1H2R2M CE04KW1C100M CK73FB1H561J	ELECTRO 4.7UF 50WV ELECTRO 1.0UF 50WV ELECTRO 2.2UF 50WV ELECTRO 10UF 16WV CHIP C 560PF J		
C719A,720A C721 C722,723 C724 C725			CK73FB1H221J CE04KW1H4R7M CE04KW1C101M CE04KW1C102M CE04KW1C100M	CHIP C 220PF J ELECTRO 4.7UF 50WV ELECTRO 100UF 16WV ELECTRO 1000UF 16WV ELECTRO 10UF 16WV		
C726A C727A,728A C729A C730 C731			CK73FB1E103K CK73FB1E223K CK73FB1E103K CE04KW1C100M CQ93HP2A682J	CHIP C 0.010UF K CHIP C 0.022UF K CHIP C 0.010UF K ELECTRO 10UF 16WV MYLAR 6800PF J		
C732A,733A C734A,735A C736 C737 C738A,739A			CC73FSL1H101J CC73FSL1H470J CE04KW1C101M CE04KW1C220M CK73FB1H332K	CHIP C 100PF J CHIP C 47PF J ELECTRO 100UF 16WV ELECTRO 22UF 16WV CHIP C 3300PF K		
C741 C742A,743A C801A C802A,803A C804A			CE04KW1E470M CC73FSL1H470J CK73FB1E103K CK73FB1H473K CC73FSL1H680J	ELECTRO 47UF 25WV CHIP C 47PF J CHIP C 0.010UF K CHIP C 0.047UF K CHIP C 68PF J		

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Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
D708 D709 D901-906 D907 D908-913			MTZJ5.1B MTZJ13B 1SS133 MTZJ3.3B 1SS133	ZENER DIODE ZENER DIODE SWITCHING DIODE ZENER DIODE SWITCHING DIODE		
FL801 IC1001 IC101 IC102 IC103			CM1829C W02-2707-08 LA1837 LC72131 BU1923F	FL 049-18293-000 ELECTRIC MODULE, 061-04481-000 IC(FM/AM SYSTEM IC) IC(PLL FREQUENCY SYNTHESIZER) IC	TE	
IC201 IC202 IC203 IC301 IC401			CXA1571M CXD2587Q BA5979S LC75396NE M30622MA-198FP	IC(CD RF AMP) IC(DAC DSP) IC(4CH BTL) IC(ELECTRIC VOLUME) IC		
IC402 IC501 IC502 IC503 IC601			PST600F UPD78058GC-B20 TC74HCT7007AF LA6458S TDA7265	IC IC IC(HEX BUFFER) IC(OP AMP X2) IC		
△ IC701 IC702 IC703 IC801 Q101			BA3126N HA12219NT LA6458S LC75710NE 2SA1317	IC(HEAD SW) IC(EQ) IC(OP AMP X2) IC(VFD DISPLAY DRIVER) TRANSISTOR		
Q102 Q103 Q201 Q202 Q203			2SC1923-O 2SA1317 2SA984E 2SC3330(S,T) 2SA984E	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ET	
△ Q204 Q301,302 Q303-306 Q401 Q501,502			2SB764(E,F) 2SA1317 2SC3330(S,T) 2SC3330(S,T) 2SD400E	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
△ Q503-506 Q507,508 Q601-603 △ Q604 Q605			2SC3330(S,T) 2SA1317 2SD2144W 2SD2061F 2SA1317	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
△ Q606 Q607 Q608 Q609 Q610			2SC3330(S,T) 2SD2061F 2SC2274E 2SC3330(S,T) 2SA1317	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
△ Q611 △ Q612 Q613 Q701,702 Q703			2SC2274E 2SA984E 2SA1317 2SC3330(S,T) 2SC2274E	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q705 Q706,707 Q708 Q709 Q710			2SA1317 2SC3330(S,T) 2SA984E 2SC3330(S,T) 2SB1205(S,T)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		

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16

Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
Q711 Q712 Q713 Q714 Q715			2SC3330(S,T) 2SA1317 2SC3330(S,T) 2SD2061E 2SC3330(S,T)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q801-808 Q901 Q902,903 Q904 Q905,906			2SC3330(S,T) 2SC2274E 2SA984E 2SC2274E 2SC3330(S,T)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q907 Q908,909 Q910 Q911 Q912			2SA984E 2SC3330(S,T) 2SA1317 2SC3330(S,T) 2SA1317	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q913-916 Q1001,2 Q1003-8 VC101			2SC3330(S,T) 2SA1317 2SC3330U SVC342L	TRANSISTOR TRANSISTOR TRANSISTOR TUNING DIODES		
JK302 U101 U101			W02-1114-05 W02-2706-08 W02-2711-08	OPT OUTPUT 061-00178-001 FM FRONT END 061-00172-003 FM FRONT END 061-00172-002	M TE KPM	
MD MECHANISM (MDM-98A)						
C1100 C1101 C1102 C1103 C1104			C92-0171-08 C92-0205-08 CK73FF1C105K CK73FB1H273K CK73FB1H333K	CHIP-C 4.7UF K ELECTRO 1.0UF 6.3WV CHIP C 1.0UF K CHIP C 0.027UF K CHIP C 0.033UF K		
C1105 C1106 C1107 C1108 C1109			CK73FB1H332K C92-0205-08 CK73GB1C333K CK73FB1C474K C92-0205-08	CHIP C 3300PF K ELECTRO 1.0UF 6.3WV CHIP C 0.033UF K CHIP C 0.47UF K ELECTRO 1.0UF 6.3WV		
C1110 C1111 C1112 C1113-17 C1118			CK73FB1H472K CK73FB1C474K C93-0044-08 C93-0034-08 CK73FF1C105Z	CHIP C 4700PF K CHIP C 0.47UF K CERAMIC 330PF J CERAMIC 270PF J CHIP C 1.0UF Z		
C1119 C1120 C1200 C1201 C1202,03			C92-0205-08 CK73FF1H103Z CK73FF1C105Z C92-0172-08 CK73FF1C105Z	ELECTRO 1.0UF 6.3WV CHIP C 0.010UF Z CHIP C 1.0UF Z CHIP-C 10UF K CHIP C 1.0UF Z		
C1204 C1205 C1206 C1207 C1208,09			CK73GB1C473K CK73FF1C105Z CK73FB1H122K CK73FF1C105Z CC73GCH1H120J	CHIP C 0.047UF K CHIP C 1.0UF Z CHIP C 1200PF K CHIP C 1.0UF Z CHIP C 12PF J		
C1210 C1300 C1301 C1302 C1303			CC73GCH1H220J CC73FCH1H121J CK73GB1C273K C92-0172-08 C92-0171-08	CHIP C 22PF J CHIP C 120PF J CHIP C 0.027UF K CHIP-C 10UF K CHIP-C 4.7UF K		
C1304			C92-0172-08	CHIP-C 10UF K		

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PARTS LIST

RXD-M31MD

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Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
217	2A		G01-4110-08	SPRING		
218	1A		G01-3976-08	SPRING		
219	2A		G02-1651-08	FLAT SPRING		
220	2B		G02-1652-08	FLAT SPRING		
221	2A		G01-3973-08	SPRING		
222	2A		D13-1859-08	GEAR		
223	2A		D13-1860-08	GEAR		
224	3A		D13-1861-08	GEAR		
225	2A		D13-1862-08	GEAR		
226	2A		D13-1863-08	GEAR		
229	1A		D13-1864-08	GEAR		
230	1A		D14-0394-08	ROLLER		
231	2A		D19-0312-08	LEAD SCREW		
232	2A		D21-1895-08	SHAFT		
233	2A		D10-3699-08	ROD		
234	3A		D10-3702-08	ROD		
235	1B		A01-3552-08	METALLIC CABINET		
236	3B		A01-3553-08	METALLIC CABINET		
237	1B		J02-1439-08	INSULATOR		
238	2B		J02-1440-08	INSULATOR		
239	1B		G11-2380-08	CUSHION		
242	2B,1H		E35-2309-08	FLAT CABLE		
245	1A		F19-1083-08	SHEET		
246	2B		F19-1084-08	SHEET		
BB			N09-3426-08	SCREW	M1.7X7.5	
BD			N09-3115-08	SCREW	M1.4X2.2	
BF			N09-3347-08	SCREW	M1.7X2.5	
BG			N09-3352-08	SCREW	M1.7X8.9	
BK			N09-3350-08	SCREW	M2.0X4.0	
BL			N09-3351-08	SCREW	M1.7X3.0	
DMMD	3A		T42-0904-08	MOTOR ASSY	M901	
FMMD	3A		T42-0905-08	MOTOR ASSY	M902	
LMMD	3A		T42-0906-08	MOTOR ASSY	M903	
PUMD	2A		T25-0080-08	PICKUP		
RHMD	1A		T30-0017-08	RECORD HEAD		
CASSETTE MECHANISM (D40-1601-05)						
301	1D		A10-3157-08	CHASSIS BASE		
305	1D		D01-0119-08	FLYWHEEL ASSY LEFT		
306	1E		D01-0205-08	FLYWHEEL ASSY RIGHT		
331	2D		D19-0310-08	CLUTCH ASSY		
369	2C		N87-2004-46	HEAD PCB SCREW		
370	2C		N87-2006-46	SCREW		
374	1E		N19-0904-08	WASHER		
375	1D,1E		N19-0905-08	WASHER		
378	2D		N19-1214-08	WASHER		
380	2D		N29-0205-04	E RING		
389	2E		T94-0225-08	SOLENOID SHAFT		
391	1E		W02-2688-08	ELECTRIC UNIT B		
BM	1E		D16-0371-08	MAIN BELT		
BR	2E		D16-0372-08	REEL BELT		
MM	1D		T42-0933-08	MAIN MOTOR ASSY		
PF	2D		D14-0399-08	PINCH ROLLER ASSY (FWD)		
PR	1C		D14-0400-08	PINCH ROLLER ASSY (RVS)		

L : Scandinavia K : USA P : Canada R : Mexico C : China I : Malaysia
Y : PX(Far East, Hawaii) T : England E : Europe G : Germany V : China (Shanghai)
Y : AAFES(Europe) X : Australia Q : Russia H : Korea M : Other Areas Δ indicates safety critical components.

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

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Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
RPEH	2C		T39-0038-08	REC/PLAYBACK/ERASE HEAD		
CD-MECHANISM						
Δ PU			T25-0061-08	PICKUP (KSS-213C)		
SPEAKER (LS-M31(M))						
-		*	A05-0264-08	SPEAKER SYSTEM SP381-04-0266A	MET	
-		*	A05-0267-08	SPEAKER SYSTEM SP381-04-0266C	KP	
-		*	A21-3820-08	FRONT PANEL 106-03310-072		
-			B05-0917-08	GRILLE ASSY		
-		*	T03-0506-08	TWEETER 029-05006-412		
-		*	T10-1007-08	WOOFER 029-10006-412		

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SPECIFICATIONS

Main unit

[Amplifier section]

Effective output power during STEREO operation
 1 kHz, 10 % T.H.D., at 6 Ω 15 W + 15 W
 Rated output power during STEREO operation
 Other countries
 1 kHz, 0.7 % T.H.D., at 6 Ω 12 W + 12 W
 Frequency response
 AUX 20 Hz~20 kHz (0 dB ~ -3dB)

[Tuner section]

FM tuner section

Tuning frequency range 87.5 MHz ~ 108 MHz

MW (AM) tuner section

Tuning frequency range
 9 kHz step 531 kHz ~ 1,602 kHz
 10 kHz step 530 kHz ~ 1,610 kHz

[MD recorder section]

Laser Semiconductor laser
 Recording method Field modulation overwrite method
 D/A Conversion 1 Bit
 Wow & flutter Less than unmeasurable limit

[CD player section]

Laser Semiconductor laser
 D/A Conversion 1 Bit
 Frequency response 20 Hz~20 kHz
 Wow and flutter Less than unmeasurable limit

[Cassette deck section]

Track 4-track, 2-channel stereo
 Recording system AC bias system
 (Frequency: 65 kHz)

Heads

Playback / recording head 1
 Erasing head 1

Motors 1

Wow and flutter 0.2 % (W.R.M.S.)

Fast winding time Approx. 100 seconds
 (C-60 tape)

[General]

Power consumption 36 W
 Dimensions W : 180 mm
 H : 257 mm
 D : 275 mm
 Weight (net) 5.1 kg

Speakers

Enclosure Book shelf type, magnetically shielded
 Speaker configuration
 Woofer 100 mm, cone type
 Tweeter 50 mm, cone type
 Impedance 6 Ω
 Maximum input level 20 W
 Dimensions W : 150 mm
 H : 255 mm
 D : 240 mm
 Weight (net) 2.4 kg(1 piece)



KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

- Sufficient performance may not be exhibited at extremely cold locations (where water freezes).

RXD-M31MD

Note:

Component and circuit are subject to modification to insure best operation under differing local conditions. This manual is based on General market(M) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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