

Service Manual

Portable Stereo CD System

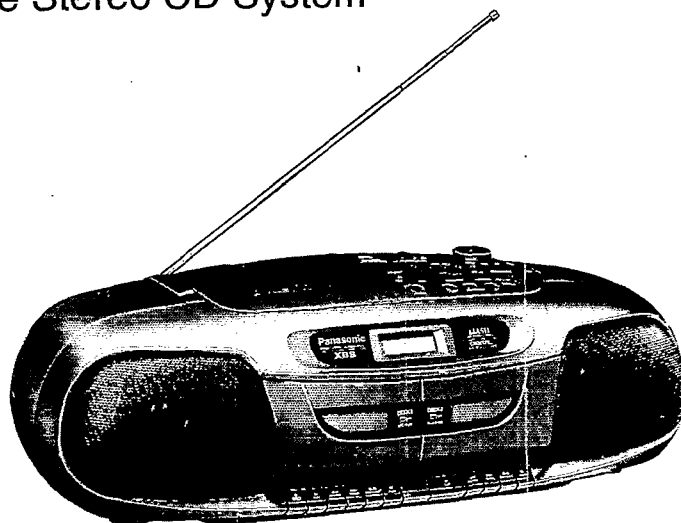
Radio Cassette
RX-DT401

Colour

(K)Black Type

COMPACT
disc
DIGITAL AUDIO

MASH*
multi-stage noise shaping



Area

Suffix for Model No.	Area	Colour
(EB)	Great Britain	(K)
(EG)	F.R Germany & Italy	
(GN)	Oceania	

Tape section: SG-20W Mechanism Series
CD section: Traverse deck series (RAE0111Z)

SPECIFICATIONS

General:

Power Requirement: AC; 230~240V, 50Hz
Battery ; 15V (10 R20/LR20 size, UM-1 batteries)
Memory Back-up Battery for computer; 6 V (4 R6/LR6 size, UM-3 batteries)
Power Consumption: 45W (AC only)
Power Output: 50W (PMPO)
Speaker: Woofer; 10cm(4") x 2(2.7Ω)
Outputs: HEADPHONES; 32Ω, ϕ 3.5
Dimensions: 610(W) x 182(H) x 262(D) mm
Weight: 5.5 kg without batteries.

Disc Player Section:

Sampling Frequency: 44.1kHz
D-A Conversion: MASH (1 Bit DAC)
Beam Source: Semiconductor laser (wavelength 780 nm)
No. of Channels: 2 channels, stereo
Frequency Range: 20~20,000Hz (+0/-2 dB)
Wow and Flutter: Unmeasurable
Decoding: 16-bit linear

Radio Section:

Frequency Range: FM1,2; 87.5 ~ 108 MHz
LW ; 144 ~ 288 kHz
MW ; 522 ~ 1611 kHz
Intermediate Frequency: FM; 10.7 MHz
AM; 459 kHz
Sensitivity: FM1,2; 12 dB/50mW output (-3 dB Limit Sens.)
MW ; 49 dB/50mW output
LW ; 54 dB/m/50mW output

Tape Deck Section:

Frequency Range: 40~14,000 Hz (with normal tape)
Recording System: AC bias (100kHz), AC erase
Tape Speed: 4.8 cm/s (17 $\frac{1}{2}$ ips)
Monitor System: Variable sound monitor
Track System: 4-track 2-channel stereo recording and playback
Fast forward and Rewind time: Approx. 120 Sec with C-60 cassette tape

*MASH

- MASH (Multi-Stage Noise Shaping) is an effective oversampling D/A conversion technique which realizes a high S/N ratio and needs no highly complex manufacturing processes such as a laser trimming.
- MASH is a trademark of NTT (Nippon Telegraph and Telephone Corporation).

Notes:

- Weights and dimensions shown are approximate.
- Design and specifications are subject to change without notice.

Panasonic

HANDLE PRECAUTIONS FOR TRAVERSE DECK

The Laser Diode in the traverse deck (Optical Pickup) may break down due to potential difference caused by static electricity of clothes or human body. So, be CAREFUL of electrostatic breakdown during repair of the traverse deck (Optical Pickup)

Handling of traverse deck (optical pickup)

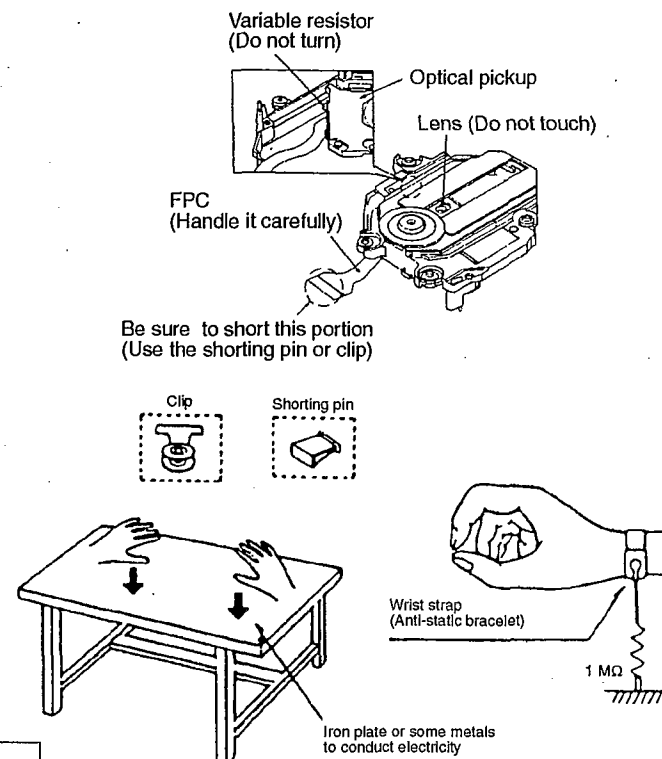
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

Grounding for electrostatic breakdown prevention

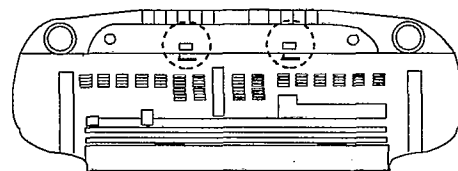
1. Human body grounding
Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding.
Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



What to do when the tape is entangled



When the tape is caught in the pinch roller, etc. Release the tape by turning the pulley on the motor with a screwdriver in the direction of arrow.

BATTERY SERVICE LIFE

UM-1 (D-size) Batteries

Approx. 7.8 hours of CD recording (EIAJ)

Approx. 5.2 hours CD playback (EIAJ) with volume set at 3/4 position

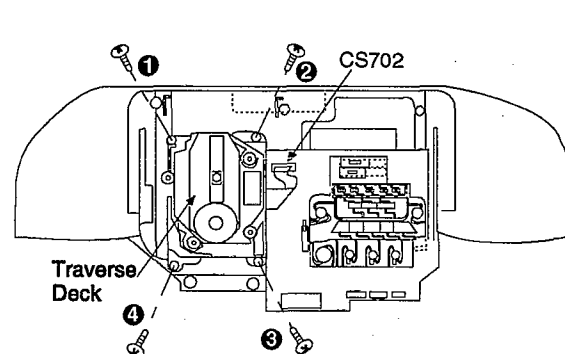
Approx. 16.5 hours of radio recording (EIAJ)

Approx. 9.0 hours of tape playback (EIAJ) with volume set at 3/4 position

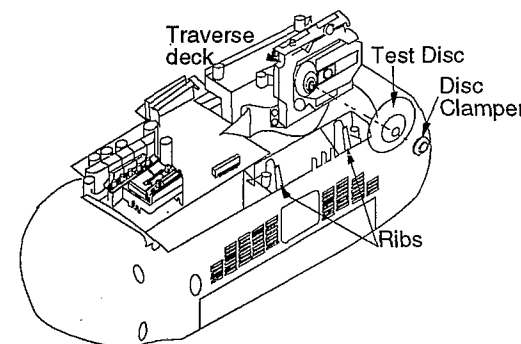
The above battery service life is measured according to the conditions set forth by EIAJ (Electronic Industries Association of Japan). As the battery service life varies with the method of operation and environmental conditions, use these values as reference.

How to check the CD P.C.B.

1. Remove the upper cabinet by following the disassembly instructions in Ref. No. 2 in the Removal of the Top Cabinet. (See page 7)



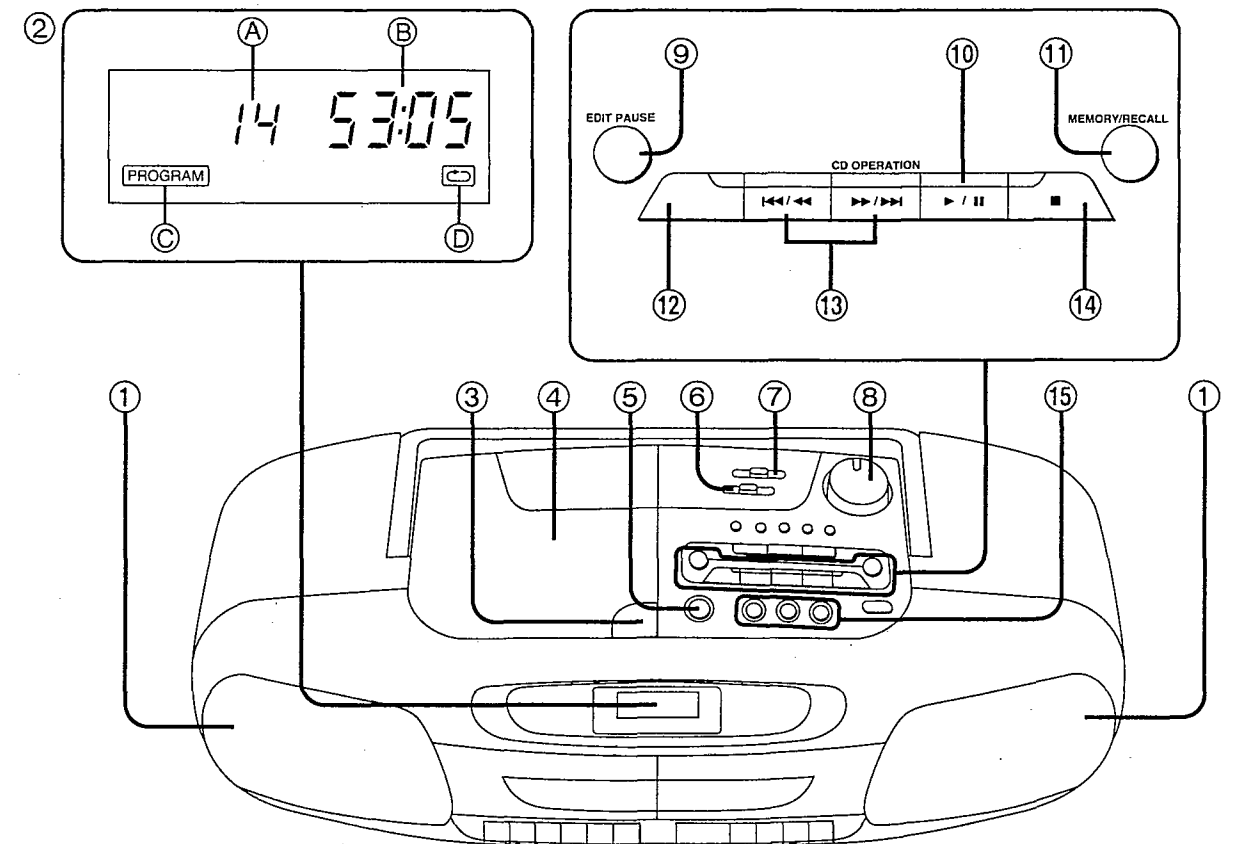
1. Remove the 4 screws (1 ~ 4).
2. Remove connector CS702.



4. Slot the CD unit onto the two Ribs so that the CD unit stands vertically with the CD P.C.B facing inwards.
5. Remove the Disc clamper by following the disassembly instructions in Ref. No. 16 in the Removal of the Disc Clamper. (See page 9)
6. Fix the test disc with the Disc clamper.

LOCATION OF CONTROLS

CD/GENERAL CONTROLS



① Speakers (10cm, 2.7Ω)

② Display Section

A: Track Display

B: Playing Time Display

C: Program Indicator ([PROGRAM])

D: Repeat Indicator ([REPEAT])

③ CD Eject Button ([CD EJECT])

④ Disc Holder

⑤ Operation Switch ([OPERATION])

⑥ Extra Bass System Level Control (XBS LEVEL)

⑦ Tone Level Control (TONE)

⑧ Volume Control (VOLUME)

⑨ Edit Pause Button (EDIT PAUSE)

Press this button when recording a disc with edit pause function

⑩ Play/Pause Button ([PLAY/PAUSE])

Press this button to start the disc play or stop the disc play temporarily

⑪ Memory/Recall Button (MEMORY, RECALL)

Press this button to program the desired track(s) and to confirm the programmed content(s)

⑫ Repeat Button (REPEAT)

⑬ Skip/Search Buttons ([SKIP/SEARCH])

Press either button to skip (backward or forward) the tracks, or to search for (backward or forward) the desired portion of the disc.

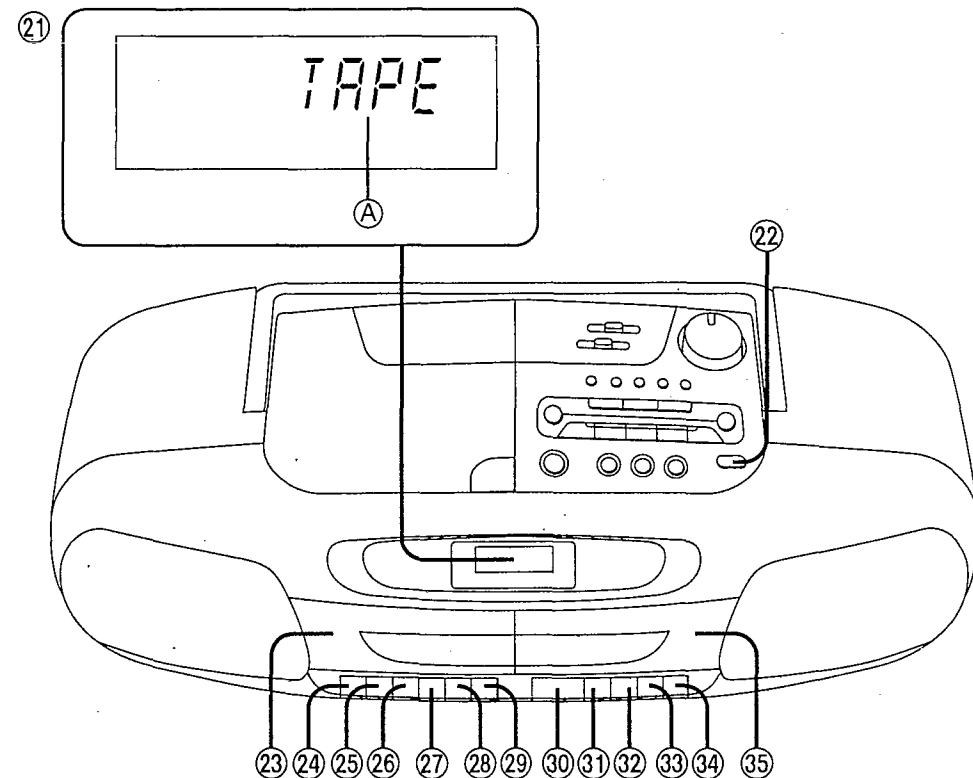
⑭ Stop/Clear Button ([STOP/CLEAR])

Press this button to stop the disc play or to clear the programmed track(s) and sequence.

⑮ Function Select Buttons (TAPE • TUNER/BAND • CD)

Press one of these buttons to listen to tapes, radio broadcasts or compact discs.

■ TAPE DECK CONTROLS



②① Display Section

A: Tape mode indicator (TAPE)

②② Edit Recording Speed Select Button (TAPE EDIT)

HIGH: High speed
NORMAL: Normal speed

②③ Deck 1 Cassette Compartment Cover

②④ Record Button (● REC)

Press this button to record a tape.

②⑤ Playback Button (▶ PLAY)

Press this button to playback a tape.

②⑥ Rewind/Review Button (◀◀ REW/REV)

Press this button to rewind the tape during stop condition, or to search the desired portion (backward) during playback.

②⑦ Fast Forward/Cue Button (▶▶ FF/CUE)

Press this button to fast forward the tape during stop condition, or to search the desired portion (forward) during playback.

②⑧ Stop/eject Button (■/▲ STOP/EJECT)

Press this button to stop the tape during tape movement, and to open the cassette compartment cover during tape stop condition.

②⑨ Pause Button (■ PAUSE)

Press this button to stop the tape temporarily.

③① Playback Button (▶ PLAY)

③② Rewind/Review Button (◀◀ REW/REV)

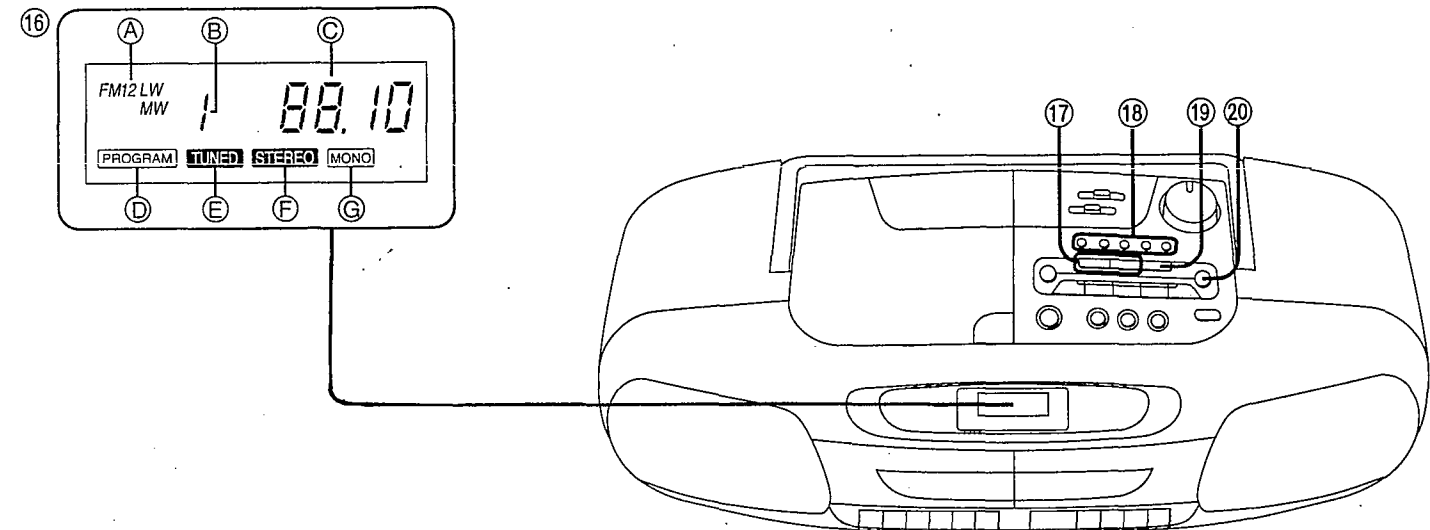
③③ Fast Forward/cue Button (▶▶ FF/CUE)

③④ Stop/eject Button (■/▲ STOP/EJECT)

③⑤ Pause Button (■ PAUSE)

③⑥ Deck 2 Cassette Compartment Cover

■ TUNER CONTROLS



①⑥ Display section

A: Band Indicator (FM1, FM2, LW, MW)

B: Preset Channel Indicator

C: Frequency Display

D: Program Indicator (PROGRAM)

E: Tuning Indicator (TUNED)

F: Stereo Indicator (STEREO)

G: Monaural Indicator (MONO)

This indicator does not appear when the FM mode/beat proof button is pressed to stereo mode.

①⑦ Tuning Buttons (TUNING)

These buttons are used to tune the radio to the desired broadcast frequency

①⑧ Preset Memory Channel Buttons (PRESET STATION)

If you memorize the broadcast station, you can select the preset channel pressing one of these buttons.

①⑨ FM Mode/Beat Proof Button (FM MODE/B.P)

The function of this button change according to the selected radio band.

LW/MW: Beat proof (for recording from the AM radio)

FM: MONO/STEREO

②⑩ Memory/recall Button (MEMORY/RECALL)

Press this button to memorize a broadcast frequency into preset memory.

No function of the recall in the tuner mode.

■ REAR PANEL

③⑥ Handle

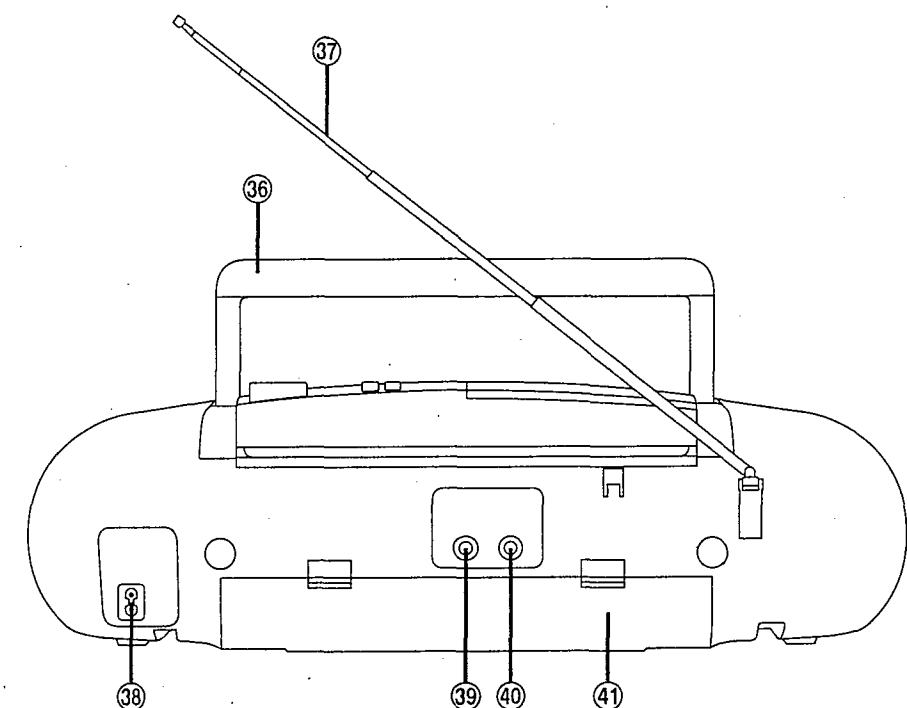
③⑦ Telescopic antenna

③⑧ AC socket (AC IN~)

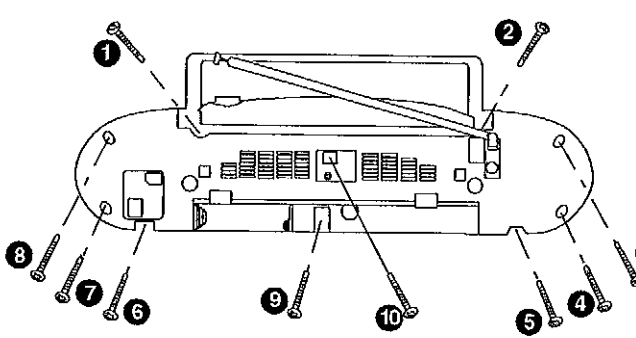
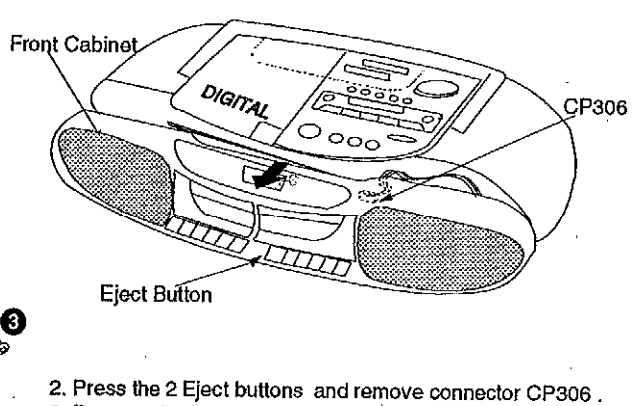
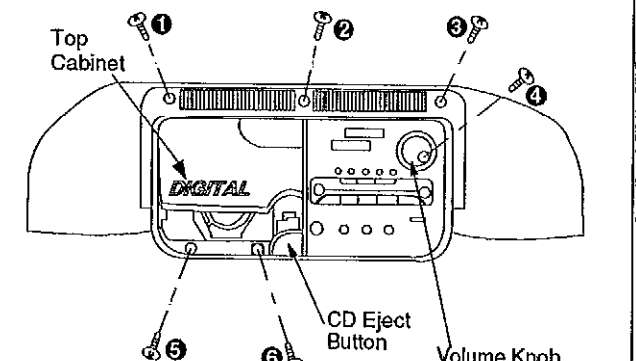
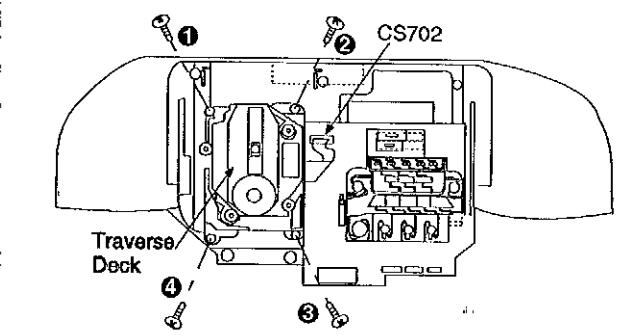
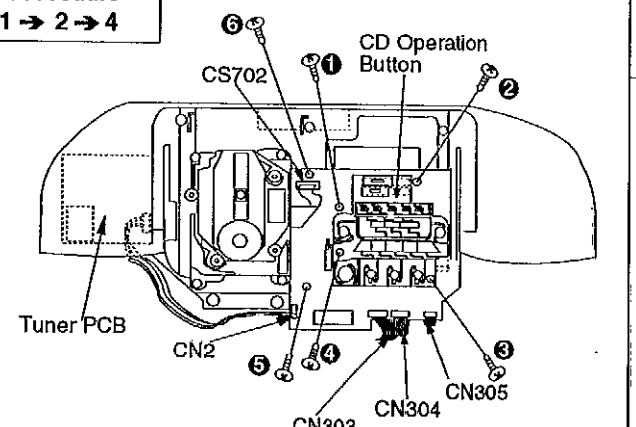
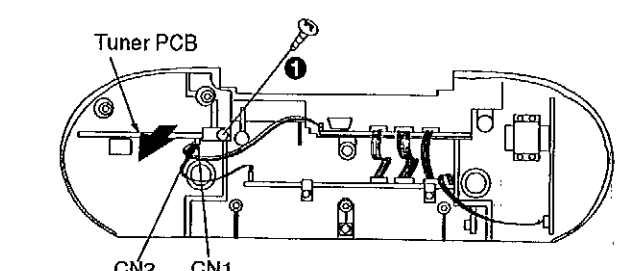
③⑨ Headphones Jack (PHONES)

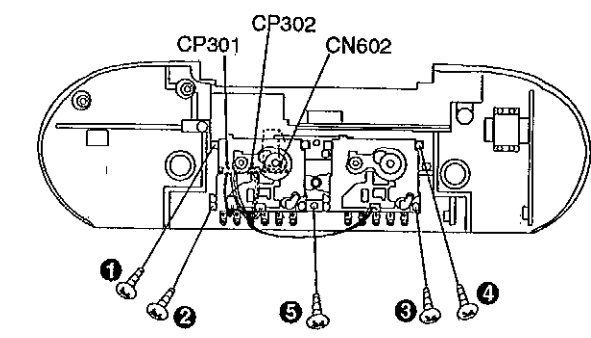
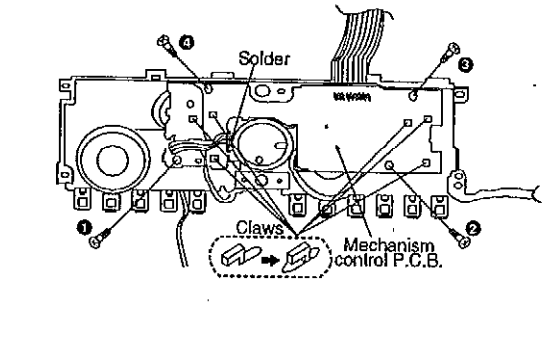
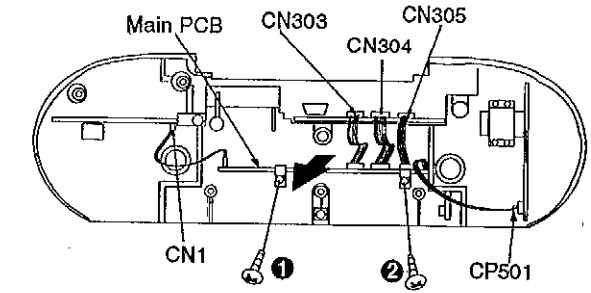
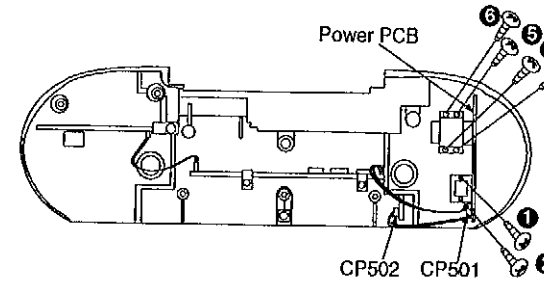
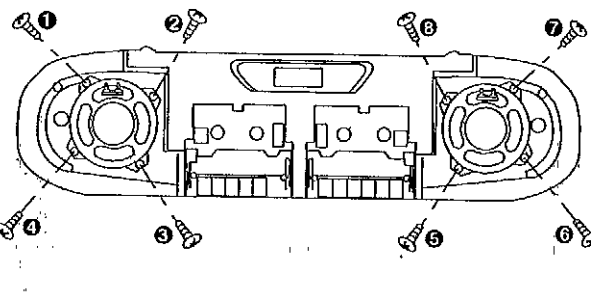
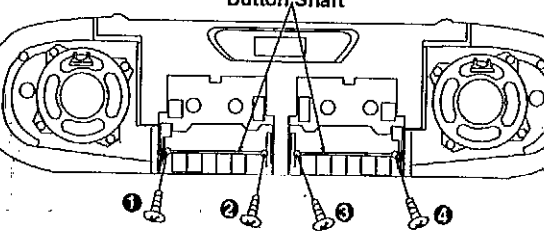
④① Mixing microphones jack (MIX MIC)

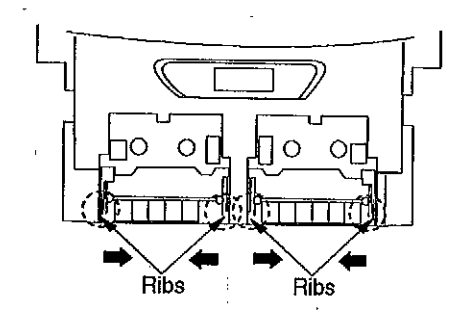
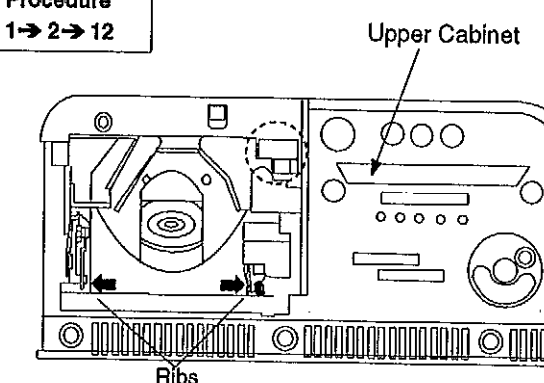
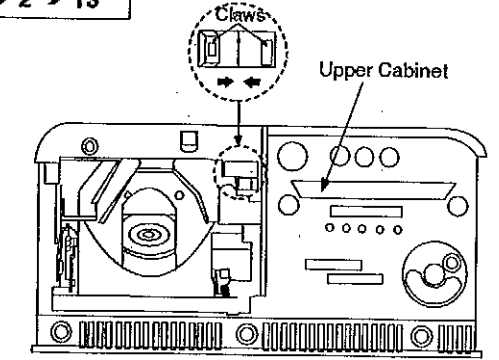
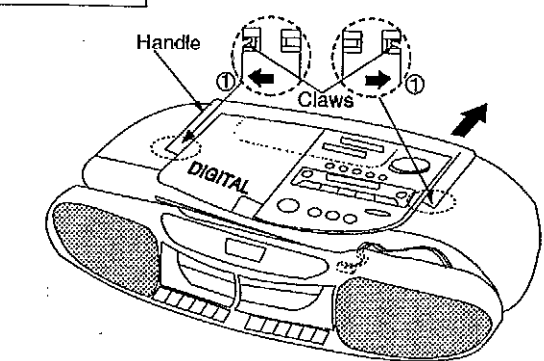
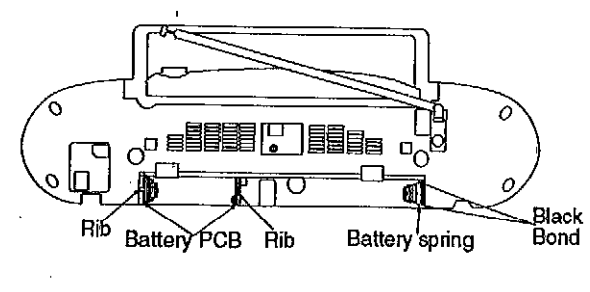
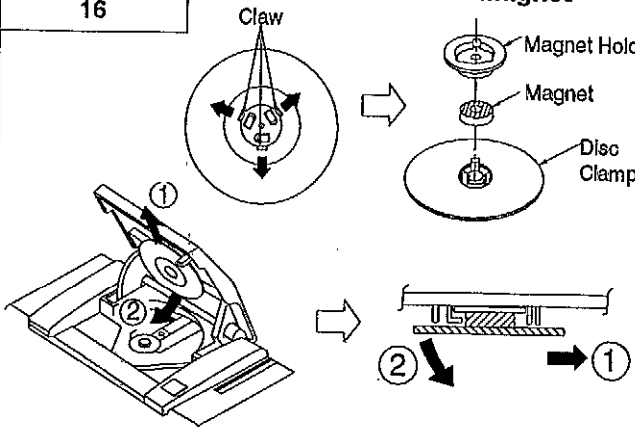
④② Battery Compartment Cover



DISASSEMBLY INSTRUCTIONS

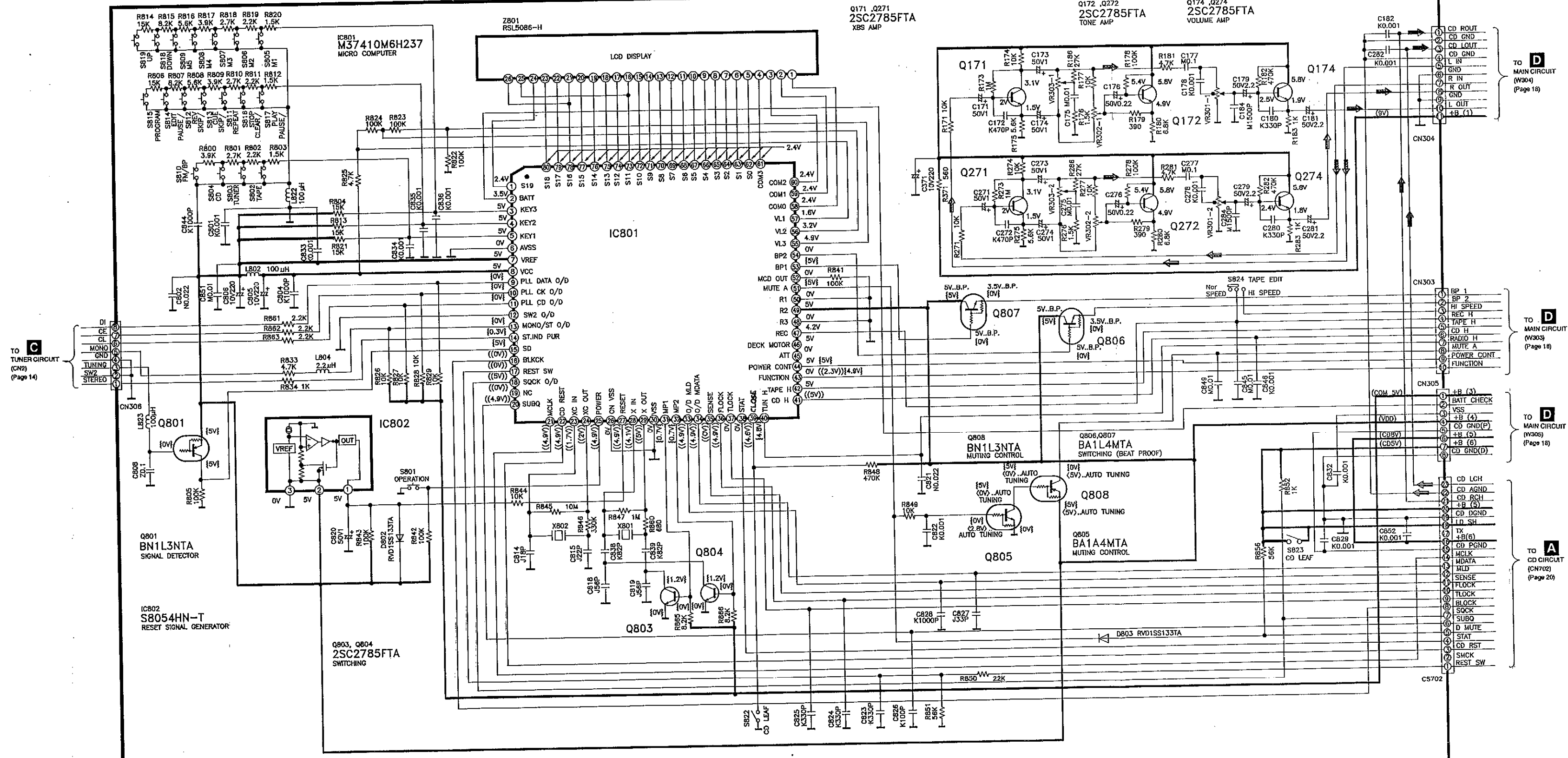
Ref. No 1	Removal of the Front Cabinet
Procedure 1	1. Remove 10 screws (1 ~ 10).  2. Press the 2 Eject buttons and remove connector CP306. 3. Remove the front cabinet in the direction of arrow. 
Ref. No 2	Removal of Top Cabinet
Procedure 1 → 2	 1. Pull out the volume knob. 2. Press the CD EJECT button. 3. Remove 6 screws (1 ~ 6) and remove the top cabinet.
Ref. No 3	Removal of Traverse Deck
Procedure 1 → 2 → 3	 1. Remove the 4 screws (1 ~ 4). 2. Remove connector CS702.
Ref. No 4	Removal of Control PCB
Procedure 1 → 2 → 4	 1. Remove 6 screws (1 ~ 6). 2. Remove 5 connectors CS702, CN2, CN303, CN304 & CN305.
Ref. No 5	Removal of Tuner P.C.B
Procedure 1 → 5	 1. Remove 1 screw and remove PCB holder. 2. Remove 2 connectors CN1 and CN2.

Ref. No 6	Removal of Tape Mechanism & Mechanism P.C.B.
Procedure 1 → 6	 1. Remove 5 screws (1 ~ 5). 2. Cut black bond at wire dressing points before removal of 3 connectors CP302, CN602 & CP301.  3. Remove all solder points on motor terminal. 4. Remove 4 screws (1 ~ 4). 5. Cut wire tie. 6. Release the 6 claws.
Ref. No 7	Removal of Main P.C.B
Procedure 1 → 5 → 6 → 7	 1. Remove 2 screws (1 ~ 2) and remove PCB holder. 2. Remove 4 connectors CN303, CN304, CN305 & CP501. 3. Pull out the Main PCB in the direction of arrow.
Ref. No 8	Removal of Power PCB
Procedure 1 → 8	 1. Remove 6 screws (1 ~ 6). 2. Remove connector CP502 & pull out the Power PCB.
Ref. No 9	Removal of the Speaker
Procedure 1 → 9	 1. Remove 8 screws (1 ~ 8). 2. Cut black bond at wire dressing point before removal of speaker.
Ref. No 10	Removal of Mechanism Button
Procedure 1 → 10	 1. Remove 4 screws (1 ~ 4). 2. Remove the mechanism button shaft before removal of mechanism buttons.

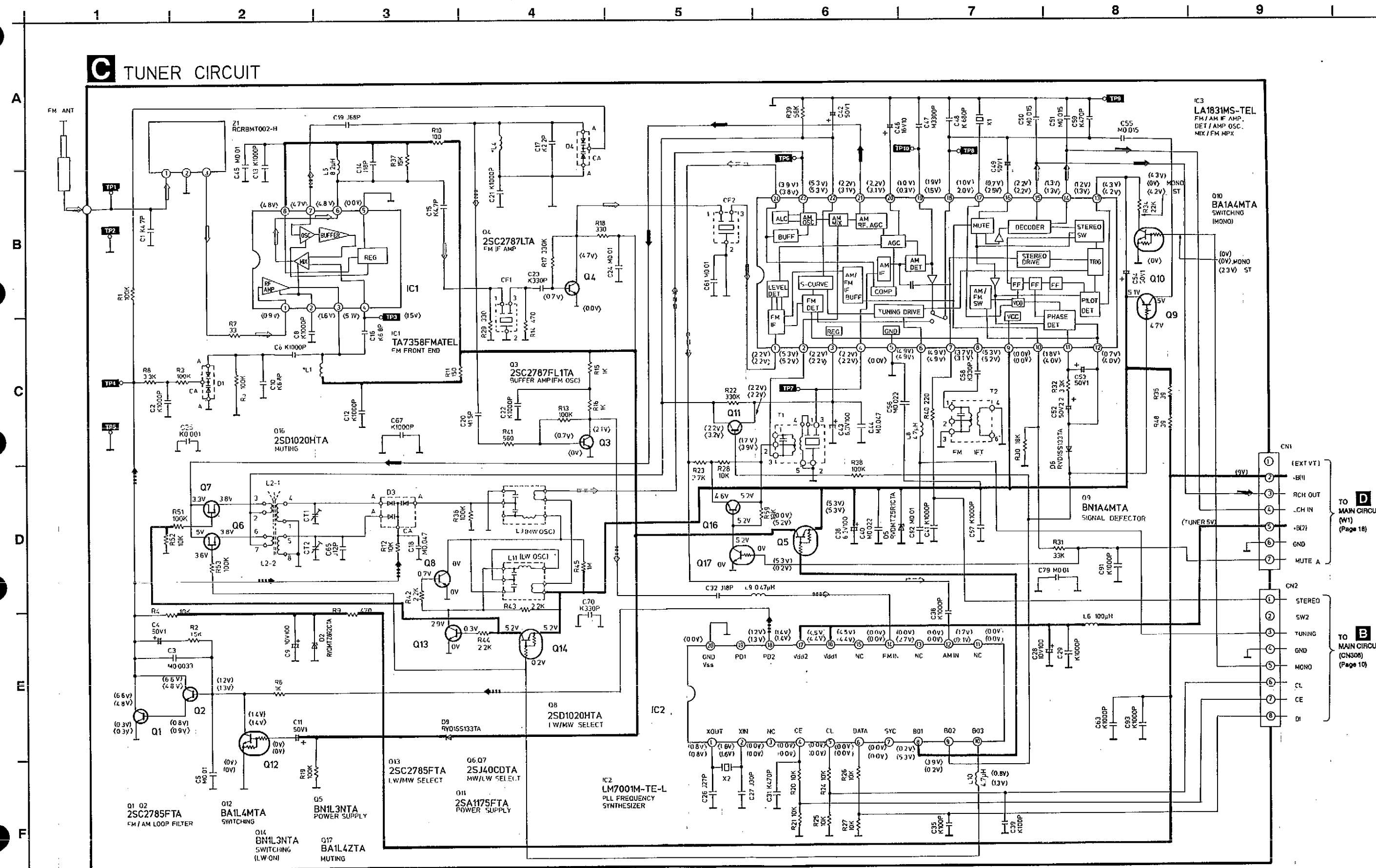
Ref. No 11	Removal of Cassette Holder
Procedure 1 → 11	 1. Release the ribs in the direction of arrow. 2. Remove the cassette holder.
Ref. No 12	Removal of CD Cover
Procedure 1 → 2 → 12	 1. Release 2 ribs in the direction of arrow.
Ref. No 13	Removal of CD Eject Button
Procedure 1 → 2 → 13	 1. Release the 2 ribs in the direction of arrow.
Ref. No 14	Removal of the Handle
Procedure 1 → 14	 1. Remove 2 claws in the direction of arrow ①. 2. Remove the handle in the direction of arrow.
Ref. No 15	Removal of the Battery Spring & Battery PCBs
Procedure 1 → 15	 1. Release the 2 ribs with the help of a screwdriver and pull out the 2 Battery PCBs. 2. Cut the black bond and remove the battery spring.
Ref. No 16	Removal of the Disc Clamper
Procedure 16	 1. Press the CD eject button and then open the CD cover. 2. Slide the disc clamper in the direction of the arrow ① and then remove the disc clamper in the direction of arrow ②.

SCHEMATIC DIAGRAM

B CONTROL CIRCUIT



■ SCHEMATIC DIAGRAM



Notes :

- S601 : Deck 1 playback switch.
- S602 : Deck 2 playback switch.
- S603 : Deck 1 Forward/Reverse switch.
- S604 : Deck 2 Forward/Reverse switch.
- S605 : Deck 1 motor switch.
- S606 : Deck 2 motor switch.
- S607 : Deck 1 record switch.
- S801 : Operation switch. (**OPERATION**)
- S802 : Function select switch. (TAPE)
- S803 : Function select switch. (TUNER)
- S804 : Function select switch. (CD)
- S805 : Preset station select switch. (M1)
- S806 : Preset station select switch. (M2)
- S807 : Preset station select switch. (M3)
- S808 : Preset station select switch. (M4)
- S809 : Preset station select switch. (M5)
- S810 : FM mode and beat proof switch. (FM MODE/B.P.)
- S811 : CD repeat switch. (REPEAT)
- S812 : CD skip and search switch. (**▶▶**)
- S813 : CD skip and search switch. (**◀◀**)
- S814 : Edit pause switch. (EDIT PAUSE)
- S815 : Memory and recall switch. (MEMORY/RECALL)
- S816 : CD stop and clear switch. (**■**)
- S817 : CD play and pause switch. (**▶ ||**)
- S818 : Tuning switch. (-)
- S819 : Tuning switch. (+)
- S822 : CD cover open/close detect switch.
- S823 : CD Laserdiodi on/off detect switch.
- S824 : Tape Edit select switch. (**■** HIGH **■** NORMAL)
- S701 : CD Rest Switch
- VR301-1-301-2 : Volume control VR.
- VR302-1-302-2 : S-XBS control VR.
- VR303-1-303-2 : Tone control VR.
- VR 601 : Tape speed adjustment VR.
- VR701 : Best eye adjustment VR.

- DC voltage measurement are taken with electronic voltmeter. The negative terminal of the battery provides negative meter connection point.

No mark	...TAPE PLAYBACK	(())	...CD
<< >>	...Tape record mode	< >	...FM mode
{ }	...AM mode	{ }	...TUNER

• Battery Current :

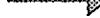
Vol.min60mA	(FM/AM)	Vol.max76mA	(FM/AM)
82mA	(PLAYBACK)	1.90A	(PLAYBACK)
92mA	(RECORDING)	1.98A	(RECORDING)
380mA	(CD)	1.56	(CD)

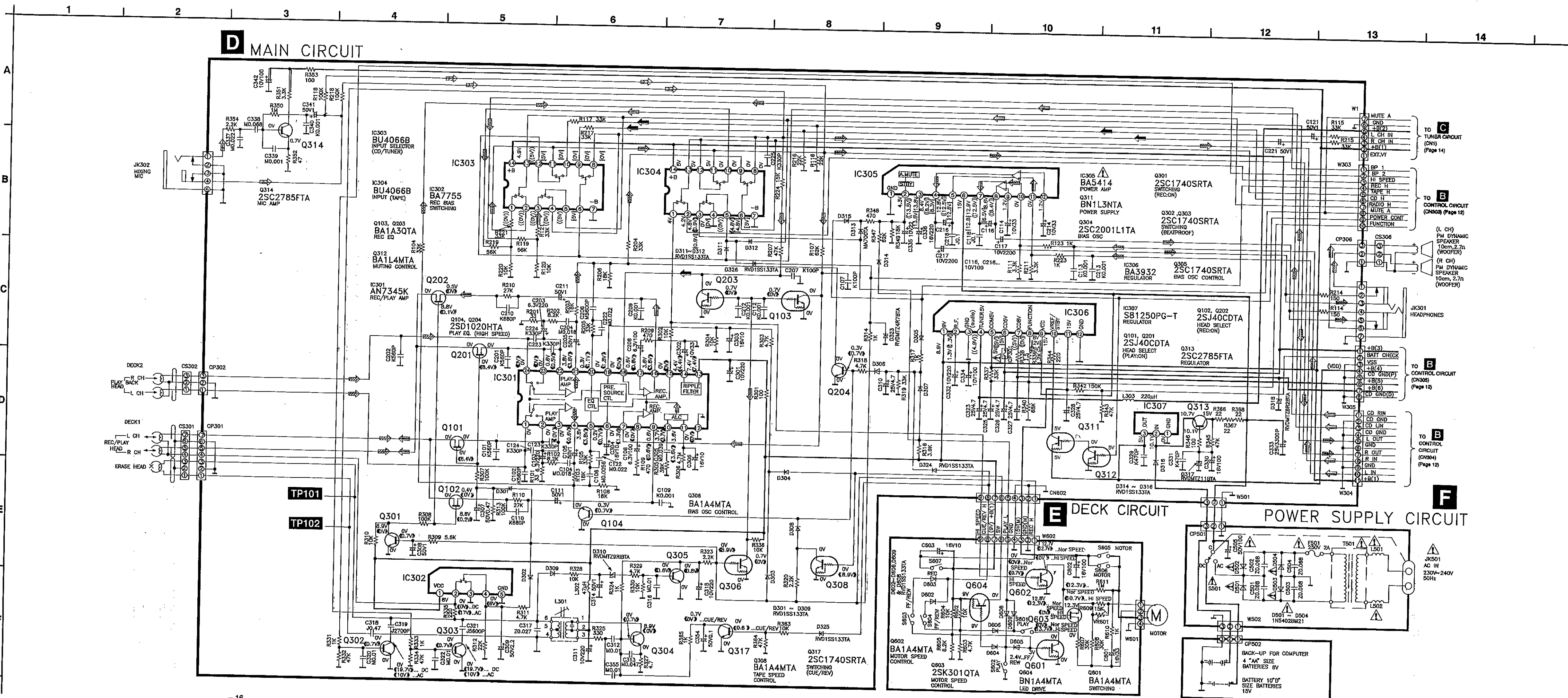
Measurement Instruction

(AM: 74dB/m 30%Mod
FM: 60dB 30%Mod
TAPE: 315Hz, 0dB
CD: 1kHz, 0dB)

• **Important Safety Notice:**
Component identified by  mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

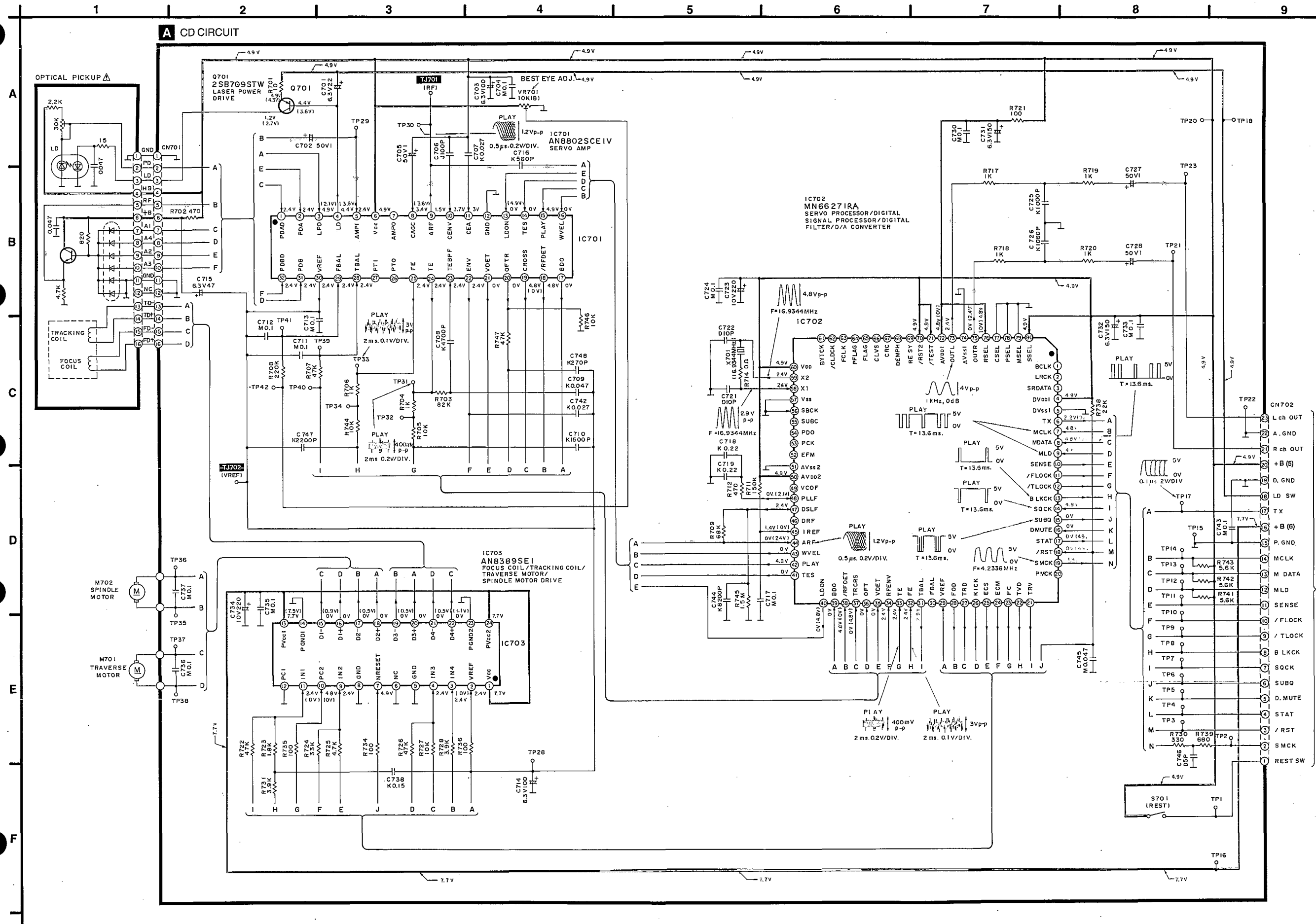
- This schematic diagram may be modified at any time with the development of new technology.

-  : **Main Signal Line**
-  : **CD Signal Line**
-  : **Tape Playback Signal Line**
-  : **Recording Signal Line**
-  : **+B Line**
-  : **FM Signal Line**
-  : **MW/LW Signal Line**
-  : **FM/MW/LW Vcap Signal Line**
-  : **AF (FM/MW/LW) Signal Line**
-  : **MW/LW OSC Signal Line**
-  : **FM OSC Signal Line**



■ SCHEMATIC DIAGRAM • OPTICAL PICKUP AND SERVO CIRCUIT

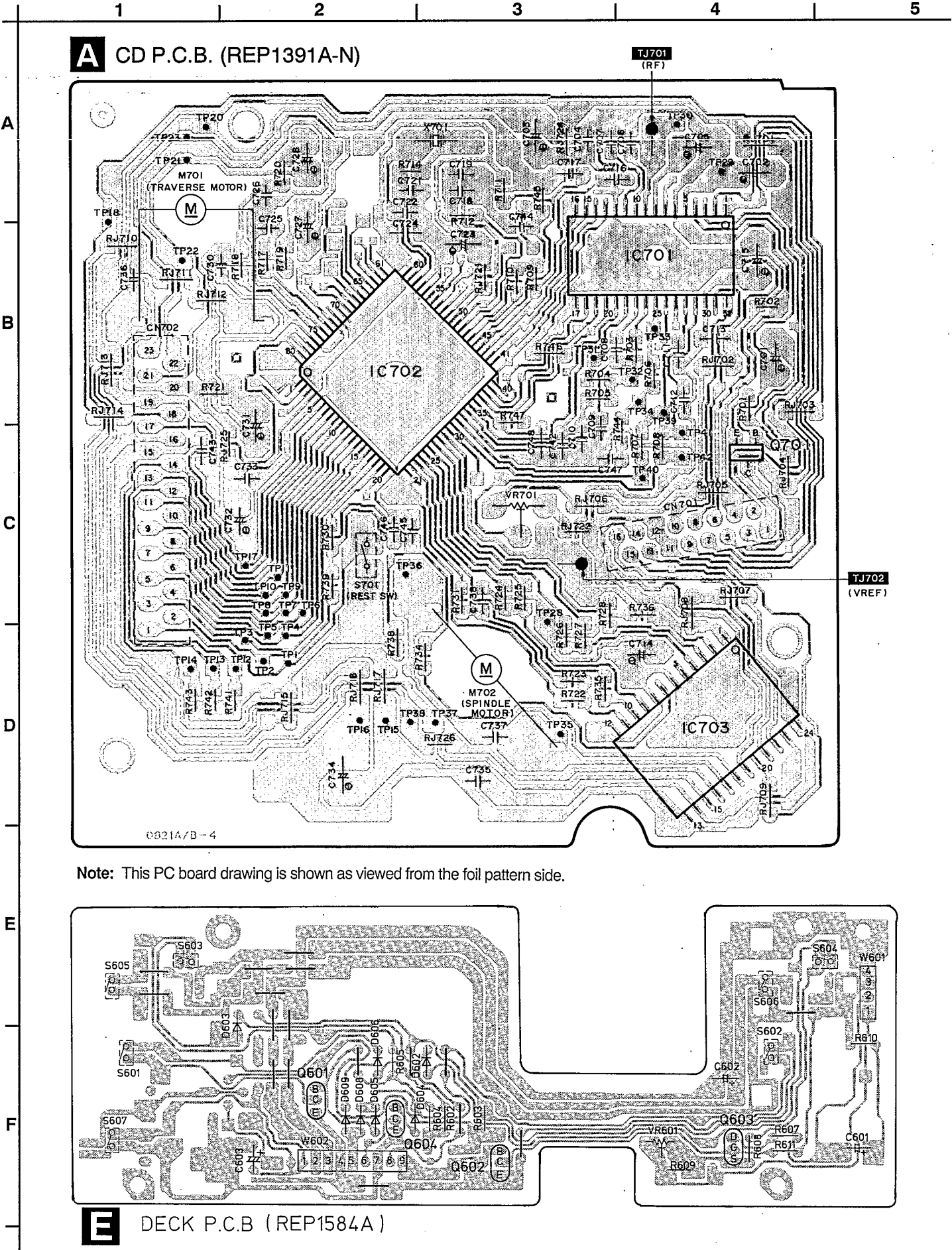
(This New CD Circuit is to replace Pg 11 & 12 of the Original Service Manual RX-DS101 [E,EB,EG & GN] attached)



■ TERMINAL GUIDE OF IC'S, TRANSISTORS & DIODES

TA7358FMATEL - 8 Pin LM7001M-TE-L - 20 Pin LA1831MS-TEL - 24 Pin	M37410M6H237 MN66271RA	BA5414 BA3932	BU4066B	AN7345K	
BA7755	AN8802SCE1V	AN8389SE1	S81250PG-T S8054HN-T	2SD1020HTA 2SC2785FTA BA1A4MTA BA1A3QTA BN1L3NTA BN1L4ZTA 2SC2787LTA 2SC2787FL1TA	2SA1175FTA
2SC2001L1TA	2SK301QTA	2SC1740SRTA	2SJ40CDTA	KV1360NT KV1580NT KV1581A3 KV1360NT	1N5402BM21
RVD1SS133TA MA700TA	RVDMTZ4R7BTA RVDMTZ11BTA RVDMTZ8R2CTA RVDMTZ5R1CTA RVDMTZ9R1BTA RVDMTZ8R2BTA				

■ PRINTED CIRCUIT BOARD

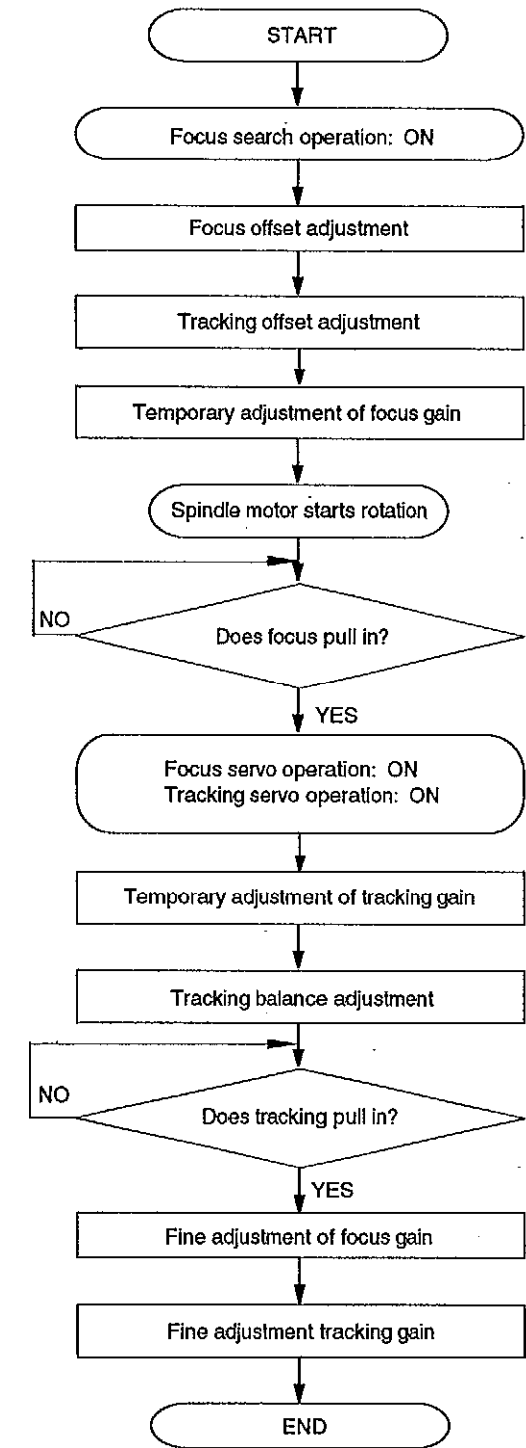


■ AUTOMATIC ADJUSTMENT SEQUENCE OF THE DIGITAL SERVO SYSTEM

1. The MN66271 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain and tracking balance adjustments. The outputs from MN66271 are such that the focus coil driving signal, the tracking coil driving signal, and the traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control to a disc.
2. The servo processor IC MN6271 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain; and (5) Tracking balance. Therefore, you do not have to perform the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted. You can obtain an optimum servo control for a disc to be played.
[You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of these automatic adjustments.

● Flow chart on automatic adjustment sequence



● Because the microcomputer precisely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if the used disc is an eccentric one or its surface is warped.

Approx. 2.5sec.

■ MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum. 2. Set band selector switch at FM/FM ST,LW,MW 3. Set Editing Switch to NOR. 4. Set power source voltage to 15V DC/AC 230V 50z Hz.	5. Set tone control to center. 6. Set XBS level control to minimum. 7. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Shown in Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	459 kHz 30% Mod. at 400Hz	Point of non-interference. (on/about 600Hz)	Earphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	T2 (AM IFT)	Adjust for maximum output.

■ MW-RF ALIGNMENT

Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	522 kHz	Tuning capacitor fully closed.	.	—	Confirm the VCO voltage reading on DC voltmeter between TP4 & TP5 to be 1.0V ~ 1.5V
.	1,611 kHz	Tuning capacitor fully open.	.	—	Confirm the VCO voltage reading on DC voltmeter between TP4 & TP5 to be 5.4 V ~ 6.3 V
.	603 kHz	Tune to signal	.	(*1) L2 (MW ANT Coil)	Adjust for maximum output. Adjust L2 by moving coil along the ferrite core.
.	1,404 kHz	.	.	CT1 (MW ANT Trimmer)	Adjust for maximum output.
(*1) Fix antenna coil with wax after completing alignment.					

■ LW-RF ALIGNMENT

Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	144 kHz	Tuning capacitor fully closed.	.	—	Confirm the VCO voltage reading on DC voltmeter between TP4 & TP5 to be 1.1V ~ 2.0V
.	288 kHz	Tuning capacitor fully closed.	.	—	Confirm the VCO voltage reading on DC voltmeter between TP4 & TP5 to be 4.4V. ~ 5.2V
.	162 kHz	Tune to signal	.	(*1) L2 (LW ANT Coil)	Adjust for maximum output. Adjust L2 by moving coil along the ferrite core.
.	270 kHz	.	.	CT2 (LW ANT Trimmer)	Adjust for maximum output.
(*1) Fix antenna coil with wax after completing alignment.					

■ FM-RF ALIGNMENT

Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2.	87.5MHz	Variable capacitor fully closed.	.	—	Confirm the VCO voltage reading on DC voltmeter between TP4 & TP5 to be 2.0V ~ 3.0V
.	108.0MHz	Variable capacitor fully open.	.	—	Confirm the VCO voltage reading on DC voltmeter between TP4 & TP5 to be 4.0V ~ 5.6V
(*2) Three output responses will be present; Proper tuning is the center frequency.					

■ "ZERO" VOLTAGE ADJUSTMENT

SIGNAL GENERATOR or SWEEP GENERATOR	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT (Shown in Fig. 1)	SPECIFICATION	REMARKS
98 MHz, 66 dB(CW) Connect to test point TP1 through FM dummy antenna. Negative side to TP2	Connect the DC Voltmeter between test point TP6 and TP7.	T2	-0.1V ± 50mV	Align coil T2 for "ZERO" voltage to be in the range of -0.1V ± 50mV

■ BIAS VOLTAGE & BIAS FREQUENCY CHECK

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT (Refer to Fig. 3)	SPECIFICATION	REMARKS
Use Normal tape (Deck 1 Record)	TP101 ... (+) TP102 ... (-)	—	10.0 ± 2.0mV	Function selector in Tape position Record mode
Use Normal tape	TP101 ... (+) TP102 ... (-)	—	63KHz ± 10KHz	1. Function selector in Tape position Record mode 2. Confirm sine-wave appears without distortion/abnormal oscillation.

■ TAPE SPEED ADJUSTMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT (Refer to Fig. 4)	REMARKS
QZZCWAT (3 kHz)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	VR601	Normal Speed Adjustment 1. Insert a test tape (QZZCWAT) in Deck 2 and play it back. 2. Adjust VR601 until the measured value becomes 3000 ± 30Hz.
	3. Check Deck 1 in the same way to make sure it satisfies the specification. Deck 1 ... ±50 Hz of the speed of Deck 2. (If it doesn't, repeat step 1 and 2 above.) Note: This set uses one drive motor, so be sure to perform the adjustment in Deck 2. High Speed Measurement 4. Insert the playback tape into Deck 2 and the editing tape into Deck 1. 5. Set the Editing Mode Selector to the "HIGH" position. 6. Press the Deck 1 Pause button, then press the Record Button. 7. Press the Deck 2 Playback Button. (* Editing is started by means of the Synchro-Start function.) 8. Check to ensure that the measured speed is 5100Hz ~.		

■ HEAD AZIMUTH ALIGNMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	REMARKS
QZZCFM (8kHz, -20dB)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	Azimuth screw (Shown in Fig. 5 & 6)	1. Playback the azimuth adjustment portion (8 kHz, -20 dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-ch and R-ch are maximized and the isajous waveform, as illustrated, approaches 0 degrees. Notes: When the adjusting positions are different with L-ch and R-ch, find a position where the outputs of L-ch and R-ch are balanced, and then make the adjustment into the range " 0 ~ -0.5dB " from the peak. 2. After the adjustment, apply screwlock to the azimuth adjusting screw more than 180 degree around the screws.

■ BEATPROOF CHECK

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT (Refer to Fig. 7)	SPECIFICATION	REMARKS
Use Normal tape	TP101 ... (+) TP102 ... (-)	—	•Frequency Shift from B.P1 ~ B.P2 (-1.5 ~ -3.5kHz) •Frequency Shift from B.P1 ~ B.P3 (-3.5 ~ -6.5kHz)	1. Set the function selector to Tuner Rec. (MW or LW) 2. Press the Beat Proof button . 3. Confirm the oscillating waveform to be sinusoidal without distortion or adnormal oscillation.

ALIGNMENT POINT

•Please refer to Circuit Board and Wire Connection Diagram for test point locations .

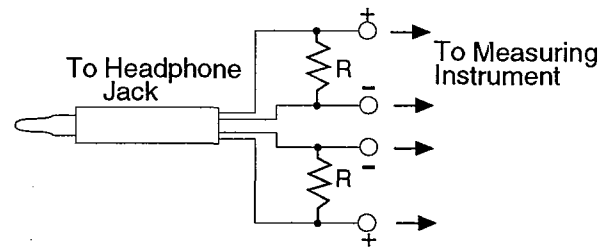
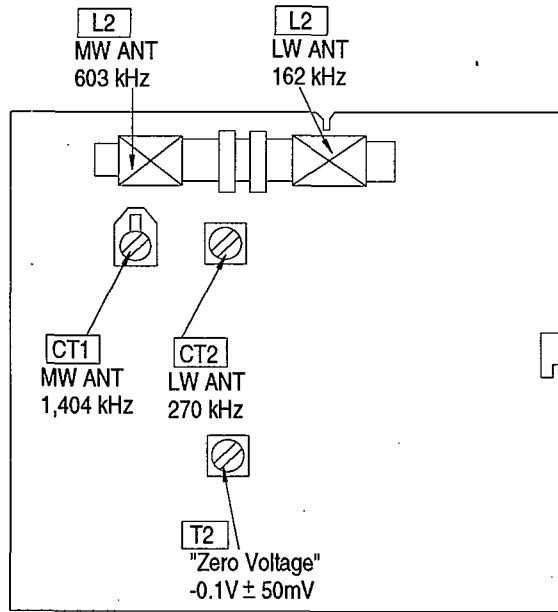


Fig. 2

Fig. 1

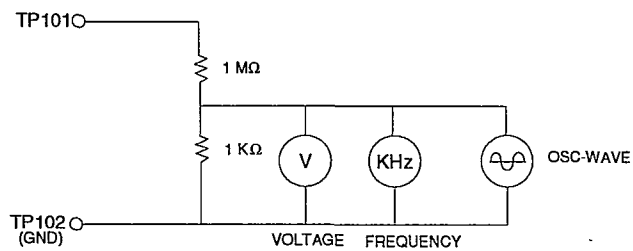


Fig. 3

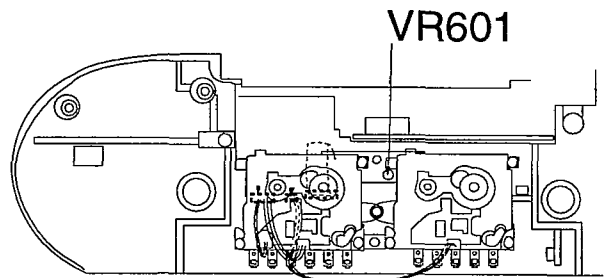


Fig. 4

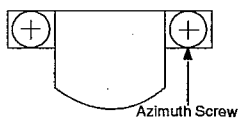


Fig. 5

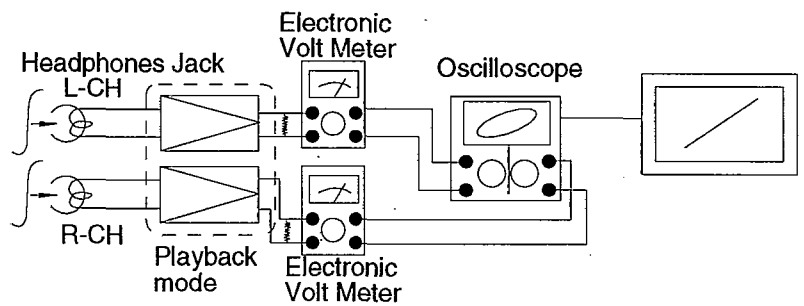


Fig. 6

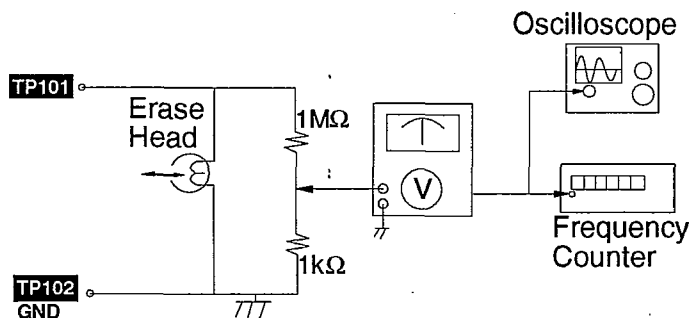


Fig. 7

MEASUREMENT AND ADJUSTMENT

Warning : This product uses a laser diode. Refer to caution statements on page 2.

ACHTUNG :

- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Measuring Instruments and Special Tools

- * Test discs
 1. Playability test disc (SZZP1054C)
 2. Uneven test disc (SZZP1056C)
- * Musical program disc (Ordinary)
- * Allen wrench (M2.0) (SZZP1101C)
- * Dual-beam Oscilloscope with Bandwidth of 30 MHz or better (with EXT. trigger and 1:1 probe)

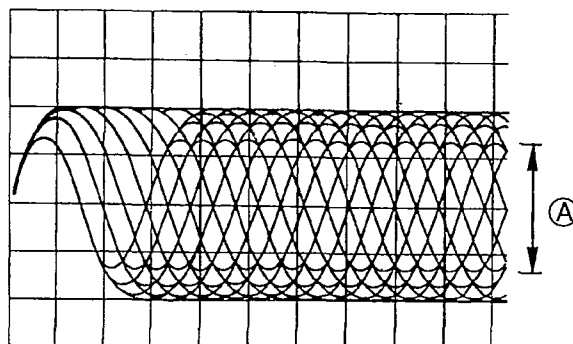
(1) MECHANICAL ADJUSTMENT

When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
Make adjustments to improve playability if the traverse deck has not been replaced.

1. Connect the oscilloscope's CH. 1 probe across **TJ701** (RF) (+) and **TJ702** (VREF) (–) on the Servo P.C.B.

Oscilloscope setting : VOLT 200mV.
SWEEP 0.5μs.
Input coupling AC.

2. Switch the player power **ON**, and play track 19 on the test disc (SZZ1056C).
(Playing any other track will prevent the mechanical adjustment screws from being accessed.)
3. Leave the player in Play mode.
4. Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench (SZZP1101C) until the RF signal amplitude on the oscilloscope is maximized. (Refer to Fig. 2 on page 31)
5. After completing the adjustment, lock the **Mechanical Adjustment Screw** with lock paint (RZZ0L01).



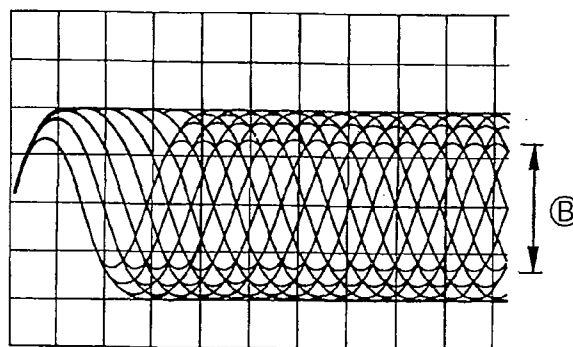
* Maximize the amplitude

(2) BEST EYE (PD BALANCE) AJUSTMENT

1. Connect the oscilloscope's CH.1 probe across **TJ701** (RF) (+) and **TJ702** (VREF) (–) on the Servo P.C.B.

Oscilloscope setting: VOLT 200mV
SWEEP 0.5μs.
Input coupling AC.

2. Switch the player power ON, and play the 1 KHz (track 1) on the test disc (SZZP1054C).
3. Adjust VR701 until the RF signal eye pattern amplitude is maximized. (Refer to Fig. 1 on page 31)



* Maximize the amplitude

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

• Checking skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

• Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

• Checking Playability

1. Play the 0.7mm black dot and the 0.7mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

■ NEW DIGITAL SERVO CIRCUIT

This model employs a new digital servo circuit. Compared to the old digital servo circuit, the following points have been improved.

1. Reduced operation noise

Loading mechanism 2-level speed reducer

2. Reduced access time

(old) 2.9 sec → (new) 1.9sec

Change of traverse gear

3. Improved vibration resistance

Rubber and spring 2-level floating mechanism
[fo=50Hz (old) → 20Hz (new)]

4. Number of Integrated Circuit Chips used reduced

Usage of one single super IC chip

3 chips (MN6626, MN6650, MN6475) are reduced to a single chip (MN66271)

Caution: It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)

With the unit turned "ON", laser radiation is emitted from the pickup lens.

Avoid exposure to the laser beam, especially when performing adjustments.

The conventional CD drive (Servo Board) requires manual adjustment for items (1) through (7) listed below:

(1) Best eye pattern (PD balance)

(2) Focus offset

(3) Tracking offset

(4) Focus gain

(5) Tracking gain

(6) Tracking balance

(7) Angle of elevation

On the modified CD drive (Servo Board), a servo processor IC (IC702: MN66271) automatically adjusts items (2) through (6) out of seven items listed above. Auto adjustment is performed when:

1) A CD is loaded or replaced, or

2) the unit is turned ON with a CD loaded in the drive.

*The auto adjustment is reset each time the CD drive is turned OFF.

• Preparation

After setting up the unit for adjustment, temporarily switch it off, switch it on again.

(This is necessary for the automatic adjustment procedure with the CD drive placed on its side.)

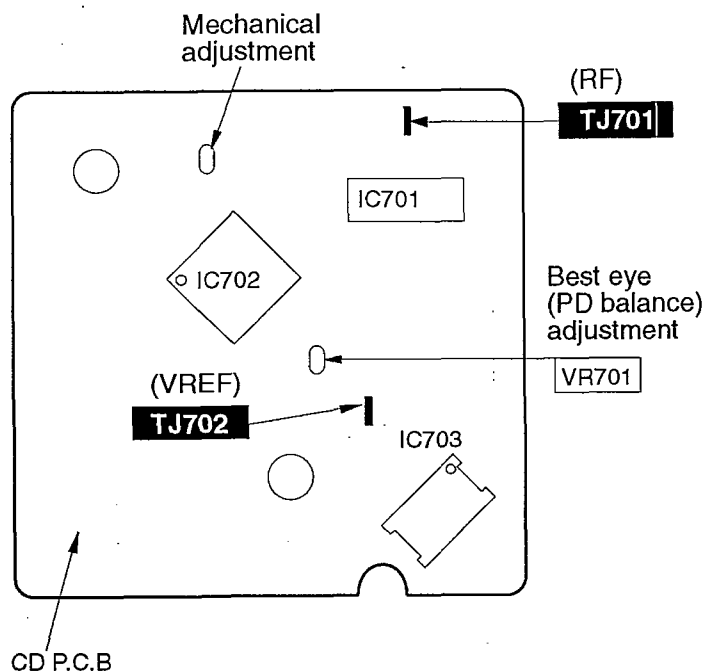
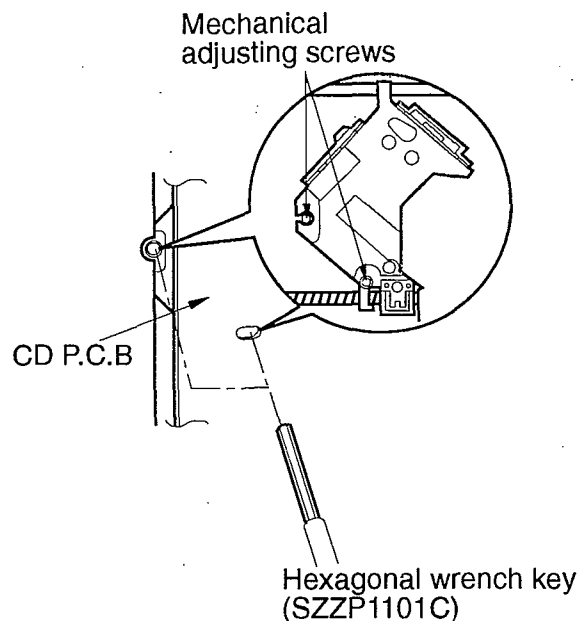


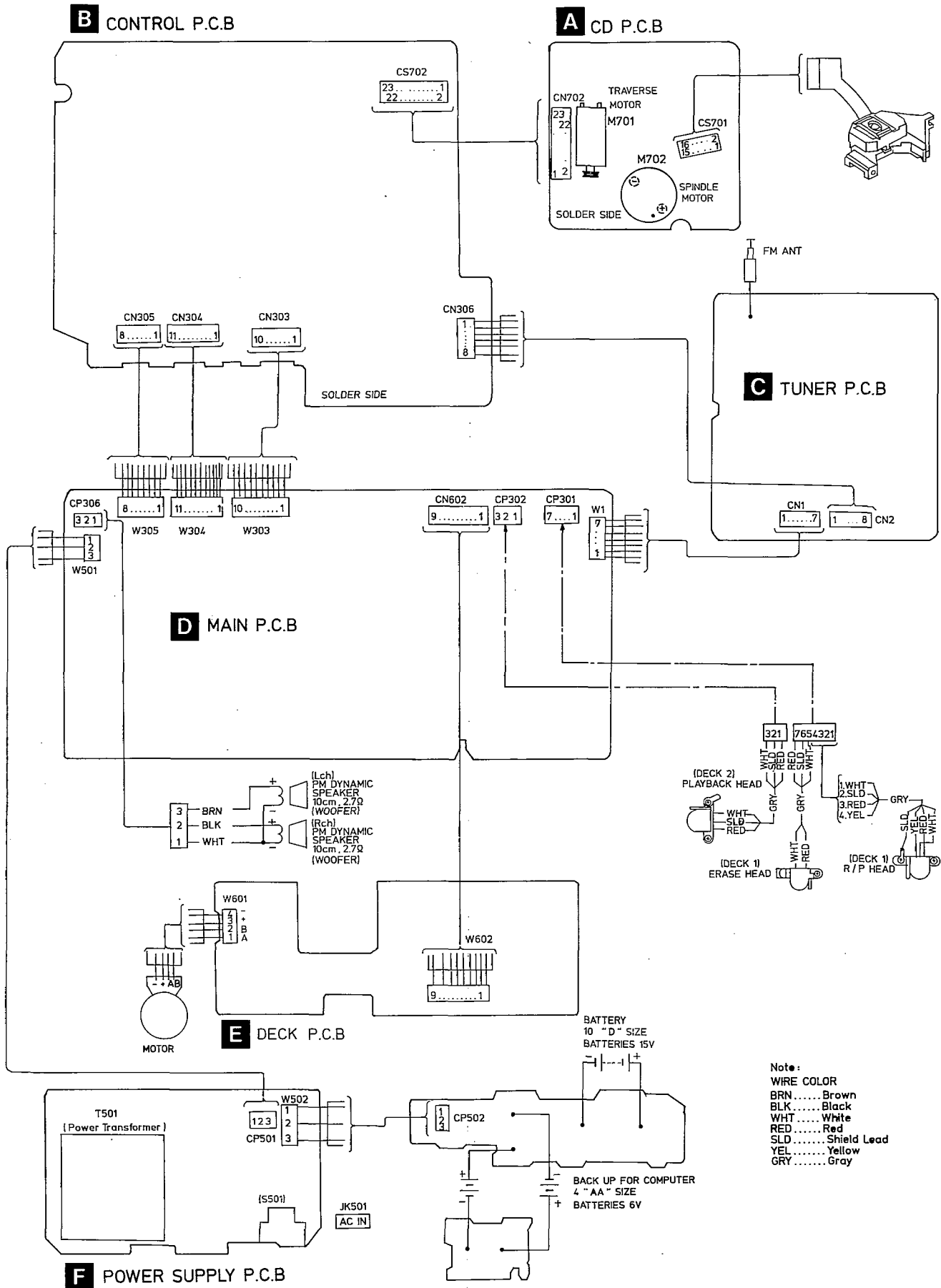
Fig.1



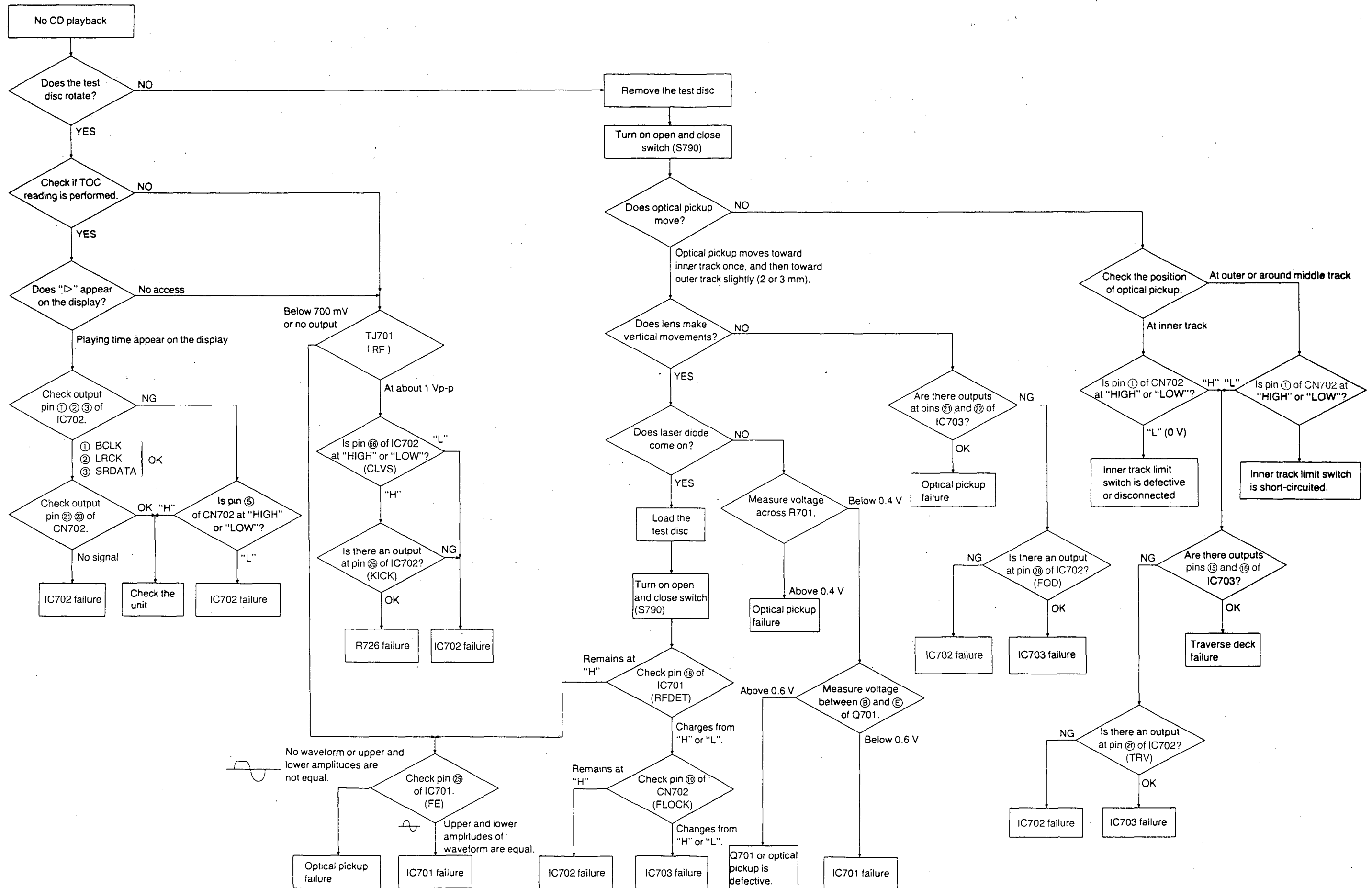
Note: The elevation angle adjusting pot is accessible only after track 19 on a test disc, SZZP1056C, has been played.

Fig.2

WIRING CONNECTION DIAGRAM



TROUBLESHOOTING GUIDE



FUNCTION OF IC TERMINALS

• IC701 (AN8802SCE1V)

Pin No.	Terminal Name	I/O	Function
1	PDAD	I	PD A channel signal input with delay
2	PDA	I	PD A channel signal input without delay
3	LPD	I	Laser PD connection
4	LD	O	Power supply for LD driving
5	AMPI	I	RF amplifier input
6	Vcc	I	Power supply connection
7	AMPO	O	RF amplifier output (not used, open)
8	CAGC	I	AGC loop filter connection
9	ARF	O	RF AGC output
10	CENV	I	Capacitor connection for RF detection
11	CEA	I	Capacitor connection for HPF amplifier
12	GND	—	Ground connection
13	LDON	I	ON/OFF input of LD APC ("H": ON, "L": OFF)
14	TES	I	Tracking error shunt signal input ("H": shunt)
15	PLAY	I	Play signal input ("H": PLAY)
16	WVEL	I	WVEL control
17	BDO	O	BDO output
18	/RFDET	O	NRFDET output
19	CROSS	O	CROSS output
20	OFTR	O	OFTR output
21	VDET	O	VDET output
22	ENV	O	ENV output
23	TEBPF	I	Vibration detection input
24	TE	O	Tracking error output
25	FE	O	Focus error output
26	PTO	O	Potential amplifier output (not used, open)
27	PTI	I	Potential amplifier inversion input (no use, open)
28	TBAL	I	Tracking balance input
29	FBAL	I	Focus balance input
30	VREF	O	VREF output
31	PDB	I	PD B channel signal input without delay
32	PDBD	I	PD B channel signal input with delay

• IC702 (MN66271RA)

Pin No.	Terminal Name	I/O	Function
1	BCLK	O	Bit clock output for serial data (not used, open)
2	LRCK	O	L/R identification signal output (Not used, open)
3	SRDATA	O	Serial data output (Not used, open)
4	DVDD1	I	Power Supply Input (for digital circuit)
5	DVSS1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK=75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q register
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset input
19	SMCK	O	1/2-divided CLK signal of X'tal oscillating at MSEL="H" (fSMCK=8.4672MHz) 1/4-divided CLK signal of X'tal oscillating at MSEL="L" (fSMCK=4.2336MHz)
20	PMCK	O	1/192-divided CLK signal of X'tal oscillating (fPMCK=88.2 KHz) (Not used, open)
21	TRV	O	Traverse forced feed output
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (Servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output

Pin No.	Terminal Name	I/O	Function
29	VREF	I	D/A (Drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) Reference voltage input
30	FBAL	O	Focus balance adjustment output (Not used, open)
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (Analog input)
33	TE	I	Tracking error signal input (Analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": Detection)
36	OFT	I	Off-track signal input ("H": Off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": Detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	O	Play signal out ("H": PLAY)
43	WVEL	O	Double speed status signal output ("H": Double speed)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	I	DSL bias (Not used, open)
47	DSLIF	I/O	DSL loop filter
48	PLLIF	I/O	PLL loop filter
49	VCOF	I/O	VCO loop filter (Not used, open)
50	AVDD2	I	Power supply input (for analog circuit)
51	AVSS2	—	GND (for analog circuit)
52	EFM	O	EFM signal output (Not used, open)
53	PCK	O	PLL extraction CLK output (fPCK=4.321 MHz during normal playback) (Not used, open)
54	PDO	O	Phase comparison signal of EFM and PCK signal (Not used, open)
55	SUBC	O	Sub-code serial data output (Not used, open)
56	SBCK	I	CLK input for sub-code serial data (Not used, open)
57	VSS	—	GND
58	X1	I	X'tal oscillating cct input (f=16.9344MHz)
59	X2	O	X'tal oscillating cct output (f=16.9344MHz)
60	VDD	I	Power supply input (for oscillating cct)
61	BYTCK	O	Byte CLK output (Not used, open)

Pin No.	Terminal Name	I/O	Function
62	/CLDCK	O	Sub-code frame CLK signal output (fCLDCK=7.35kHz during normal playback)
63	FCLK	O	X'tal frame CLK signal output (fFCLK=7.35kHz, double=14.7kHz)
64	PFLAG	O	Interpolation flag output ("H": Interpolation) (Not used, open)
65	FLAG	O	Flag output (Not used, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (Not used, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (Not used)
69	RESY	O	Frame resynchronizing signal output (Not used, open)
70	/RST2	I	Reset input through MASH cct ("L": reset)
71	/TEST	I	Test input
72	AVDD1	I	Power supply input (for analog cct)
73	OUTL	O	Left channel audio signal output
74	AVSS1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level, RSEL="H"; at "L" level, RSEL="L")
77	CSEL	I	Crystal oscillating frequency designation input ("L": 16.9344MHz, "H": 33.8688MHz)
78	PSEL	I	Test input (normally, "L") (Not used, open)
79	MSEL	I	Output frequency switching for SMCK terminal "H": SMCK=8.4672MHz "L": SMCK=4.2336MHz (Not used, open)
80	SSEL	I	Output mode switching of SUBQ terminal ("H": Q code buffer mode)

● IC801 (M37410M6H237)

Pin No.	Mark	I/O Division	Function
1	S19	O	LCD segment signal output
2	BATT	I	Battery state signal input
3 4 5	KEY3 KEY1	I	Key source
6	AVSS	—	GND
7	VREF	—	A/D converter reference voltage (GND)
8	VCC	—	Power supply (+5V)
9	PLL DATA	O	PLL tuner data signal output
10	PLL CK	O	PLL tuner clock signal output
11	PLL CE	O	PLL tuner strove signal output
12	SW2	—	Band Signal for SW2
13	MONO/ST	O	Tuner Stereo/Mono select signal output
14	ST. IND	I	Tuner stereo signal input
15	SD	I	Auto-stop signal detect input
16	BLKCK	I	CD subcode block clock signal input
17	RESET SW	I	Reset switch (S701) signal input
18	SQCK	O	CD subcode clock output
19	NC	—	—
20	SUBQ	I	CD subcode data input
21	MCLK	O	CD process IC control signal output
22	CD RST	O	CD reset signal output
23	XcIN	I	Clock input (32.7KHz)
24	XcOUT	O	Clock output (32.7KHz)
25	POWER	I	Main switch control signal input
26	CNVSS	—	GND
27	RESET	I	Power on reset signal input
28	XIN	I	Clock input
29	XOUT	O	Clock output
30	VSS	—	GND
31	MPB1	O	Microprocessor beat proof 1

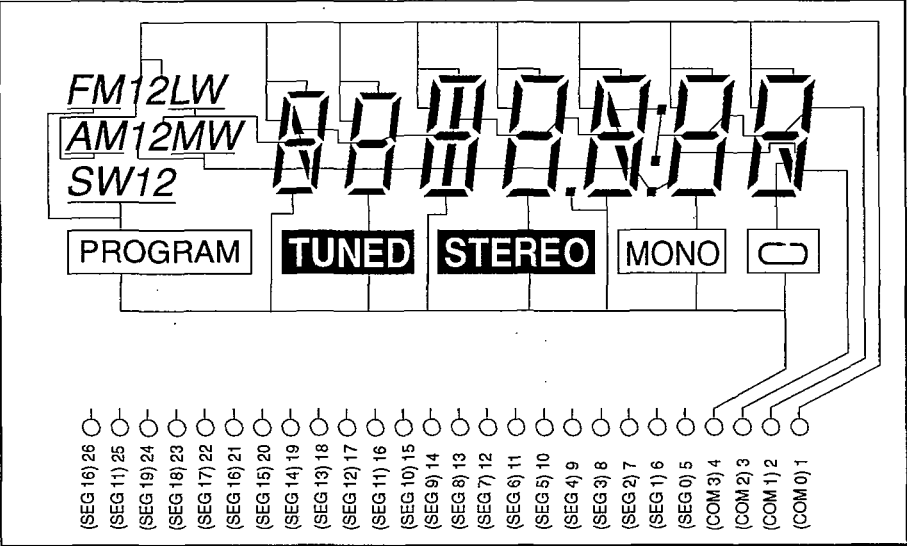
Pin No.	Mark	I/O Division	Function
32	MPB2	O	Microprocessor beat proof 2
33	MLD	O	CD signal process strove signal output
34	MDATA	O	CD signal process IC data output
35	SENSE	I	CD sense signal input
36	FLOCK	I	CD focus lock signal input
37	TLOCK	I	CD tracking signal input
38	STAT	I	CD status signal input
39	CLOSE	I	CD cover open/close detect signal input
40	TUN H	O	Input selector control signal output (TUNER)
41	CD H	O	Input selector control signal output (CD)
42	TAPE H	O	Input selector control signal output (TAPE)
43	FUNCTION	O	Power supply control signal output
44	POWER CONT	O	Power AMP control signal output
45	ATT	—	—
46	DECK MOTOR	—	—
47	REC	I	REC detecting signal input
48 49 50	R3 R1	I	Region select signal input
51	MUTE A	O	AF muting signal output
52	MCD OUT	O	CD line out control (Muting)
53	BP1	O	Beat Proof 1
54	BP2	O	Beat Proof 2
55	VL3	—	LCD bias reference voltage V3
56	VL2	—	LCD bias reference voltage V2
57	VL1	—	LCD bias reference voltage V1
58 59 60 61	COM0 COM3	O	LCD common signal output
62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	S0 S18	O	LCD segment signal output

• IC703 (AN8389SE1)

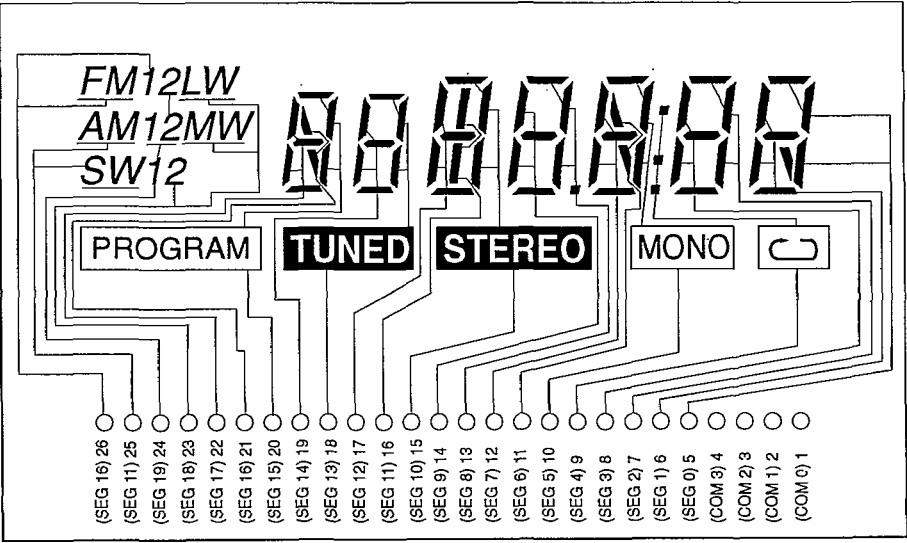
Pin No.	Terminal Name	I/O	Function	Pin No.	Terminal Name	I/O	Function
1	Vcc	I	Power Supply	13	PVcc1	I	Power supply (1) for driver
2	VREF	I	VREF input	14	PGND1	—	Ground connection (1) for driver
3	IN4	I	Motor driver (4) input	15	D1-	O	Motor driver (1) reverse-action output
4	IN3	I	Motor driver (3) input	16	D1+	O	Motor driver (1) forward-action output
5	GND	—	Ground connection	17	D2-	O	Motor driver (2) reverse-action output
6	NC	—	No connection	18	D2+	O	Motor driver (2) forward-action output
7	NRESET	I	Reset input	19	D3-	O	Motor driver (3) reverse-action output
8	GND	—	Ground connection	20	D3+	O	Motor driver (3) forward-action output
9	IN2	I	Motor driver (2) input	21	D4-	O	Motor driver (4) reverse-action output
10	PC2	I	PC2 (power cut) input	22	D4+	O	Motor driver (4) forward-action output
11	IN1	I	Motor driver (1) input	23	PGND2	—	Ground connection (2) for driver
12	PC1	I	PC1 (power cut) input (not used, open)	24	PVcc2	I	Power supply (2) for driver

■ INTERNAL CONNECTIONS OF LCD (Liquid Crystal Display)
(Z401: RSL5086-H)

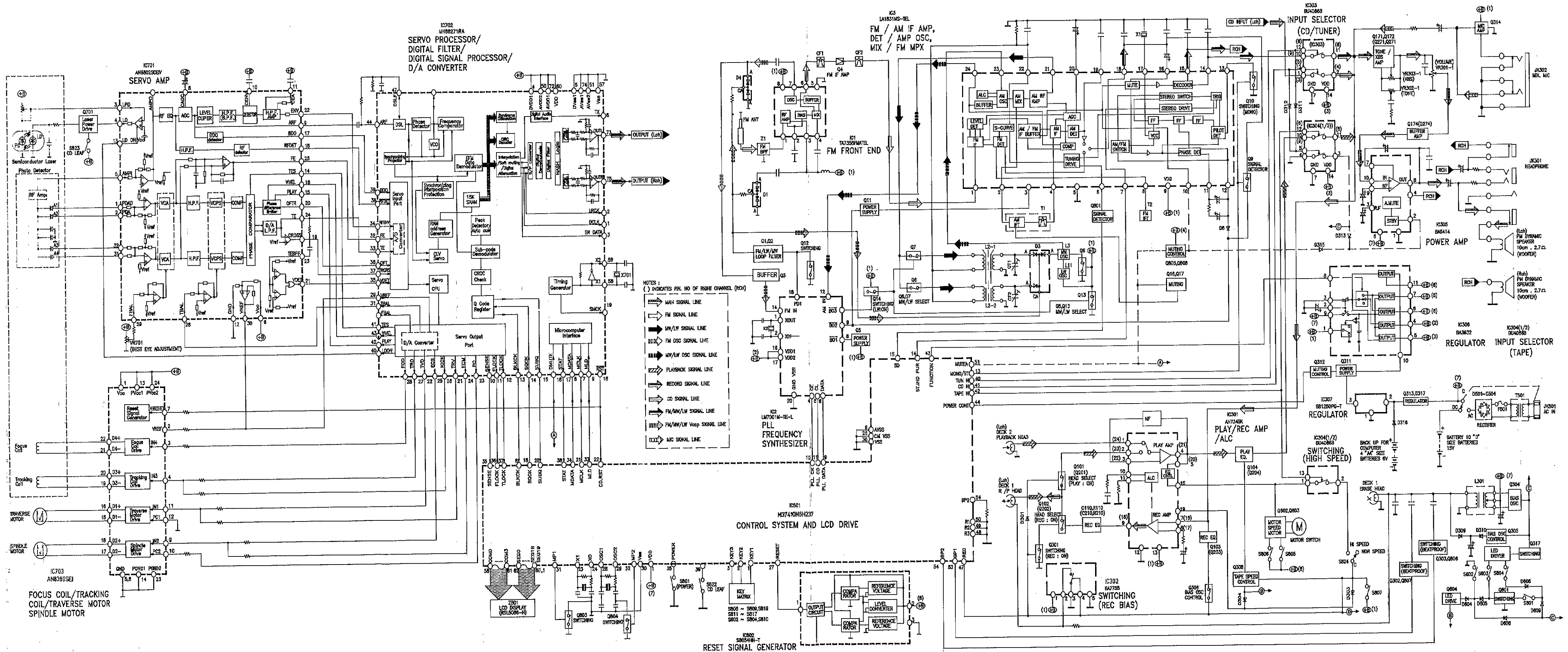
(COMMON)



(SEGMENT)



■ BLOCK DIAGRAM



MECHANISM PARTS LIST

Notes : [M] Indicates in Remarks column parts that are supplied by MESA.

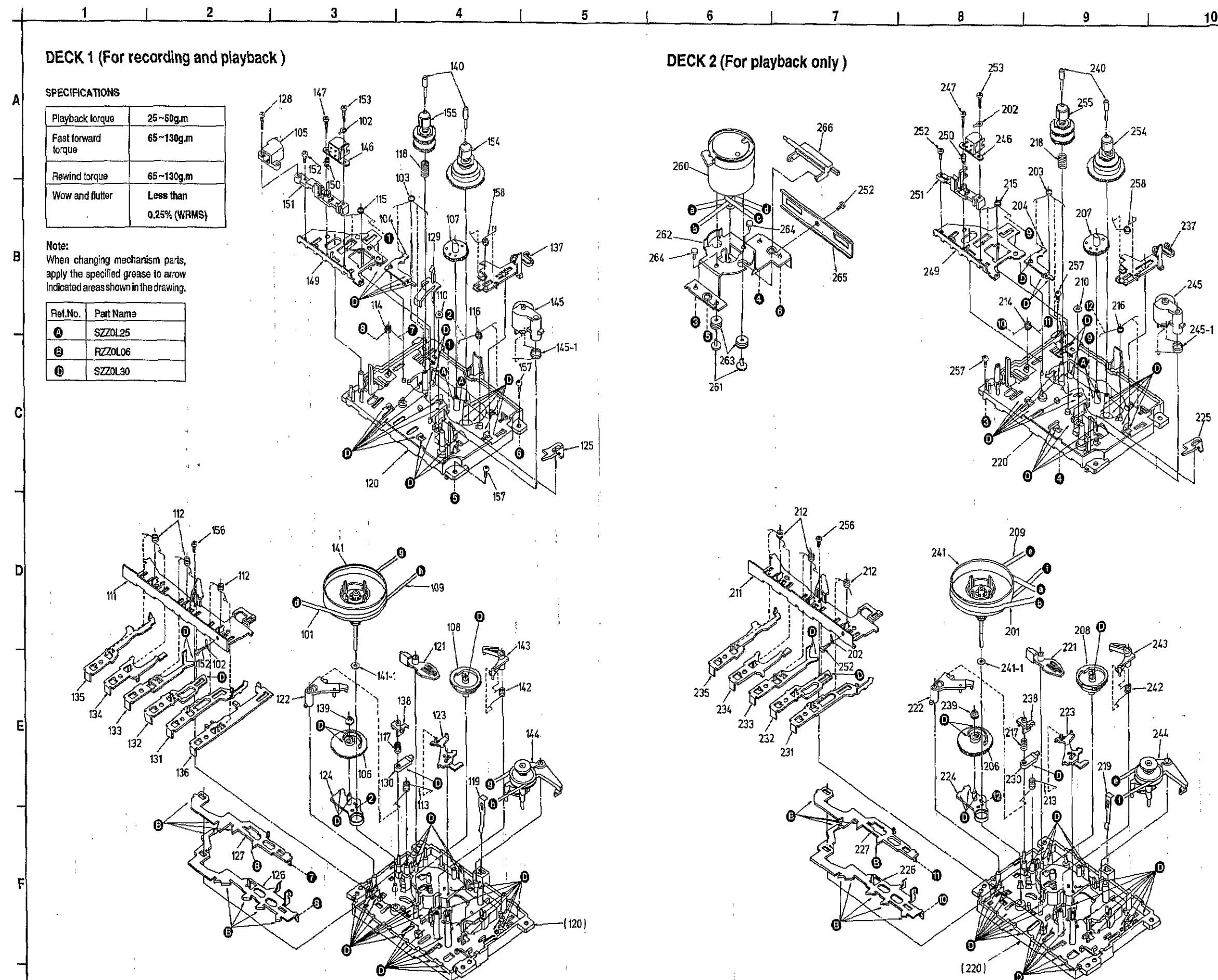
Ref. No	Part No.	Part Name & Description	Remarks	Ref. No	Part No.	Part Name & Description	Remarks
MECHANISM PARTS LIST				142	RMB0044	TRIGGER SPRING	[M]
DECK 1				143	RML0075	TRIGGER LEVER	[M]
101	RDV0007	MAIN BELT	[M]	144	RXP0014	RF CLUTCH ASSY	[M]
102	RJR0033	EARTH LUG	[M]	145	RXP0015	PINCH ROLLER ASSY	[M]
103	RMB0109-1	BRAKE SPRING	[M]	145-1	RMB0049	PINCH ARM SPRING	[M]
104	RML0116	BRAKE ANGLE		146	RBR4CM001-M	R/P HEAD	[M]
105	RBR2CG002-S	E HEAD	[M]	147	RHD20003	SCREW	[M]
106	RDG0057	IDLER GEAR	[M]	149	RFKRGHM09LEK	HEAD BASE ASS'Y	[M]
107	RDG0059	FF RELAY GEAR	[M]	150	RMB0059	SPRING	[M]
108	RDK0005	CAM GEAR	[M]	151	RMR0159	HEAD BASE	[M]
109	RDV0006-1	RF BELT	[M]	152	XTN2+4F	EARTH LUG SCREW	
110	RHW16009	CAPSTAN WASHER	[M]	153	XTN2+8F	SCREW	
111	RMA0109	BACK PLATE	[M]	154	RXR0004	TAKE UP REEL ASSY	[M]
112	RMB0043-1	ROD OPERATION SPRING	[M]	155	RXR0005	SUPPLY REEL ASSY	[M]
113	RMB0045	AS SPRING	[M]	156	XTN2+6L	SCREW	
114	RMB0046-1	LOCK PLATE SPRING	[M]	158	RMB0098-2	SPRING	[M]
115	RMB0165	HEAD PANEL SPRING	[M]				
116	RMB0048	IDLER LEVER SPRING	[M]				
117	RMB0053	PAUSE LEVER SPRING	[M]				
118	RMB0125	BACK TENSION SPRING	[M]				
119	RMC0061	SPRING	[M]				
120	RFKRCT090P-K	CHASSIS ASS'Y	[M]				
121	RML0071	SWAY LEVER	[M]				
122	RML0072	AS RELEASE LEVER	[M]				
123	RML0073-1	AS PROTECT LEVER	[M]				
124	RML0074	IDLER LEVER	[M]				
125	RML0076	EJECT SELECTION LEVE	[M]				
126	RML0077	LOCK PLATE	[M]				
127	RML0078	FUNCTION PLATE	[M]				
128	XTN2+6L	BACK PLATE SCREW					
129	RML0081-1	LEVER	[M]				
130	RML0082	PAUSE LEVER	[M]				
131	RMM0023	PLAY ROD	[M]				
132	RMM0024	REW ROD	[M]				
133	RMM0025	FF ROD	[M]				
134	RMM0026	STOP ROD	[M]				
135	RMM0027	PAUSE ROD	[M]				
136	RMM0028	REC ROD	[M]				
137	RMM0029	EJECT SLIDE LEVER	[M]				
138	RMR0211	PAUSE BUSH	[M]				
139	RMR0227	IDLER GEAR BUSH	[M]				
140	RMS0055	REEL SHAFT	[M]				
141	RXP0012	FLYWHEEL ASSY	[M]				
141-1	RHW21008	WASHER	[M]				

MECHANISM PARTS LIST

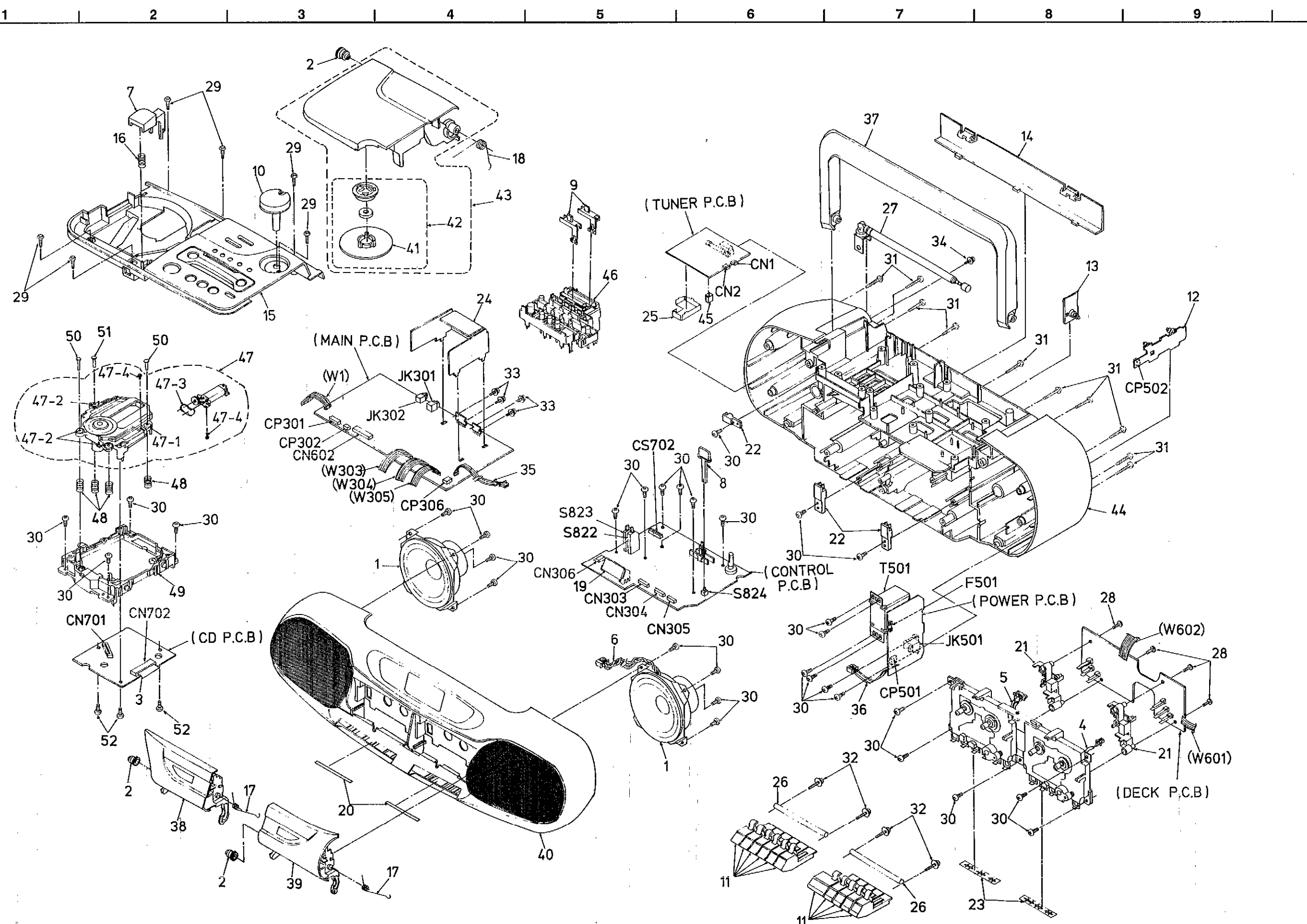
Notes : [M] Indicates in Remarks column parts that are supplied by MESA.

Ref. No	Part No.	Part Name & Description	Remarks	Ref. No	Part No.	Part Name & Description	Remarks
MECHANISM PARTS LIST				245-1	RMB0049	PINCH ARM SPRING	[M]
DECK 2				246	RBR4CM001-M	R/P HEAD	[M]
201	RDV0009	MAIN BELT	[M]	247	RHD20003	SCREW	[M]
202	RJR0033	EARTH LUG	[M]	249	RFKRGHM09LEK	HEAD BASE ASS'Y	[M]
203	RMB0109-1	BRAKE SPRING	[M]	250	RMB0059	SPRING	[M]
204	RML0116	BRAKE		251	RMR0159	HEAD BASE	[M]
206	RDG0057	IDLER GEAR	[M]	252	XTN2+4F	EARTH LUG SCREW	
207	RDG0059	FF RELAY GEAR	[M]	253	XTN2+8F	SCREW	
208	RDK0005	CAM GEAR	[M]	254	RXR0004	TAKE UP REEL ASSY	[M]
209	RDV0006-1	RF BELT	[M]	255	RXR0005	SUPPLY REEL ASSY	[M]
210	RHW16009	CAPSTAN WASHER	[M]	256	XTN2+6L	SCREW	
211	RMA0109	BACK PLATE	[M]	257	XTW26+6L	SCREW	
212	RMB0043-1	ROD OPERATION SPRING	[M]	258	RMB0098-2	SPRING	[M]
213	RMB0045	AS SPRING	[M]	260	RFKPXD1610PK	DC MOTOR ASS'Y	[M]
214	RMB0046-1	LOCK PLATE SPRING	[M]	261	RHD26002	SCREW	
215	RMB0165	HEAD PANEL SPRING	[M]	262	RMA0122	ANGLE	
216	RMB0048	IDLER LEVER SPRING	[M]	263	RMG0102	RUBBER SPACE	[M]
217	RMB0053	PAUSE LEVER SPRING	[M]	264	RMG0131	RUBBER SPACE	[M]
218	RMB0125	BACK TENSION SPRING	[M]	265	RMA0121	ANGLE	
219	RMC0061	SPRING	[M]	266	RML0085	LEVER	[M]
220	RFKRCT090P-K	CHASSIS ASS'Y	[M]				
221	RML0071	SWAY LEVER	[M]				
222	RML0072	AS RELEASE LEVER	[M]				
223	RML0073-1	AS PROTECT LEVER	[M]				
224	RML0074	IDLER LEVER	[M]				
225	RML0076	EJECT SELECTION LEVE	[M]				
226	RML0077	LOCK PLATE	[M]				
227	RML0078	FUNCTION PLATE	[M]				
230	RML0082	PAUSE LEVER	[M]				
231	RMM0023	PLAY ROD	[M]				
232	RMM0024	REW ROD	[M]				
233	RMM0025	FF ROD	[M]				
234	RMM0026	STOP ROD	[M]				
235	RMM0027	PAUSE ROD	[M]				
237	RMM0029	EJECT SLIDE LEVER	[M]				
238	RMR0211	PAUSE BUSH	[M]				
239	RMR0227	IDLER GEAR BUSH	[M]				
240	RMS0055	REEL SHAFT	[M]				
241	RXP0012	FLYWHEEL ASSY	[M]				
241-1	RHW21008	WASHER	[M]				
242	RMB0044	TRIGGER SPRING	[M]				
243	RML0075	TRIGGER LEVER	[M]				
244	RXP0014	RF CLUTCH ASSY	[M]				
245	RXP0015	PINCH ROLLER ASSY	[M]				

MECHANISM PARTS LOCATION (RAA0910)



■ CABINET PARTS LOCATION



■ REPLACEMENT PARTS LIST

Notes: *

Important safety notice:
Components identified by Δ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.
The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area)
Parts without these indications can be used for all areas.
[M] indicates in the Remarks columns indicates parts supplied by MESA.

Ref No.	Part No.	Part Name & Description	Remarks	Ref No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		39	RFKLXDT401P2	CASS.HOLDER ASS'Y	[M]
				40	RFGXDT401P	FRONT CABINET ASS'Y	[M]
				41	RFKNXDT680PA	DISC PAD ASS'Y	[M]
1	EAS10P549K-G	WOOFER (SP)	[M]	42	RFKNXDT680PB	DISC HOLDER ASS'Y	[M]
2	RDG5782YC	DAMPER GEAR	[M]	43	RFKKXDS101PB	CD COVER ASS'Y	[M]
3	REE0436	FFC WIRE	[M]	44	RFKHXDT401EB	BACK CABINET ASS'Y	[M] EB,GN
4	REXX0029	HEAD WIRE (3P)	[M]	44	RFKHXDT401EG	BACK CABINET ASS'Y	[M] EG
5	REX0274	HEAD WIRE (7P)	[M]	45	RMC1028ZA	T2 SHIELD	
6	REX0490	SP WIRE	[M]	46	RYQ0098-K	CD OPR. BUTTON	[M]
7	RGU0716-H	CD EJECT BUTTON	[M]	47	RAE0111Z	TRAVERSE DECK UNIT	
8	RGU0846-K	EDIT KNOB	[M]	47-1	SHGD112	RUBBER(A)	
9	RGV0094-K	SLIDE VOL. KNOB	[M]	47-2	SHGD113-1	RUBBER(B)	
10	RGW0142-H	VOL. KNOB	[M]	47-3	RDV0023	BELT	
11	RGZ0013-H	MECHA BUTTON	[M]	47-4	SNSD38	SCREW	
12	RJC511ZBS	UM-1 BATT SPRING	[M]	48	RME0109	SPRING	
13	RJC751ZAA	UM-3 BATT SPRING	[M]	49	RMR0533-K	TRAVERSE CHASSIS	
14	RKK0010A-HJ	BATT. LID	[M]	50	RMS0123-1	PIN(A)	
15	RKQ0122A-H	TOP CABINET	[M]	51	RMS0350	PIN(B)	
16	RMB0244	CD EJECT BUTTON SPRING	[M]	52	XTV2+6G	SCREW	
17	RMB0302	CASSETTE OPEN SPRING	[M]				
18	RME0103	CD OPEN SPRING	[M]			INTEGRATED CIRCUITS	
19	RMN0212	LCD HOLDER	[M]	IC1	TA7358FMATEL	IC, FM RF	
20	RMQ0375	MECHA BUTTON SHEET	[M]	IC2	LM7001M-TE-L	IC, PLL	
21	RMR0368	LEAF SW HOLDER	[M]	IC3	LA1831MS-TEL	IC, IF MPX	
22	RMR0631-K	PCB HOLDER	[M]	IC301	AN7345K	IC, REC PLAY AMP	[M]
23	RMXX0004	SPACER	[M]	IC302	BA7755	IC, REC BIAS SW	
24	RMY0114	HEAT SINK	[M]	IC303	BU4066B	IC, ANALOG SW	
25	RSC0314	TUNER SHIELD PLATE	[M]	IC304	BU4066B	IC, ANALOG SW	
26	SUX102	MECHA BUTTON SHAFT	[M]	IC305	BA5414	IC, POWER AMP	[M] Δ
27	XEARR175ED-Y	ROD ANTENNA		IC306	BA3932	IC, REGULATOR	
28	XTN2+16GFZ	SCREWS		IC307	S81250PG-T	IC, REGULATOR (5V)	[M]
29	XTN3+10CFZ	TOP CAB SCREWS		IC801	M37410M6H237	IC, MICRO COMPUTER	
30	XTV3+12G	SCREWS		IC802	S8054HN-T	IC, RESET	
31	XTV3+20G	CASING SCREWS				COMPONENT COMBINATION	
32	XTW3+8T	SHAFT SCREWS		Z1	RCRBMT002-H	BPF	
33	XTW3+10F	HEAT SINK SCREWS		Z801	RSL5086-H	LCD	[M]
34	XYN3+F8FY	ROD ANTENNA SCREW					
35	REX0492	WIRE ASS'Y (W501)	[M]				
36	REX0491	WIRE ASS'Y (W502)	[M]				
37	RFKNXDS101PK	HANDLE ASS'Y	[M]				
38	RFKLXDT401P1	CASS.HOLDER ASS'Y	[M]				

■ RESISTORS & CAPACITORS

Notes:

- * Capacitance values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
- * Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM), 1M=1,000K(OHM)
- * [M] indications in Values&Remarks columns specify the supplier as MESA.

Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks
			R40	ERDS2TJ221T	220 1/4W	R183	ERDS2TJ102T	1K 1/4W
	RESISTORS		R41	ERDS2TJ561T	560 1/4W	R186	ERDS2TJ273T	27K 1/4W
			R42	ERDS2TJ222T	2.2K 1/4W	R201	ERDS2TJ330T	33 1/4W
R1	ERDS2TJ104T	100K 1/4W	R43	ERDS2TJ222T	2.2K 1/4W	R202	ERDS2TJ822T	8.2K 1/4W
R2	ERDS2TJ152T	1.5K 1/4W	R44	ERDS2TJ222T	2.2K 1/4W	R203	ERDS2TJ183T	18K 1/4W
R3	ERDS2TJ104T	100K 1/4W	R45	ERDS2TJ105T	1M 1/4W	R204	ERDS2TJ333T	33K 1/4W
R4	ERDS2TJ103T	10K 1/4W	R48	ERDS2TJ390T	39 1/4W	R205	ERDS2TJ333T	33K 1/4W
R5	ERDS2TJ104T	100K 1/4W	R51	ERDS2TJ104T	100K 1/4W	R206	ERDS2TJ183T	18K 1/4W
R6	ERDS2TJ102T	1K 1/4W	R52	ERDS2TJ103T	10K 1/4W	R207	ERDS2TJ473T	47K 1/4W
R7	ERDS2TJ330T	33 1/4W	R53	ERDS2TJ104T	100K 1/4W	R209	ERDS2TJ471T	470 1/4W
R8	ERDS2TJ332T	3.3K 1/4W	R59	ERDS2TJ103T	10K 1/4W	R210	ERDS2TJ273T	27K 1/4W
R9	ERDS2TJ471T	470 1/4W	R101	ERDS2TJ330T	33 1/4W	R211	ERDS2TJ332T	3.3K 1/4W
R10	ERDS2TJ101T	100 1/4W	R102	ERDS2TJ822T	8.2K 1/4W	R214	ERDS2TJ151T	150 1/4W
R11	ERDS2TJ151T	150 1/4W	R103	ERDS2TJ183T	18K 1/4W	R215	ERDS2TJ333T	33K 1/4W
R12	ERDS2TJ103T	10K 1/4W	R104	ERDS2TJ333T	33K 1/4W	R216	ERDS2TJ223T	22K 1/4W
R13	ERDS2TJ104T	100K 1/4W	R105	ERDS2TJ333T	33K 1/4W	R217	ERDS2TJ333T	33K 1/4W
R14	ERDS2TJ471T	470 1/4W	R106	ERDS2TJ183T	18K 1/4W	R218	ERDS2TJ104T	100K 1/4W
R15	ERDS2TJ102T	1K 1/4W	R107	ERDS2TJ623T	62K 1/4W	R219	ERDS2TJ563T	56K 1/4W
R16	ERDS2TJ102T	1K 1/4W	R109	ERDS2TJ471T	470 1/4W	R220	ERDS2TJ103T	10K 1/4W
R17	ERDS2TJ334T	330K 1/4W	R110	ERDS2TJ273T	27K 1/4W	R221	ERDS2TJ333T	33K 1/4W
R18	ERDS2TJ331T	330 1/4W	R111	ERDS2TJ332T	3.3K 1/4W	R223	ERDS2TJ102T	1K 1/4W
R19	ERDS2TJ104T	100K 1/4W	R114	ERDS2TJ151T	150 1/4W	R224	ERDS2TJ153T	15K 1/4W
R20	ERDS2TJ103T	10K 1/4W	R115	ERDS2TJ333T	33K 1/4W	R271	ERDS2TJ103T	10K 1/4W
R21	ERDS2TJ103T	10K 1/4W	R116	ERDS2TJ223T	22K 1/4W	R273	ERDS2TJ105T	1M 1/4W
R22	ERDS2TJ334T	330K 1/4W	R117	ERDS2TJ333T	33K 1/4W	R274	ERDS2TJ103T	10K 1/4W
R23	ERDS2TJ272T	2.7K 1/4W	R118	ERDS2TJ104T	100K 1/4W	R275	ERDS2TJ562T	5.6K 1/4W
R24	ERDS2TJ103T	10K 1/4W	R119	ERDS2TJ563T	56K 1/4W	R276	ERDS2TJ152T	1.5K 1/4W
R25	ERDS2TJ103T	10K 1/4W	R120	ERDS2TJ103T	10K 1/4W	R277	ERDS2TJ103T	10K 1/4W
R26	ERDS2TJ103T	10K 1/4W	R121	ERDS2TJ333T	33K 1/4W	R278	ERDS2TJ104T	100K 1/4W
R27	ERDS2TJ103T	10K 1/4W	R123	ERDS2TJ102T	1K 1/4W	R279	ERDS2TJ391T	390 1/4W
R28	ERDS2TJ103T	10K 1/4W	R171	ERDS2TJ103T	10K 1/4W	R280	ERDS2TJ682T	6.8K 1/4W
R29	ERDS2TJ331T	330 1/4W	R173	ERDS2TJ105T	1M 1/4W	R281	ERDS2TJ472T	4.7K 1/4W
R30	ERDS2TJ183T	18K 1/4W	R174	ERDS2TJ103T	10K 1/4W	R282	ERDS2TJ474T	470K 1/4W
R31	ERDS2TJ333T	33K 1/4W	R175	ERDS2TJ562T	5.6K 1/4W	R283	ERDS2TJ102T	1K 1/4W
R32	ERDS2TJ332T	3.3K 1/4W	R176	ERDS2TJ152T	1.5K 1/4W	R286	ERDS2TJ273T	27K 1/4W
R34	ERDS2TJ223T	22K 1/4W	R177	ERDS2TJ103T	10K 1/4W	R301	ERDS2TJ101T	100 1/4W
R35	ERDS2TJ390T	39 1/4W	R178	ERDS2TJ104T	100K 1/4W	R302	ERDS2TJ103T	10K 1/4W
R36	ERDS2TJ104T	100K 1/4W	R179	ERDS2TJ391T	390 1/4W	R303	ERDS2TJ472T	4.7K 1/4W
R37	ERDS2TJ153T	15K 1/4W	R180	ERDS2TJ682T	6.8K 1/4W	R304	ERDS2TJ103T	10K 1/4W
R38	ERDS2TJ104T	100K 1/4W	R181	ERDS2TJ472T	4.7K 1/4W	R305	ERDS2TJ393T	39K 1/4W
R39	ERDS2TJ563T	56K 1/4W	R182	ERDS2TJ474T	470K 1/4W	R306	ERDS2TJ475T	4.7M 1/4W

Ref No.	Part No.	Part Name & Description	Remarks	Ref No.	Part No.	Part Name & Description	Remarks
		IC PROTECTOR				DIODES	
ICP301	SRUN15T	IC PROTECTOR	⚠	D1	KV1360NT	DIODE	
		TRANSISTORS		D2	RVDMTZ8R2CTA	DIODE	[M]
				D3	KV1581A3	DIODE	
				D4	KV1360NT	DIODE	
Q1,2	2SC2785FTA	TRANSISTOR		D5	RVDMTZ5R1CTA	DIODE	
Q3	2SC2787FL1TA	TRANSISTOR		D6	RVD1SS133TA	DIODE	
Q4	2SC2787LTA	TRANSISTOR		D9	RVD1SS133TA	DIODE	
Q5	BN1L3NTA	TRANSISTOR	[M]	D301~309	RVD1SS133TA	DIODE	
Q6,7	2SJ40CDTA	TRANSISTOR		D310	RVDMTZ9R1BTA	DIODE	
Q8	2SD1020HTA	TRANSISTOR	[M]	D311,312	RVD1SS133TA	DIODE	
Q9	BN1A4MTA	TRANSISTOR	[M]	D313	MA700TA	DIODE	
Q10	BA1A4MTA	TRANSISTOR	[M]	D314~316	RVD1SS133TA	DIODE	
Q11	2SA1175FTA	TRANSISTOR	[M]	D317	RVDMTZ11BTA	DIODE	
Q12	BA1L4MTA	TRANSISTOR	[M]	D318	RVDMTZ8R2BTA	DIODE	
Q13	2SC2785FTA	TRANSISTOR		D323	RVDMTZ4R7BTA	DIODE	
Q14	BN1L3NTA	TRANSISTOR	[M]	D324~326	RVD1SS133TA	DIODE	
Q16	2SD1020HTA	TRANSISTOR	[M]	D501~504	IN5402BM21	DIODE	⚠
Q17	BA1L4ZTA	TRANSISTOR	[M]	D602~606	RVD1SS133TA	DIODE	
Q101,102	2SJ40CDTA	TRANSISTOR		D608~609	RVD1SS133TA	DIODE	
Q103	BA1A3QTA	TRANSISTOR	[M]	D802~803	RVD1SS133TA	DIODE	
Q104	2SD1020HTA	TRANSISTOR	[M]			VARIABLE RESISTORS	
Q171,172	2SC2785FTA	TRANSISTOR					
Q174	2SC2785FTA	TRANSISTOR		VR301	EWCT5AF20B54	MAIN VOLUME	[M]
Q201,202	2SJ40CDTA	TRANSISTOR		VR302	EWAGS6C14A54	XBS VOLUME	[M]
Q203	BA1A3QTA	TRANSISTOR	[M]	VR303	EWAGQ6C14G54	tone VOLUME	[M]
Q204	2SD1020HTA	TRANSISTOR	[M]	VR601	EVNDXAA00B24	TAPE SPEED	
Q271,272	2SC2785FTA	TRANSISTOR				COILS & TRANSFORMERS	
Q274	2SC2785FTA	TRANSISTOR					
Q301~303	2SC1740SRTA	TRANSISTOR					
Q304	2SC2001L1TA	TRANSISTOR		L2	RLV6C006-0Z	COIL, AM F ANT	[M]
Q305	2SC1740SRTA	TRANSISTOR		L3	RL02B007-T	COIL, MW OSC	
Q306	BA1A4MTA	TRANSISTOR	[M]	L5	RLQZP8R2JT-Y	COIL	
Q308	BA1A4MTA	TRANSISTOR	[M]	L6	RLQZP101KT-Y	COIL	
Q311	BN1L3NTA	TRANSISTOR	[M]	L8	RLQZP4R7KT-Y	COIL	
Q312	BAIL4MTA	TRANSISTOR	[M]	L9	RLQZPR47KT-Y	COIL	
Q313,314	2SC2785FTA	TRANSISTOR		L10	RLQZP4R7KT-Y	COIL	
Q317	2SC1740SRTA	TRANSISTOR		L11	RL01B003-T	COIL, LW OSC	
Q601,602	BA1A4MTA	TRANSISTOR	[M]	L301	RL08R001-T	COIL, BIAS OSC	[M]
Q603	2SK301QTA	TRANSISTOR	[M]	L302	RLQZB470KT-D	COIL, R CHOKE	
Q604	BN1A4MTA	TRANSISTOR	[M]	L303	RLQZP221KT-Y	COIL, AX CHOKE	
Q801	BN1L3NTA	TRANSISTOR	[M]	L501,502	RL1500050T-Y	COIL, RF CHOKE	⚠
Q803,804	2SC2785FTA	TRANSISTOR		L802	RLQZP2R2KT-Y	COIL, AX CHOKE	
Q805	BA1A4MTA	TRANSISTOR	[M]	L804	RLQZP2R2KT-Y	COIL, AX CHOKE	
Q806,807	BAIL4MTA	TRANSISTOR	[M]	L822,823	RLQZP101KT-Y	COIL, AX CHOKE	
Q808	BN1L3NTA	TRANSISTOR	[M]				

Ref No.	Part No.	Part Name & Description	Remarks	Ref No.	Part No.	Part Name & Description	Remarks
T1	RL12Z012-T	AM IF		S816	EVQ21405R	SW, (STOP/CLEAR)	
T2	RL14B018-T	FM DET COIL		S817	EVQ21405R	SW, (PLAY/PAUSE)	
T501	RLT5L5A4A-X	POWER TRANSFORMER	[M] ⚠	S818	EVQ21405R	SW, (DOWN)	
		CERAMIC FILTERS		S819	EVQ21405R	SW, (UP)	
				S822,823	RSH1A012-U	SW, CD LEAF	
CF1,2	RLFFETWLA02D	CF, FM IF		S824	ESB6484	SW, TAPE EDIT	
		OSCILLATORS				JACKS	
X1	RSXZ456KM01	CERAROCK		JK301	RJJD7S2YA-C	JACK, H.P	
X2	RSXC7M20S04T	XTAL 7.2MHZ		JK302	RJ1D25ZA-C	JACK, MIC	
X801	RSXZ4M19M01T	CERAMIC RESONATOR		JK501	RJ1SE01-H	JACK, AC	⚠
X802	RSXB32K7S01	CRYSTAL REZONATOR				TRIMMING CAPACITORS	
		FUSES		CT1	RCV10AF1T-S	TRIMMER CAPACITOR	
				CT2	ECRLA020E53R	TRIMMER CAPACITOR	
						CONNECTORS	
F501	XBA2C20TB0	FUSE	⚠				
		FUSE HOLDERS					
FH501,502	EYF52BC	FUSE HOLDER	⚠	CN1	RJS7T4ZA	CONNECTOR (7P)	
		SWITCHES		CN2	RJS8T4ZA	CONNECTOR (8P)	
				CN303	RJS10T7ZA	CONNECTOR (10P)	
				CN304	RJS11T7ZA	CONNECTOR (11P)	
				CN305,306	RJS8T7ZA	CONNECTOR (8P)	
S601	RSH1A004-1	SW, (PLAY)	[M]	CN602	RJS9T6ZA	CONNECTOR (9P)	
S602	RSH1A004-1	SW, (PLAY)	[M]	CP301	RJP7G17ZA	CONNECTOR (7P)	
S603	RSH1A004-1	SW, (FF/REW)	[M]	CP302	RJP3G17ZA	CONNECTOR (3P)	
S604	RSH1A004-1	SW, (FF/REW)	[M]	CP306	RJP3G9YA	CONNECTOR (3P)	
S605	RSH1A013-J	SW, (MOTOR)	[M]	CP501,502	RJP3G9YA	CONNECTOR (3P)	
S606	RSH1A013-J	SW, (MOTOR)	[M]	CS702	RJS1A6823	CONNECTOR (FFC)	
S607	RSH1A004-1	SW, (REC)	[M]			ACCESSORIES	
S801	EVQ21405R	SW, (OPERATION)					
S802	EVQ21405R	SW, (TAPE)					
S803	EVQ21405R	SW, (TUNER)		A1	RQT1779-B	INSTRUCTION MANUAL	[M](EB,GN)
S804	EVQ21405R	SW, (CD)		A1	RFKSXDT401EG	INSTR. MANUAL ASS'Y	[M] (EG)
S805	EVQ21405R	SW, (M1)		A2	RJA0038-U	AC CORD	[M](EB)⚠
S806	EVQ21405R	SW, (M2)		A2	RJA0019-U	AC CORD	[M](EG)⚠
S807	EVQ21405R	SW, (M3)		A2	RJA0035-K	AC CORD	[M](GN)⚠
S808	EVQ21405R	SW, (M4)				PACKING MATERIALS	
S809	EVQ21405R	SW, (M5)					
S810	EVQ21405R	SW, (FM/BP)					
S811	EVQ21405R	SW, (REPEAT)		P1	RPG1683	GIFT BOX	[M] (EB)
S812	EVQ21405R	SW, (REV/SKIP)		P1	RPG1524	GIFT BOX	[M] (EG,GN)
S813	EVQ21405R	SW, (CUE/SKIP)		P2	RPH655ZA	MIRAMAT SHEET	[M]
S814	EVQ21405R	SW, (EDIT/PAUSE)		P3	RPN0668	POLYFOAM	[M]
S815	EVQ21405R	SW, (PROGRAM)					

Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks
R307	ERDS2TJ104T	100K 1/4W	R367	ERDS2TJ220T	22 1/4W	R844	ERDS2TJ103T	10K 1/4W
R308	ERDS2TJ104T	100K 1/4W	R368	ERDS2TJ220T	22 1/4W	R845	ERDS2TJ106T	10M 1/4W
R309	ERDS2TJ562T	5.6K 1/4W	R371	ERDS2TJ561T	560 1/4W	R846	ERDS2TJ334T	330K 1/4W
R310	ERDS2TJ103T	10K 1/4W	R602	ERDS2TJ103T	10K 1/4W	R847	ERDS2TJ105T	1M 1/4W
R311	ERDS2TJ472T	4.7K 1/4W	R603	ERDS2TJ472T	4.7K 1/4W	R848	ERDS2TJ474T	470K 1/4W
R312	ERDS2TJ223T	22K 1/4W	R604	ERDS2TJ103T	10K 1/4W	R849	ERDS2TJ103T	10K 1/4W
R313	ERDS2TJ104T	100K 1/4W	R605	ERDS2TJ822T	8.2K 1/4W	R850	ERDS2TJ223T	22K 1/4W
R314	ERDS2TJ102T	1K 1/4W	R607	ERDS2TJ303T	30K 1/4W [M]	R851	ERDS2TJ563T	56K 1/4W
R316	ERDS2TJ392T	3.9K 1/4W	R608	ERDS2TJ303T	30K 1/4W [M]	R852	ERDS2TJ102T	1K 1/4W
R317	ERDS2TJ102T	1K 1/4W	R609	ERDS2TJ153T	15K 1/4W	R856	ERDS2TJ563T	56K 1/4W
R318	ERDS2TJ472T	4.7K 1/4W	R610	ERDS2TJ102T	1K 1/4W	R860	ERDS2TJ681T	680 1/4W
R319	ERDS2TJ333T	33K 1/4W	R611	ERDS2TJ105T	1M 1/4W	R861	ERDS2TJ222T	2.2K 1/4W
R320	ERDS2TJ222T	2.2K 1/4W	R800	ERDS2TJ392T	3.9K 1/4W	R862	ERDS2TJ222T	2.2K 1/4W
R323	ERDS2TJ222T	2.2K 1/4W	R801	ERDS2TJ272T	2.7K 1/4W	R863	ERDS2TJ222T	2.2K 1/4W
R324	ERDS2TJ102T	1K 1/4W	R802	ERDS2TJ222T	2.2K 1/4W	R865	ERDS2TJ822T	8.2K 1/4W
R325	ERDS2TJ331T	330 1/4W	R803	ERDS2TJ152T	1.5K 1/4W	R866	ERDS2TJ822T	8.2K 1/4W
R327	ERDS2TJ4R7T	4.7 1/4W	R804	ERDS2TJ153T	15K 1/4W			
R328	ERDS2TJ103T	10K 1/4W	R805	ERDS2TJ104T	100K 1/4W		CAPACITORS	
R329	ERDS2TJ472T	4.7K 1/4W	R806	ERDS2TJ153T	15K 1/4W			
R330	ERDS2TJ103T	10K 1/4W	R807	ERDS2TJ822T	8.2K 1/4W	C1	ECBT1H4R7KC5	4.7P 50V
R331	ERDS2TJ102T	1K 1/4W	R808	ERDS2TJ562T	5.6K 1/4W	C2	ECBT1H102KB5	1000P 50V
R332	ERDS2TJ473T	47K 1/4W	R809	ERDS2TJ392T	3.9K 1/4W	C3	ECBT1C332MR5	3300P 16V
R333	ERDS2TJ102T	1K 1/4W	R810	ERDS2TJ272T	2.7K 1/4W	C4	ECEA1HN010SB	1 50V
R334	ERDS2TJ473T	47K 1/4W	R811	ERDS2TJ222T	2.2K 1/4W	C5	ECBT1C103MS5	0.01 16V
R335	ERDS2TJ221T	220 1/4W	R812	ERDS2TJ152T	1.5K 1/4W	C6	ECBT1H102KB5	1000P 50V
R336	ERDS2TJ103T	10K 1/4W	R813	ERDS2TJ153T	15K 1/4W	C8	ECBT1H102KB5	1000P 50V
R337	ERDS2TJ333T	33K 1/4W	R814	ERDS2TJ153T	15K 1/4W	C9	ECEA1AU101B	100 10V
R338	ERDS2TJ1R5T	1.5 1/4W	R815	ERDS2TJ822T	8.2K 1/4W	C10	ECBT1H6R8KC5	6.8P 50V
R339	ERDS2TJ122T	1.2K 1/4W	R816	ERDS2TJ562T	5.6K 1/4W	C11	ECEA1HU010B	1 50V
R340	ERDS2TJ683T	68K 1/4W	R817	ERDS2TJ392T	3.9K 1/4W	C12	ECBT1H102KB5	1000P 50V
R342	ERDS2TJ154T	150K 1/4W	R818	ERDS2TJ272T	2.7K 1/4W	C13	ECBT1H102KB5	1000P 50V
R343	ERDS2TJ473T	47K 1/4W	R819	ERDS2TJ222T	2.2K 1/4W	C14	ECBT1H180JC5	18P 50V
R344	ERDS2TJ221T	220 1/4W	R820	ERDS2TJ152T	1.5K 1/4W	C15	ECBT1H4R7KC5	4.7P 50V
R345	ERDS2TJ473T	47K 1/4W	R821	ERDS2TJ153T	15K 1/4W	C16	ECBT1H6R8KC5	6.8P 50V
R346	ERDS2TJ101T	100 1/4W	R822	ERDS2TJ104T	100K 1/4W	C17	ECBT1H2R2KC5	2.2P 50V
R347	ERDS2TJ623T	62K 1/4W	R823	ERDS2TJ104T	100K 1/4W	C18	ECFR1C473MR	0.047 16V
R348	ERDS2TJ471T	470 1/4W	R824	ERDS2TJ104T	100K 1/4W	C19	ECBT1H680J5	68P 50V
R349	ERDS2TJ183T	18K 1/4W	R825	ERDS2TJ472T	4.7K 1/4W	C20	ECBT1H1R5MC5	1.5P 50V
R350	ERDS2TJ105T	1M 1/4W	R826	ERDS2TJ103T	10K 1/4W	C21	ECBT1H102KB5	1000P 50V
R351	ERDS2TJ332T	3.3K 1/4W	R827	ERDS2TJ103T	10K 1/4W	C22	ECBT1H102KB5	1000P 50V
R352	ERDS2TJ470T	47 1/4W	R828	ERDS2TJ103T	10K 1/4W	C23	ECBT1H331KB5	330P 50V
R353	ERDS2TJ101T	100 1/4W	R829	ERDS2TJ103T	10K 1/4W	C24	ECBT1C103MS5	0.01 16V
R354	ERDS2TJ222T	2.2K 1/4W	R833	ERDS2TJ472T	4.7K 1/4W	C25	ECBT1H102KB5	1000P 50V
R363	ERDS2TJ103T	10K 1/4W	R834	ERDS2TJ102T	1K 1/4W	C26	ECBT1H270J5	27P 50V
R364	ERDS2TJ473T	47K 1/4W	R841	ERDS2TJ104T	100K 1/4W	C27	ECBT1H300J5	30P 50V
R365	ERDS2TJ102T	1K 1/4W	R842	ERDS2TJ104T	100K 1/4W	C28	ECEA1AU101B	100 10V
R366	ERDS2TJ220T	22 1/4W	R843	ERDS2TJ104T	100K 1/4W	C29	ECBT1H102KB5	1000P 50V

Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks
C31	ECBT1H471KB5	470P 50V	C113	ECBT1H102KB5	1000P 50V	C274	ECEA1HK010B	1 50V
C32	ECBT1H180JC5	18P 50V	C114	ECEA1AU330B	33 10V	C275	ECBT1C103MS5	0.01 16V
C35	ECBT1H101KB5	100P 50V	C116	ECEA1AU101B	100 10V	C276	ECEA1HKR22B	0.22 50V
C36	ECBT1H102KB5	1000P 50V	C117	ECEA1AU222E	2200 10V	C277	ECFR1C104MR	0.1 16V
C38	ECEA0JU101B	100 6.3V	C118	ECQV1H104JZ3	0.1 50V	C278	ECBT1H102KB5	1000P 50V
C39	ECBT1H101KB5	100P 50V	C121	ECEA1HU010B	1 50V	C279	ECEA1HK2R2B	2.2 50V
C40	ECFR1C223MR	0.022 16V	C122	ECFR1C223MR	0.022 16V	C280	ECBT1H331KB5	330P 50V
C41	ECBT1H102KB5	1000P 50V	C123	ECBT1H331KB5	330P 50V	C281	ECEA1HK2R2B	2.2 50V
C42	ECEA1HKA010B	1 50V	C124	ECBT1H331KB5	330P 50V	C282	ECBT1H102KB5	1000P 50V
C43	ECEA0JU101B	100 6.3V	C171	ECEA1HK010B	1 50V	C284	ECBT1C152MR5	1500P 16V
C44	ECFR1C473MR	0.047 16V	C172	ECBT1H471KB5	470P 50V	C301	ECEA1AU221B	220 10V
C45	ECFR1C103MR	0.01 16V	C173	ECEA1HK010B	1 50V	C302	ECEA1AU330B	33 10V
C46	ECEA1CKA100B	10 16V	C174	ECEA1HK010B	1 50V	C303	ECEA1CU100B	10 16V
C47	ECBT1C332MR5	3300P 16V	C175	ECBT1C103MS5	0.01 16V	C304	ECEA1CU100B	10 16V
C48	ECBT1H681KB5	680P 50V	C176	ECEA1HKR22B	0.22 50V	C305	ECFR1C393MR	0.039 16V [M]
C49	ECEA1HKA010B	1 50V	C177	ECFR1C104MR	0.1 16V	C306	ECEA1CU100B	10 16V
C50	ECFR1C153MR	0.015 16V	C178	ECBT1H102KB5	1000P 50V	C307	ECEA1HUR47B	0.47 50V
C51	ECFR1C153MR	0.015 16V	C179	ECEA1HK2R2B	2.2 50V	C308	ECEA1HU010B	1 50V
C52	ECEA1HKA2R2B	2R00 50V	C180	ECBT1H331KB5	330P 50V	C309	ECEA1HU2R2B	2.2 50V
C53	ECEA1HKA010B	1 50V	C181	ECEA1HK2R2B	2.2 50V	C310	ECEA1EU4R7B	4.7 25V
C54	ECEA1HKA010B	1 50V	C182	ECBT1H102KB5	1000P 50V	C311	ECEA1AU221B	220 10V
C55	ECBT0J153MS5	0.015 6.3V	C184	ECBT1C152MR5	1500P 16V	C312	ECBT1C103MS5	0.01 16V
C56	ECFR1C223MR	0.022 16V	C201	ECBT1H561KB5	560P 50V	C313	ECFR1C473MR	0.047 16V
C57	ECBT1H102KB5	1000P 50V	C202	ECBT1H561KB5	560P 50V	C314	ECEA1HU010B	1 50V
C58	ECBT1H331KB5	330P 50V	C203	ECEA0JU221B	220 6.3V	C315	ECEA1AU221B	220 10V
C59	ECBT1H471KB5	470P 50V	C204	ECFR1C183MR	0.018 16V	C316	ECBT1C103MS5	0.01 16V
C61	ECBT1C103MS5	0.01 16V	C205	ECEA1HU010B	1 50V	C317	ECQV1H273JZ3	0.027 50V
C63	ECBT1H102KB5	1000P 50V	C206	ECBT1C562MR5	5600P 16V	C318	ECQV1H474JZ3	0.47 50V
C65	ECBT1H120JC5	12P 50V	C207	ECBT1H101KB5	100P 50V	C319	ECQP2A272JZT	2700P 100V
C67	ECBT1H102KB5	1000P 50V	C208	ECEA0JU101B	100 6.3V	C320	ECBT1C103MS5	0.01 16V
C70	ECBT1H331KB5	330P 50V	C209	ECBT1H102KB5	1000P 50V	C321	ECQP2A562JZT	5600P 100V
C79	ECBT1C103MS5	0.01 16V	C210	ECBT1H681KB5	680P 50V	C322	ECBT1C103MS5	0.01 16V
C91	ECBT1H102KB5	1000P 50V	C211	ECEA1HU010B	1 50V	C323	ECEA1EU4R7B	4.7 25V
C92	ECBT1C103MS5	0.01 16V	C212	ECBT1H102KB5	1000P 50V	C325	ECEA1EU4R7B	4.7 25V
C93	ECBT1H102KB5	1000P 50V	C213	ECBT1H102KB5	1000P 50V	C326	ECEA1EU4R7B	4.7 25V
C101	ECBT1H561KB5	560P 50V	C214	ECEA1AU330B	33 10V	C327	ECEA1EU4R7B	4.7 25V
C102	ECBT1H561KB5	560P 50V	C216	ECEA1AU101B	100 10V	C328	ECEA1EU4R7B	4.7 25V
C103	ECEA0JU221B	220 6.3V	C217	ECEA1AU222E	2200 10V	C329	ECBT1H471KB5	470P 50V
C104	ECFR1C183MR	0.018 16V	C218	ECQV1H104JZ3	0.1 50V	C330	ECEA1CU101B	100 16V
C105	ECEA1HU010B	1 50V	C221	ECEA1HU010B	1 50V	C331	ECBT1H471KB5	470P 50V
C106	ECBT1C562MR5	5600P 16V	C222	ECFR1C223MR	0.022 16V	C332	ECEA1AU221B	220 10V
C107	ECBT1H101KB5	100P 50V	C223	ECBT1H331KB5	330P 50V	C333	ECA1EM332EV	3300P 25V [M]
C108	ECEA0JU101B	100 6.3V	C224	ECBT1H331KB5	330P 50V	C334	ECEA1AU101B	100 10V
C109	ECBT1H102KB5	1000P 50V	C225	ECBT1H331KB5	330P 50V	C335	ECEA1AU220B	22 10V
C110	ECBT1H681KB5	680P 50V	C271	ECEA1HK010B	1 50V	C336	ECEA1CU221B	220 16V
C111	ECEA1HU010B	1 50V	C272	ECBT1H471KB5	470P 50V	C337	ECFR1C223MR	0.022 16V
C112	ECBT1H102KB5	1000P 50V	C273	ECEA1HK010B	1 50V	C338	ECFR1C683MR	0.068 16V

Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks	Ref.No.	Part No.	Values & Remarks
C339	ECBT1H102KB5	1000P 50V	C852	ECBT1H102KB5	1000P 50V			
C340	ECBT1H102KB5	1000P 50V						
C341	ECEA1HU010B	1 50V						
C342	ECEA1AU131B	100 10V						
C354	ECEA1HU0R1B	0.1 50V						
C355	ECBT1C103MS5	0.01 16V						
C371	ECEA1AU221B	220 10V						
C501	ECQV1H683JZ3	0.068 50V						
C502	ECQV1H683JZ3	0.068 50V						
C503	ECQV1H683JZ3	0.068 50V						
C504	ECQV1H683JZ3	0.068 50V						
C505	ECEA1HU101B	100 50V						
C601	ECEA1CU330B	33 16V						
C602	ECEA1CU101B	100 16V						
C603	ECEA1CU100B	10 16V						
C801	ECBT1H102KB5	1000P 50V						
C802	ECBT0J223NS5	0.022 6.3V						
C804	ECBT1H102KB5	1000P 50V						
C805	ECEA1AU221B	220 10V						
C806	ECEA1AU221B	220 10V						
C808	ECBT1H104ZF5	0.1 50V						
C814	ECBT1H180JC5	18P 50V						
C815	ECBT1H220JC5	22P 50V						
C818	ECBT1H560J5	56P 50V						
C819	ECBT1H560J5	56P 50V						
C820	ECEA1HU010B	1 50V						
C821	ECBT0J223NS5	0.022 6.3V						
C822	ECBT1H102KB5	1000P 50V						
C823	ECBT1H331KB5	330P 50V						
C824	ECBT1H331KB5	330P 50V						
C825	ECBT1H331KB5	330P 50V						
C826	ECBT1H101KB5	100P 50V						
C827	ECBT1H330J5	33P 50V						
C828	ECBT1H102KB5	1000P 50V						
C829	ECBT1H102KB5	1000P 50V						
C832	ECBT1H102KB5	1000P 50V						
C833	ECBT1H102KB5	1000P 50V						
C834	ECBT1H102KB5	1000P 50V						
C835	ECBT1H102KB5	1000P 50V						
C836	ECBT1H102KB5	1000P 50V						
C838	ECBT1H820KB5	82P 50V						
C839	ECBT1H820KB5	82P 50V						
C844	ECBT1H102KB5	1000P 50V						
C845	ECBT1C103MS5	0.01 16V						
C846	ECBT1H102KB5	1000P 50V						
C849	ECBT1C103MS5	0.01 16V						
C851	ECBT1C103MS5	0.01 16V						

CD REPLACEMENT PARTS LIST

• Ref. No	Part No.	Part Name & Description	Remarks	Ref. No	Part No.	Part Name & Description	Remarks
				RJ716	ERJ8GEY0R00A	1/10W 0	
		INTEGRATED CIRCUITS		RJ717	ERJ8GEY0R00A	1/10W 0	
				RJ721	ERJ6GEY0R00A	1/10W 0	
IC701	AN8802SCE1V	I.C, SERVO AMP		RJ722	ERJ6GEY0R00A	1/10W 0	
IC702	MN66271RA	I.C, SERVO PROCESSOR		RJ724	ERJ6GEY0R00A	1/10W 0	
IC703	AN8389SE1	I.C, MOTOR DRIVE		RJ725	ERJ6GEY0R00A	1/10W 0	
				RJ726	ERJ6GEY0R00A	1/10W 0	
		TRANSISTORS					
Q701	2SB709S	TRANSISTOR					
		SWITCHES					
S701	RSM0006-P	SW, REST					
		OSCILLATORS					
X701	RSXZ16M9M02T	CRYSTAL					
		VARIABLE RESISTORS					
VR701	EVNDXAA00B14	V.R, BEST EYE ADJ					
		CONNECTORS					
CN701	RJU035T016-1	SOCKET (16P)					
CN702	RJS1A6723-1Q	SOCKET (23P)					
CN790	RJP6G17ZA	CONNECTOR (6P)					
		CHIP JUMPERS					
RJ701	ERJ8GEY0R00A	1/10W 0					
RJ702	ERJ8GEY0R00A	1/10W 0					
RJ703	ERJ8GEY0R00A	1/10W 0					
RJ704	ERJ8GEY0R00A	1/10W 0					
RJ705	ERJ8GEY0R00A	1/10W 0					
RJ706	ERJ8GEY0R00A	1/10W 0					
RJ707	ERJ8GEY0R00A	1/10W 0					
RJ708	ERJ8GEY0R00A	1/10W 0					
RJ709	ERJ8GEY0R00A	1/10W 0					
RJ710	ERJ8GEY0R00A	1/10W 0					
RJ711	ERJ8GEY0R00A	1/10W 0					
RJ712	ERJ8GEY0R00A	1/10W 0					
RJ713	ERJ8GEY0R00A	1/10W 0					
RJ714	ERJ8GEY0R00A	1/10W 0					
RJ715	ERJ8GEY0R00A	1/10W 0					

Notes:

* Capacitance values are in microfarads(μF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)

* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM), 1M=1,000K(OHM)

Ref No.	Part No.	Part Name & Description	Remarks	Ref No.	Part No.	Part Name & Description	Remarks
		RESISTORS				CAPACITORS	
R701	ERJ6GEYJ100	1/10W 10		C701	ECEA0JKA220	6.3V 22	
R702	ERJ6GEYJ471V	1/10W 470		C702	ECEA1HKA010I	50V 1	
R703	ERJ6GEYJ823	1/10W 82K		C703	ECEA0JKA101I	6.3V 100	
R704	ERJ6GEYJ102A	1/10W 1K		C704	ECUZ1E104MBN	25V 0.1	
R705	ERJ6GEYJ103V	1/10W 10K		C705	ECEA1HKA010I	50V 1	
R706	ERJ6GEYJ102A	1/10W 1K		C706	ECUE1H101JCN	50V 100P	
R707	ERJ6GEYJ473V	1/10W 47K		C708	ECUE1H472KBN	50V 4700P	
R708	ERJ6GEYJ224V	1/10W 220K		C709	ECUE1C473KBN	16V 0.047	
R709	ERJ6GEYJ683V	1/10W 68K		C710	ECUE1H152KBN	50V 1500P	
R711	ERJ6GEYJ154V	1/10W 150K		C711	ECUZ1E104MBN	25V 0.1	
R712	ERJ6GEYJ471V	1/10W 470		C712	ECUZ1E104MBN	25V 0.1	
R714	ERJ6GEY0R00A	1/10W 0.00		C713	ECUV1C104MBM	16V 0.1	
R717	ERJ6GEYJ102A	1/10W 1K		C714	ECEA0JKA101I	6.3V 100	
R718	ERJ6GEYJ102A	1/10W 1K		C715	ECEA0JKA470I	6.3V 47	
R719	ERJ6GEYJ102A	1/10W 1K		C716	ECUE1H561KBN	50V 560P	
R720	ERJ6GEYJ102A	1/10W 1K		C717	ECUZ1E104MBN	25V 0.1	
R721	ERJ8GEYJ101V	1/10W 100		C718	ECUV1C224KBM	16V 0.22	
R722	ERJ6GEYJ473V	1/10W 47K		C719	ECUV1C224KBM	16V 0.22	
R723	ERJ6GEYJ182V	1/10W 1.8K		C721	ECUE1H100DCN	50V 10P	
R724	ERJ6GEYJ333V	1/10W 33K		C722	ECUE1H100DCN	50V 10P	
R725	ERJ6GEYJ472V	1/10W 4.7K		C723	ECEA1AKA221I	10V 220	
R726	ERJ6GEYJ473V	1/10W 47K		C724	ECUV1C104MBM	16V 0.1	
R727	ERJ6GEYJ103V	1/10W 10K		C725	ECUE1H102KBN	50V 1000P	
R728	ERJ6GEYJ392V	1/10W 3.9K		C726	ECUE1H102KBN	50V 1000P	
R730	ERJ6GEYJ331V	1/10W 330K		C727	ECEA1HKA010I	50V 1	
R731	ERJ6GEYJ392V	1/10W 3.9K		C728	ECEA1HKA010I	50V 1	
R734	ERJ6GEYJ101V	1/10W 100		C730	ECUZ1E104MBN	25V 0.1	
R735	ERJ6GEYJ101V	1/10W 100		C731	ECA05SD151I	6.3V 150	
R736	ERJ6GEYJ101V	1/10W 100		C732	ECA05SD151I	6.3V 150	
R738	ERJ6GEYJ223V	1/10W 22K		C733	ECUZ1E104MBN	25V 0.1	
R739	ERJ6GEYJ681V	1/10W 680		C734	ECEA1AKA221I	10V 220	
R741	ERJ6GEYJ562V	1/10W 5.6K		C735	ECUZNE104MBN	25V 0.1	
R742	ERJ6GEYJ562V	1/10W 5.6K		C736	ECUZNE104MBN	25V 0.1	
R743	ERJ6GEYJ562V	1/10W 5.6K		C737	ECUZNE104MBN	25V 0.1	
R744	ERJ6GEYJ103V	1/10W 10K		C738	ECUV1C154KBN	16V 0.15	
R745	ERJ6GEYJ155V	1/10W 1.5M		C742	ECUV1E273KBN	25V 0.027	
R746	ERJ8GEYJ103V	1/8W 10K		C743	ECUZNE104MBN	25V 0.1	
R747	ERJ6GEYJ473V	1/10W 47K		C744	ECUE1E822KBN	25V 8200P	
				C745	ECUE1C473MBN	16V 0.047	
	TEST JUMPERS			C746	ECUE1H050DCN	50V 5P	
				C747	ECUE1H222KBN	50V 2200P	
TJ701	RRJ8GET001H	TEST JUMPER		C748	ECUV1H271KBM	50V 270P	
TJ702	RRJ8GET001H	TEST JUMPER					