1983

FILE NO.

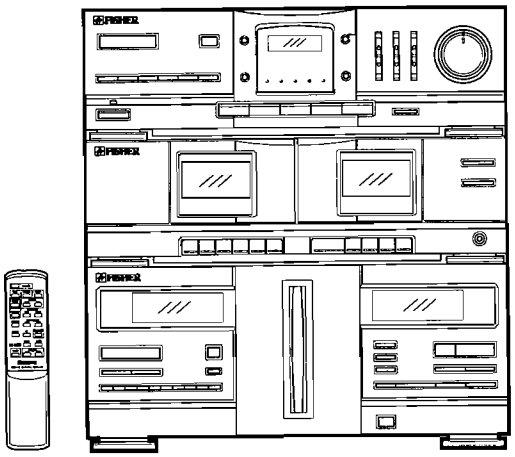
SERVICE MANUAL

FISHER®

TAD-9415

(US)

Digital High-Fidelity System
with REM-9415 Wireless Remote Control



PRODUCT CODE No.
129 438 00

Contents

TAD9415

This Service manual consists of "TAD-9415", "REM-9415".

REFERENCE No. SM580319

SPECIFICATIONS

TAD-9415 MAIN UNIT

Amplifier section

Continuous minimum sine wave RMS power output per channel at 8 ohms from 40 Hz to 20 kHz with no more than 0.9% total harmonic distortion .... 100 Watts
BASS control ..... ± 10 dB (100 Hz)
Treble control ..... ± 10 dB (10 kHz)
Dynamic bass ..... ± 10 dB (100 Hz)
Input sensitivity and impedance
PHONO ..... 3.0 mV / 47 kohms
VIDEO (Audio) ..... 300 mV / 47 kohms
Outputs impedance
SPEAKERS (Nominal) 8 ohms
PHONES (Nominal) .. 8 - 32 ohms

Tuner section

(FM)
Frequency range ..... 87.5 - 107.9 MHz (200 kHz steps)
Usable sensitivity ..... 12.2 dBf (MONO)
(AM)
Frequency range ..... 520 - 1,710 kHz (10 kHz steps)
Sensitivity ..... 500 μV / m (AM Loop Antenna)

Cassette deck section

Track system ..... 4-track, 2-channel stereo
Frequency response ... 60 - 12,500 Hz (Normal tape)
Signal to noise ratio ... 52 dB
Wow and flutter ..... 0.18 % (WRMS)
Fast forward / rewind time(approx.) .. 110 sec. (C-60)

CD changer section

Type ..... 24-disc Bi-Directional, Radial Transport
Channels ..... 2-channel stereo
Sampling frequency ... 44.1 kHz
Pickup ..... Optical 3-beam semiconductor laser
Frequency response ... 20 Hz - 20 kHz
Signal to noise ratio ... 95 dB
Wow and flutter ..... Below measurable limits

General

Power requirements ... AC : 120 V ± 10%, 60 Hz
Power consumption ... 185 Watts
Dimensions(approx.) ... 16.5"(W) × 17.2"(H) × 15.7"(D)
Weight(approx.) ..... 38.6 lbs.

REM-9415 WIRELESS REMOTE CONTROLLER

Power requirements ... 3VDC - Two "AA" batteries
Dimensions(approx.) ... 1.5"(W) × 6.6"(H) × 0.7"(D)
Weight(approx.) ..... 1.7 oz. (without batteries)

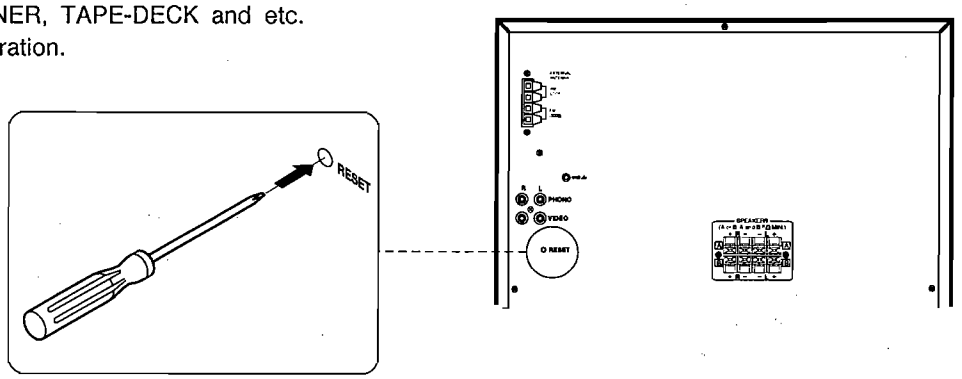
IMPORTANT INFORMATION

Because its products are subject to continuous improvement, FISHER reserves the right to modify product designs and specifications without notice and without incurring any obligation.

OPERATING THE RESET SWITCH

This unit is provided with a reset switch on the rear panel. The reset switch serves to initialize the microprocessor in the unit which controls the CD-CHANGER, TUNER, TAPE-DECK and AMPLIFIER section. If the unit is to be serviced or key input is not acknowledged even when the CD, TUNER, TAPE DECK and etc. operation buttons are pressed, press the RESET switch and initialize the microprocessor following the step below.

1) . Disconnect the AC power cord from the power outlet.
2) . Keep the RESET switch depressed for 60 seconds. (The backed up electrolytic capacitor is discharged by keeping the RESET switch depress.)
3) . Reconnect the AC power cord to the power outlet.
4) . Press the CD-CHANGER, TUNER, TAPE-DECK and etc. operations, and check their operation.



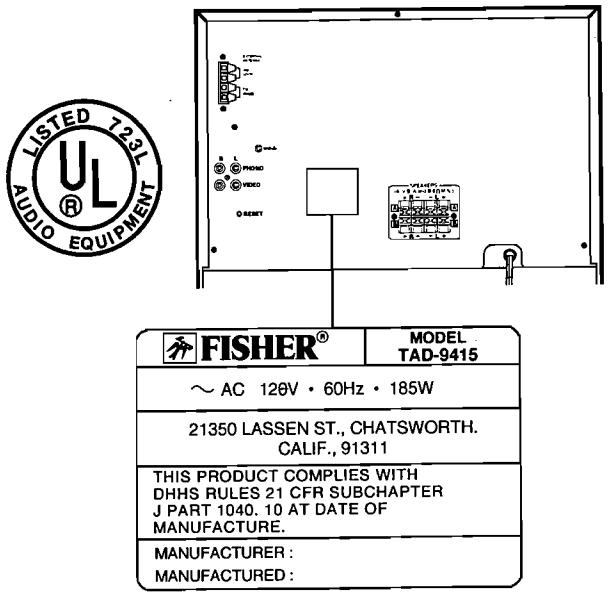
LASER BEAM SAFETY PRECAUTIONS (CD)

Do not look directly at the laser beam coming from the pick-up or allow it to strike against your fingers, skin, etc.
Do not apply power if there is a broken part in the laser output section of the pick-up.

INVISIBLE LASER RADIATION EXPOSURE TO BEAM IS DANGEROUS CLASS 1 LASER PRODUCT
OUTPUT POWER : 0.6 mW MAX WAVELENGTH : 790 nm

This unit is made and tested to meet exacting safety standards. It meets UL and FCC requirements and complies with safety performance standards of the U.S. Department of Health and Human Services.

CAUTION - USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.



FCC INFORMATION

For CD player section:
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

HANDLING THE PICK-UP (CD)

1. Shipping and storage cautions

a. The pick-up must be stored in a conductive bag until immediately prior to its use.
b. Do not drop it or subject it to impacts.

2. Repair cautions

a. When handling the pick-up, be careful not to give it undue force or shock by your hands. Otherwise the pick-up may malfunction or the PCB may be cracked.
b. The pick-up which has been minutely adjusted before shipment as one part. Never touch and move the adjusting points and setscrews of the pick-up unless otherwise described in the item of adjustment to avoid damage.
c. A strong magnet is used in the pick-up.
Do not bring a magnet or other magnetized object near to it.
d. Cleaning the lens
* If dust gets on the lens, clean it away by using an air brush such as used for a camera lens.
* The lens is held in place by a spring.
If the center of the lens is dirty, carefully clean it using cotton swab moistened with isopropylalcohol. Since special coating is made on the surface of the lens which is made of plastics, do not use other kind of alcohol and cleaning fluid to prevent damage to the lens. Also, be careful not to bend the lens spring when cleaning.

BEFORE REPAIRING THE CD CHANGER

1. Preparations

a. Many ICs, LSI and the Pick-up (laser diode) are used in the compact disc player, These components are sensitive to static electricity, and might be damaged by static electricity or high voltage, so particular care should be taken regarding this point.
b. Many precision components and the lens are used in the pick-up.
Never attempt to make repairs, or to store parts, where the temperature or humidity is high, where magnetism is strong, or where there is much dust.

2. Notes regarding repairs

a. Be sure to first disconnect the power plug before attempting to replace any component.
b. All tools, instruments, etc., used for measuring must be grounded.
Grounding can be accomplished by using a conductive metal sheet on the work bench.
c. To prevent AV leakage of the soldering iron, ground its metal part.
d. Repair personnel must be grounded.

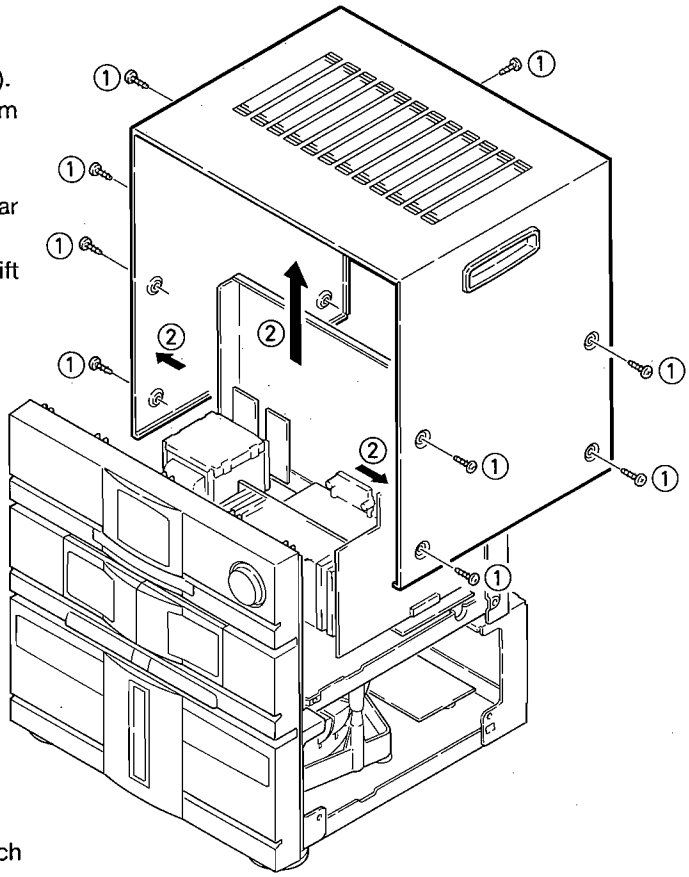
DISASSEMBLY

Disassembly and Reassembly Instructions

- Remove all compact discs (CDs).
- Unplug the AC power cord from the wall outlet (AC outlet).
- If lead wires are disconnected, be sure to reconnect them afterward as they were.

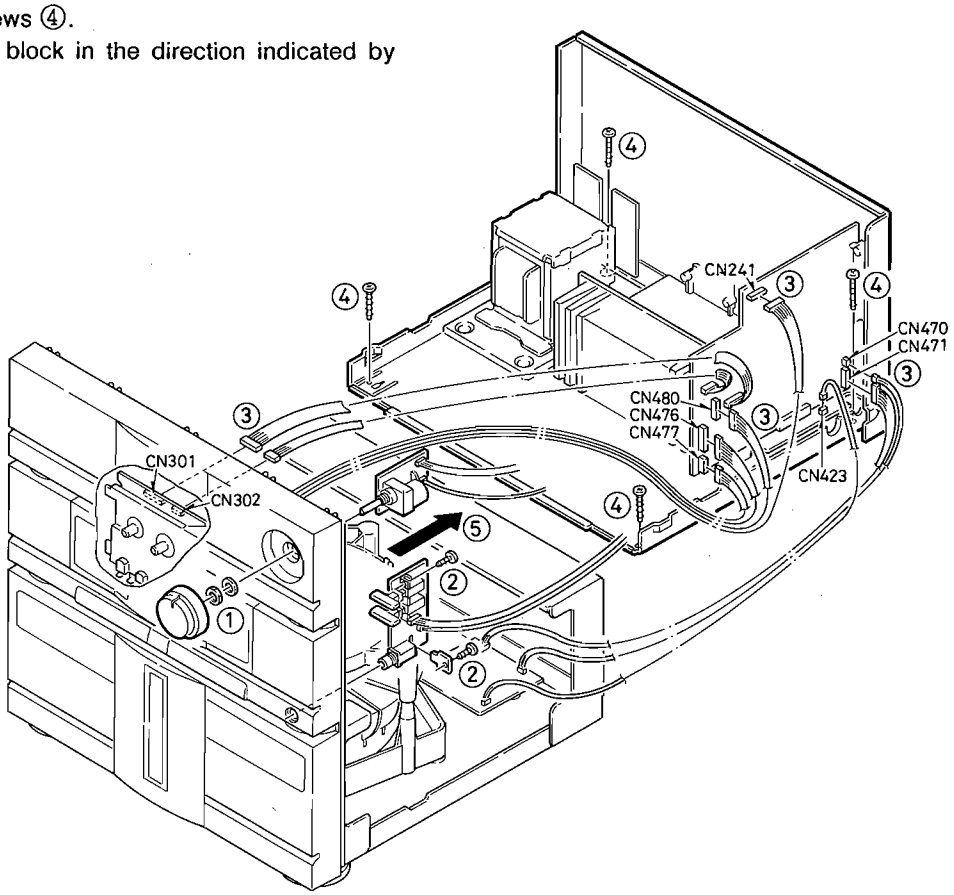
1. Removing the Cabinet

1) Remove the nine screws ① securing both sides and rear of the cabinet.
2) Pull outward slightly on both sides of the cabinet and lift it off in the direction indicated by the arrow ②.



2. Removing the Amplifier Block

1) Remove the knob ①.
2) Remove the two screws ② fixing the speakers switch and headphone socket P. W. Board.
3) Unplug the connectors ③ from the CD block, etc.
4) Remove the four screws ④.
5) Lift out the amplifier block in the direction indicated by the arrow ⑤.



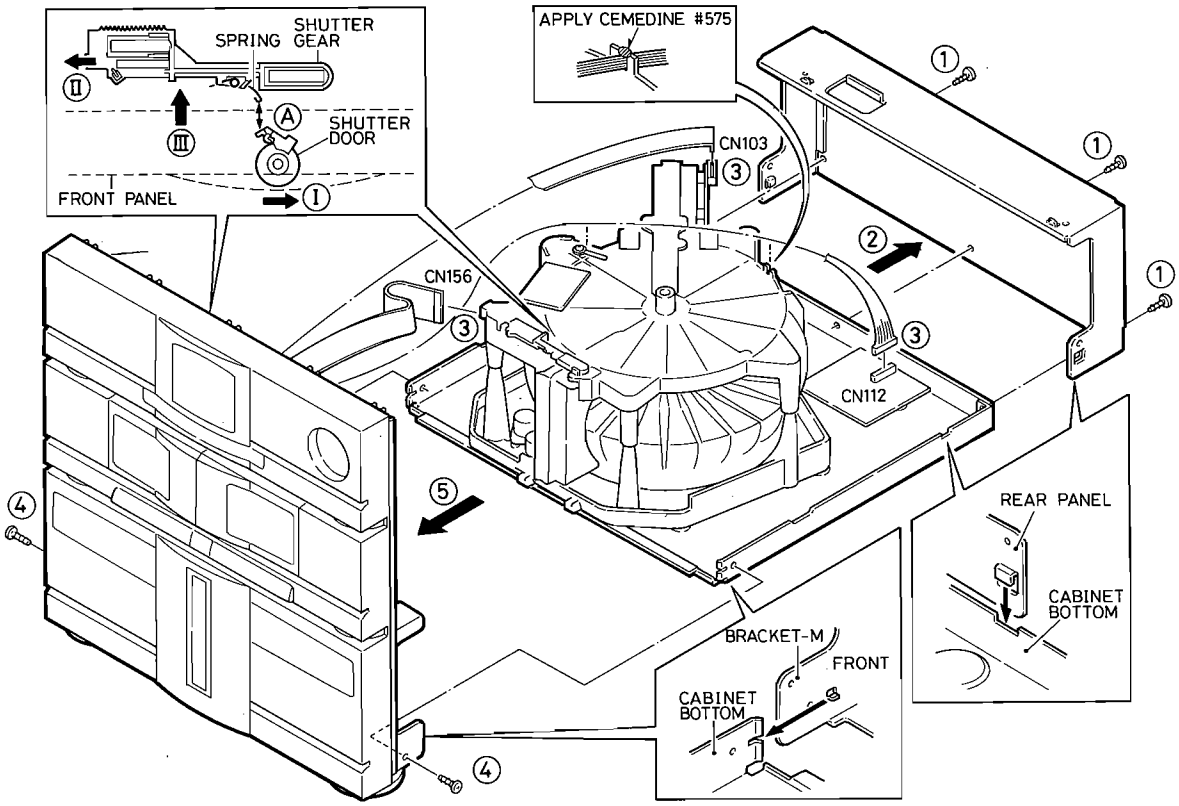
DISASSEMBLY

3. Removing the CD Block

1) Remove the three screws ① securing the cabinet bottom and CD rear panel.
2) Remove the CD rear panel in the direction indicated by the arrow ②.
3) Unplug the connectors ③ from the front panel.
4) Remove the two screws ④ securing the cabinet bottom and front panel.
5) Remove the front panel in the direction indicated by the arrow ⑤.

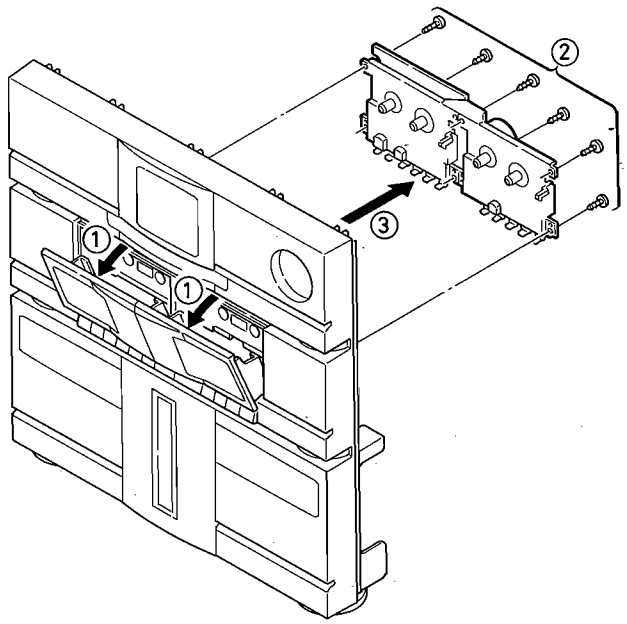
- **Shutter setting**

  With the shutter door closed (I), move the shutter gear in the direction indicated by arrow (II) and push the front panel in the direction indicated by arrow (III). This will cause the spring and shutter door to engage at point Ⓐ.



4. Removing the Cassette Deck Mechanism

1) Open the both cassette lids ① by the EJECT buttons.
2) Remove the six screws ②.
3) Lift out the deck mechanism in the direction indicated by the arrow ③.



DISASSEMBLY (CD)

[If the CDs cannot be removed]

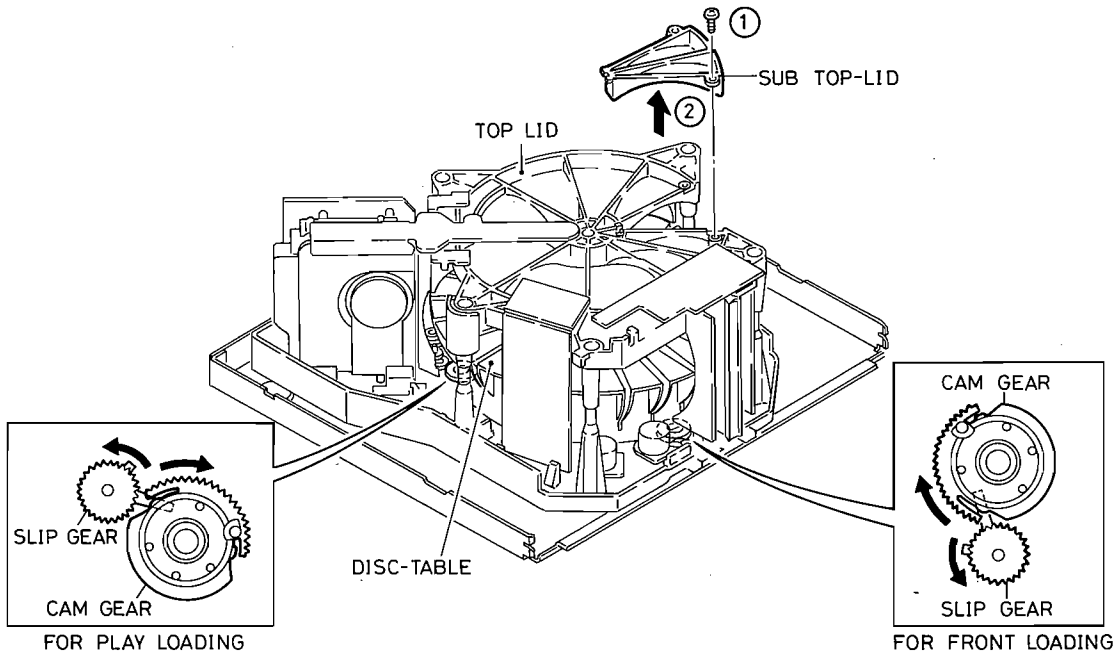
5. Procedure for removing CDs from the disc table (turntable)

1) Remove the screw ① holding the sub-top lid in place.
2) Remove the sub-top lid in the direction indicated by arrow ②.
3) CDs can now be removed through the space created by removing the sub-top lid.
4) If the disc table will not turn, perform steps (1) and (2) of the gear setting procedure described below. This will allow the disc-table to be moved.

(1) As shown in the detail drawing at right, turn the cam gear for front loading in the direction indicated by the arrow so that it and the slip gear move to a position where they do not engage each other.

(2) As shown in the detail drawing at left, turn the cam gear for play loading in the direction indicated by the arrow so that it and the slip gear move to a position where they do not engage each other.

To perform gear setting steps (1) and (2), either move the motor drive systems by hand or apply DC 3 V to the appropriate motor terminals to activate them. When applying DC 3 V to operate the motors, make sure to disconnect the motor lead wires before applying voltage. The motor drive circuitry could be damaged if the motor lead wires are not disconnected first.



6. Procedure for removing CDs from the base mechanism

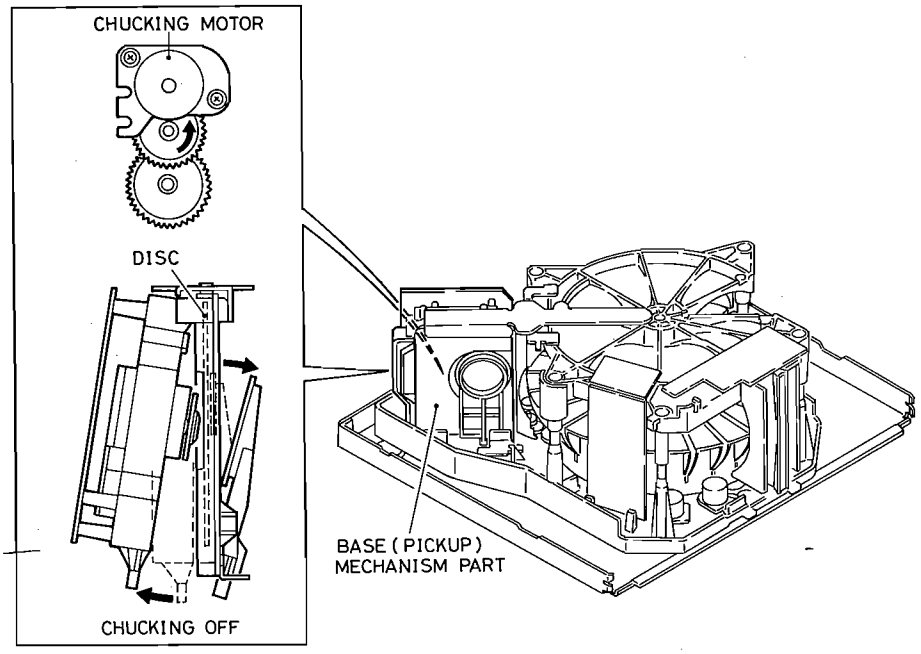
1) As shown in the diagram, unchuck CDs that are chucked by turning the chucking gear in the direction indicated by the arrow.

· To turn the chucking gear in step 1), either move the chucking motor drive system by hand or apply DC 3 V to the motor terminals to activate it. When applying DC 3 V to operate the motor, make sure to disconnect the motor lead wires before applying voltage. The motor drive circuitry could be damaged if the motor lead wires are not disconnected first.

2) Once the CD is unchucked, move it from inside the base mechanism to the disc-table.

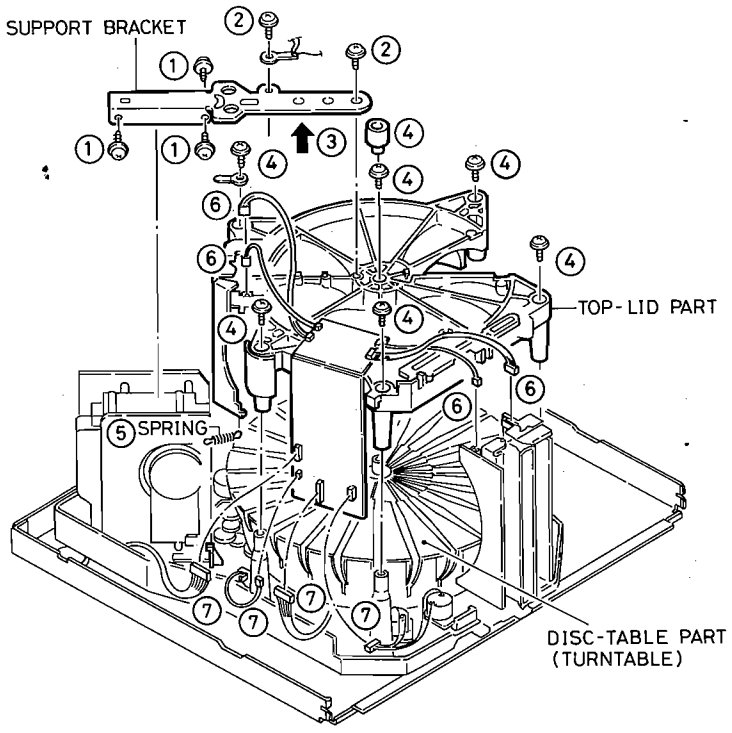
· To move the CD in step 2), either move the play loading motor drive system by hand or apply DC 3 V to the motor terminals to activate it. When applying DC 3V to operate the motor, make sure to disconnect the motor lead wires before applying voltage. The motor drive circuitry could be damaged if the motor lead wires are not disconnected first.

3) CDs in the disc table can now be removed using the method described in section 1.



7. Removing the top lid from the mechanism

1) Remove the three screws ① securing the base mechanism to the support bracket.
2) Remove the two screws ② holding the support bracket in place.
3) Remove the support bracket in the direction indicated by arrow ③.
4) Remove the six screws ④ holding the top lid in place.
5) Remove spring ⑤.
6) Unplug the four connectors ⑥ from the top lid.
7) Unplug the four connectors ⑦ from the mechanism chassis.
8) Remove the top lid.



DISASSEMBLY (CD)

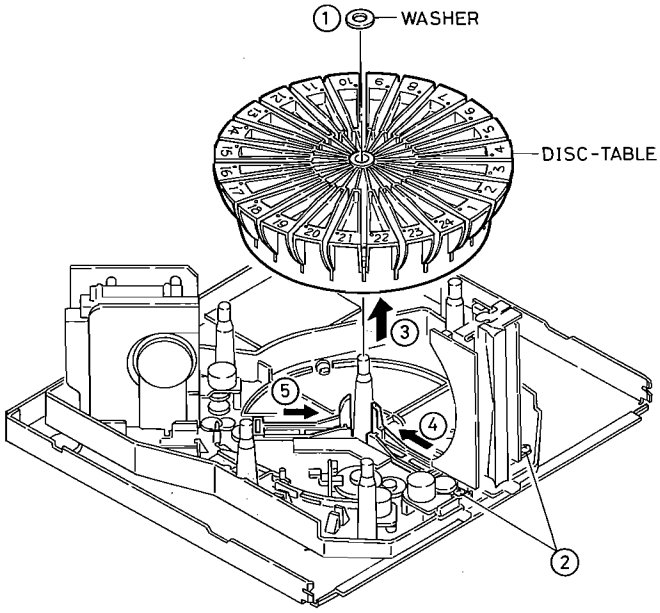
8. Removing the disc-table

1) Remove washer ①.
2) Remove the two screws ② holding the sensor assy in place.
3) Remove the disc-table in the direction indicated by arrow ③.

When replacing the disc table, perform gear setting steps (1) and (2) below to facilitate easy remounting.

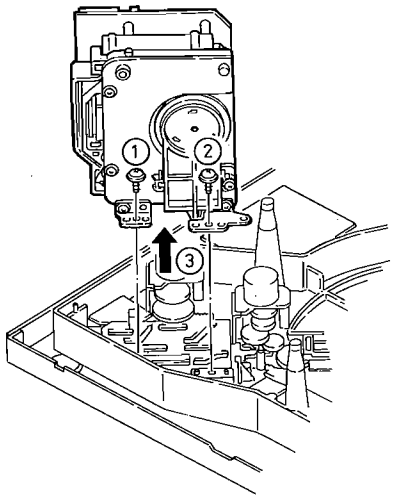
(1) Turn the cam gear for front loading to move the front loading slide as far as it will go in the direction of arrow ④.

(2) Turn the cam gear for play loading to move the play loading slide as far as it will go in the direction of arrow ⑤.

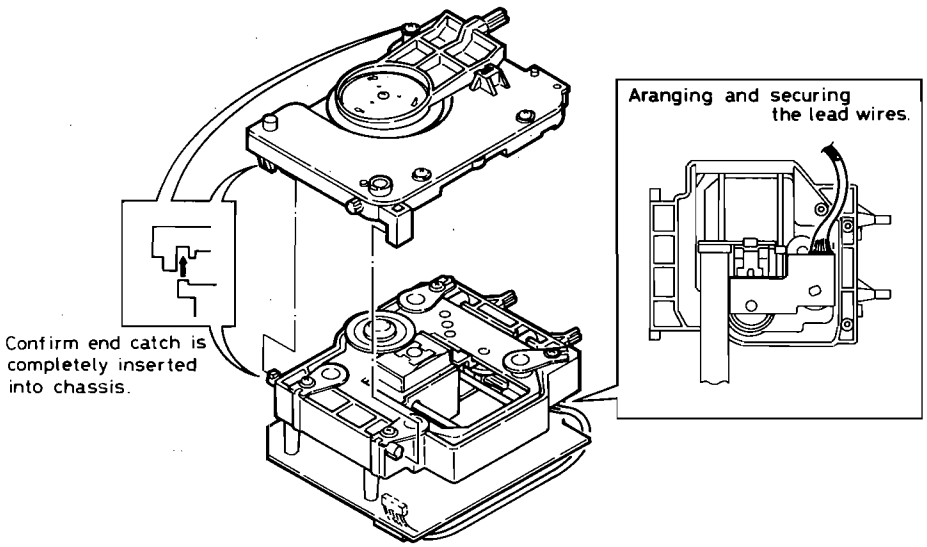


9. Removing the base (pickup) mechanism

1) Remove the screw ① holding the base mechanism in place.
2) Remove the screw ② holding the base mechanism in place.
3) Remove the base mechanism in the direction indicated by arrow ③.



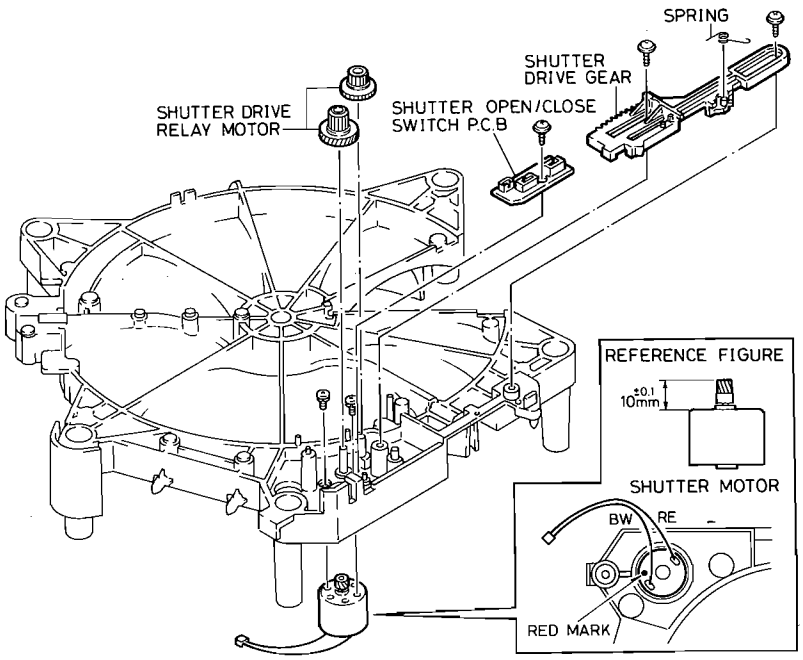
10. Removing the chucking portion of the base (pickup) mechanism



ADJUSTMENT MECHANISM (CD)

Procedure for Mounting Main Mechanism Parts

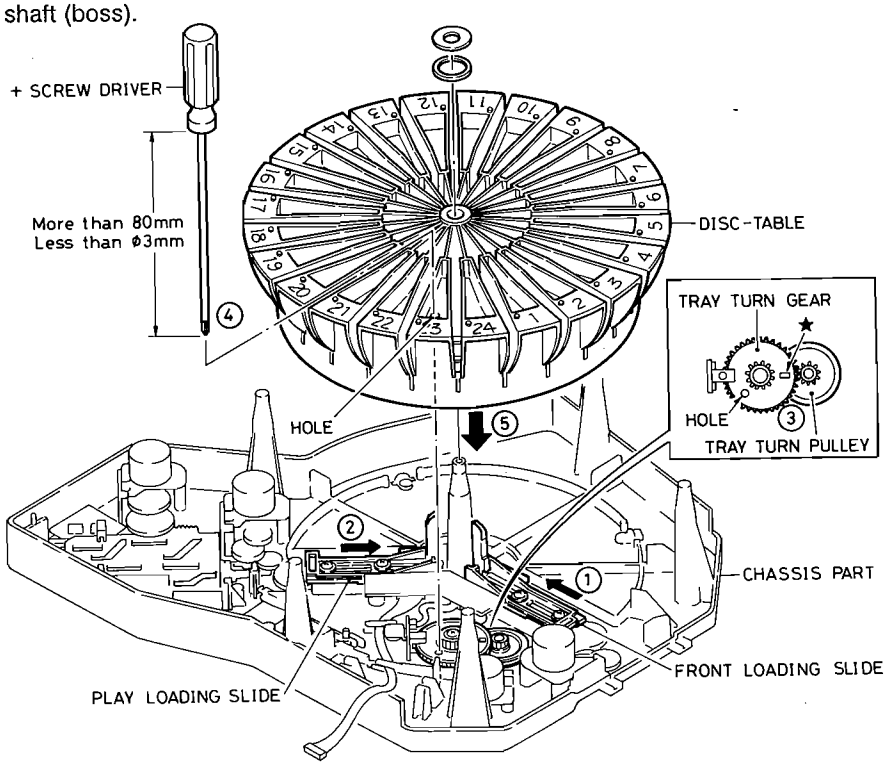
1. Top lid



2. Disctable (turntable)

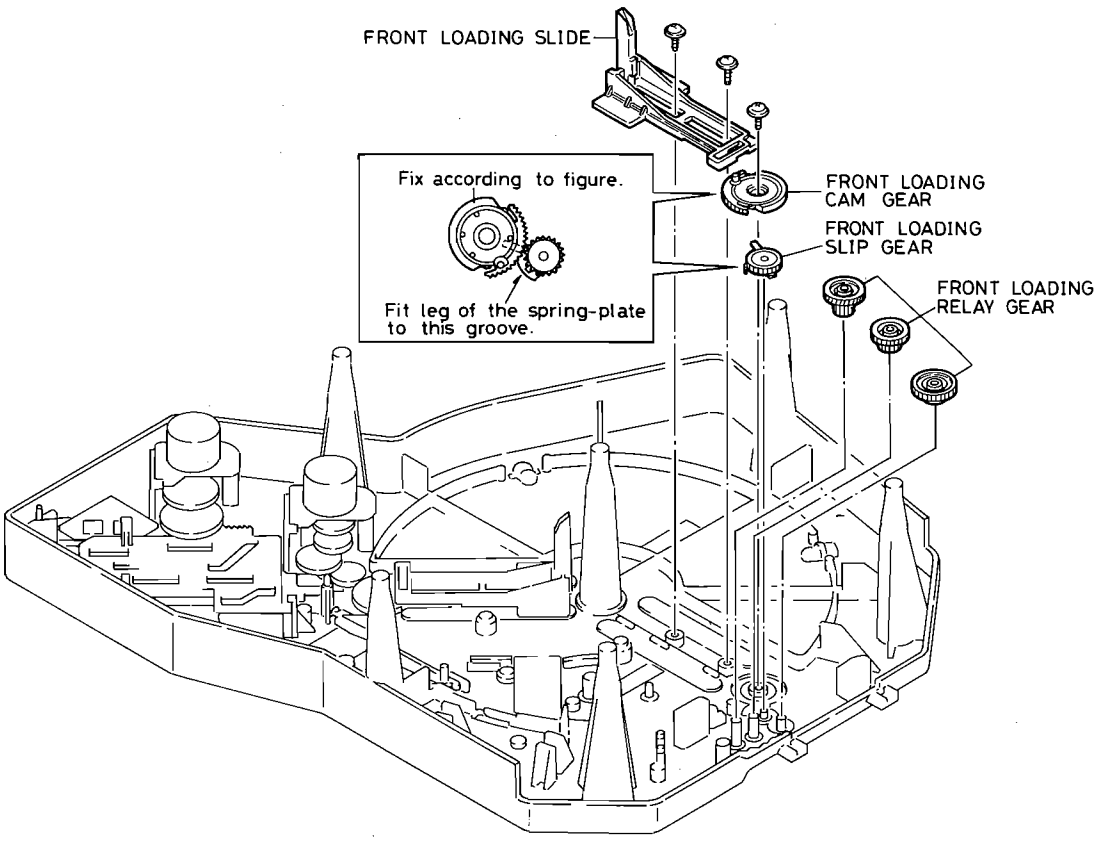
1) Turn the cam gear for front loading to move the front loading slide as far as it will go in the direction of arrow ①.
2) Turn the cam gear for play loading to move the play loading slide as far as it will go in the direction of arrow ②.
3) As shown in detail drawing ③, align the oval shaped hole in the tray turn gear (indicated by *) with the center of the tray turn pulley.
4) Line up hole number 23 on the disc table with the round hole in the tray turn gear, after setting it as described in step 3). Then fit the disc table over the chassis shaft (boss) in the direction indicated by arrow ⑤.

· When aligning hole number 23 on the disc table with the hole in the tray turn gear, a certain amount of skill is required. The task can be made easier by inserting a Phillips screwdriver or the like through the two holes and then fitting the disc table over the chassis shaft (boss).

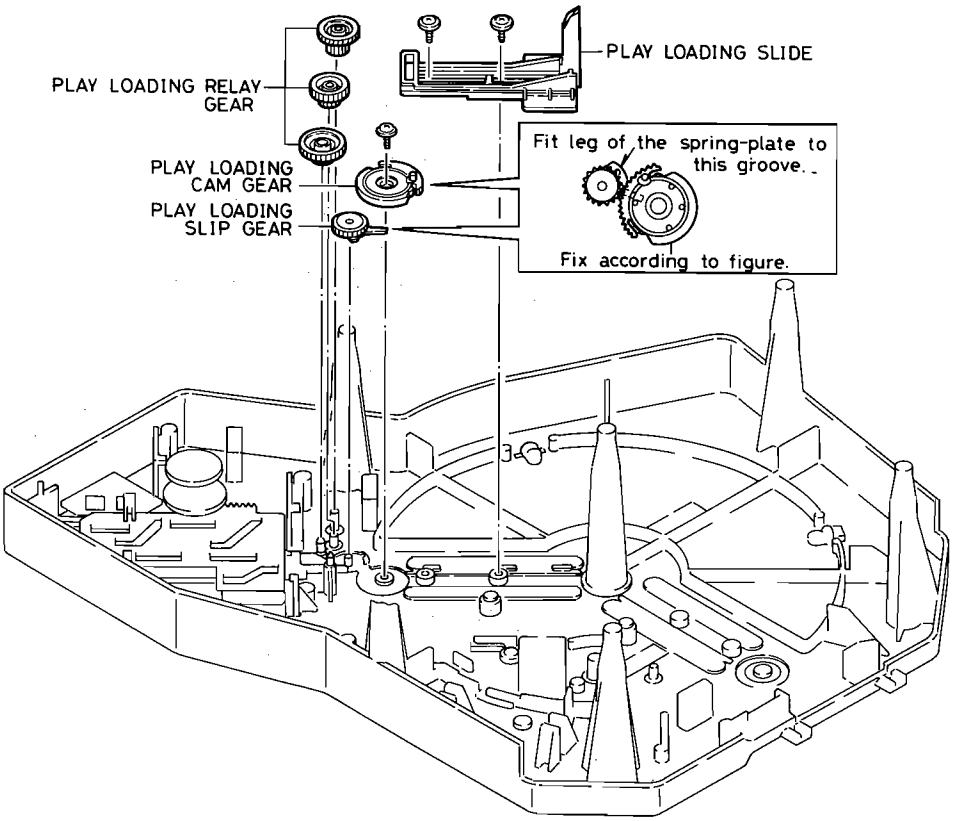


ADJUSTMENT MECHANISM (CD)

3. Front loading portion

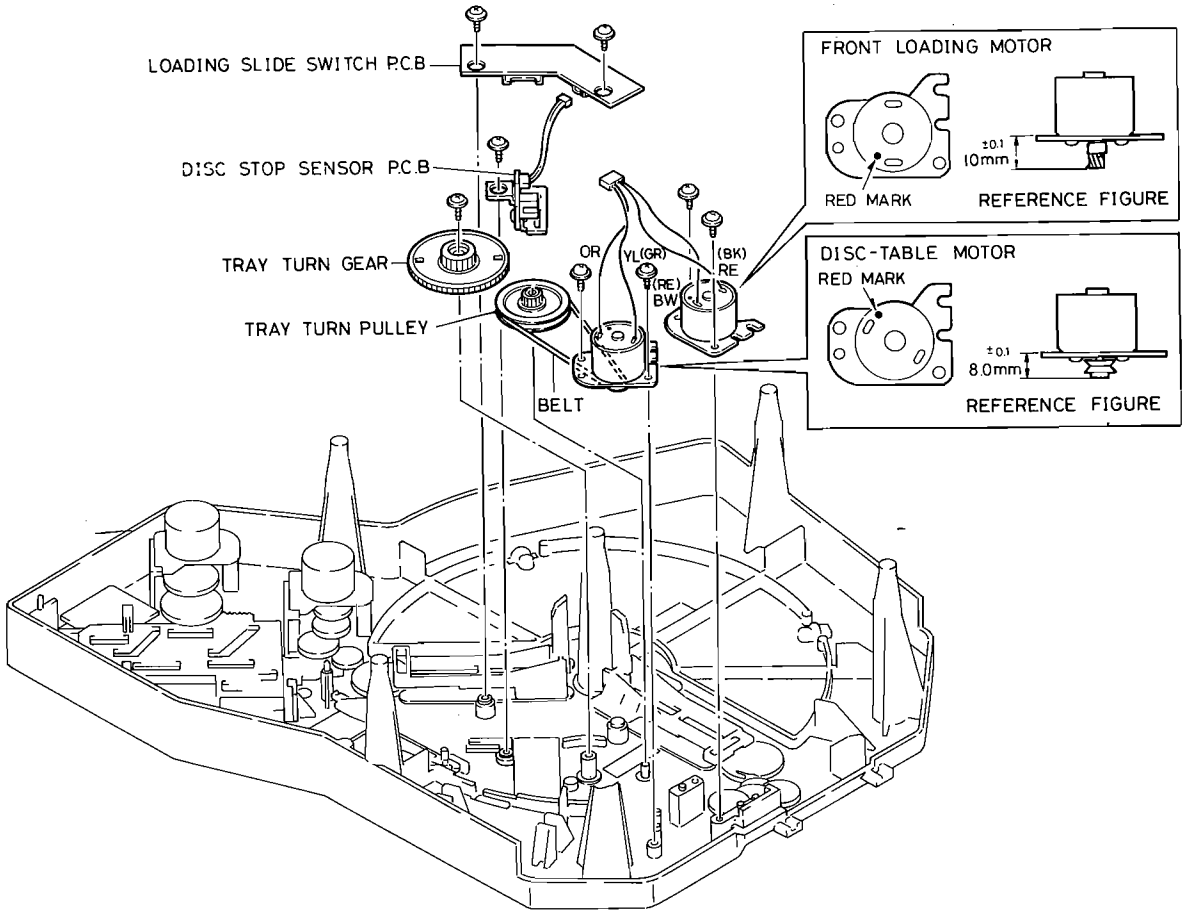


4. Play loading portion

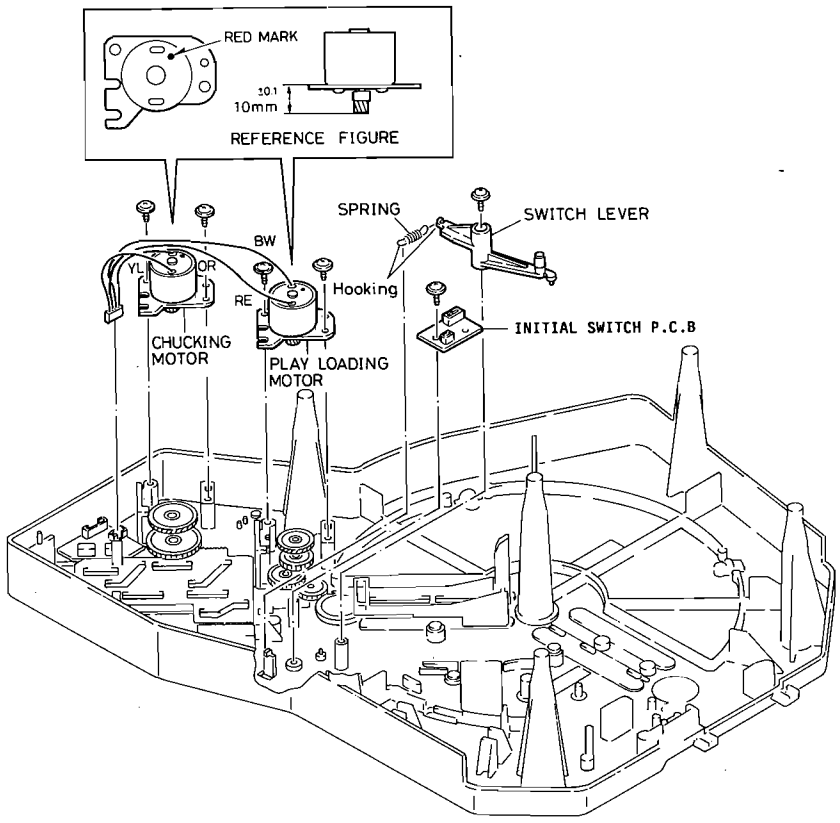


ADJUSTMENT MECHANISM (CD)

5. Front loading and disctable motor



6. Play loading and chucking motor



ADJUSTMENT MECHANISM (CD)

7. Replacing the pickup

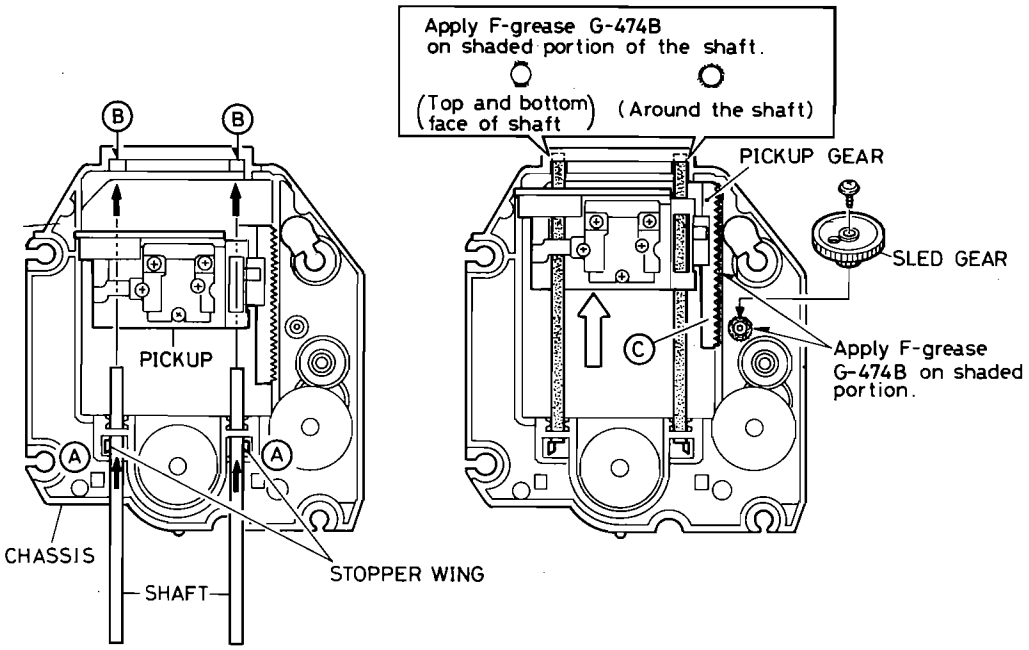
Shaft mounting/removal

1) Insert the shaft from section Ⓐ of the front of the chassis, pass it through the pickup and fit it the tip into the groove at section Ⓑ.
2) Push the shaft in further so that its tip stops at section Ⓑ. Then secure it in place using stopper wing Ⓐ.

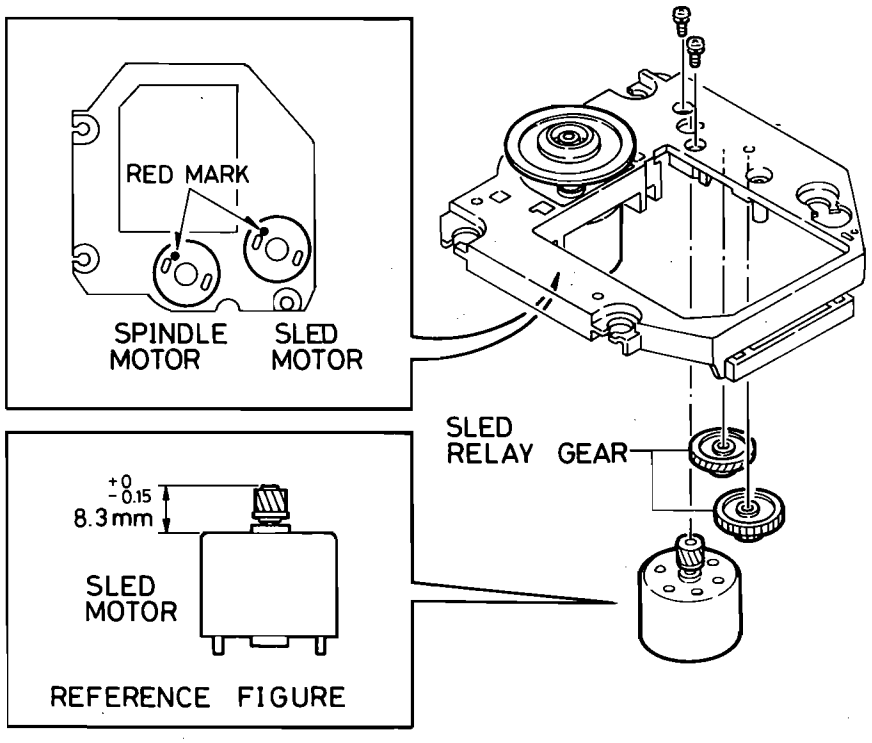
· When mounting or removing the shaft, be careful not to lose stopper wing Ⓐ.

Mounting the sled gear

1) To mount the sled gear, move the pickup as far as it will go in the direction indicated by the arrow.
2) Push slightly on point Ⓒ on the inside of the pickup gear when mounting the sled gear.



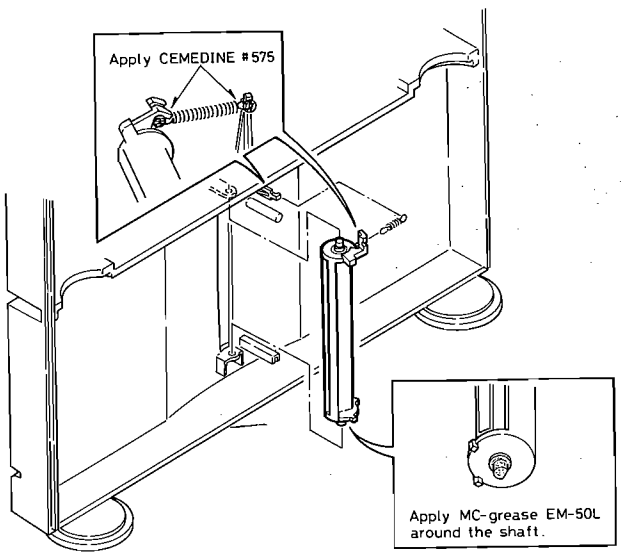
8. Sled and spindle motor of base mechanism



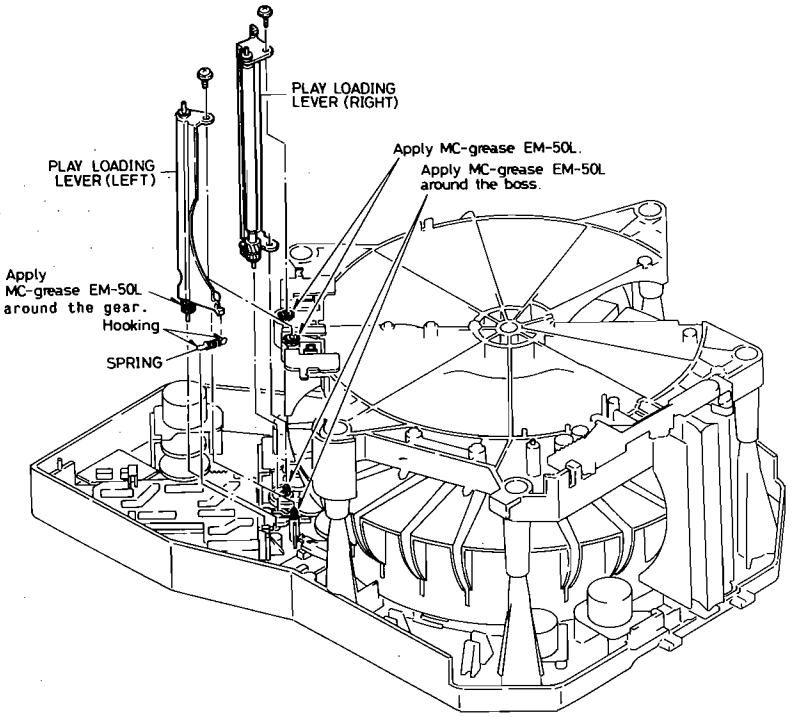
STANDARD MAINTENANCE (CD)

Applying grease and grease point

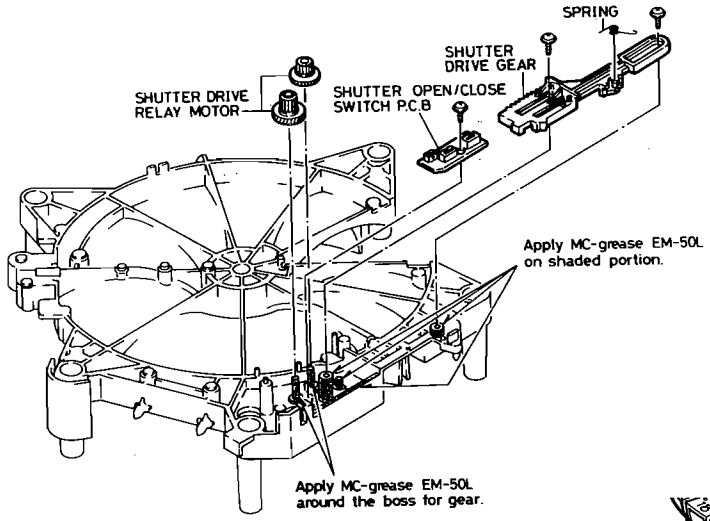
1. Front panel



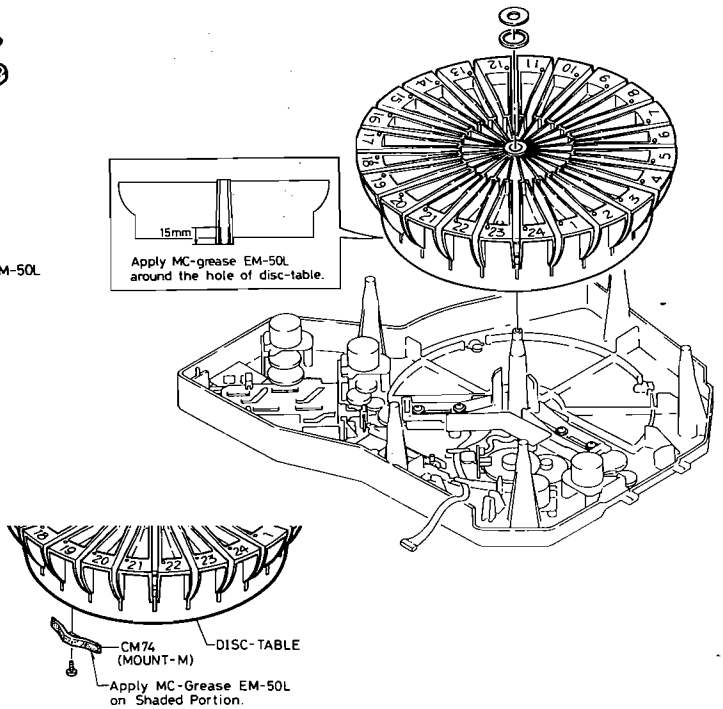
2. Play loading roller



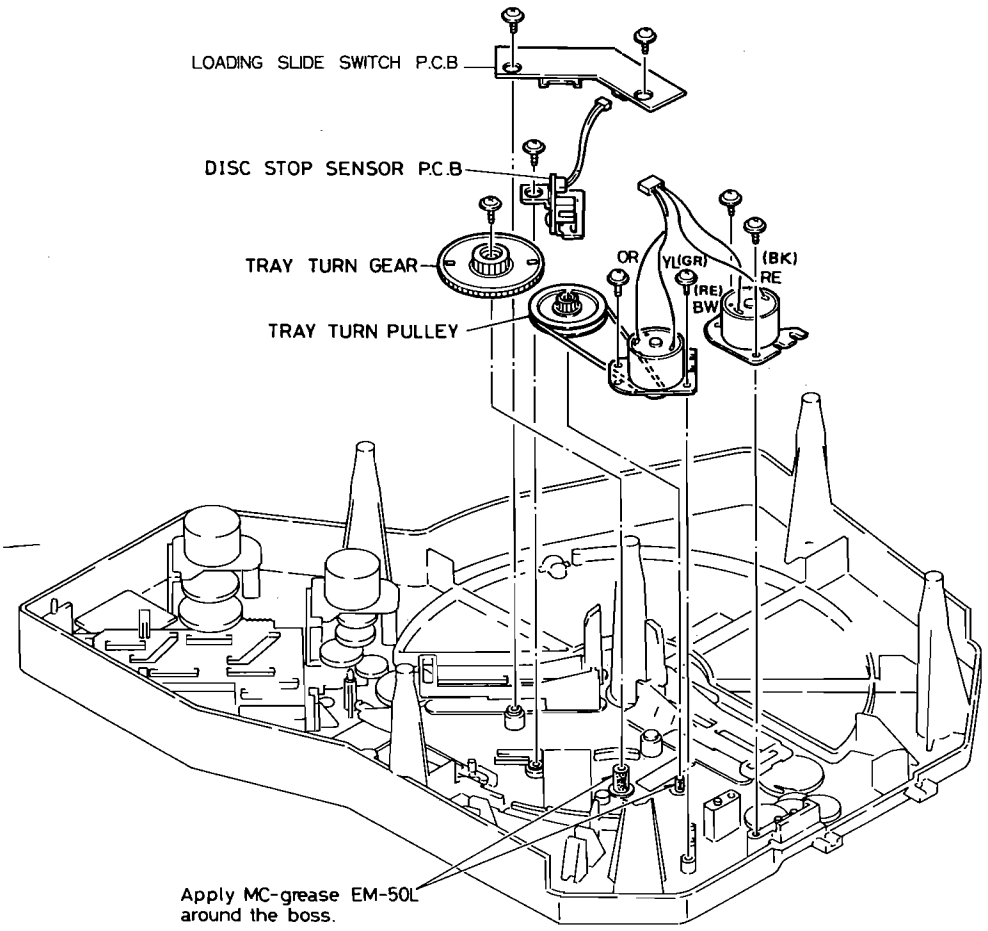
3. Shutter portion



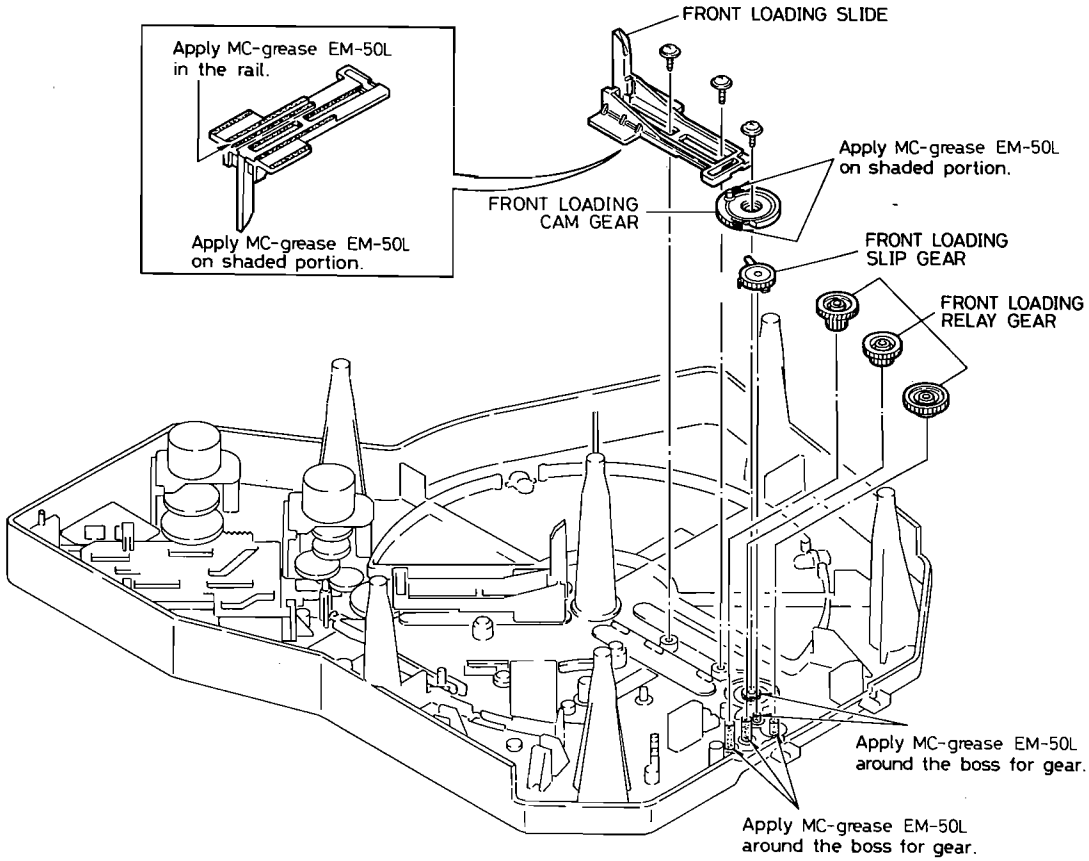
4. Disctable portion



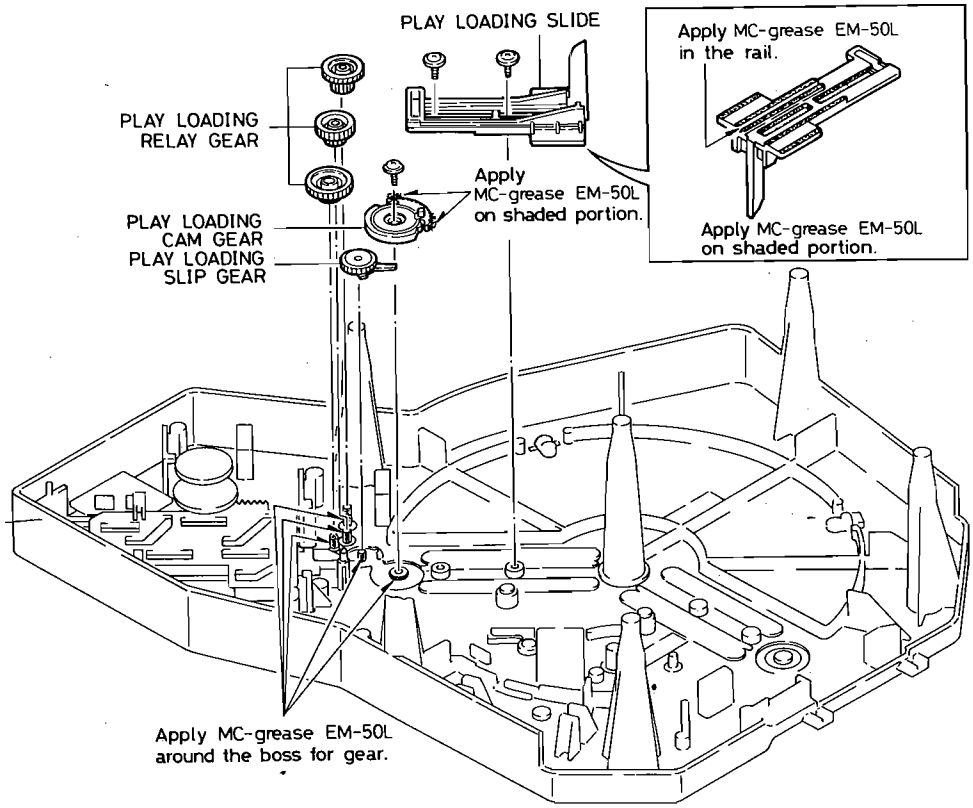
5. Disc driver portion



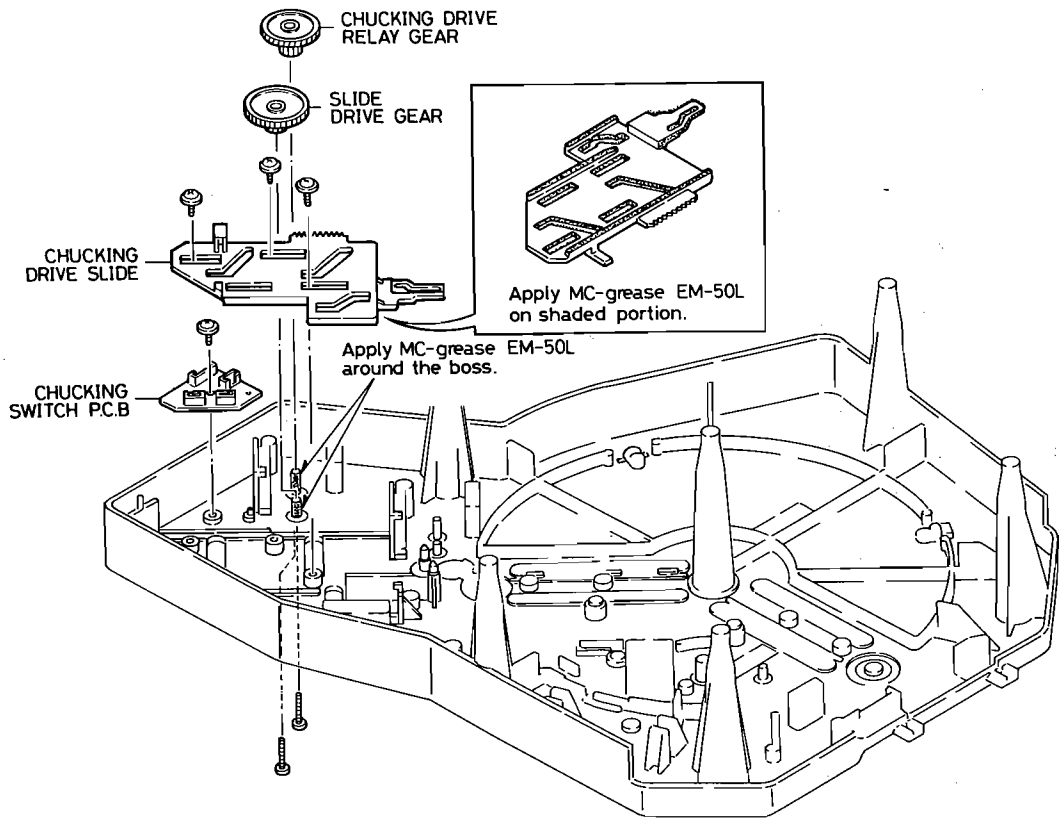
6. Front loading portion



7. Play loading portion

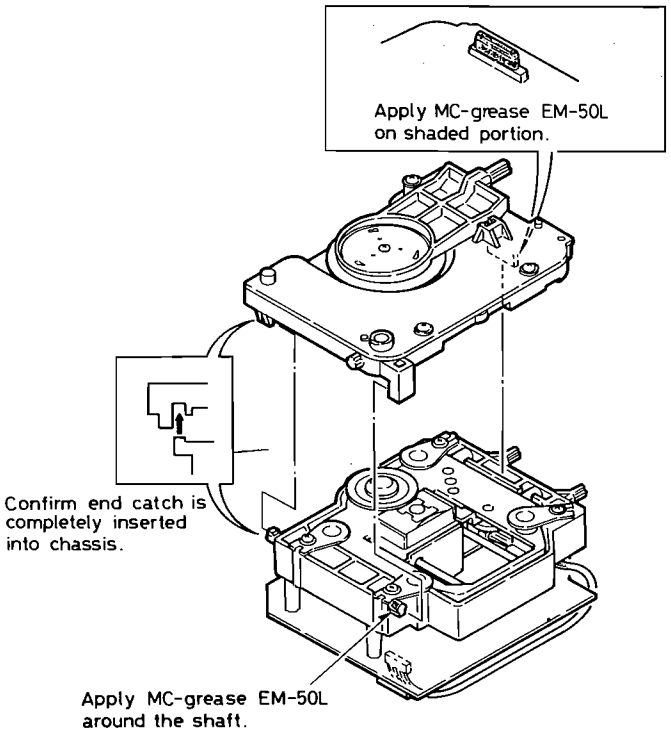


8. Chucking driver portion

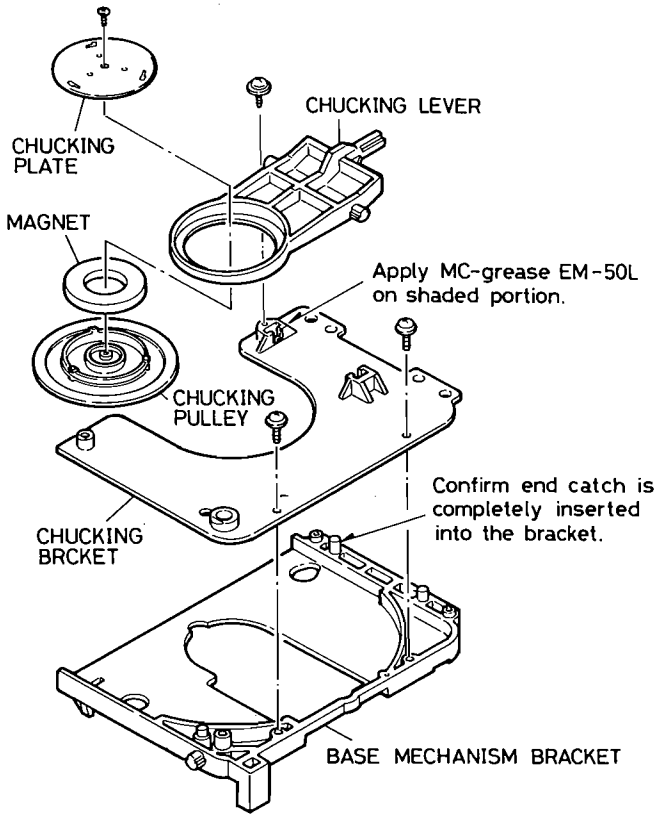


STANDARD MAINTENANCE (CD)

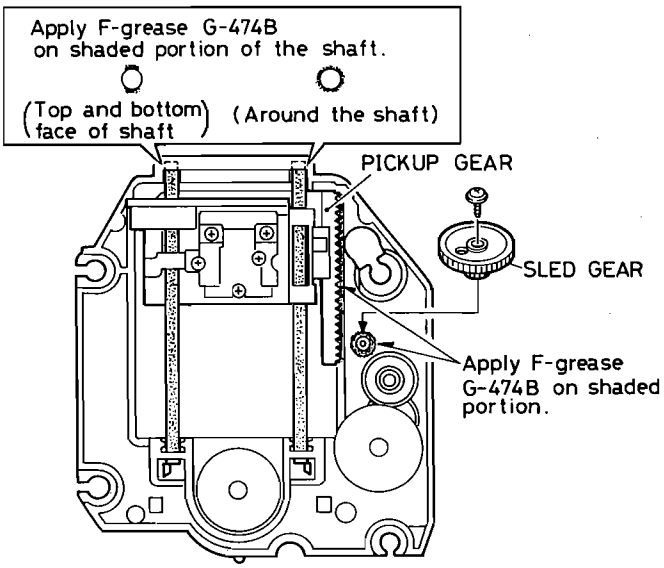
9. Chucking bracket portion



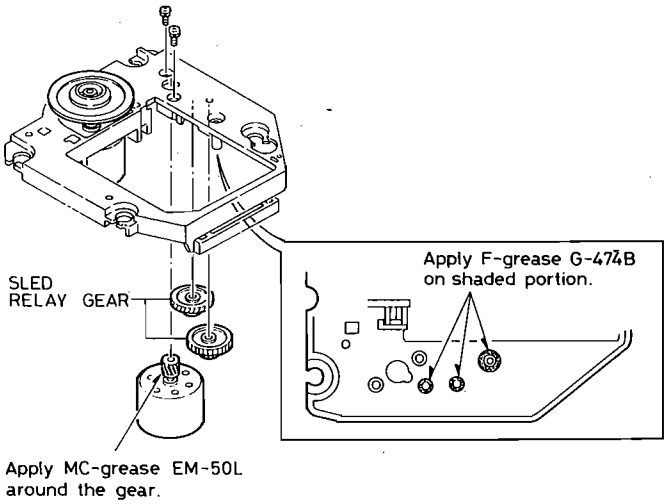
10. Chucking lever portion



11. Sled Driver portion

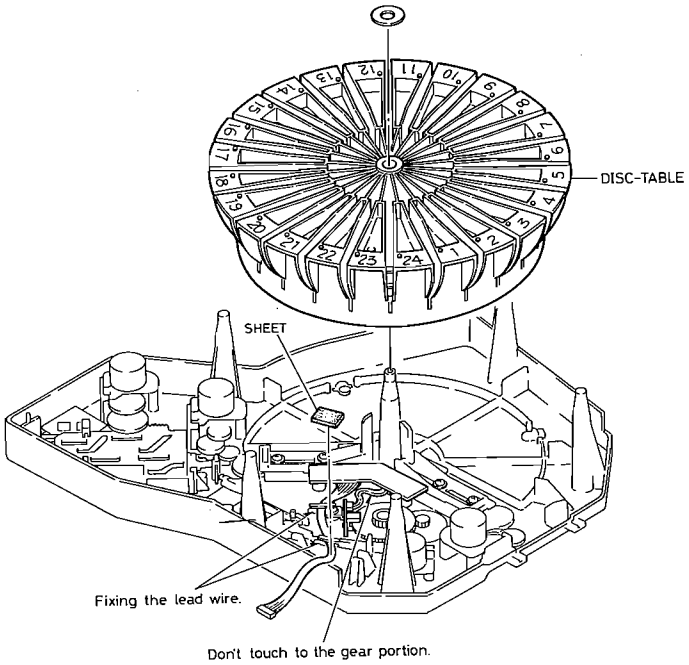


12. Pickup portion

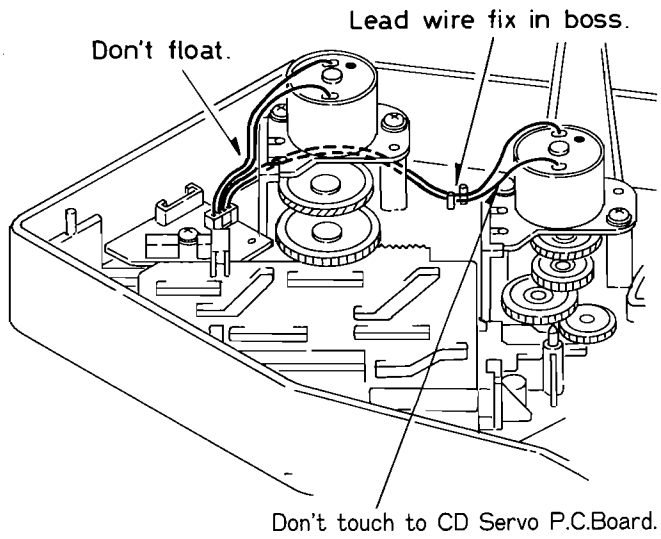


LEAD WIRE ATTACHMENT (CD)

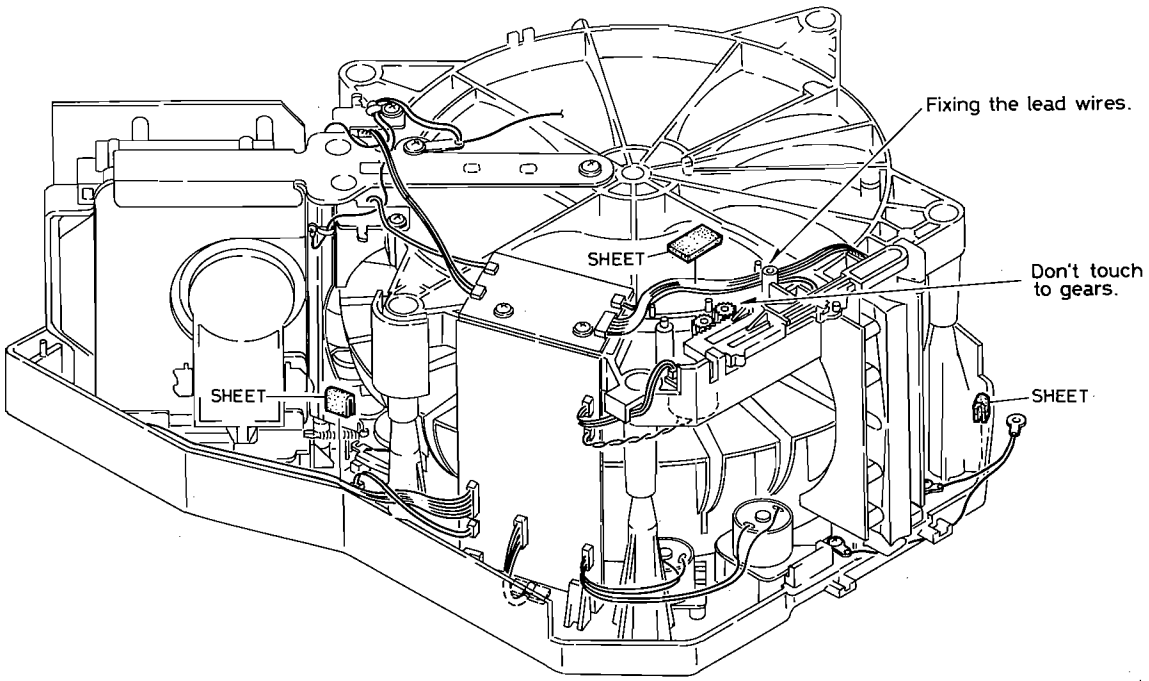
1. Chassis portion



2. Play loading and chucking motor portion

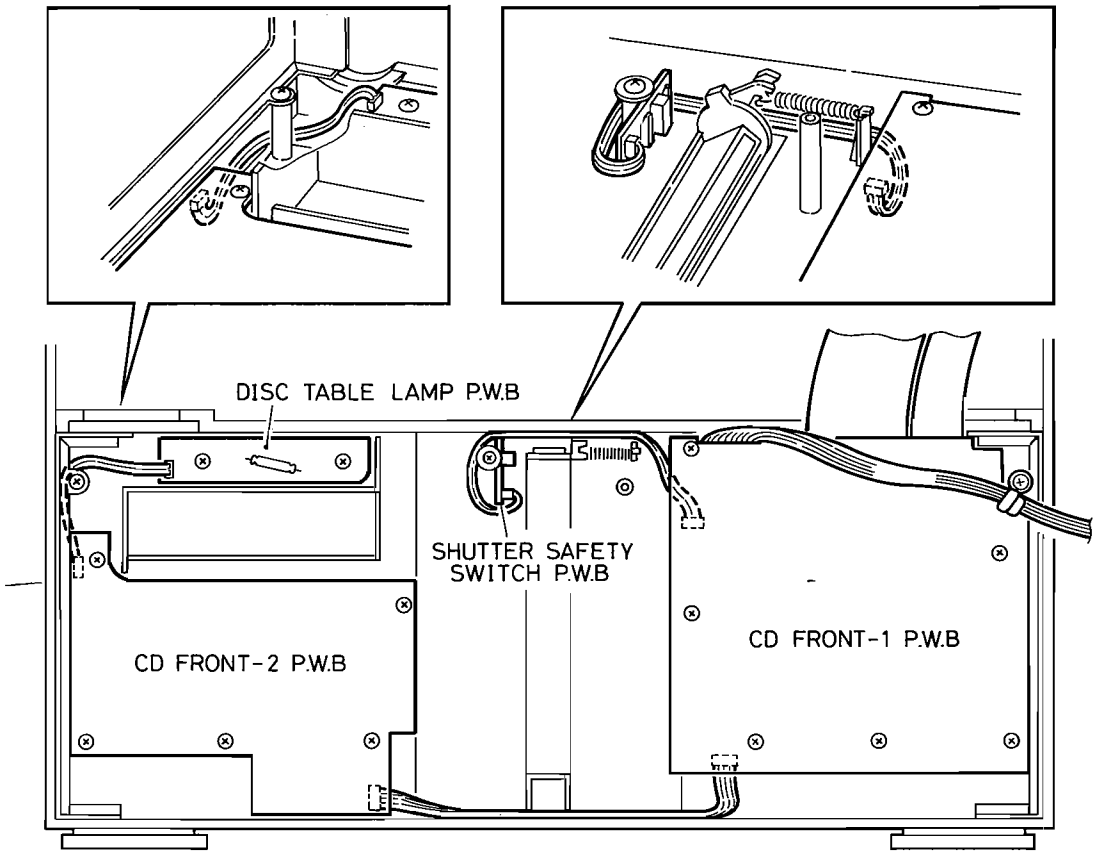


3. Shutter and other portion

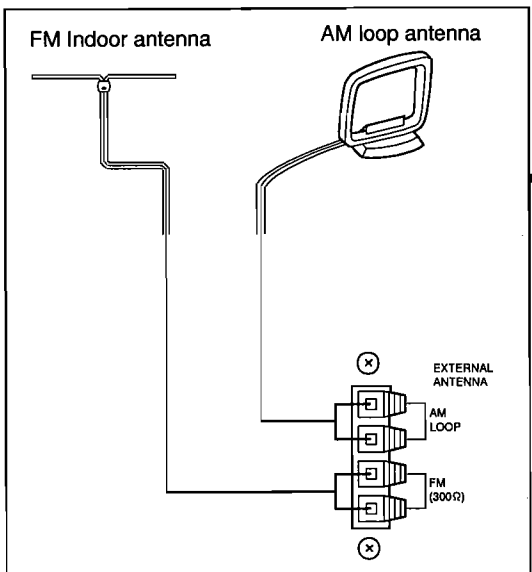


LEAD WIRE ATTACHMENT

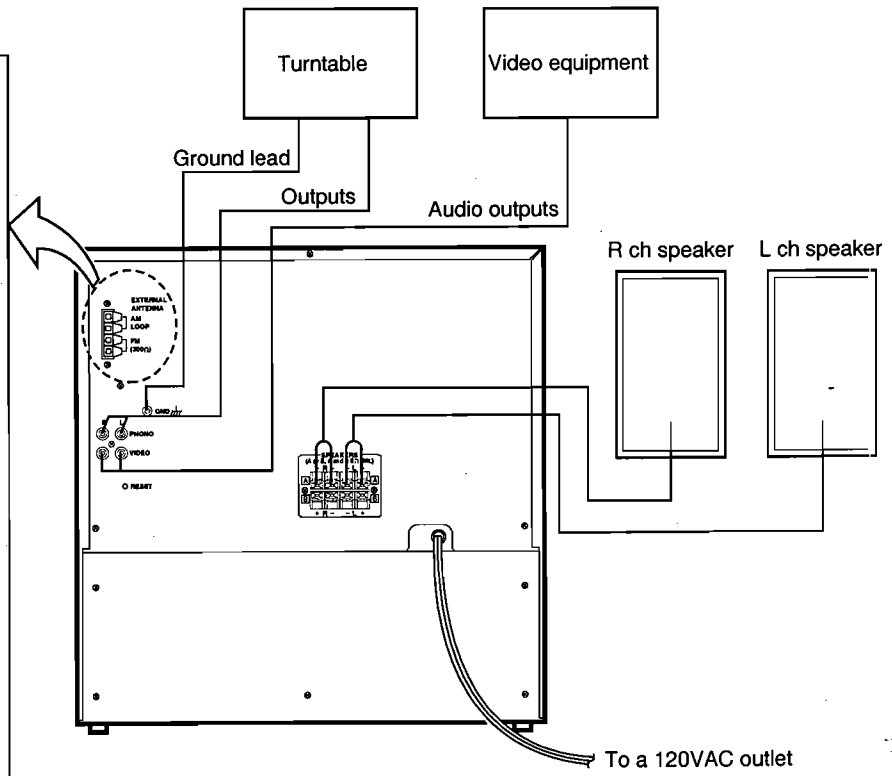
4. Front panel



SYSTEM CONNECTION



CAUTION:
When installing an outdoor antenna, follow the installation instructions described in the attached "SAFETY INSTRUCTIONS".



DESCRIPTION OF OPERATION

Description of operation of 24-disc CD changer mechanism

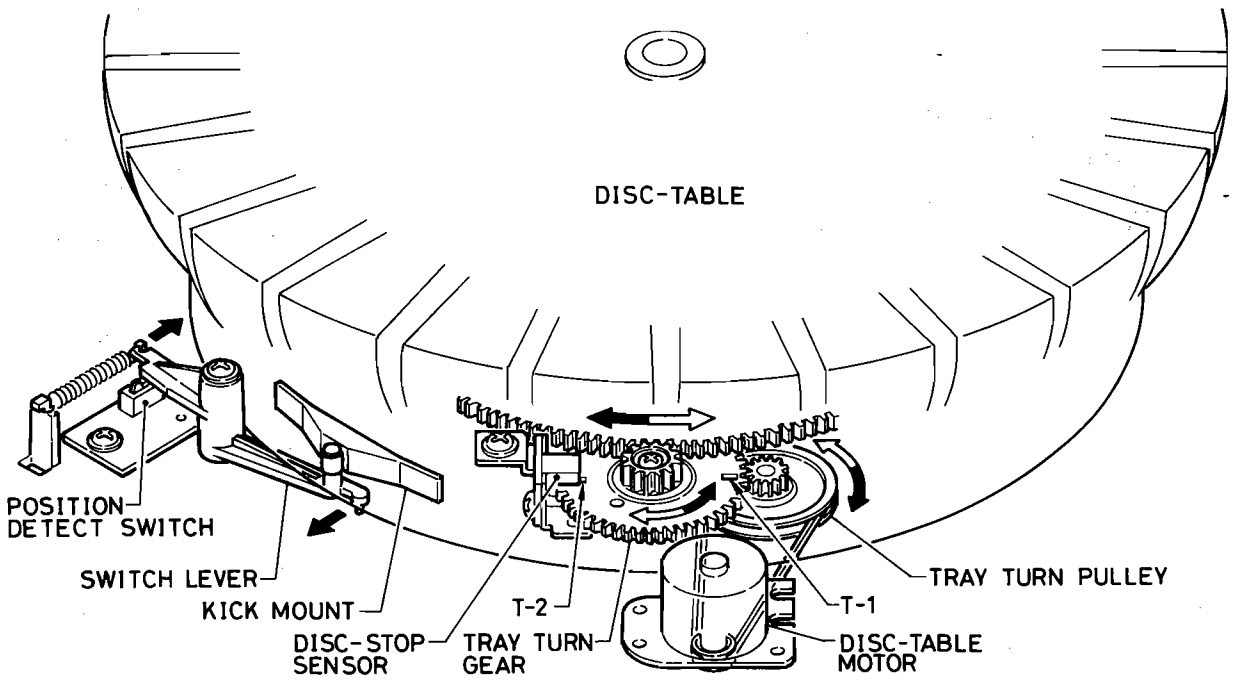
The 24-disc CD changer mechanism is controlled and operated by the IC111 microprocessor.

1. DISC LOADING

The discs are loaded through the disc loading slot on the front panel and accommodated at their assigned positions on the disc table.

◆ The key numbers corresponding to the assigned positions where the discs are accommodated and the LOAD key are pressed by operating the key switches on the front panel of the unit.

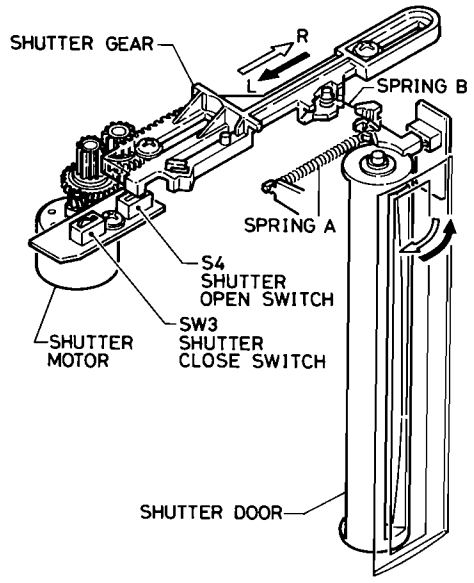
1) Microprocessor (hereafter referred to as the "processor") IC111 compares the assigned disc number with the number of the disc positioned at the loading slot. It then drives the disc table motor so that the disc table will be turned in the direction (either clockwise or counterclockwise) that enables it to move in a shorter period of time.
2) After it has identified the key input, processor IC111 outputs the disc table motor drive signals from pins 44 and 45. These output signals are supplied to IC183 (LB1648), they are amplified, output from pins 3 and 10, and used to drive the disc table motor.
   Further, the processor identifies the amount of the disc table's rotational movement. A control signal (H-SPEED), causing the disc table to turn at low speed when the disc table has moved by an amount equivalent to one disc number or at high speed when the disc table has moved by an amount equivalent to two or more disc numbers, is output from processor pin 37, and the voltage supplied to the motor is switched by setting Q1812 (DTC1245ES) on or off.
   In other words, when the rotational movement of the disc table is an amount equivalent to two or more disc numbers, the motor starts turning at high speed, and when the rotational movement to the designated position is equivalent to 1 disc number, it turns at low speed, and then stops.
3) When the disc table motor starts turning, the tray turn pulley is rotated by the belt, and because the tray turn gear is interlocked with the disc table bottom gear, this causes the disc table to turn.
4) The tray turn gear has two square holes located diagonally across from each other, and each time the gear rotates, the light passing through disc-stop sensor D1810 (a photodiode) is converted into electrical signals at these square holes, and the ON signal from the diode is supplied to the PHOTO terminal (pin 2) of processor IC111.
   The processor identifies the number of times the square holes are detected by this signal or, in other words, the amount of rotational movement of the disc table. When the square holes are detected once, it means that the disc table has moved by an amount equivalent to one disc number (or an amount equivalent to two disc numbers with a complete rotation of the gear).
5) Under the disc table is attached a switch lever kick mount for detecting disc No.22 (initial position detection). When the position of disc No.22 arrives at the loading slot, the mount causes the switch lever to move in the direction of the arrow. Initial position detection switch is now set off. The signal from initial position detection switch is supplied to pin 20 (MEC0) of IC111, the processor detects (by matrix of pin 20 and 70) the disc No.22 position and, based on this, the absolute positions of the disc numbers are identified.

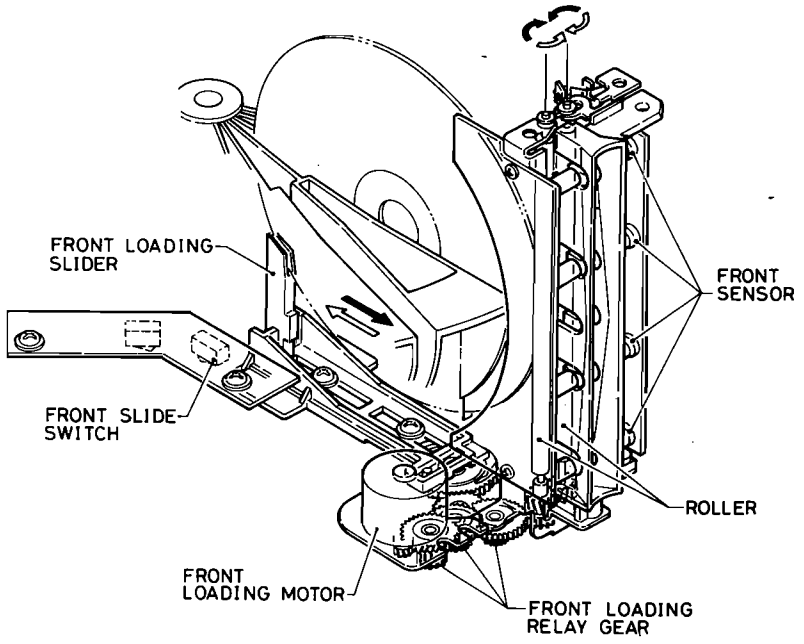


DESCRIPTION OF OPERATION

6) When the assigned disc position reaches the loading slot and the table stops, the shutter opens. When a disc is loaded through the loading slot, it is drawn inside and accommodated on the disc table. After executing the operations described up to (5), processor IC111 outputs the shutter motor drive signal from pin 54 or 55. This signal is supplied to IC182 (LB1648) where it is amplified, and it is output from pin 4 or 9 to drive the shutter motor.
When the shutter gear slides to the right, spring B turns the shutter door clockwise, and the door is now opened. Conversely, when the shutter gear slides to the left, spring A turns the shutter door counterclockwise, and the door is now closed.
When the shutter is open, the shutter gear slides to the right and the shutter open switch is set on; when it is closed, the shutter gear slides to the left and the shutter close switch is set on.
The signal from the shutter open or close switch is supplied to pin 20(MEC0) or pin 21(MEC1) of processor IC111(detects by matrix of processor IC111), which identifies whether the shutter is open or closed. When the shutter open and close switch is set on, the shutter motor stops.

7) Six transparent photo sensors are mounted on the inside of the roller unit inside the shutter. They serve to detect whether a disc is present or not something which they can do because a disc passes the sensor positions after it is inserted. The signals from the sensors are supplied to pins 25 to 30 (SENS1 to SENS6) of Schmitt trigger IC184 and after waveform shaping, they enter the processor. (After the shutter door is opened, the processor generates a 10-second timing signal.)
First, the processor checks the signals from sensors 5 and 6. If the sensors are not off or, in other words, if no disc has been inserted, the shutter motor starts turning in the door closing direction, the door closes, and the standby status is established.
When the sensors detect a disc during the 10-second timing, the front loading motor starts up. This time, the processor outputs the front loading motor drive signal from pin 48 (F LOAD+) or pin 49 (F LOAD-). This signal enters IC182 where it is amplified, and the front loading motor is started up by the drive signal which is output from pins 3 and 10 of this IC.
When the motor starts up, the front loading relay gear rotates, the roller unit turns in the direction in which the disc is drawn inside, and the disc is received inside the mechanism.
When the disc moves inside, sensors 3 and 4 go off and when the disc moves further and reaches the disc table where it is accommodated, these sensors go back on.
The operation of sensors 3 and 4 is detected and, 500m seconds later, the front loading motor is stopped.
Torque is transmitted from the front loading slip gear to the front loading cam gear, and the front loading slide then slides inward.
When the front loading slide enters inside and the front slide reset switch is set on. The position of the disc at this time is such finally, the shutter motor is turned on, it performs the reverse operation to when the shutter is open, and the shutter door is closed.



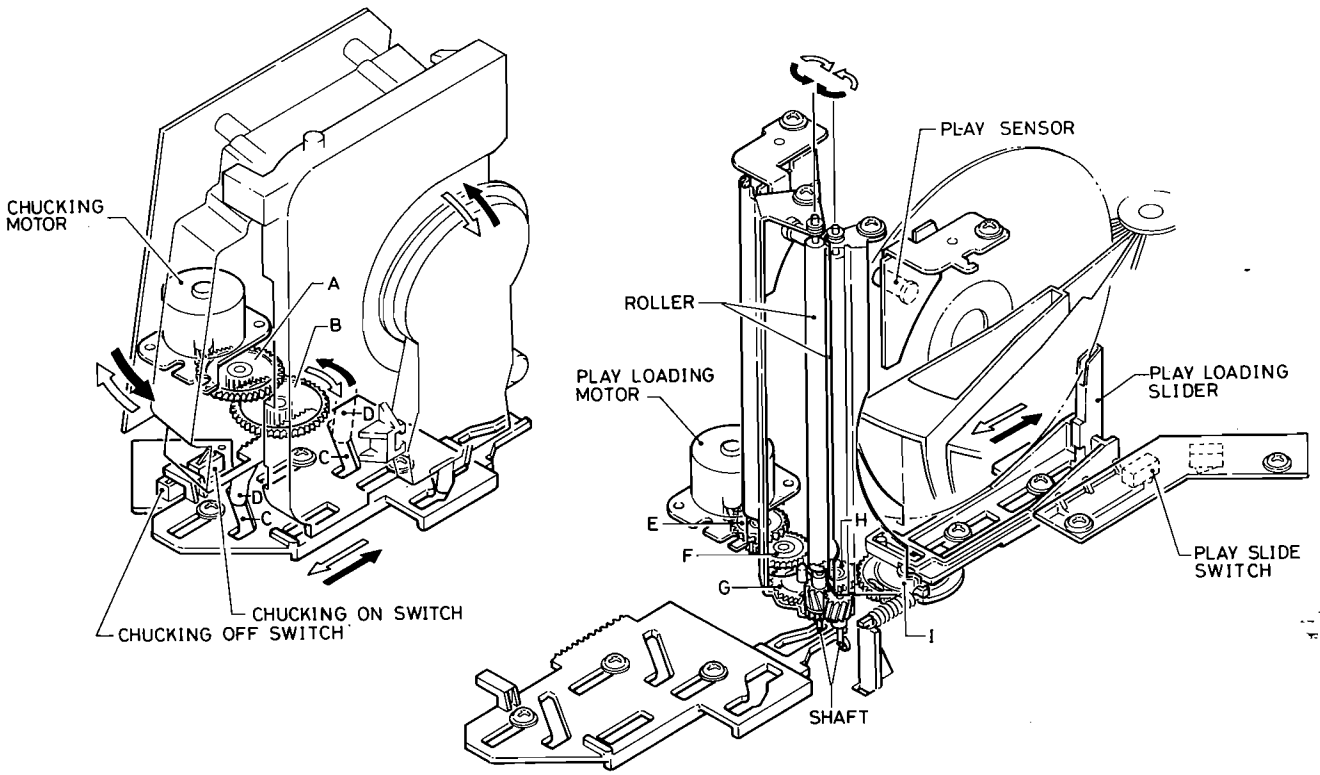


DESCRIPTION OF OPERATION

2. PLAY

By operating the front panel key switches, the disc with the assigned number is loaded onto the base mechanism and played.

1) The processor compares the assigned disc number with the number of the disc at the receiving position on the base mechanism. It then drives the disc table motor so that the disc table will be turned in the direction (either clockwise or counterclockwise) that enables it to move in a shorter period of time.
2) The disc table turns, and it operates in the same way as described in (1) until the disc with the assigned number reaches the position where it is received onto the base mechanism.
3) When the disc table stops, the processor outputs the chucking motor drive signal from pin 52 (CHUK+) or pin 53 (CHUK-). This signal is amplified by IC181 (LB1648) and output from pins 3 and 10 to drive the chucking motor. In this case, the chucking motor turns in the counterclockwise direction.
   When the motor starts turning, its torque is transmitted to gear A and gear B, and the chucking slide slides toward the outer circumference.
   Boss D on the bottom of the base mechanism is engaged in groove C so that when the chucking slide slides toward the outer circumference, the bottom of the base mechanism tilts toward the outside and chucking is released.
   When chucking is released, the knob on the chucking slide comes to the position where the chucking OFF switch is set on, and the switch comes on.
   When the chucking OFF switch comes on, processor detect (by matrix of pin 21 and 70) the chucking OFF switch has been set on.
4) Next, the play loading motor starts up and the disc moves from the disc table to the base mechanism.
   The LOAD+ or LOAD- signals are output from processor pins 50 and 51. These signals enter IC181 where they are amplified and output from pins 40 and 9 to cause the play loading motor to be turned.
   When the play loading motor starts turning, the gear (E, F, G and H) rotates, causing the rollers and cam gear (I) to rotate. The play slide moves to the outer circumference because the cam gear is latched to the play slide. The play slide has a boss which pushes the disc toward the base mechanism. The signal from the play slide reset switch is supplied to processor pin 21 (MEC1) so that S13 is turned on. (detect by matrix pin 21 and 69)
   The disc is held between the rollers and it moves toward the base mechanism. Installed on the rollers is the disc position detection sensor (D1836) and, after the play slide reset switch signal has been turned off, the processor detects the operation of this sensor and, after 250m seconds causes the play loading motor to stop.
   At the position where the disc has moved to the base mechanism, the chucking motor now rotates in the reverse direction. The chucking ON switch is turned on and this shuts down the chucking motor. Since the shaft arrives at the position where the chucking slide groove is open, the rollers are placed in a state where there is a gap between them. The disc, now chucked, is released, it enters the focus search mode, and the playback operation begins.



3. EJECT

By pressing the EJECT button on the front panel, the disc on the base mechanism is returned to the loading slot so that the operator can remove it from the unit.

1) First, the chucking motor is turned to counterclockwise. The chucking slide moves to the outer circumference, and the chucking OFF switch is turned on. The processor detects this and stops the motor from turning. Since, along with slide movement, the shafts of the rollers move in the direction in which the groove is reduced, the rollers move in such a way as to hold the disc between them.
2) The processor then outputs the signal which causes the play loading motor to turn and, at the same time as the motor turns, the play slide moves inside the disc table. The processor detects the statuses of sensor 1 and the play slide reset switch. After both have been turned on, the processor stops the play loading motor after a timing interval of 500m seconds.
3) Next, the processor turns the chucking motor to clockwise. The base mechanism is placed in the chucking status, the processor detects that the chucking ON switch has been turned on, and it stops the chucking motor.
4) The processor turns disc table to counterclockwise. It turns the table at high speed until it is immediately in front of the loading (unloading) slot and, finally, it turns the table at low speed and stops it at the loading slot.
5) Next, the processor outputs the rotation command to the shutter motor. The shutter moves in the open direction.
6) The front loading motor now turns in the unloading direction, causing the front roller to turn in the disc unloading direction. At the same time, the front loading slide presses the disc, causing it to be held between the rollers. The disc, held between the rollers, is now unloaded from the unit by the rollers, and the moment when the operation signals of sensors 2, 3, 4 and 7 are detected, the disc is stopped at that position.
   This is the position where the hole in the disc is exposed outside of the unit, enabling the operator to remove the disc.
7) When the operator removes the disc, all the sensors go on. This is detected, after 10 seconds causing the shutter motor to turn in the close direction and the door to close.

4. POWER ON

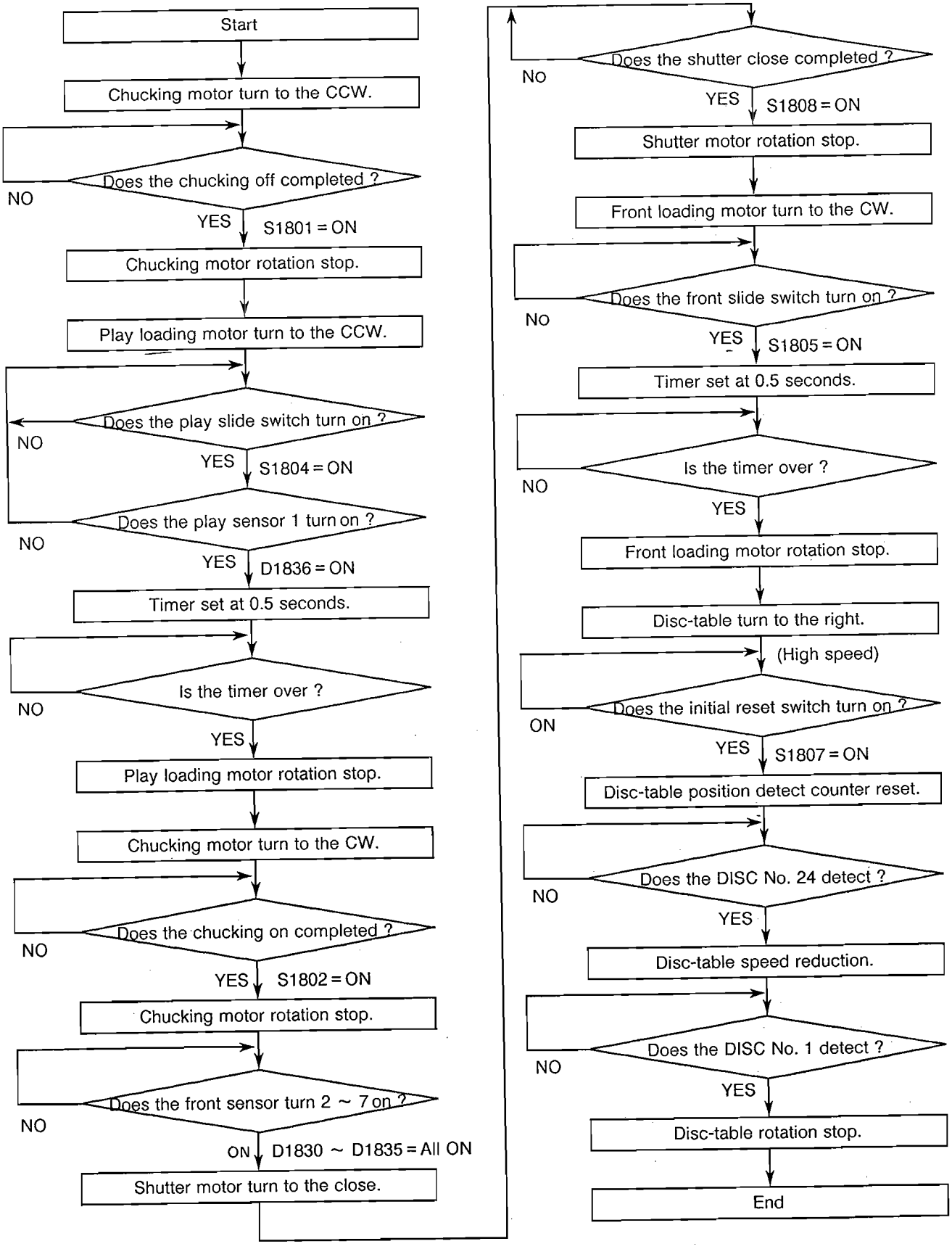
When the power is turned on, the unit is the initial operation. This is for the mechanism to demonstrate its functions properly.

FLOW CHART OF OPERATION

24-Disc Changer Mechanism operation flow chart with Micro processor.

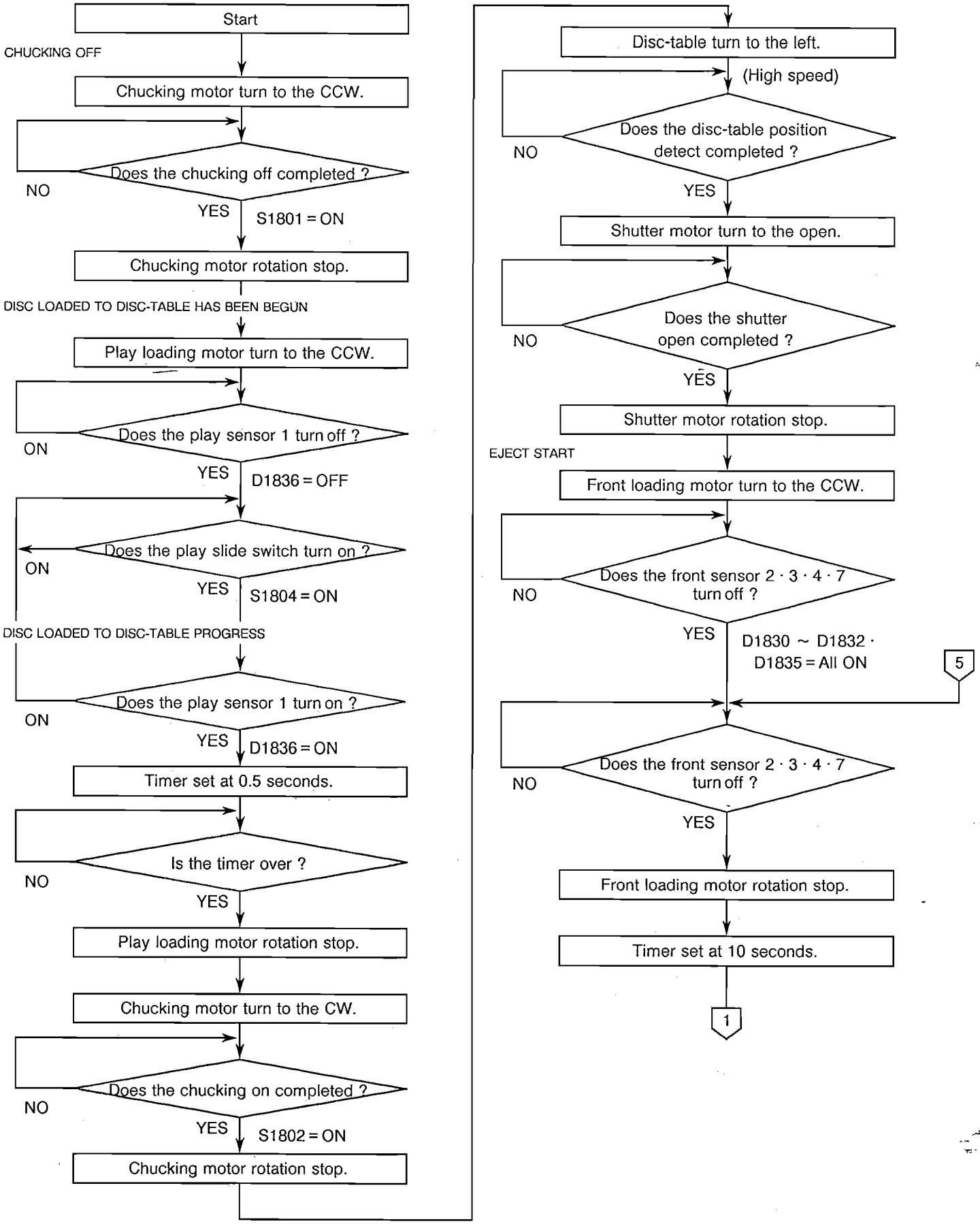
Note CW: Clock Wise
CCW: Counter Clock Wise

1. Initial operation when power on

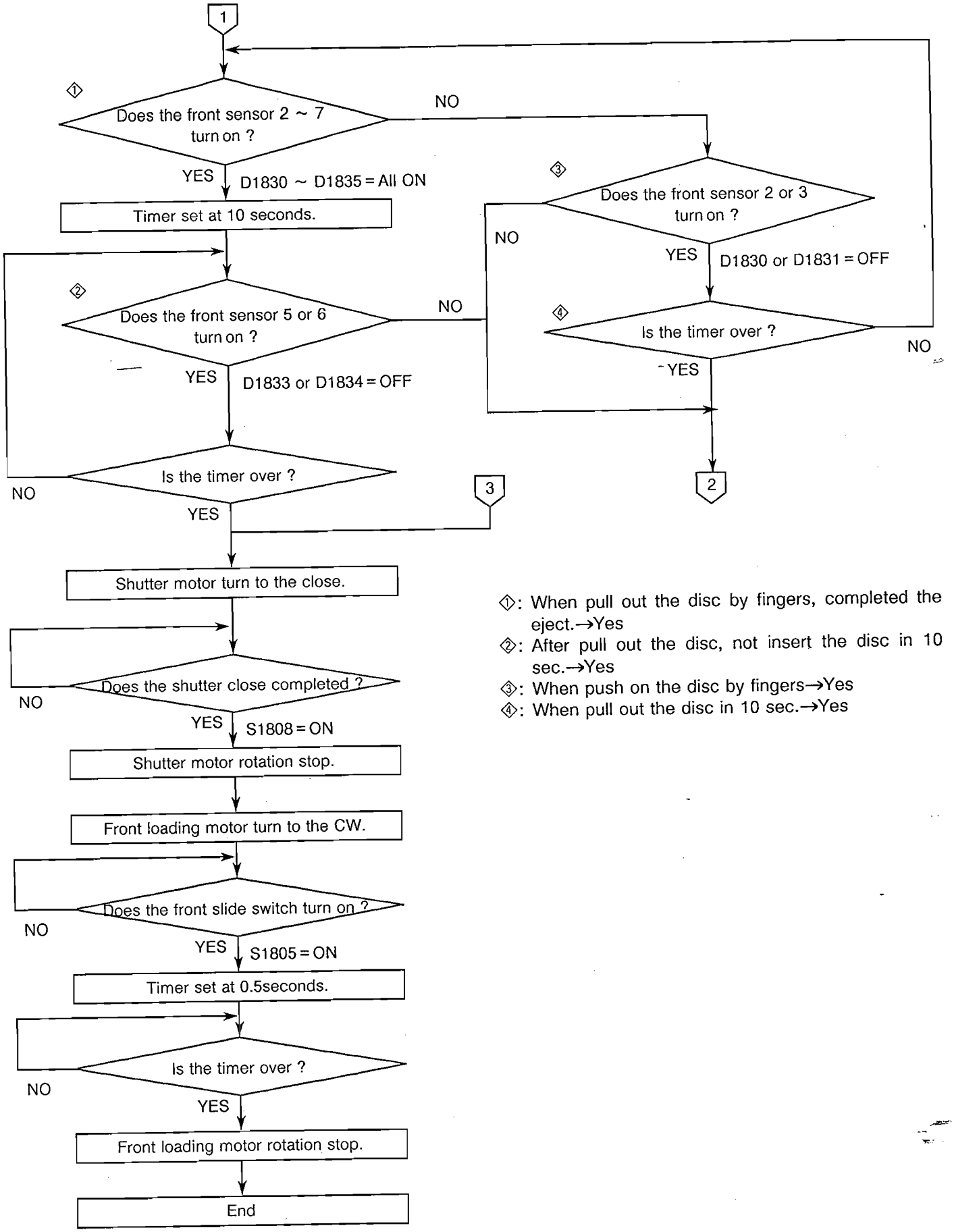


FLOW CHART OF OPERATION

2. Eject the Disc in base mechanism



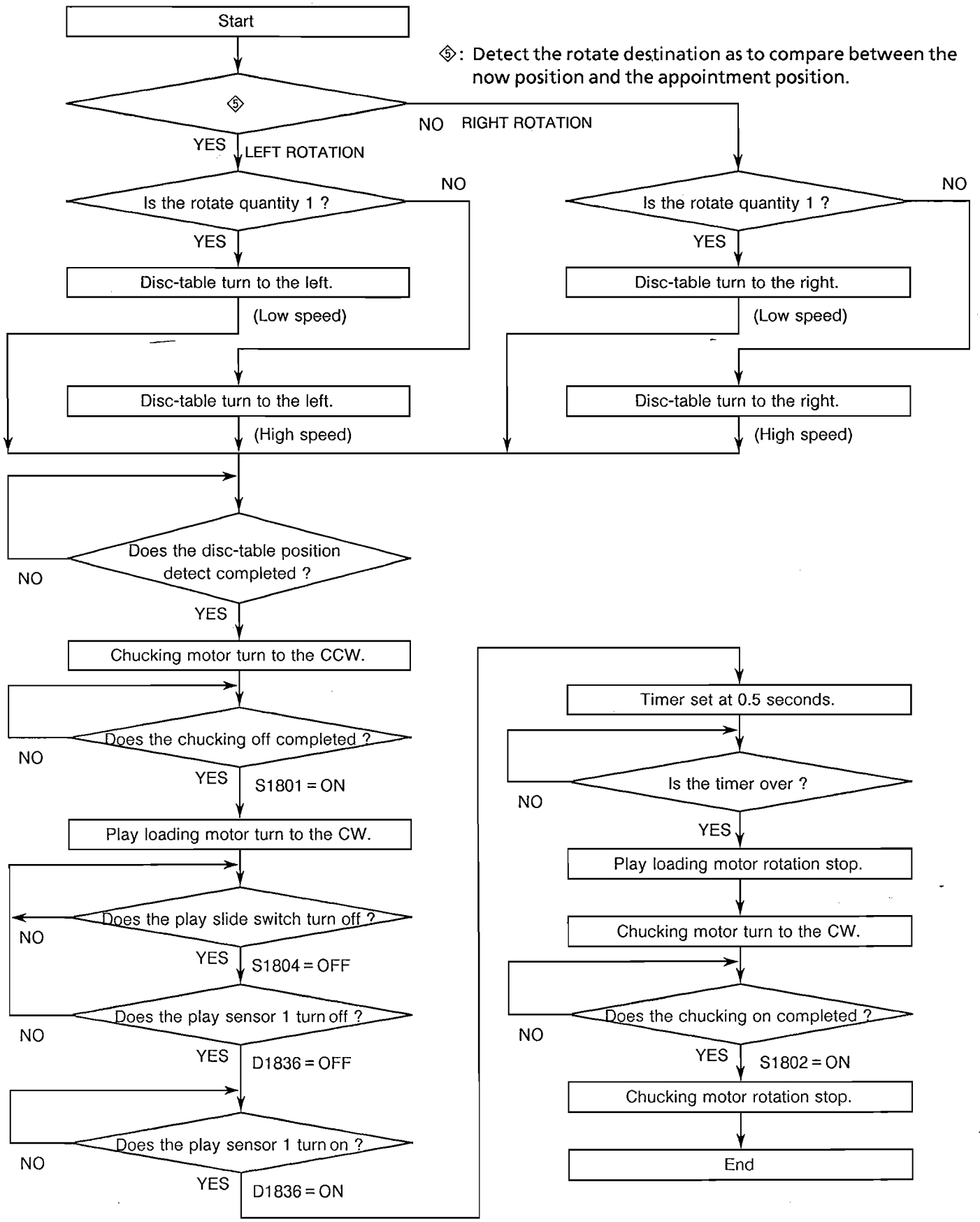
FLOW CHART OF OPERATION



①: When pull out the disc by fingers, completed the eject.→Yes
②: After pull out the disc, not insert the disc in 10 sec.→Yes
③: When push on the disc by fingers→Yes
④: When pull out the disc in 10 sec.→Yes

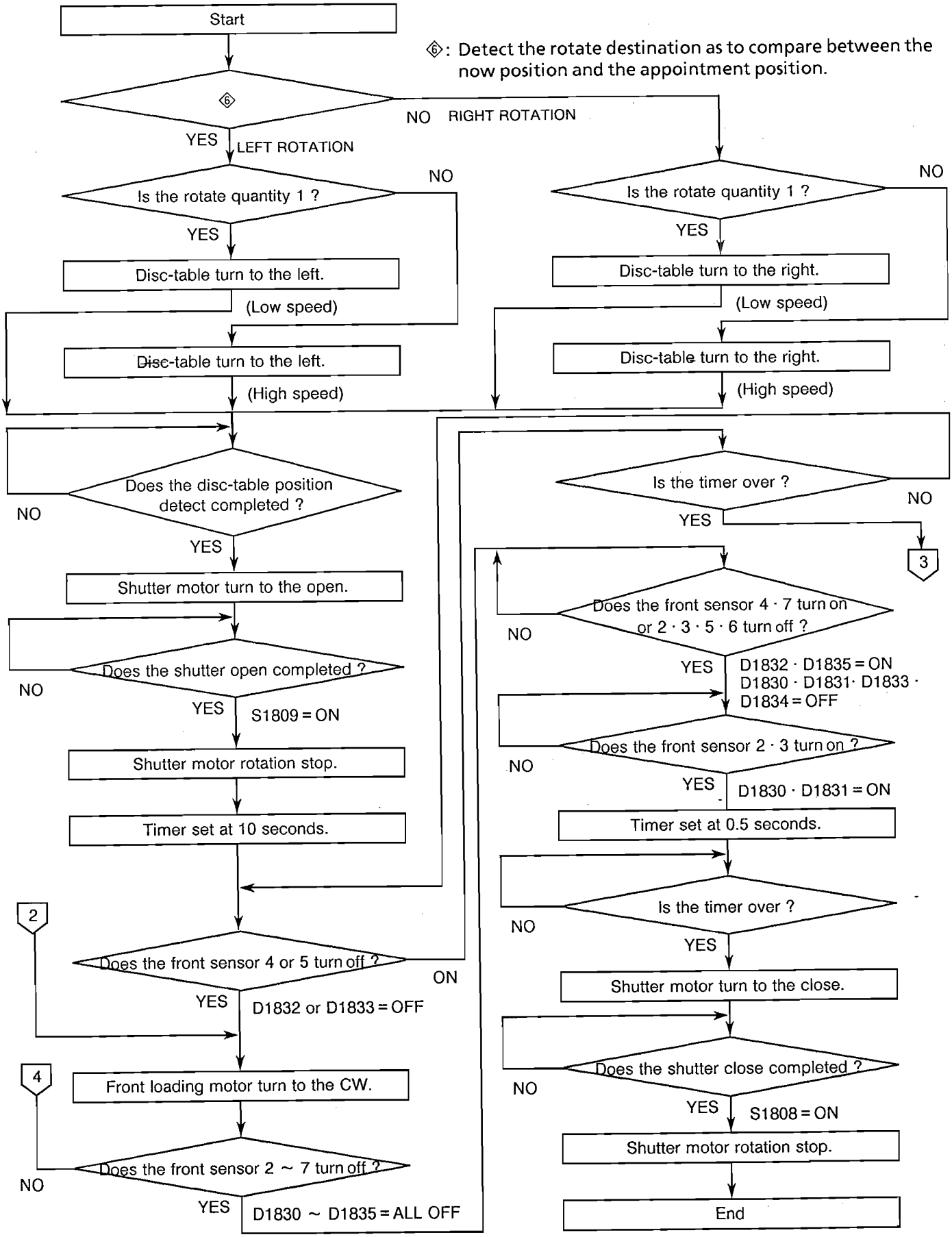
FLOW CHART OF OPERATION

3. Chucking the appointment disc on the disc-table



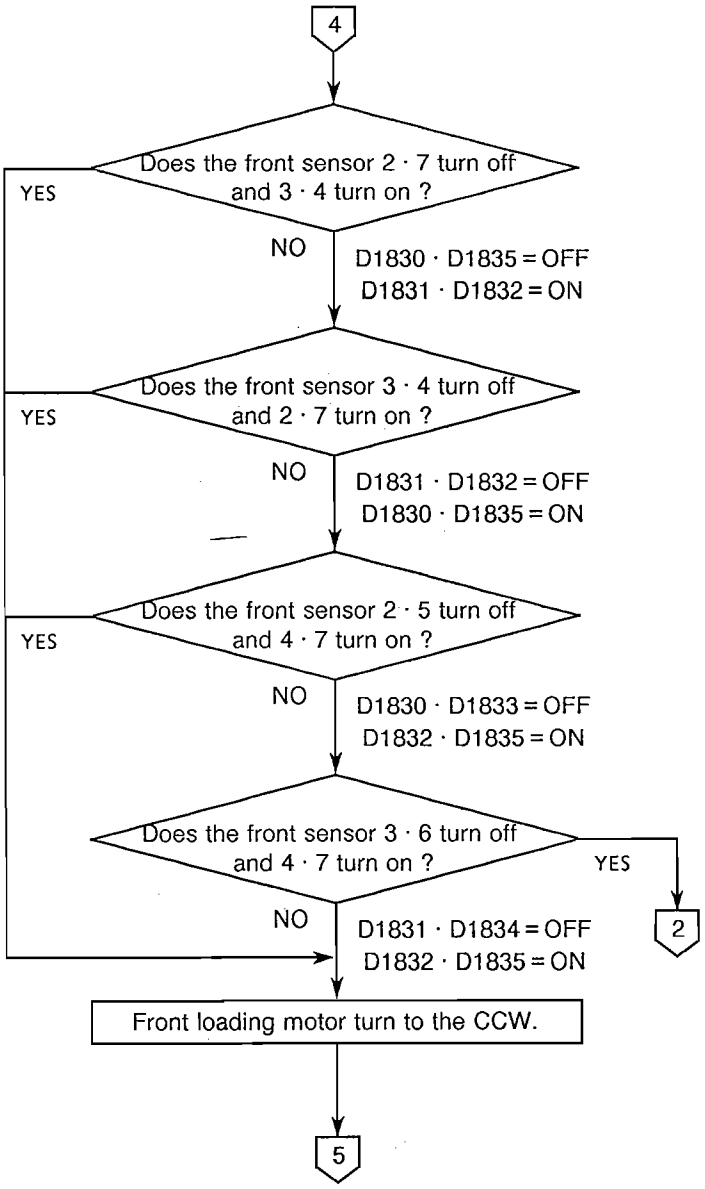
FLOW CHART OF OPERATION

4. Insert the disc to the appointment position from the frontend



FLOW CHART OF OPERATION

5. 8 cm disc operation



SERVICE MODE (CD)

Specifications

To enter any service mode other, first simultaneously press the STOP and CATEGORY-SUB keys on the unit. This accesses the service mode entry state. Now press one of the buttons on the unit to enter a service mode. As the service mode entry state is discontinued after 1 second elapses, the system will enter a service mode only if the next key is pressed within one second.

1. Checking the key input signal connections

- Enter this mode by pressing the DISC SKIP - DOWN key during the service mode entry state.
- When the unit enters this mode, only the indications corresponding to the keys listed below illuminate on the display.
- In this mode, each time one of the unit's keys is pressed, the corresponding indication on the fluorescent display goes out. (The portions of the display that are not visible increase.)
- The unit is operating normally if, after pressing all of the keys listed below, no indications are visible on the display.

KEY	DISPLAY
LOAD/EJECT	11
STOP	✕
PLAY/PAUSE	12
FWD SKIP	13
BACK SKIP	14
CATEGORY SELECT MAIN	15
CATEGORY SELECT SUB	16
INTRO	17
RANDOM	18
REPEAT	19

KEY	DISPLAY
ENTER CATEGORY MAIN	20
ENTER CATEGORY SUB	---
DISC SKIP UP	21
DISC SKIP DOWN	22
MEMORY	23
CLEAR	24

KEY	DISPLAY
0	10
9	9
8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1

✕ : Releases the key checking mode and returns the set to the normal mode.
--- : Used to enter the service mode. It is not necessary to press this key.

TABLE 1 : Corresponding keys and displays in the key checking mode

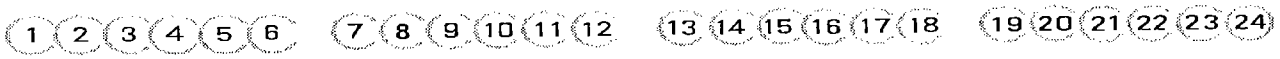


FIGURE 1 : The Lower part of FL (Fluorescent Rays Tube Display)

2. Checking FL connections

- Enter this mode by pressing the REPEAT key during the service mode entry state.
- When the unit enters this mode, all of the indications on the fluorescent display goes out.
- Each time the REPEAT key is pressed, the following cycle is repeated: all lit → h → 5 → extinguished → ·····.
- Press the STOP key or POWER OFF to exit this mode and return to the normal mode.

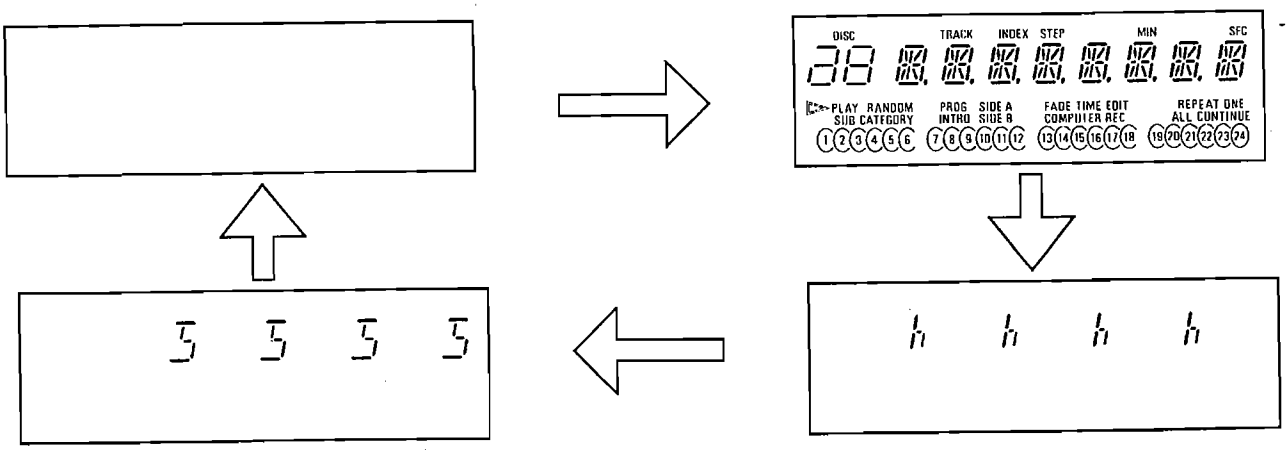


FIGURE 2 : Checking connections for FL (Fluorescent Rays Tube Display)

3. CD tracking balance adjusting mode

- Enter this mode by pressing the PLAY/PAUSE key during the service mode entry state.
- If the power is off when this mode is entered, the power automatically comes on.
- In this mode, the tracking balance adjustment state (tracking is off) is automatically entered..
- In this mode, the tracking balance adjustment state can be entered by pressing the MEMORY key during playing. Pressing the PLAY key in this state turns on the tracking servo and causes playing to begin.
- This mode is released when press the STOP key or power is turned off, and causes stop state.

4. CD operation display mode

- Enter this mode by pressing the MEMORY key during the service mode entry state.
- If the power is off when this mode is entered, the power automatically comes on.
- In this mode, when a CD function is activated an indication of the type listed in Table 2, indicting the CD operation, appears in the track and index number section of the fluorescent display instead of the normal indication.
- In this mode, indications different from those that normally appear are displayed in the minute and second sections of the fluorescent display, and numerals such as those listed in Table 3 appear in the disc number other indications appear.
- This mode is released when press the STOP key or power is turned off.

DISPLAY	OPERATION
0 0	Focus search has been begun
0 1	Focus search has been begun
0 2	Waiting for focusing
0 3	Focusing
0 4	Spindle kick is in progress
0 5	Both CLV and tracking are ON
0 6	Both CLV and tracking are ON
0 F	Focus search has been completed (success, failure)
1 0	Spindle braking has begun
1 1	Spindle braking is in progress
1 2	Pick return is in progress
1 F	Spindle braking & pick return have been completed
2 0	Fast forwarding is in progress
2 1	Rewinding is in progress
3 0	Playing has begun
3 1	Playing is in progress
3 2	Playing is in progress (skip return operation)
4 0	TOC reading has been begun
4 1	TOC reading is in progress
4 F	TOC reading has been completed (success/failure)
5 0	L-point access has been begun
5 1	L-point access (REV64 track jump)

DISPLAY	OPERATION
5 2	L-point access (FWD64 track jump)
5 3	L-point access (REV16 track jump)
5 4	L-point access (FWD16 track jump)
5 5	L-point access (REV1 track jump)
5 6	L-point access has been completed
6 0	Pausing has begun
6 3	Pause (REV16 track jump)
6 4	Pause (FWD16 track jump)
6 5	Pause (REV1 track jump)
6 6	Pause (trace)
7 0	Music access has begun
7 1	Music access (high-speed access has begun)
7 2	Music access (high-speed access is in progress)
7 3	Music access (high-speed access has been completed)
7 4	Music access (high-speed access has been completed)
7 5	Music access (high-speed access has been completed)
7 6	Music access (REV64 track jump)
7 7	Music access (FWD64 track jump)
7 8	Music access (REV16 track jump)
7 9	Music access (FWD16 track jump)
7 F	Music access (final stage)

DISPLAY: Track No. and Index No.

TABLE 2 : Displays during the CD operation mode (Track + Index No. section)

DISC No.	STATE OF CD ERROR
	Good
1	Focusing is not possible in focus search.
2	The subcode is not input during disc startup.
3	TOC cannot be read.
4	The focus was lost while the servo was on (during playing, etc.).
5	The subcode is not input while the servo is on (during playing, etc.).

TABLE 3 : Display of CD errors (Disc No. section)

5. EEPROM clear mode

- From service mode entry states, press the CLEAR key. This clear the contents of the EEPROM and exits the service mode.

6. Disc continuous load/eject mode

- Pressing the EJECT key from service mode entry status causes the following operations to take place, after which the unit exits the service mode.
- Pressing the EJECT key when no disc is loaded in the unit activates the disc continuous load mode.
- Pressing the EJECT key when a disc is loaded in the unit activates the disc continuous eject mode.
- Note that the above operations do not take place if this mode is entered while a disc load or eject is in progress.
- Note that even if a disc are loaded, the unit does not switch to the disc continuous eject mode if the EJECT key is pressed for a number for which there is no disc. (That number only switches to disc load mode.)

7. Mechanism error display mode

- Enter this mode by pressing the 1 of DISC SELECT key during the servile mode entry state.
- In this mode, when an error occurred an indication of the type listed in Table 4 ~ 10, indicting the CD mechanism operation, appears in the track and index number sections of the fluorescent display instead of the normal indication. If there is no error, "FF FF" is displayed. If an error occurs, the mode and task are displayed in the track and index number sections, respectively.
- This mode is released when press the STOP key or power is turned off.

DISPLAY	OPERATION
8 0	Disctable rotation has been begun (Continue with index No.1)
8 1	Disctable position detect complete? (Continue with index No.E)
8 2	Chucking off complete? (S1801 on? Continue with index No.13)
8 3	Play loading(From disctable to base mechanism) has been begun OK? (S1804 off, Sensor 1 off, Continue with index No.4)
8 4	Play loading(From disctable to base mechanism) has been completed? (Sensor 1 on? Continue with index No.5)
8 5	Disc movement maintenance (250 msec. standby after sensor 1 on. Continue with index No. = 6)
8 6	Chucking complete? (S1802 on? Continue with index No. = D)
8 7	Chucking complete? (Index No.2 in case of error, S1802 on? Continue with index No.2)
8 8	Play Loading(From base mechanism to disctable) (Index No.3 in case of error, S1804 on? Continue with index No.3)
8 9	Play Loading(From base mechanism to disctable) (Index No.4 in case of error, S1804 on? Continue with index No.3)
8 A	Chucking off complete? Index No.6 in case of error, S1801 on? Continue with index No.6)
8 B	Aging mode (1 sec. standby, Continue with index No.C)
8 C	Aging mode (Continue with chucking off and Loading mode after 1 sec.)
8 D	Chucking maintenance (End. During aging, continue with index No.B)
8 E	Fine adjustment of the Disctable position detection has been begun (Continue with index No.10)
8 10	Fine adjustment of the Disctable position detection has been begun complete? (Continue with index No.2)
8 13	Chucking off maintenance (Continue with index No.3)

TABLE 4 : DISCTABLE ROTATION AND CHUCKING ON

DISPLAY	OPERATION
9 0	Chucking off has been begun (Continue with index No.1)
9 1	Chucking off complete? (S1801 on? Continue with index No.A)
9 2	Play Loading(From base mechanism to disctable) has been begun OK? (Sensor 1 off? S1804 on? Continue with index No.3)
9 3	Play Loading(From base mechanism to disctable) in progress (Sensor 1 on? Continue with index No.4)
9 4	Play Loading(From base mechanism to disctable) complete? (500 msec. passed since sensor 1 on? Continue with index No.5)
9 5	Chucking complete? (S1802 on? Continue with index No.B)
9 6	Chucking off complete? (Index No.5 in case of error, S1801 on? Continue with index No.5)
9 7	Chucking complete? (Index No.1 in case of error, S1802 on? Continue with index No.1)
9 8	Play loading(From disctable to base mechanism).(Index No.2 in case of error, S1804 off? Sensor 1 on? Continue with index No.2)
9 9	Play loading(From disctable to base mechanism).(Index No.3 in case of error, S1804 off? Sensor 1 on? Continue with index No.2)
9 A	Chucking off maintenance (Continue with index No.2)
9 B	Chucking maintenance (End)

TABLE 5 : CHUCKING OFF AND LOADING

DISPLAY	OPERATION
A 0	Disctable rotation has been begun (Continue with index No.1)
A 1	Disctable position detect complete? (Continue with index No.13)
A 2	Shutter open complete? (S1809 on? Continue with index No.D)
A 3	Wait for disc insertion (sensor 5 or sensor 6 off? Continue with index No.4)
A 4	Front loading has been begun OK? (Sensors 2, 3, 4 and 7 off? Continue with index No.5)
A 5	Front loading in progress (Sensors 4 and 7 on and sensors 2, 3, 5 and 6 off? Continue with index No.6)
A 6	Front loading complete? (Sensors 2 ~ 7 on? Continue with index No.7)
A 7	Front loading maintenance (500 msec. standby after sensors 2 - 7 on. Continue with index No.8)
A 8	Shutter closed complete? (S1808 on? Continue with index No.E)
A 9	Shutter close complete? (Index No.2 in case of error, S1809 on? Continue with index No.2)
A A	Shutter closed complete? (Index No.3 in case of no disc inserted, S1808 on? Continue with index No.12)
A B	Front kick-out switch on? (S1805 on? Continue with index No.11)
A C	Shutter open complete? (Index No.8 in case of error, S1809 on? Continue with index No.8)
A D	Shutter open maintenance (Continue with index No.3)
A E	Shutter closed maintenance (End. During aging, continue with disc chucking mode)
A 10	Shutter open complete? (Disc inserting in case of S1809 off , S1809 on? Continue with index No.4)
A 11	Front kick-out switch on maintenance (End. No disc insert)
A 12	Shutter closed maintenance (Continue with index No.B)
A 13	Fine adjustment of the disctable position detection has been begun (Continue with index No.14)
A 14	Fine adjustment of the disctable position detection complete? (Continue with index No.2)

TABLE 6 : DISCTABLE ROTATION AND DISC INSERTION AND SHUTTER CLOSE

DISPLAY	OPERATION
B 0	Disctable rotation has been begun (Continue with index No.1)
B 1	Disctable position detect complete? (Continue with index No.C)
B 2	Shutter open complete? (S1809 on? Continue with index No.9)
B 3	Disc eject has been begun OK? (Sensors 2 - 7 off? Continue with index No.4)
B 4	Disc eject complete? (Sensors 2, 3, 4 and 7 on and sensors 5 and 6 off? During aging, continue with index No.B)
B 5	Disc extraction? (Sensors 2 - 7 on? Continue with disc loading mode)
B 6	Shutter close complete? (Index no. 2 in case of error, S1808 on? Continue with index No.2)
B 7	Front loading(To disctable) complete? (Index No.3 in case of error, S1805 on? sensor 2 and 3 on? Continue with index No.3)
B 8	Front loading(To disctable) complete? (Index No.4 in case of error)
B 9	Shutter open maintenance (500 msec. passed since after sensor S1809 on? Continue with index No.3)
B A	Shutter reopen (Disc ejecting in case of S1809 off , S1809 on? Continue with index No.4)
B B	Aging mode (Continue with disc loading mode 500 msec. after completion of index No.4)
B C	Fine adjustment of the disctable position detection has been begun (Continue with index No.D)
B D	Fine adjustment of the disctable position detection complete? (Continue with index No.2)

TABLE 7 : DISCTABLE ROTATION AND EJECT

DISPLAY	OPERATION
C 0	Chucking off has been begun (Continue with index No.1)
C 1	Chucking off complete? (S1801 on? Continue with index No.11)
C 2	Play loading (From base mechanism to disctable) in progress ? (S1804 on? sensor 1 on? Continue with index No.4)
C 3	Play loading (From disctable to base mechanism) (Index No.2 in case of error, continue with index No.2)
C 4	Play loading (To disctable) complete? (500 msec. passed since after index No, = 2? Continue with index No.5)
C 5	Chucking complete? (S1802 on? Continue with index No.13)
C 6	Chucking off complete? (Index No.5 in case of error, S1801 on? Continue with index No.5)
C 7	Chucking complete? (Index No.1 in case of error, S1802 on? Continue with index No.1)
C 8	Be found disc in roller for front? (In case of no disc, S1808 on, Continue with index No.D) (Continue with index No.14 when be disc in Eject position) (Continue with index No.D when sensor off any one of the 2,3,4,or 7 at case of be disc)
C 9	Front kick-out switch on? (S1805 on? Continue with index No.C)
C A	Disctable position detection complete? (Continue with index No.E)
C B	Shutter open complete?(Index No.8 in case of error, S1809 on? Continue with index No.8)
C C	Front kick-out switch on maintenance, disctable rotation has been begun (Continue with index No.4)
C D	Shutter close maintenance (Continue with index No.9)
C E	Fine adjustment of the disctable position detection has been begun (Continue with index No.10)
C 10	Fine adjustment of the disctable position detection complete? (End. Continue with disc check mode when disc on/off checking)
C 11	Chucking off maintenance (Continue with index No.2)
C 12	Insertion side loading motor reverse rotation (Index No.9 in case of error, continue with index No.9)
C 13	Chucking maintenance (Continue with index No.8)
C 14	Disc eject status? (Sensor 2 ~ 7 on? Continue with index No.8)

TABLE 8 : INITIAL RESET

DISPLAY	OPERATION
D 0	Disctable rotation has been begun (Continue with index No.1)
D 1	Disctable position detect complete? (Continue with index No.9)
D 2	Chucking off complete? (S1801 on? Continue with index No.B)
D 3	Disc present/absent determined (Present when sensor 1 off . Continue with index no. 6)
D 4	Loading(To disctable) complete? (500 msec. passed since after index No,6? continue with index No.5)
D 5	Chucking complete? (S1802 on? Continue with index No.C)
D 6	Play loading(From base mechanism to disctable) has been begun OK?(Sensor 1 on? S1804 on? Continue with index No.4)
D 7	Chucking complete? (Index No.2 in case of error, S1802 on?)
D 8	Disctable position detection complete? (Continue with index No.D)
D 9	Fine adjustment of the disctable position detection has been begun (Continue with index No.A)
D A	Fine adjustment of the disctable position detection complete? (Continue with index No.2)
D B	Chucking off maintenance (Continue with index No.3)
D C	Chucking off maintenance (Continue with index No.0 of table 7 or index No.8 of table 4)
D D	Fine adjustment of the disctable position detection has been begun (Continue with index No.E)
D E	Fine adjustment of the disctable position detection complete? (End)

TABLE 9 : Disc present/absent check

DISPLAY	OPERATION
E 0	Power off processing start (Continue with index No. 1, 3, 7, A, B or D)
E 1	Disctable position detection complete? (Continue with index No.2 if all no disc, otherwise end)
E 2	Disctable position detection complete? (End after disc No.4 comes to the front)
E 3	Shutter close complete? (S1808 on? Continue with index No.4)
E 4	Shutter close maintenance (Continue with index No.5)
E 5	Front kick-out switch on? (S1805 on? Continue with index No.6)
E 6	Front kick-out switch maintenance or Shutter close maintenance(Continue with index No.2 if all no disc, otherwise end)
E 7	Front loading(Disc load to disctable from roller of front portion) complete? (sensor 2 ~ 7 on? Continue with index No.8)
E 8	Disc loading maintenance (500 msec. wait after sensor 2 ~ 7 on, continue with index No.9)
E 9	Shutter close (S1808 on? Continue with index no. 6)
E A	Chucking on complete? (S1802 on? Continue with index No.10)
E B	Play loading(From base mechanism to disctable) in progress (Sensor 1 on? S1804 on? Continue with index No.C)
E C	Loading(To disctable) complete? (sensor 1 on?, 500 msec. passed since after S1805 on? Continue with index No.A)
E D	Chucking off complete? (S1801 on? Continue with index No.E)
E E	Chucking off maintenance (Continue with index No.B)
E 10	Chucking maintenance (End. Continue with index No.3 or No.7)

TABLE 10 : POWER OFF PROCESSING

8. Mechanism mode

While the power is off, hold down the STOP and ENTER CATEGORY-SUB keys. Then press the ENTER CATEGORY-MAIN key and turn power on within one second. Immediately the mechanism service mode is activated and the following operations are performed automatically. (Items 1 through 11 below are omitted if a disc is loaded in disctable No. 22.)

0. Mechanism initialization
1. Disctable rotates (No. 22 moves to the front)
   - Disctable drive motor control check
   - Disctable positioning photo sensor on/off check
   - Shutter engage switch (exterior section) check
2. Shutter opens
   - Shutter drive motor control check
   - Shutter open complete switch on check
   - Shutter close complete switch off check
3. Disc received (Disc loaded in disctable)
   - Sensors 2 - 7 on/off check
   - Front kick-out switch on check
   - Front loading motor control check

4. Shutter closes
   - Shutter drive motor control check
   - Shutter close complete switch on check
   - Shutter open complete switch off check

5. Disctable rotates (No. 22 moves to the base mechanism)
   - Disctable drive motor control check
   - Disctable positioning photo sensor on/off check

6. Chucking off
   - Chuck motor control check
   - Chuck off complete switch on check
   - Chuck on complete switch off check

7. Disc moves to the base mechanism
   - Base mechanism side loading motor control check
   - Sensor 1 on/off check
   - Base mechanism side kick-out switch off check

8. Chucking on
   - Chuck motor control check
   - Chuck on complete switch on check
   - Chuck off complete switch off check

9. Chucking off
   - Chuck motor control check
   - Chuck off complete switch on check
   - Chuck on complete switch off check

10. Disc loaded in disctable
    - Front loading motor control check
    - Sensor 1 on/off check
    - Base mechanism side kick-out switch on check

11. Chucking on
    - Chuck motor control check
    - Chuck on complete switch on check
    - Chuck off complete switch off check

12. Disctable rotates (No. 22 moves to the front)
    - Disctable drive motor control check
    - Disctable positioning photo sensor on/off check

13. Shutter opens
    - Shutter drive motor control check
    - Shutter open complete switch on check
    - Shutter close complete switch off check

14. Disc ejected
    - Sensors 2 - 7 on/off check
    - Front kick-out switch off check
    - Front loading motor control check

15. Disc removed
    - Sensors 5 and 6 on/off check

16. Shutter closes
    - Shutter drive motor control check
    - Shutter close complete switch on check
    - Shutter open complete switch off check

CE MODE (CD)

er operations 0 through 16 are completed, "POWER ON" and "22 NO DISC" are displayed if there are no errors. essing the Stop key after this terminates the service mode and switches back to the normal mode.

an error occurs during one of steps 0 through 16, the mechanism halts and one of the following codes is displayed in track no., index no. and time indicator sections of the display. Pressing the Power key after this terminates the service ode and switches to the normal mode (in power-off status).

Y	OPERATION
0	Disctable rotation
1	Specified disc detection complete? (Disc No. 22 moves to the front)
2	Photo sensor check (Position detect fine adjustment)
3	Disctable position redetection (Position detect fine adjustment)
4	Shutter open complete? (S1809 on?)
5	Wait for disc insertion (sensor 5 or sensor 6 off?)
6	Disc loading start OK? (Sensors 2, 3, 4 and 7 off?)
7	Disc loading in progress (Sensors 2 - 7 on?)
8	Disc loading complete? (500 msec. standby after index No. =7)
9	Shutter close complete? (S1808 on?)
A	Specified disc detection complete? (Disc No. 22 moves to base mechanism position)
B	Photo sensor check (Position detect fine adjustment)
C	Disctable position redetection (Position detect fine adjustment)
D	Chucking off complete? (S1801 on?)
E	Maintenance after index No. D
0	Disk kick-out OK? (S1804 off, sensor 1 off?)
1	Disc extraction complete? (sensor 1 on?)
2	Chucking start OK? (250 msec. standby after index No. = 11)
3	Disc chucking complete? (S1802 on?)
4	Chucking off complete? (S1801 on?)
5	Maintenance after index No. = 14
6	Disc loading start? (Sensor 1 off, S1804 on?)
7	Disc loading in progress (Sensor 1 on?)
8	Disc loading complete? (500 msec. standby after index No. = 17)
9	Chucking complete? (S1802)

. indications 29 - 36 are mechanism initial operations.

DISPLAY	OPERATION
F 1A	Specified disc detection complete? (Disc No. 22 moves to the front)
F 1B	Photo sensor check (Position detect fine adjustment)
F 1C	Disctable position redetection (Position detect fine adjustment)
F 1D	Shutter open complete? (S1809 on?)
F 1E	Disc eject start (Sensors 2 - 7 off?)
F 1F	Disc eject complete? (Sensors 2, 3, 4 and 7 on?)
F 20	Disc extracted? (sensors 2 - 7 on?)
F 21	Shutter close start
F 22	Shutter closed (S1808 on?)
F 23	Maintenance after index No. = 22
F 24	Front kick-out switch on? (S1805 on?)
F 25	Front kick-out maintenance
F 26	Maintenance after index No. = 4
F 27	Maintenance after index No. = 19
F 28	Maintenance after index No. = 1D
F 29	Chucking off start
F 2A	Chucking off complete? (S1801 on?)
F 2B	Maintenance after index No. = 2A
F 2C	Disc loading in progress (Sensor 1 on, S1804 on?)
F 2D	Disc loading complete? (500 msec. standby after index No. = 2C)
F 2E	Chucking complete? (S1802 on?)
F 2F	Maintenance after index No. = 2E
F 30	Shutter close complete? (S1808 on?)
F 31	Shutter close maintenance processing
F 32	Front kick-out switch on? (S1805 on?)
F 33	Disctable rotation start
F 34	Initial position detection complete? (Disctable rotation)
F 35	Photo sensor check (Position detect fine adjustment)
F 36	Disctable position redetection (Position detect fine adjustment)

TABLE 11 : Error indications during the mechanism mode (Track + Index No. part)

AY	OPERATION
1	Shutter motor
2	Front loading motor
3	Disctable motor
4	Play loading motor
5	Chucking motor

E 12 : Error indications during the mechanism mode Time indicator part (minutes)

E 13 : Error indications during the mechanism mode Time indicator part (seconds)

DISPLAY	OPERATION
E 1	Shutter open complete switch (S1809)
E 2	Shutter close complete switch (S1808)
E 3	Kick-out switch (front side) (S1805)
E 4	Initial reset switch (S1807)
E 5	Chuck on complete switch (S1802)
E 6	Chuck off complete switch (S1801)
E 7	Kick-out switch (base mechanism side) (S1804)
E 8	Sensors 2, 3, 4 and 7
E 9	Sensors 2, 3, 4, 5, 6 and 7
E A	Sensors 5 and 6
E B	Sensor 1
E C	Disctable position detection sensor
E D	Shutter engage switch (S1730)

SERVICE MODE (CD)

- **Mechanism error determination**
  If the indication "M-Error" appears in the scroll display, a problem has occurred controlling the mechanism. Turn the power switch off and perform the mechanism mode processing aforesaid page. If it is not possible to pinpoint the problem using the service mode, perform the following operation. This will enable you to determine the control status in which the problem occurred.
  When turning the power on, hold down the STOP and CATEGORY-SUB keys and press the 1 key (on the numeric keyboard) within one second. The mechanism error determination mode is activated and error data is displayed in the track No. and index No. sections of the display. (The meaning of the codes is the same as in the mechanism aging mode.) Press the Stop key to return to the normal mode.

9. Demo Indication mode
Press the STOP key and 2 of DISC SELECT key on the unit to enter this mode.

SERVICE MODE (TUNER & AMPLIFIER)

Specifications

To enter any service mode, first simultaneously press the DYNAMIC BASS and MODE buttons on the unit. This accesses the service mode entry state. Now press one of the buttons on the unit to enter a service mode. As the service mode entry state is discontinued after 1 second elapses, the system will enter a service mode only if the next key is pressed within one second.

1. Checking connections (button & display)

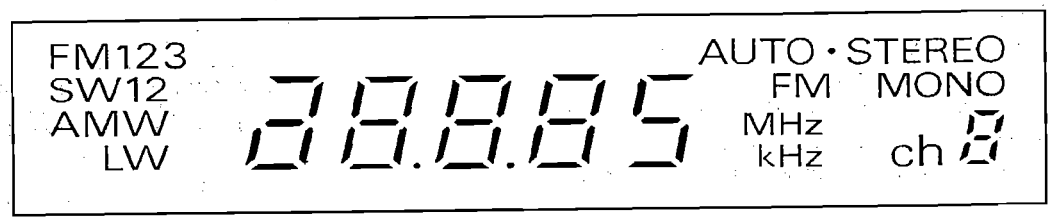
- Enter this mode by pressing the MODE button during the service mode entry state.
- When this mode is entered, the display segments necessary for testing button connections all light.
- In this mode, pressing any TUNER / AMPIIFIER control button causes the corresponding display segment to light or go out. (If the button is pressed when the segment is lit, it goes out. If the segment was not lit when the button is pressed, it lights.)
- Pressing the POWER button(power on or power off) cancels this mode.

KEYS	INDICATORS (LED)
POWER	※
CD (FUNCTION)	CD
TAPE (FUNCTION)	TAPE
TUNER (FUNCTION)	TUNER
PHONO (FUNCTION)	PHONO
VIDEO (FUNCTION)	VIDEO
DYNAMIC BASS	DYNAMIC BASS
MUTE	MUTE

KEYS	DISPLAY (LCD)
MODE	FM MONO
PRESET 1	Digit 1
PRESET 2	Digit 2
PRESET 3	Digit 3
PRESET 4	Digit 4
PRESET 5	Digit 5
PRESET 6	Digit 6
TUNING UP	AUTO · STEREO
TUNING DOWN	MHz, kHz, ch
BAND SELECT	FM,123, SW12, AMW, LW

※ : Releases the key checking mode and returns the set to the normal mode.

TABLE 1 : Corresponding buttons and displays in the button checking mode



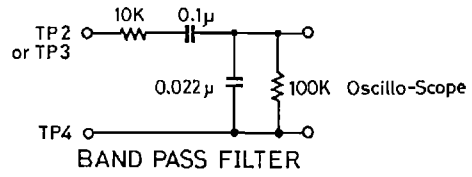
2. Tuner operation mode

1) Enter this mode by pressing the DYNAMIC BASS button during the service mode entry state.
2) Once in the tuner service mode, press the DYNAMIC BASS button to perform the following operations.
   (1) Auto station select begins in the down direction, starting from the frequency three steps above the current reception frequency.
   (2) When a broadcast is received, operation (3) is performed if its frequency is the same as the starting frequency. If it is a different frequency, auto station select operation in the down direction stops. If no broadcast strong enough to be received are encountered, auto station select operation continues.
   (3) Auto station select begins in the up direction, starting from the frequency three steps below the starting frequency.
   (4) Auto station select operation stops if a broadcast is received. If no broadcasts strong enough to be received are encountered, auto station select operation continues
3) This mode is released when the power is turned off.

JUSTMENT

Adjustment

have presented explanations regarding compact
r handling, notes prior to repair, handling the pick-
sassembly of the unit. Be sure to carefully read
uctions before making any adjustments.



ons for Adjustments

g instruments, tools and filter
disc. : YEDS 18 (Sony)
loscope : SS5711 (10MHz or dual phenomenon)
emory scope : DSS6521 (Storage scope)
al voltmeter (Input impedance 1M ohm or more)

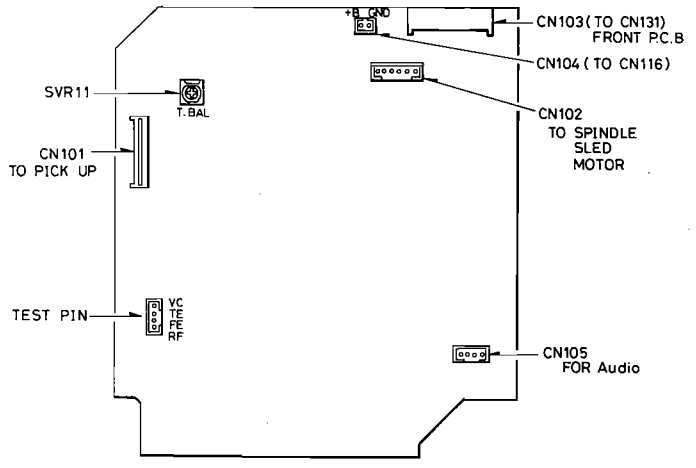
(4) AF Oscillator (400Hz, 300mV RMS)
(5) Frequency Counter (5MHz ; or more)
(6) Screw drivers (no metallic) for adjustments
(7) Band Pass Filter
(8) AC Voltage Meter

The adjustments can be using the equipment produced by other manufactures provided that the performance of that equipment corresponds to that of the above listed models.
Use a 10 : 1 probe for observing signals on the oscilloscope and storage scope.
Test disc is subject change without notice.

set up

SVR11 at its initial position of adjustment controls
n in figure of right side.

SVR11
INITIAL SET
(MECHANICAL CENTER)



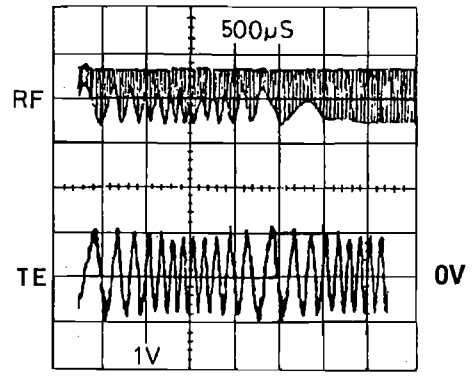
ications (Service mode entry)

any service mode, first simultaneously press the
d ENTER CATEGORY-SUB buttons. This access-
rvice mode entry state. Now press one of the but-
ter a service mode. As the service mode entry
scontinued after 1second elapses, the system will enter
ode only if the next button is pressed within 1 second.

ng Balance (SVR11)

ne test disc.
ct the oscilloscope to TE(Tracking Error) and
ltage Center) in test pin .
this mode by pressing the PLAY/PAUSE button
the service mode entry state. (Service mode =
ng Balance Adjustment mode = See service

g the PLAY / PAUSE button.
SVR11 so that the TE signal waveform on the os-
ope is vertically symmetrical relative to VC. (See
of right side)
playing pressing the MEMORY button turn on
cking balance adjust state, for playing press the
/ PAUSE button (tracking servo off state).
the STOP button to exit this mode and return to
rmal mode.
ut the test disc.



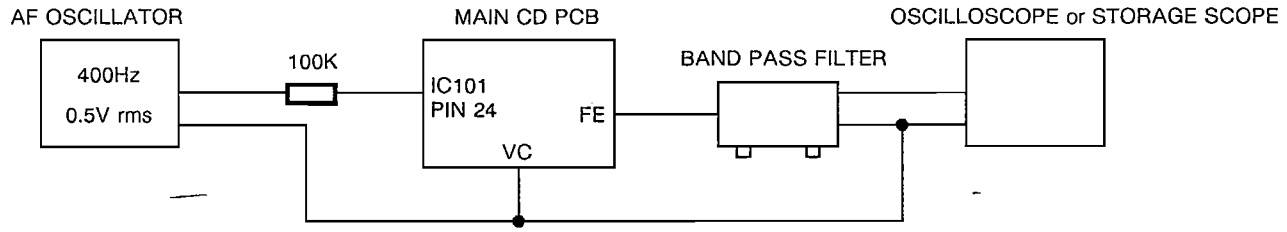
If this adjustment is imperfect, become run away the sled motor (Pickup sending motor), inferior playability.

CD ADJUSTMENT

4. Focus Gain Confirmation

1. Connect the storage scope to F.E : Focus Error (Test-pin) through the Band pass filter. (See BPF Figure)
2. Turn on the power of the unit.
3. Playback the test disc.
4. Set the output of AF oscillator to 400Hz, 0.5V rms and connect to pin 24 (IC101) through the resistor : 100k ohms.
5. Confirm so that the voltage of the F.E signal waveform on the storage scope is 0.5V p-p ± 3dB by through BPF.

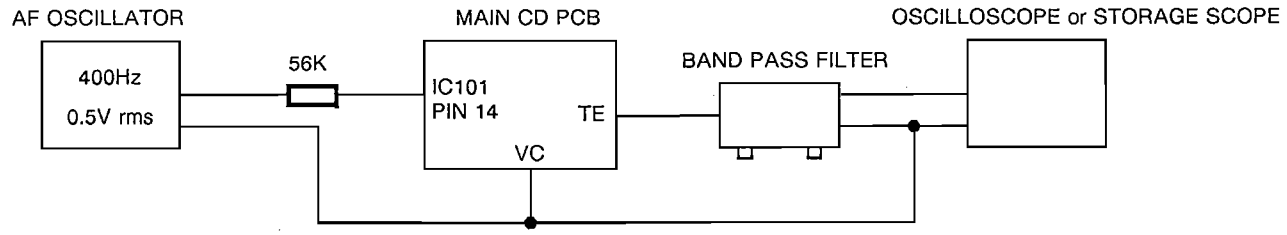
●If this CONFIRMATION is imperfect, become weak the mechanical shock, inferior playability, and can not playback the Disc.



5. Tracking Gain Confirmation

1. Connect the storage scope to T.E : Tracking Error (Test-pin) through the Band pass filter. (See BPF Figure).
2. Turn on the power of the unit.
3. playback the test disc.
4. Set the output of AF oscillator to 400Hz, 0.5V rms and connect to pin 14 (IC101) through resistor 56k ohms.
5. Confirm so that the voltage of T.E signal waveform on the storage scope is 0.5V p-p ± 3dB by through BPF.

●If this CONFIRMATION is imperfect, become weak the mechanical shock, inferior playability, and can not playback the Disc.



ADJUSTMENT OF TAPE DECK

1. Azimuth Adjustment

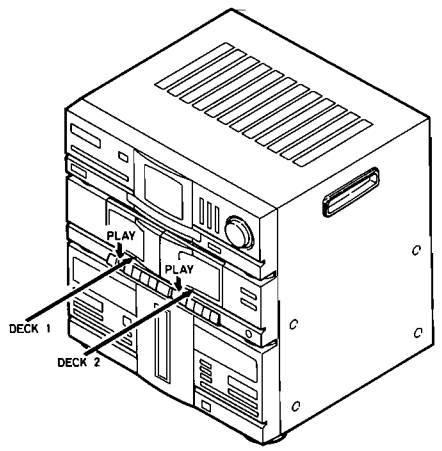
- Be sure to clean the heads before attempting to make any adjustment.
- Be sure both channels (1 and 2) are the same level (Using a dual-channel oscilloscope),
- Be sure both cannel's waveform are same for the phase matching.
- After completion of the adjustment, use the threadlock (TB-1401B) to secure the azimuth adjustment screws.

(1) DECK 1

1. Load a test tape (VTT-738 etc. : 10kHz) in deck 1.
2. Press the PLAY button. (normal playback)
3. Use a + tip screwdriver to turn the screw for normal azimuth adjustment so that the left and right outputs are maximized at the same phase during normal playback.

(2) DECK 2

1. Repeat procedure for deck 2.

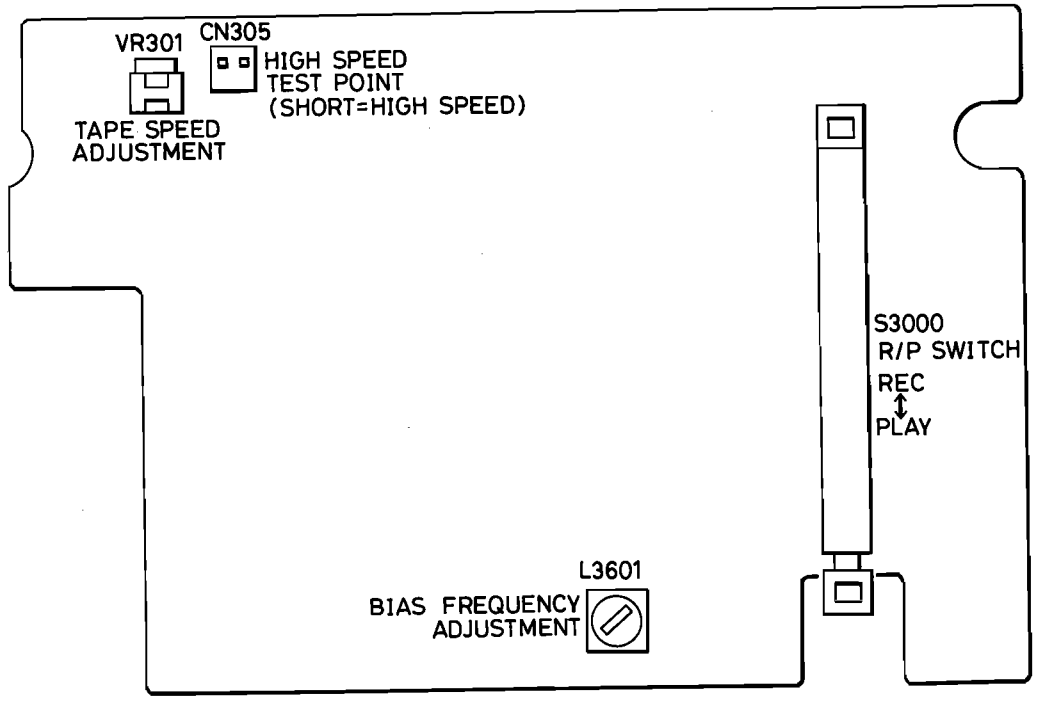


2. Tape Speed Adjustment

STEP	SPEED	DECK	TEST TAPE	SVR	TAPE COUNTER	REMARKS
1	Normal	DECK 1	MTT-111N 3000Hz	SVR301	2995 ~ 3005 Hz	Memorize the tape speed on counter. Confirm that the speed of DECK 2 is in -40 ~ 70 Hz against DECK 1.
2	Normal	DECK 2			-40 ~ 70 Hz	

Notes :
1. For making adjustment of step 1, set the DECK 2 mechanism is record made with C-60 blank cassette tape.
2. Adjustment should be made at the ending portion of the tape.
3. Confirm the indication of the tape speed for 2 second after adjustment has been made and adjusting driver has been removed from SVR on the TAPE DECK AMPLIFIER P. C. Board.
4. For adjustment, use the screwdriver with isolated tip from grip.
5. For high speed check, short the test points (HIGH-SPEED) to chassis ground on the Tape Deck Amplifier P. W. Board, (Test Tape is MTT-111N) and confirm that the speed of DECK 2 is in -40 ~ 70 Hz against DECK 1.

3. Parts Location

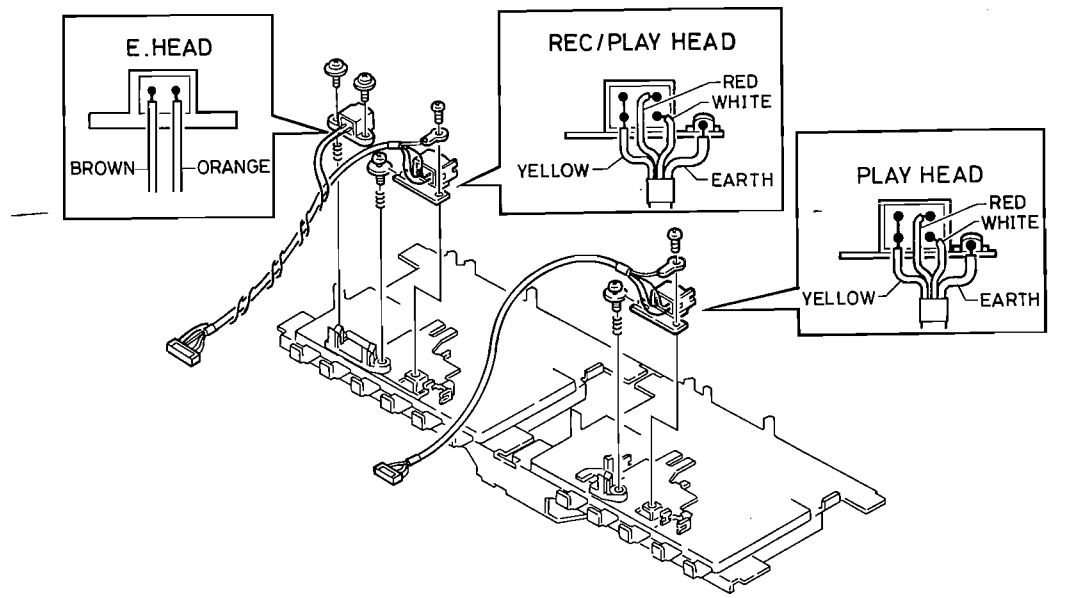


REPLACEMENT OF TAPE DECK MECHANISM

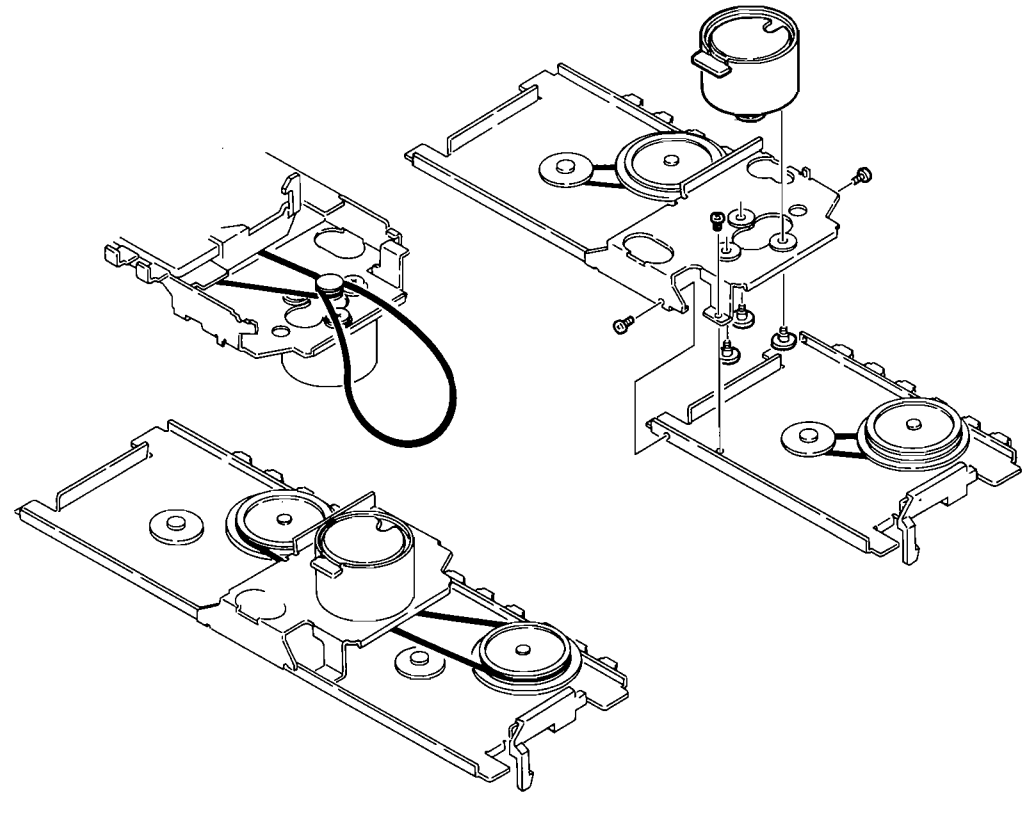
4. Torque Measurements

ITEM	TAKE-UP TORQUE	BACK TENSION	TAPE TENSION
Test cassette	PLAY : TW-2111 F.FWD / REW : TW-2231	PLAY :TW-2111 REW:Torque Gage	Driving power cassette: TW-2412
PLAY	30 ~ 60 gr.cm	2.0 ~ 4.5 gr.cm	> 60g
F.FWD	55 ~ 120 gr.cm	-	
REW	55 ~ 120 gr.cm	-	

5. Replacement of Head



6. Replacement of Motor and Belt



TUNER ADJUSTMENT

- Use a plastic screwdriver for adjustment.
- Adjust the intermediate frequency of AM and FM to the frequency of ceramic filter.

1. AM BAND

Antenna : IRE Loop, Modulation : 1kHz 30% SG RF Level : Open Voltage dBμV

Step	Items	Tuning Frequency	Input Condition		Output Condition		Parts	Standards
			Measure	Input	Measure	Output		
1	COVER	520kHz	------	------	Digital Voltmeter	TP21(H) TP23(E)	------	Confirm 1.0 ~ 1.4V
		1710kHz					------	Confirm ≤8.5V (about 6.9V)
2	TRACKING	600kHz	AM SG	LOOP ANT	VTVM Oscilloscope	TP27(L) TP28(R) TP29(E)	L2151A	Output : Maximum Confirm to near the effective sensitivity.
		1400kHz					------	
3	STATION DTECTION	1000kHz	AM SG (84dBμV)	LOOP ANT	------	TP22(H) TP23(E)	SVR23	Confirm auto tuning stops at within near the specification.

Note : If rotate SVR23(AM SD) after FM alignment, align SVR22(FM SD) again.

2. FM BAND

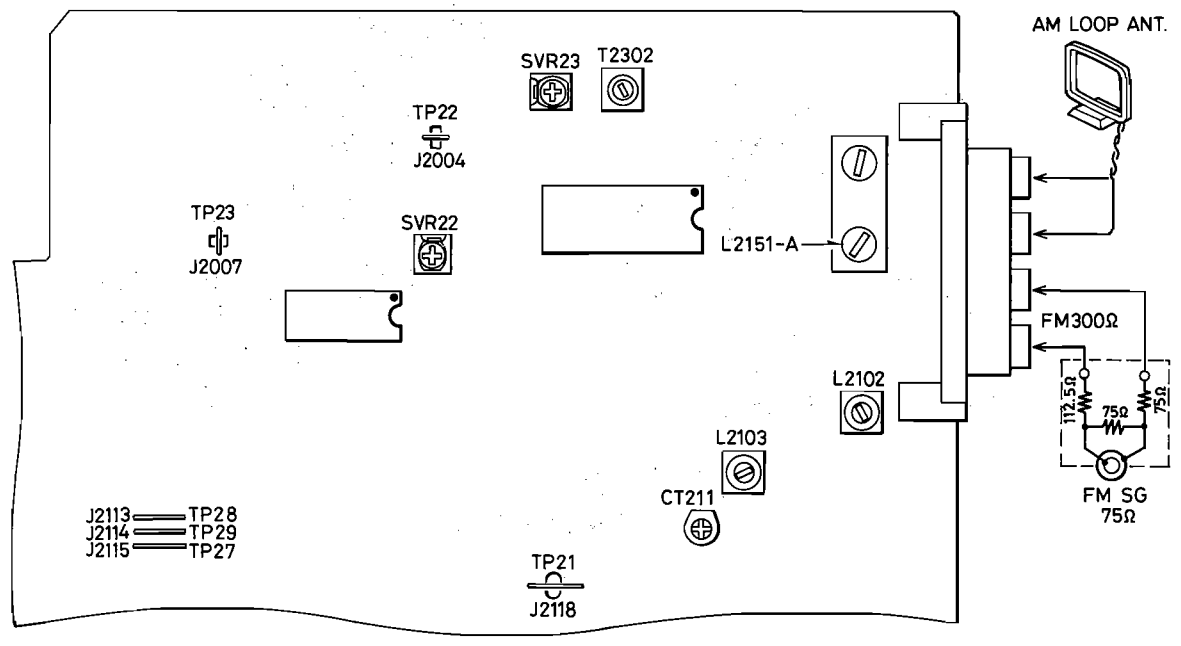
Antenna : 300ohm Balanced, 75 - 300 ohm Pad use (-6 dB), SG RF Level : Open Voltage dBμV

Modulation : 1kHz, Dev. : MONO-±75kHz / STEREO-±67.5kHz(Main) · ±6.75kHz(Pilot)

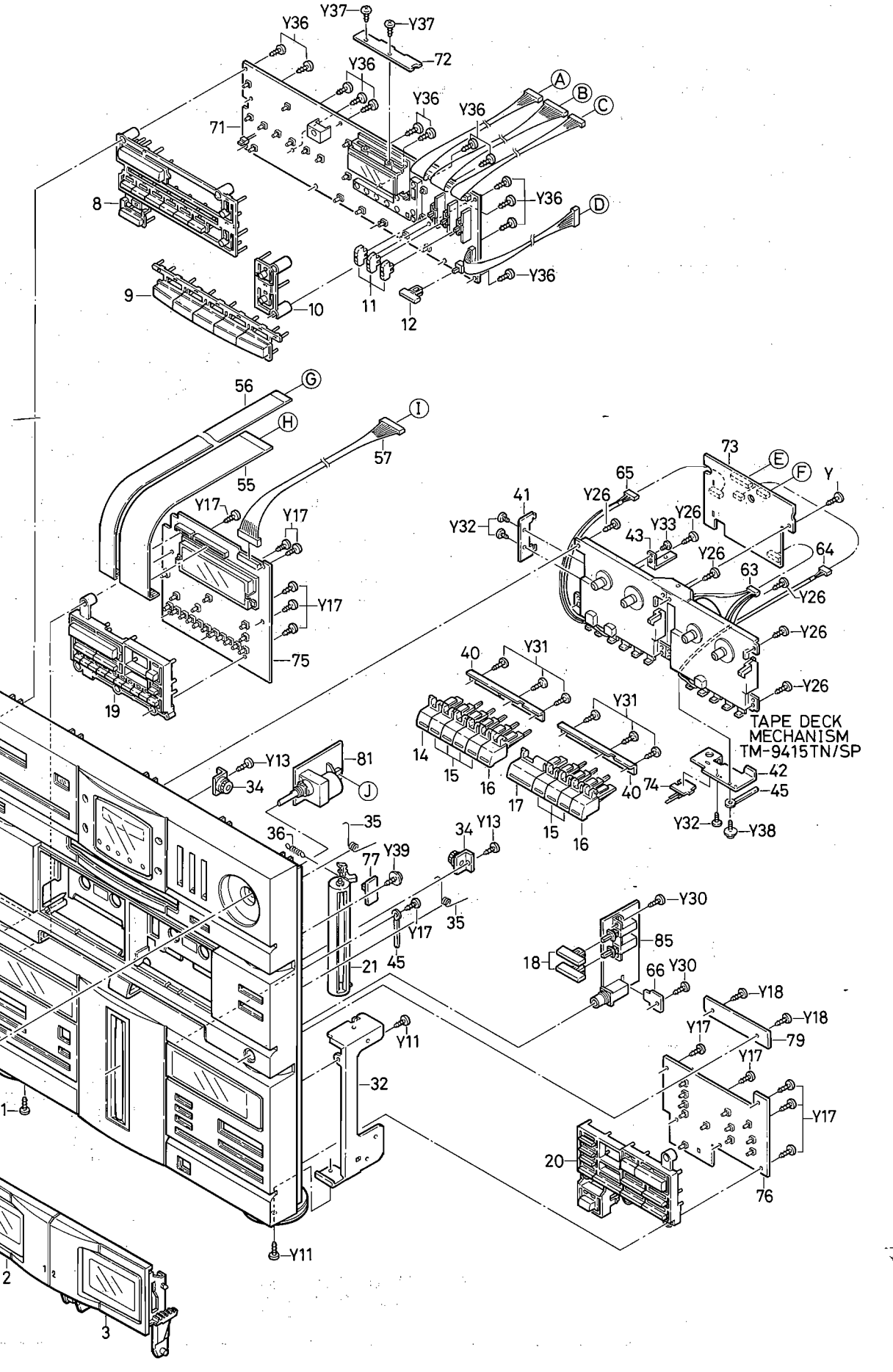
Step	Items	Tuning Frequency	Input Condition		Output Condition		Parts	Standards
			Measure	Input	Measure	Output		
1	COVER	87.9MHz	------	------	Digital Voltmeter	TP21(H) TP23(E)	------	Confirm 1 .0~1.4V
		107.9MHz					------	Confirm ≤8.5V (about 6.3V)
2	TRACKING	90.1MHz	FM SG	FM ANT TERMINAL	VTVM Oscilloscope	TP27(L) TP28(R) TP29(E)	L2102 L2103	Output : Maximum Confirm to near the effective sensitivity.
		106.1MHz					CT211	
3	IF(0V)	98.1MHz	FM SG (72dBμV)	FM ANT TERMINAL	Digital Voltmeter	TP24 TP25	T2302	0±0.05V
4	STATION DTECTION	98.1MHz	FM SG (34dBμV)	FM ANT TERMINAL	------	TP22(H) TP23(E)	SVR22	Confirm auto tuning stops at within near the specification.
5	SEPARATION	98.1MHz	FM SG (72dBμV) Set to EXT(STEREO)	FM ANT TERMINAL	VTVM Oscilloscope	TP27(L) TP28(R) TP29(E)	------	Confirm stereo separation within near the specification.
6	STEREO SENSITIVITY	98.1MHz	FM SG (72dBμV) Set to EXT(STEREO)	FM ANT TERMINAL	------	------	------	Confirm stereo indicator light up within near the specification.

: Adjust in the modulation off Tuner Mode : AUTO STEREO

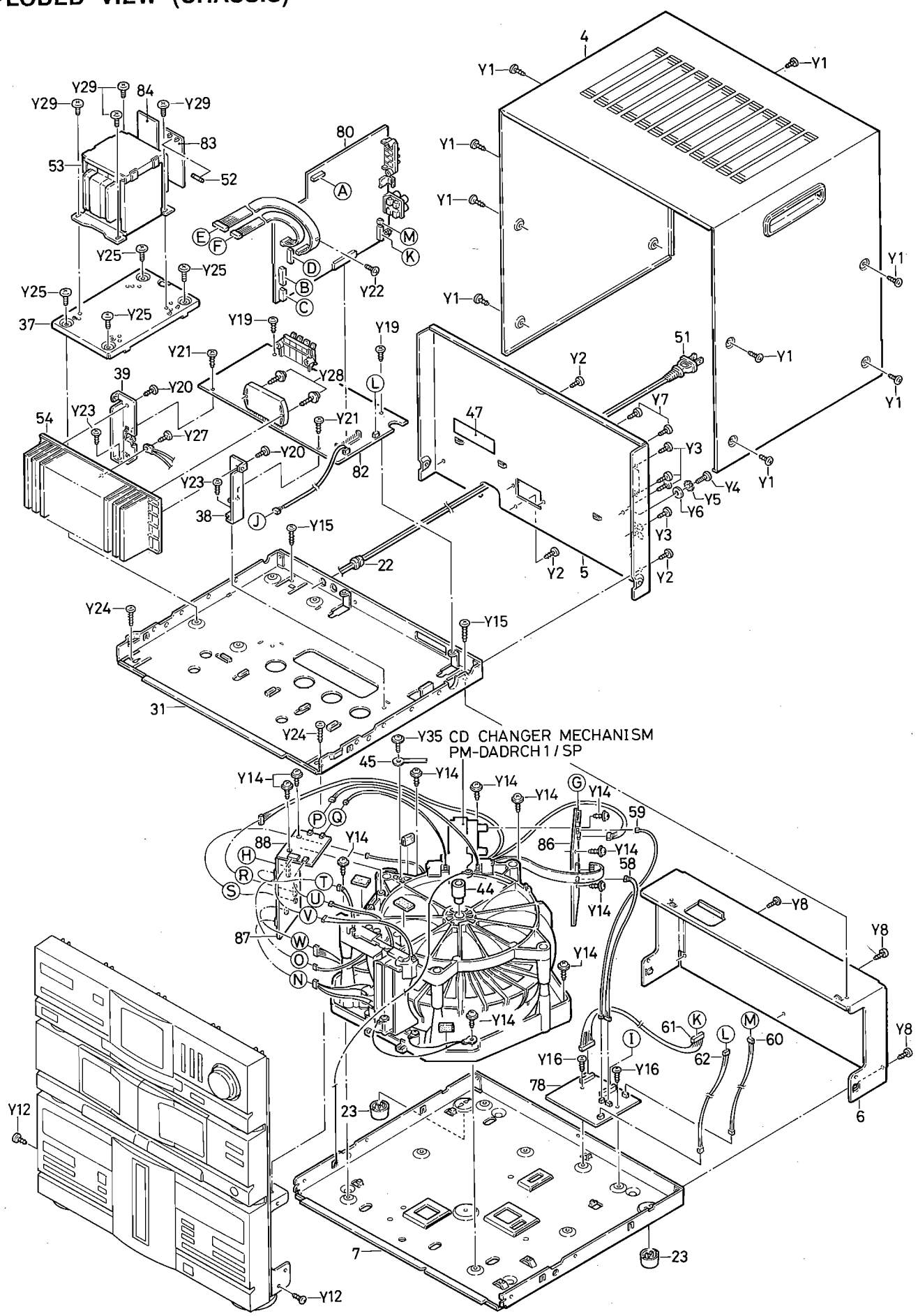
3. Parts location



EXPLODED VIEW (CABINET)



EXPLODED VIEW (CHASSIS)



PARTS LIST

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CAUTION: Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.

N.S.P : Not available as service parts.

PACKING & ACCESSORIES

Ref. No.	Part No.	Description
	614 259 5848	CARTON CASE
	614 259 3011	CUSHION TOP,PAD
	614 259 3028	CUSHION BUTTOM,PAD
	614 254 3269	SHEET,SET
	614 176 3187	INNER POLYE COVER,INST
	614 259 3035	OWNERS MANUAL
	614 263 6893	OWNERS MANUAL,SHEET,QUICK G.
	614 186 0725	NOTICE,UL
	620 061 1107	NOTICE,SPEAKER
	614 023 7481	ANTENNA,FM
	645 005 1227	ASSY,ANTENA,LOOP,AM

REMOTE CONTROLLER (REM-9415)

Ref. No.	Part No.	Description
	645 005 6024	REMOCON,REM-9415
	645 005 7007	BATTERY COVER

CABINET

Ref. No.	Part No.	Description
1	614 259 2939	ASSY,PANEL,FRONT
2	614 259 3301	ASSY,LID,CASSETTE,DECK1
3	614 259 3318	ASSY,LID,CASSETTE,DECK2
4	614 260 6780	ASSY,CABINET,TOP & SIDE
5	614 257 2979	PANEL,REAR,AMP
6	614 257 2962	PANEL,REAR,CD
7	614 257 2795	CABINET,BOTTOM,CD
8	614 257 2726	BUTTON,POWER
9	614 257 2733	BUTTON,FUNCTION
10	614 257 2740	BUTTON,BASS,SURRUND
11	614 257 2900	KNOB,SLIDE,BASS/TREBURE
12	614 257 2757	BUTTON,BEAT CANCEL
13	614 257 2894	KNOB,ROTARY,VLOME
14	614 258 7362	BUTTON,DECK1 MECHA,REC
15	614 258 7348	BUTTON,DECK MECHA,OTHER
16	614 258 7355	BUTTON,DECK MECHA,PAUSE
17	614 257 2771	BUTTON,DECK2 MECHA,PLAY
18	614 257 2764	BUTTON,SPEAKER SELECT
19	614 258 7379	BUTTON,CD SELECTION
20	614 258 7386	BUTTON,CD OPERAIONT
21	614 248 9178	DOOR,CD
22	⚠614 129 1901	FIXER,AC CORD
23	614 252 8969	ASSY,FOOT,REAR

CHASSIS

Ref. No.	Part No.	Description
31	614 257 2801	CHASSIS,AMP
32	614 257 2931	MOUNTING,BRACKET-M, RIGHT
33	614 260 5387	MOUNTING,BRACKET-M,LEFT
34	614 069 0385	ASSY,GEAR,CASSETTE DUMPER
35	614 218 0051	SPRING,WIRE,FRONT,CASSETTE

ELECTRICAL PARTS

Ref. No.	Part No.	Description
51	⚠614 023 4503	POWER CORD,AC
or	⚠614 023 4282	POWER CORD,AC
or	⚠614 023 3841	POWER CORD,AC
or	⚠614 216 5843	POWER CORD,AC
or	⚠614 243 0262	POWER CORD,AC
52	⚠423 021 7306	FUSE 125V 5A,FU490
53	⚠645 004 7640	TRANSFORMER,POWER,MAIN,TP400
54	614 241 4354	HEAT SINK,FOR IC491
55	614 249 8675	CORD,32P,200MM,CD FRONT
56	614 249 8682	CORD,16P,420MM,CD FRONT
57	614 263 6633	ASSY,CONNECTOR-S,13P, CD-FRONT,CN191
58	614 263 3472	ASSY,CONNECTOR-S,4P, CD-AUDIO,CN192
59	614 263 3465	ASSY,CONNECTOR-S,2P, CD POWER SUPPLY,CN193
60	614 254 6215	ASSY,CONNECTOR-S,3P, CD-PRE,CN445
61	614 254 6246	ASSY,CONNECTOR-S,11P, CD-PRE,CN446
62	614 263 6640	ASSY,CONNECTOR-S,2P, CD-AC,CN452
63	614 249 4660	ASSY,CONNECTOR-S,6P, TAPE DECK MECHANISM
64	614 248 9086	ASSY,CONNECTOR-S,4P, DECK2,PLAY HEAD
65	614 246 6438	ASSY,CONNECTOR-S,6P, DECK1,REC/PLAY & ERASE HEAD
66	614 259 6371	PWB,HEADPHONE STOPPER

MISCELLANEOUS

Ref. No.	Part No.	Description
36	614 249 4059	SPRING,TENS,CD DOOR
37	614 257 2870	HOLDER,BRACKET-E,TRANSFORMER
38	614 257 2849	HOLDER,BRACKET-E,RIGHT
39	614 260 7251	HOLDER,BRACKET-E,LEFT
40	614 194 9239	BRACKET,MECHA BUTTON
41	614 216 9261	BRACKET-E,DECK PCB
42	614 216 9254	BRACKET-E,DECK PCB
43	614 216 9346	SPRING,PLATE,DECK REC
44	614 256 6824	SPACER,CD
45	614 129 9136	LUG,LEAD FIX
46	614 130 0382	LUG,LEAD FIX
47	614 189 7455	INDICATION LABEL,FUSE

FIXING PARTS

Ref. No.	Part No.	Description
Y01	411 021 6603	SCREW S-TPG BIN 3X8,CABINET
Y02	411 021 6405	SCREW S-TPG BIN 3X8, REAR-CHASSIS
Y03	411 021 6405	SCREW S-TPG BIN 3X8, TU REAR SOCKET

Ref. No.	Part No.	Description
Y04	411 098 0801	SCREW S-TPG BIN 3X14, PHONO GND
Y05	411 008 0402	WASHER OUT TW 3,PHONO GND
Y06	411 105 9704	WASHER Z 3X10X1,PHONO GND
Y07	411 021 6405	SCREW S-TPG BIN 3X8, AMP REAR SOCKET
Y08	411 021 6405	SCREW S-TPG BIN 3X8, BOTTOM-CD REAR
Y11	411 021 6405	SCREW S-TPG BIN 3X8, FRONT-BRACKET
Y12	411 021 6405	SCREW S-TPG BIN 3X8, BOTTOM-BRACKET
Y13	411 021 3503	SCREW S-TPG BIN 3X10,GEAR
Y14	411 020 9902	SCREW S-TPG BRZ+FLG 3X8, BOTTOM-CD MECHA
Y15	411 021 6405	SCREW S-TPG BIN 3X8, CD REAR-CHASSIS
Y16	411 021 6405	SCREW S-TPG BIN 3X8, CD PWB-BOTTOM
Y17	411 021 3107	SCREW S-TPG BIN 2.6X8, CD PWB-FRONT
Y18	411 021 6405	SCREW S-TPG BIN 3X8,LAMP PWB
Y19	411 021 6405	SCREW S-TPG BIN 3X8, CHASSIS-AMP PWB
Y20	411 021 6405	SCREW S-TPG BIN 3X8, HEAT SINK-BRACKET
Y21	411 021 6405	SCREW S-TPG BIN 3X8, AMP PWB-BRACKET
Y22	411 021 6405	SCREW S-TPG BIN 3X8, TU PWB-BRACKET
Y23	411 021 6405	SCREW S-TPG BIN 3X8, BRACKET-CHASSIS
Y24	411 021 6405	SCREW S-TPG BIN 3X8, CHASSIS-FRONT BRACKET
Y25	411 021 9604	SCREW S-TPG BIM 4X8, BRACKET-CHASSIS(TRANS)
Y26	411 021 6405	SCREW S-TPG BIN 3X8, DECK MECHA-FRONT
Y27	411 021 6405	SCREW S-TPG BIN 3X8,POSISTOR
Y28	411 074 0603	SCREW TPG PAN+FLG 3X16, POWER IC-HEAT SINK
Y29	411 021 9604	SCREW S-TPG BIM 4X8, TRANSFORMER
Y30	411 021 6405	SCREW S-TPG BIN 3X8, SPEAKER SW-H.P SOCKET
Y31	411 021 3107	SCREW S-TPG BIN 2.6X8, BRACKET-MECABUTTON
Y32	411 028 2905	SCREW S-TPG PAN 2X4, DECK-BRACKET
Y33	411 028 2905	SCREW S-TPG PAN 2X4, REC,SPRINGPLATE
Y34	411 021 6405	SCREW S-TPG BIN 3X8,DECK PCB
Y35	411 021 6405	SCREW S-TPG BIN 3X8, CD MECHA READ FIX
Y36	411 021 3107	SCREW S-TPG BIN 2.6X8, AMP FRONT PCB
Y37	411 021 6405	SCREW S-TPG BIN 3X8, LCD LAMP PCB
Y38	411 024 3708	SCREW S-TPG PAN+FLG 2X6, DECK-BRACKET
Y39	412 003 1708	SCREW,SPECIALW,CD DOOR SW

FRONT P. W. BOARD ASSY

Ref. No.	Part No.	Description
71	614 259 6265	ASSY,PWB,FRONT (N.S.P)

Ref. No.	Part No.	Description
	614 216 9285	MOUNT-E,LCD
	614 220 3651	SHEET,LCD
	614 257 2887	HOLDER,MOUNT-E,FUNCTION LED
CN261	614 263 7005	ASSY,CONNECTOR-S,9P, FRONT-TUNER
CN262	614 263 7029	ASSY,CONNECTOR-S,13P, FRONT-PREAMP
CN263	614 263 6992	ASSY,CONNECTOR-S,8P, FRONT-PREAMP
CN264	614 035 4911	SOCKET,2P,TO LCD LAMP
CN488	614 263 7012	ASSY,CONNECTOR-S,10P, FRONT-PREAMP
D2601	407 138 4700	PHOTO DIODE SPS-420-1, REMOCON(IR) RECIEVE
D2621	408 020 9704	LED SLZ-151B-01-AB,POWER
D2622	408 020 7908	LED SLZ-936B-20-AB,TAPE
D2623	408 020 7908	LED SLZ-936B-20-AB,CD
D2624	408 020 7908	LED SLZ-936B-20-AB,TUNER
D2625	408 020 7908	LED SLZ-936B-20-AB,PHONO
D2626	408 020 7908	LED SLZ-936B-20-AB,VIDEO
D2627	408 020 7809	LED SLZ-336B-20-AB,BASS
D2628	408 020 7809	LED SLZ-336B-20-AB,MUTE
D2641	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D2642	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D2643	407 051 6508	ZENER DIODE GZS4.7Y
or	407 053 5806	ZENER DIODE MTZ4.7B
D2644	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D2645	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
IC261	410 207 8707	IC M38222M2-052FP
IC485	409 018 4909	IC LA6458S
L2601	614 028 6861	FILTER,100UH,RIPPLE CANCEL
LCD26	614 239 5004	LCD(LIQUID CRYSTAL DISPLAY)
Q2621	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2622	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2623	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2624	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2625	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2626	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2627	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q2628	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M

Ref. No.	Part No.	Description
or	405 000 6104	TR DTC144ES
Q2641	405 001 7001	TR 2SA1015-GR
or	405 005 1906	TR 2SA733-K
or	405 004 4601	TR 2SA608-F-SPA
Q2642	405 128 9011	TR TRN1207-TP4
or	405 078 2909	TR BA1A4M
or	405 000 3806	TR DTC114YS
S2601	614 220 5570	SWITCH,TACT,POWER
S2602	614 220 5570	SWITCH,TACT,TAPE
S2603	614 220 5570	SWITCH,TACT,CD
S2604	614 220 5570	SWITCH,TACT,TUNER
S2605	614 220 5570	SWITCH,TACT,PHONO
S2606	614 220 5570	SWITCH,TACT,VIDEO
S2607	614 220 5570	SWITCH,TACT,BASS
S2608	614 220 5570	SWITCH,TACT,MUTE
S2611	614 220 5570	SWITCH,TACT,BAND
S2612	614 220 5570	SWITCH,TACT,MONO
S2613	614 220 5570	SWITCH,TACT,P6
S2614	614 220 5570	SWITCH,TACT,P5
S2615	614 220 5570	SWITCH,TACT,P4
S2616	614 220 5570	SWITCH,TACT,P3
S2617	614 220 5570	SWITCH,TACT,P2
S2618	614 220 5570	SWITCH,TACT,P1
S2619	614 220 5570	SWITCH,TACT,UP
S2620	614 220 5570	SWITCH,TACT,DOWN
S2699	614 246 7138	SWITCH,PUSH,DUB/BEAT
VR401	614 003 4363	V.R,50K(B) X2,BASS
VR402	614 003 4363	V.R,50K(B) X2,TREBLE
VR403	614 003 5766	V.R,100K(SP-W),BALANCE
X2601	614 215 5561	RESONATOR,CERAMIC,3P,4019MHZ

LCD LAMP P. W. BOARD ASSY

Ref. No.	Part No.	Description
72	614 259 6272	ASSY,PWB,LAMP(N.S.P)
CN265	614 035 4911	SOCKET,2P,TO FRONT
PL261	614 240 1101	LAMP,12V 60MA
PL262	614 240 1101	LAMP,12V 60MA

TAPE DECK AMPLIFIER P. W. BOARD ASSY

Ref. No.	Part No.	Description
73	614 260 7862	ASSY,PWB,DECK AMP(N.S.P)
C3603	403 058 9900	POLYESTER 0.018U K 50V
C3604	403 062 1105	POLYESTER 0.047U M 50V
C3605	403 058 1102	POLYESTER 1500P K 50V
CN301	614 017 2164	PLUG,9P,TO TUNER/PRE-AMP
CN302	614 017 2126	PLUG,5P,TO TUNER/PRE-AMP
CN303	614 017 2577	PLUG,6P,TO MECHANISM SWITCH
CN304	614 020 6562	SOCKET,4P,TO MECHANISM MOTOR
or	614 223 9223	SOCKET,4P,TO MECHANISM MOTOR
CN305	614 016 4084	PLUG,2P,TEST POINT
CN306	614 017 2539	PLUG,2P,TO STOP SWITCH
CN371	614 017 2553	PLUG,4P,TO PLAY HEAD
CN372	614 017 2577	PLUG,6P,TO P/R & E HEAD
D3101	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3102	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3103	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3104	407 007 9904	DIODE GMA01

Ref. No.	Part No.	Description
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3105	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3106	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3107	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3108	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D3111	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
IC371	409 251 1000	IC TA8189N
L3601	614 212 1023	TRANS,OSC,85KHZ
L3701	645 004 0580	INDUCTOR,1M J
L3801	645 004 0580	INDUCTOR,1M J
Q3101	405 031 4516	TR 2SA733-T-R
or	405 005 1906	TR 2SA733-K
or	405 001 7001	TR 2SA1015-GR
Q3102	405 001 0200	TR RN1202
or	405 078 2909	TR BA1A4M
or	405 000 3103	TR DTC114ES
Q3103	405 012 7403	TR 2SC2001-K
or	405 013 1301	TR 2SC2120-Y
Q3104	405 035 1600	TR RN1211
or	405 107 8704	TR BA1A4Z
or	405 000 3400	TR DTC114TS
Q3105	405 001 0200	TR RN1202
or	405 078 2909	TR BA1A4M
or	405 000 3103	TR DTC114ES
Q3106	405 001 1108	TR RN2202
or	405 078 2305	TR BN1A4M
or	405 000 0508	TR DTA114ES
Q3601	405 020 7402	TR 2SC945A-P
or	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q3602	405 011 1907	TR 2SC1627-Y
Q3701	405 011 8609	TR 2SC1740S-S
or	405 015 6205	TR 2SC2785-E
or	405 015 6403	TR 2SC2785-F
or	405 014 5209	TR 2SC2458-GR
Q3702	405 001 0200	TR RN1202
or	405 078 2909	TR BA1A4M
or	405 000 3103	TR DTC114ES
Q3801	405 011 8609	TR 2SC1740S-S
or	405 015 6205	TR 2SC2785-E
or	405 015 6403	TR 2SC2785-F
or	405 014 5209	TR 2SC2458-GR
Q3802	405 001 0200	TR RN1202
or	405 078 2909	TR BA1A4M
or	405 000 3103	TR DTC114ES
S3000	614 248 9642	SWITCH,SLIDE,R/P
VR301	614 250 7551	POTENTIOMETER,2K(B)

STOP SWITCH P. W. BOARD ASSY

Ref. No.	Part No.	Description
74	614 263 5353	ASSY,PWB,DECK STOP SW(N.S.P)
CN316	614 017 2539	PLUG,2P,TO TAPE DECK AMP
S3001	614 203 7911	SWITCH,STOP

CD FRONT-1(FL) P.W.BOARD ASSY

Ref. No.	Part No.	Description
75	614 258 9519	ASSY,PWB,CD-FRONT FL(N.S.P)
	614 228 4063	MOUNT-E,FOR FL
C1304	404 060 3009	OS-SOLID 10U M 16V
CN130	614 227 7836	SOCKET,32P,TO MOTOR DRIVE
CN131	614 240 8315	SOCKET,16P,TO CD MAIN
CN132	614 035 4935	SOCKET,4P,TO CD-FRONT KEY
CN133	614 035 4911	SOCKET,2P,
		TO SHUTTER SAFETY SWITCH
CN134	614 017 3925	PLUG,13P,TO CD POWER SUPPLY
D1301	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D1302	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D1311	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D1312	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D1313	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D1706	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
FL171	614 249 8651	FLUORESCENT TUBE
IC111	410 212 7207	IC CXP82432-107Q
IC112	409 283 6905	IC LE24C04S1
or	410 182 3100	IC ST24C04B1
or	410 177 3702	IC AT24C04-10PC
Q1301	405 000 4407	TR DTC124ES
or	405 078 2800	TR BA1F4M
or	405 001 0309	TR RN1203
S1701	614 220 5570	SWITCH,TACT,0
S1702	614 220 5570	SWITCH,TACT,9
S1703	614 220 5570	SWITCH,TACT,8
S1704	614 220 5570	SWITCH,TACT,7
S1705	614 220 5570	SWITCH,TACT,6
S1706	614 220 5570	SWITCH,TACT,5
S1707	614 220 5570	SWITCH,TACT,4
S1708	614 220 5570	SWITCH,TACT,3
S1709	614 220 5570	SWITCH,TACT,2
S1710	614 220 5570	SWITCH,TACT,1
S1712	614 220 5570	SWITCH,TACT,ENTER-MAIN
S1713	614 220 5570	SWITCH,TACT,ENTER-SUB
S1714	614 220 5570	SWITCH,TACT,DIS UP
S1715	614 220 5570	SWITCH,TACT,DIS DOWN
S1716	614 220 5570	SWITCH,TACT,MEMORY
S1717	614 220 5570	SWITCH,TACT,CLEAR
X1301	614 215 5561	RESONATOR,CERAMIC,3P,4.19MHZ
or	614 215 5523	RESONATOR,CERAMIC,3P,4.19MHZ

CD FRONT-2(KEY) P.W.BOARD ASSY

Ref. No.	Part No.	Description
76	614 258 9526	ASSY,PWB,CD-FRONT KEY(N.S.P)
CN135	614 035 4935	SOCKET,4P,TO CD-FRONT FL
CN136	614 035 4911	SOCKET,2P,TO DISC TABLE LAMP
S1718	614 220 5570	SWITCH,TACT,EJECT/LOAD
S1719	614 220 5570	SWITCH,TACT,STOP
S1720	614 220 5570	SWITCH,TACT,PLAY/PAUSE
S1721	614 220 5570	SWITCH,TACT,FWD
S1722	614 220 5570	SWITCH,TACT,BACK
S1723	614 220 5570	SWITCH,TACT,SELECT-MAIN
S1724	614 220 5570	SWITCH,TACT,SELECT-SUB
S1725	614 220 5570	SWITCH,TACT,REPEAT
S1726	614 220 5570	SWITCH,TACT,RANDOM
S1727	614 220 5570	SWITCH,TACT,INTRO
S1728	614 220 5570	SWITCH,TACT,DISPLAY
S1729	614 220 5570	SWITCH,TACT,EDIT

SHUTTER SAFETY SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
77	614 258 9533	ASSY,PWB,SHUTTER SAFETY
		SWITCH(N.S.P)
CN138	614 035 4911	SOCKET,2P,TO CD-FRONT FL
S1730	614 249 1355	SWITCH,LEVER,SHUTTER SAFETY

CD POWER SUPPLY P.W.BOARD ASSY

Ref. No.	Part No.	Description
78	614 258 9540	ASSY,PWB,CD P. SUPPLY(N.S.P)
C1603	403 097 6304	ELECT 4700U M 16V
CN111	614 017 2096	PLUG,2P,TO MAIN-AMP
CN112	614 017 2645	PLUG,13P,TO CD-FRONT FL
CN113	614 017 2621	PLUG,11P,TO TUNER/PRE-AMP
CN114	614 017 2546	PLUG,3P,TO TUNER/PRE-AMP
CN115	614 017 2553	PLUG,4P,TO CD-MAIN
CN116	614 017 2539	PLUG,2P,TO CD-MAIN
D1601	⚠408 007 9307	DIODE 1SR35-200A-HP
D1602	⚠408 007 9307	DIODE 1SR35-200A-HP
D1603	⚠408 007 9307	DIODE 1SR35-200A-HP
D1604	⚠408 007 9307	DIODE 1SR35-200A-HP
D1605	407 053 8500	ZENER DIODE MTZ8.2C
D1631	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
HS161	614 215 9347	HEAT SINK,FOR IC161
IC161	⚠409 254 7207	IC NJM7809FA
or	⚠409 066 4500	IC L7809ML
or	⚠409 066 4005	IC AN7809F
LUG01	614 217 7266	LUG,LEAD FIX
LUG02	614 217 7266	LUG,LEAD FIX
Q1501	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q1502	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q1503	405 082 4609	TR DTA123YS
Q1601	⚠405 077 9008	TR TIP29B
Q1632	405 000 4407	TR DTC124ES
or	405 078 2800	TR BA1F4M
or	405 001 0309	TR RN1203
Q1633	405 000 4407	TR DTC124ES
or	405 078 2800	TR BA1F4M
or	405 001 0309	TR RN1203
R1600	⚠402 045 1002	RESISTOR 0.18 J- 1W
R1605	⚠402 004 3801	FUSIBLE RES 1 J- 1/4W
RA106	614 218 0433	RESISTOR 100K X5,SHRINK
or	614 209 3634	RESISTOR 100K X5,SHRINK
SA101	411 021 5705	SCR S-TPG BIN 3X6,FOR IC161

CD DISC-TABLE LIGHT P.W.BOARD ASSY

Ref. No.	Part No.	Description
79	614 258 9557	ASSY,PWB,CD-LIGHT(N.S.P)
CN140	614 035 4911	SOCKET,2P,TO CD-FRONT KEY
PL161	645 005 5942	LAMP,PILOT,8V 150MA

TUNER & PRE-AMPLIFIER P.W.BOARD ASSY

Ref. No.	Part No.	Description
80	614 259 6241	ASSY,PWB,
		TUNER & PRE-AMP(N.S.P)
C2463	403 106 1603	NP-ELECT 1U Q 50V
C4653	403 135 3302	ELECT 1000U M 6.3V
CF221	614 231 0199	FILTER,10.7MHZ,FM
CF222	614 231 0199	FILTER,10.7MHZ,FM
CF231	614 246 0849	FILTER,450KHZ,AM
CF232	614 253 4618	FILTER,450KHZ,AM
CN201	614 239 1686	TERMINAL,4P,ANTANNA(W/EARTH)
or	645 005 0695	TERMINAL,4P,ANTANNA(W/EARTH)
CN202	614 234 1728	TERMINAL,PCB FIX
CN241	614 017 2607	PLUG,9P,TO FRONT
CN470	614 017 2546	PLUG,3P,TO CD POWER SUPPLY
CN471	614 017 2621	PLUG,11P,TO CD POWER SUPPLY
CN472	614 242 6692	SOCKET,20P,TO MAIN-AMP
CN473	614 263 7166	SOCKET,9P,TO TAPE DECK AMP
CN474	614 211 3257	SOCKET,5P,TO TAPE DECK AMP
CN476	614 017 2645	PLUG,13P,TO FRONT
CN477	614 017 2591	PLUG,8P,TO FRONT
CN478	614 020 6579	SOCKET,5P,TO MAIN-VOLUME
CN480	614 017 2614	PLUG,10P,TO FRONT
CN483	614 020 6616	SOCKET,9P,DIPP-MATE
CN484	614 020 6579	SOCKET,5P,DIPP-MATE
CN489	614 261 2545	SOCKET,4P,RCA TYPE,
		PHONO·VIDEO(W/EARTH)
CT211	614 007 6356	TRIMMER,11PF,WHITE,FM
D2101	407 157 8109	DIODE VARACTOR SVC211-B
D2102	407 157 8109	DIODE VARACTOR SVC211-B
D2103	407 157 8109	DIODE VARACTOR SVC211-B
D2104	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D2105	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D2153	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D2451	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4522	407 051 6805	ZENER DIODE GZS5.1Z
or	407 053 6407	ZENER DIODE MTZ5.1C
D4580	407 051 6805	ZENER DIODE GZS5.1Z
or	407 053 6407	ZENER DIODE MTZ5.1C
D4581	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4622	407 051 6805	ZENER DIODE GZS5.1Z
or	407 053 6407	ZENER DIODE MTZ5.1C
IC231	409 329 3707	IC LA1836
IC245	409 066 7600	IC LM7001
IC472	409 336 0508	IC BU4052BC
IC479	409 018 4503	IC LA6458DS
IC480	409 018 4909	IC LA6458S
IC482	409 018 4909	IC LA6458S
IC483	409 114 4803	IC LB1641
IC486	409 336 0508	IC BU4052BC
L2102	614 240 0890	TRANS,RF,FM
L2103	614 240 0906	TRANS,RF,FM
L2104	614 236 5885	VHF COIL,OSC,FM
L2105	614 028 6663	FILTER,2.2UH,FM
L2151	645 005 6734	TUNER,AM
L2201	614 028 6731	FILTER,8.2UH,FM
L2451	614 028 6861	FILTER,100UH,RIPPLE
L4580	614 027 9214	CHOKE COIL
Q2101	405 114 8407	TR 2SK193-LL
or	405 114 8506	TR 2SK193-ML
Q2102	405 012 5904	TR 2SC1923-Y
Q2104	405 012 5904	TR 2SC1923-Y
Q2105	405 012 5904	TR 2SC1923-Y
Q2201	405 018 7902	TR 2SC380TM-O
Q2302	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2393	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q2461	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
or	405 017 9709	TR 2SC3330-U
Q2462	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
or	405 017 9709	TR 2SC3330-U
Q2491	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q4501	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4502	405 027 0505	TR 2SK246-GR
Q4505	405 022 5505	TR 2SD1468-R
Q4507	405 004 5004	TR 2SA608-G-NP
or	405 001 7001	TR 2SA1015-GR
Q4601	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4602	405 027 0505	TR 2SK246-GR
Q4605	405 022 5505	TR 2SD1468-R
R4580	⚠402 004 4303	FUSIBLE RES 10 J- 1/4W
S4501	614 221 8327	SWITCH,TACT,RESET
SLD21	614 116 5349	SHIELD PLATE,FM OSC
SVR22	614 250 7247	POTENTIOMETER,10K(B)
or	614 250 7414	POTENTIOMETER,10K(B)
SVR23	614 250 7247	POTENTIOMETER,10K(B)
or	614 250 7414	POTENTIOMETER,10K(B)
T2302	645 005 0084	TRANS,IF,10.7MHZ,FM
X2301	614 246 0870	RESONATOR,456KHZ,FM VCO
X2451	614 229 2457	CRYSTAL,7.2MHZ
or	614 204 0317	CRYSTAL,7.2MHZ
or	614 240 1118	RESONATOR,7.2MHZ

MAIN VOLUME P.W.BOARD ASSY

Ref. No.	Part No.	Description
81	614 259 6258	ASSY,PWB,MAIN-VOL(N.S.P)

Ref. No.	Part No.	Description
CN486	614 020 6579	SOCKET,5P,TO TUNER/PRE-AMP
CN490	614 017 2102	PLUG,3P,TO MAIN-AMP
VR469	614 263 3700	VR,ROTARY,100K

MAIN-AMPLIFIER P. W. BOARD ASSY

Ref. No.	Part No.	Description
82	614 259 6173	ASSY,PWB,MAIN-AMP(N.S.P)
	614 261 0589	HEAT SINK,FOR IC494-496
	411 021 5705	SCR S-TPG BIN 3X6,HEAT SINK
C4704	403 057 3800	POLYESTER 0.1U M 50V
C4705	403 057 3800	POLYESTER 0.1U M 50V
C4721	403 086 2300	NP-ELECT 1U M 50V
C4804	403 057 3800	POLYESTER 0.1U M 50V
C4805	403 057 3800	POLYESTER 0.1U M 50V
C4821	403 086 2300	NP-ELECT 1U M 50V
C4901	404 064 5405	ELECT 5600U M 71V
or	404 064 9809	ELECT 5600U M 70V
C4902	404 064 5405	ELECT 5600U M 71V
or	404 064 9809	ELECT 5600U M 70V
C4903	403 045 2907	ELECT 1000U M 25V
C4904	403 045 2907	ELECT 1000U M 25V
C4916	403 086 8500	NP-ELECT 47U M 50V
C4923	403 046 0605	ELECT 2200U M 25V
C4927	403 086 2300	NP-ELECT 1U M 50V
C4935	403 053 4405	ELECT 2200U M 35V
CN400	614 242 6616	PLUG,20P,BOARD TO BOARD, TO TUNER/PRE-AMP
CN402	614 211 2991	SOCKET,2P,TO CD POWER SUPPLY
CN406	614 248 7006	TERMINAL,8P,SPEAKER
CN407	614 020 1253	SOCKET,6P,DIPP MATE, TO SP & H.P
CN408	614 020 1239	SOCKET,4P,DIPP MATE, TO SP & H.P
CN411	614 020 1246	SOCKET,5P,DIPP MATE, TO P.T SEC
CN420	614 020 1222	SOCKET,3P,DIPP MATE, TO MAIN VOL
CN421	614 020 1239	SOCKET,4P,DIPP MATE, TO P.T SEC
CN423	614 017 2096	PLUG,2P,TO CD POWER SUPPLY
D4701	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4801	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4903	407 053 6704	ZENER DIODE MTZ5.6B
or	407 051 6904	ZENER DIODE GZS5.6Y
D4906	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4911	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4914	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4915	⚠407 140 7201	DIODE DSR-10C-ET5
D4916	⚠407 140 7201	DIODE DSR-10C-ET5
D4917	⚠407 140 7201	DIODE DSR-10C-ET5
D4918	⚠407 140 7201	DIODE DSR-10C-ET5
D4922	⚠407 140 7201	DIODE DSR-10C-ET5
D4923	⚠407 140 7201	DIODE DSR-10C-ET5
D4924	⚠407 140 7201	DIODE DSR-10C-ET5
D4925	⚠407 140 7201	DIODE DSR-10C-ET5
D4928	407 070 4608	ZENER DIODE GZS30Y
D4929	407 053 6704	ZENER DIODE MTZ5.6B
or	407 051 6904	ZENER DIODE GZS5.6Y
D4930	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4933	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6109	DIODE 1SS119-041
D4935	⚠407 140 7201	DIODE DSR-10C-ET5
D4936	⚠407 140 7201	DIODE DSR-10C-ET5
D4937	⚠407 140 7201	DIODE DSR-10C-ET5
D4938	⚠407 140 7201	DIODE DSR-10C-ET5
D4939	⚠407 141 2809	DIODE IN5402
D4940	⚠407 141 2809	DIODE IN5402
D4941	⚠407 141 2809	DIODE IN5402
D4942	⚠407 141 2809	DIODE IN5402
IC490	⚠409 078 1900	IC L7805ML
IC491	⚠409 308 9508	IC STK401-130
IC493	⚠409 131 3506	IC L79M12ML
IC494	⚠409 001 7603	IC AN7812F
or	⚠409 078 2402	IC L7812ML
or	⚠409 122 6202	IC NJM7812FA
or	⚠409 168 2107	IC UPC7812HF
IC495	⚠409 001 7603	IC AN7812F
or	⚠409 078 2402	IC L7812ML
or	⚠409 122 6202	IC NJM7812FA
or	⚠409 168 2107	IC UPC7812HF
IC496	⚠409 001 7603	IC AN7812F
or	⚠409 078 2402	IC L7812ML
or	⚠409 122 6202	IC NJM7812FA
or	⚠409 168 2107	IC UPC7812HF
L4701	614 202 1712	VHF COIL
L4801	614 202 1712	VHF COIL
PO490	408 017 0707	TH PTH9M04BC471TS2F333, POSISTER,110 DEG.
PT401	⚠614 252 5722	POWER TRANSFORMER,SUB
Q4701	405 022 5505	TR 2SD1468-R
Q4702	405 016 3302	TR 2SC2909-S
or	405 016 3500	TR 2SC2909-T
or	405 012 3900	TR 2SC1845-E
or	405 032 8107	TR 2SC1845-F
Q4801	405 022 5505	TR 2SD1468-R
Q4802	405 016 3302	TR 2SC2909-S
or	405 016 3500	TR 2SC2909-T
or	405 012 3900	TR 2SC1845-E
or	405 032 8107	TR 2SC1845-F
Q4904	405 004 5004	TR 2SA608-G-NP
or	405 001 7001	TR 2SA1015-GR
Q4905	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4906	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4908	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K

Ref. No.	Part No.	Description
or	405 011 7503	TR 2SC1740-S
Q4909	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4920	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4922	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4923	405 001 9302	TR 2SA1020-Y
Q4999	405 019 4108	TR 2SC536-G-AUD-NP
or	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
R4705	⚠614 241 3449	RESISTOR 0.22 K- 5W
R4709	401 058 1108	OXIDE-MT 10 JA 1W
R4710	401 062 3907	OXIDE-MT 5.6 JA 1W
R4805	⚠614 241 3449	RESISTOR 0.22 K- 5W
R4809	401 058 1108	OXIDE-MT 10 JA 1W
R4810	401 062 3907	OXIDE-MT 5.6 JA 1W
R4909	⚠401 227 4107	CARBON 270 JB 1/4W
R4916	⚠401 227 4107	CARBON 270 JB 1/4W
R4935	⚠402 004 6406	FUSIBLE RES 3.9 J- 1/4W
R4950	⚠402 045 6205	RESISTOR 0.56 J- 2W
R4951	⚠402 045 6205	RESISTOR 0.56 J- 2W
R4952	⚠402 045 1309	RESISTOR 0.33 J- 1W
R4999	⚠401 009 8101	CARBON 3.3M KA 1/2W
RY490	⚠614 218 5032	RELAY,POWER,1-MAKE,12V
RY491	614 242 7767	RELAY,SPEAKER,2-MAKE,12V
or	614 224 4531	RELAY,SPEAKER,2-MAKE,12V
WR401	614 017 6964	TERMINAL BOARD,AC IN
WR402	614 017 6964	TERMINAL BOARD,AC IN

P.T PRIMARY P. W. BOARD ASSY

Ref. No.	Part No.	Description
83	614 259 6180	ASSY,PWB,PT PRI(N.S.P)
FPC01	614 208 4540	FUSE HOLDER,FOR FU490
FPC02	614 208 4540	FUSE HOLDER,FOR FU490

P.T SECONDARY P. W. BOARD ASSY

Ref. No.	Part No.	Description
84	614 259 6197	ASSY,PWB,PT SEC(N.S.P)
CN413	614 020 1246	SOCKET,5P,DIPP MATE, TOMAIN-AMP
CN422	614 020 1239	SOCKET,4P,DIPP MATE, TOMAIN-AMP

SPEAKER SWITCH & HEADPHONE SOCKET P. W. BOARD ASSY

Ref. No.	Part No.	Description
85	614 259 6203	ASSY,PWB, SP-SW & HP-SOCKET(N.S.P)
CN409	614 020 1253	SOCKET,6P,DIPP MATE, TO MAIN-AMP
CN410	614 020 1239	SOCKET,4P,DIPP MATE, TO MAIN-AMP
CN414	614 248 6962	SOCKET,HEADPHONE

Ref. No.	Part No.	Description
R4732	⚠401 067 5708	OXIDE-MT 330 JA 2W
R4832	⚠401 067 5708	OXIDE-MT 330 JA 2W
S4901	614 239 7824	SWITCH,PUSH,SPEAKER SELECT

CD MAIN P. W. BOARD ASSY

Ref. No.	Part No.	Description
86	614 258 9502	ASSY,PWB,CD-MAIN(N.S.P)
CN101	614 227 7706	SOCKET,13P,TO PICKUP
CN102	614 017 2577	PLUG,6P,TO PICKUP MECHANISM
CN103	614 234 0431	SOCKET,16P,TO CD-FRONT FL
CN104	614 017 2539	PLUG,2P,TO CD POWER SUPPLY
CN105	614 017 2553	PLUG,4P,TO CD POWER SUPPLY
CN106	614 017 2553	PLUG,4P,TEST POINT
D1531	407 053 6308	ZENER DIODE MTZ5.1B
IC101	409 245 4802	IC LA9210M
IC102	⚠409 317 8509	IC BA6398FP
IC104	409 331 4006	IC LC7861KE
IC105	409 329 4209	IC UPD6379GR
L1401	614 028 6748	FILTER,10UH,RIPPLE CANCEL
L1501	614 212 3171	INDUCTOR,FERITE
L1502	614 212 3171	INDUCTOR,FERITE
Q1101	405 006 1905	TR 2SA933S-S
or	405 006 1806	TR 2SA933S-R
or	405 057 7604	TR 2SA1175-FF
or	405 002 5402	TR 2SA1175-EF
or	405 002 1107	TR 2SA1048-GR
Q1102	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q1301	405 001 9302	TR 2SA1020-Y
Q1500	405 000 3400	TR DTC114TS
or	405 107 8704	TR BA1A4Z
or	405 035 1600	TR RN1211
Q1501	405 000 3400	TR DTC114TS
or	405 107 8704	TR BA1A4Z
or	405 035 1600	TR RN1211
SVR11	614 250 7414	POTENTIOMETER,10K(B)
X1401	614 231 2667	RESONATOR,16.93MHZ
	614 117 1098	SHIELD PLATE

MOTOR DRIVE P. W. BOARD ASSY

Ref. No.	Part No.	Description
87	614 249 5773	ASSY,PWB,MOTOR DRV(N.S.P)
CN150	614 017 2539	PLUG,2P,TO NO.1 SWITCH
CN151	614 017 2584	PLUG,7P,TO CHUCKING SWITCH
CN152	614 017 2577	PLUG,6P,TO LOCK SLIDE SWITCH
CN153	614 017 2553	PLUG,4P,TO DISC-TABLE/FRONT LOADING MOTORS
CN154	614 017 2539	PLUG,2P,TO SHUTTER MOTOR
CN155	614 017 2546	PLUG,3P,TO SHUTTER OPEN/CLOSE SWITCH
CN156	614 227 7836	SOCKET,32P,TO CD FRONT-1
D1820	407 050 1009	ZENER DIODE GZA3.3Y
D1821	407 050 0606	ZENER DIODE GZA3.0X
D1822	407 050 1009	ZENER DIODE GZA3.3Y
D1823	407 049 8507	ZENER DIODE GZA2.2X
D1824	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
IC181	⚠409 127 1400	IC LB1648
IC182	⚠409 127 1400	IC LB1648

PARTS LIST

Ref. No.	Part No.	Description
IC183	⚠409 127 1400	IC LB1648
Q1810	405 001 9302	TR 2SA1020-Y
Q1811	405 000 4407	TR DTC124ES
Q1812	405 000 4407	TR DTC124ES
RA181	614 218 0464	RESISTOR,100K X8,SHRINK
or	614 209 3696	RESISTOR,100K X8,SHRINK
S1810	614 220 5655	SWITCH,TACT,ROM CLEAR

MECHANISM SENSOR P. W. BOARD ASSY

Ref. No.	Part No.	Description
88	614 249 5780	ASSY,PWB,MECHA SENS(N.S.P)
CN157	614 017 3826	PLUG,3P,TO PLAY SENSOR
CN158	614 017 3819	PLUG,2P,TO PLAY LED
CN159	614 017 3819	PLUG,2P,TO FRONT LED
CN160	614 017 3871	PLUG,8P,TO FRONT SENSOR
IC184	409 207 7506	IC MLC74HC14A
IC185	409 207 7506	IC MLC74HC14A

CAUTION : Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.
Regular type resistors are less than 1/4W carbon type and 0 ohm chip resistors.
Regular type capacitors are less than 50V and less than 1000μF type of Ceramic type and Electrical type.

PARTS LIST (CD MECHANISM --- N.S.P)

24 CD ROTARY CHANGER MECHANISM (PM-DADRCH1 / SP)

BASE (PICKUP) SECTION

Ref. No.	Part No.	Description
BM1	614 253 7039	ASSY,CHASSIS,BASE
BM2	614 238 7399	ASSY,MOTOR,SLED
BM3	614 237 7093	GEAR,SLED RETARD 1
BM4	614 237 7109	GEAR,SLED RETARD 2
BM5	614 237 7116	GEAR,SLED
BM6	614 239 1303	PICKUP,LASER,SF-P1PS
BM7	614 237 7123	GEAR,PICKUP RACK
BM8	614 238 6934	SPRING,COMP,PICKUP RACK GEAR
BM9	614 237 7024	SHAFT,PICKUP RAIL
BM10	412 045 0905	SPECIAL SCREW, PICKUP RACK GEAR
BM11	614 249 8699	CORD,13P,TO PICKUP
BM12	614 253 5295	ASSY,CONNECTOR-S,6P, MOTOR & SW
BM13	614 247 8851	CHASSIS,SUB,PLATE,BASE
BM14	614 195 6978	RUBBER CUSHION,FLOAT UP/DOWN
BM15	614 237 7031	CUSHION,RUBBER,FLOAT SIDE
BM16	614 247 4907	SPRING,COMP,FLOAT SIDE
BM17	614 247 8929	BRACKET-M,BASE MECHA HOLD
BM18	614 247 8943	MOUNT-M,BASE MECHA BRACKET
BM19	614 247 8950	MOUNT-M,CHUCK BRACKET
BM20	614 247 8905	BRACKET-M,BASE MECHA,IN
BM21	614 247 8912	BRACKET-M,BASE MECHA,OUT
BM22	614 247 8899	BRACKET-M,BASE MECHA SUPPORT
BM23	412 003 1708	SPECIAL SCREW,BRACKET(BM22)
BM24	614 129 9099	LUG,EARTH
BM25	614 250 2648	ASSY,PULLEY,CHUCKING
BM26	614 247 2347	MAGNET,CHUCKING PRESSURE
BM27	614 253 7787	ASSY,LEVER,CHUCKING
BM28	614 233 0227	PLATE,CHUCKING
BM29	412 003 1708	SPECIAL SCREW, CHUCK LEVER(BM27)

FIXING PARTS (BASE SECTION)

Ref. No.	Part No.	Description
BY1	411 044 8004	SCR PAN+SW 2X8,SLED MOTOR FIX
BY2	411 024 3807	SCR S-TPG PAN+FLG 2X8, SLED GEAR FIX
BY3	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-M(BM17) FIX
BY4	411 020 8905	SCR S-TPG BRZ+FLG 3X10, MOUNT-M(BM20·BM21) FIX
BY5	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-M(BM20·BM21) FIX
BY6	411 020 9902	SCR S-TPG BRZ+FLG 3X8, DISC GUIDE UP FIX
BY7	411 022 7500	SCR S-TPG PAN 2X4, CHUCK PLATE(BM28) FIX

MOTORS & SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
MB51	614 251 6485	ASSY,PWB, MOTORS & LIMIT SW(N.S.P)
CN001	614 017 3857	PLUG,6P,TO CD MAIN
S001	614 231 4005	SWITCH,LEAF,LIMIT

ROTARY CHANGER SECTION

Ref. No.	Part No.	Description
CM1	614 247 8844	CHASSIS,ROTARY CHANGER
CM2	614 247 9186	TURNTABLE,DISC-TABLE,24 CD
CM3	614 247 8967	MOUNT-M,TOP PANEL
CM4	614 247 9261	SLIDE,CHUCKING DRIVE
CM5	614 255 4999	ASSY,MOTOR,CHUCKING
CM6	614 253 5806	ASSY,CONNECTOR-S,4P,CHUCKING & PLAY-LOADING MOTOR
CM7	614 253 8968	ASSY,CONNECTOR-S,7P,CHUCKING SW - MOTOR DRIVER PWB
CM8	614 247 9063	GEAR,SLIDE DRIVER M-2
CM9	614 247 9070	GEAR,SLIDE DRIVER M-1
CM10	614 247 9216	LEVER,SWITCH
CM13	614 249 0525	SPRING,TENS,FOR PINCH LEVER
CM15	614 247 8882	BRACKET-E,SENSOR BRACKET
CM16	614 253 6957	ASSY,MOTOR,DISC-TABLE
CM17	614 247 9209	BELT,SQUARE,DISC-TABLE ROTATE
CM18	614 247 9148	PULLEY,TRAY
CM19	614 247 9056	GEAR,TRAY TURN
CM21	614 249 9351	ASSY,ROLLER,DISC-TABLE SUPPORT
CM22	614 249 4035	SHAFT,DISC-TABLE ROLLER
CM23	412 003 1708	SPECIAL SCREW,ROLLER(CM21)
CM24	614 255 4999	ASSY,MOTOR,FRONT LOADING
CM25	614 253 5790	ASSY,CONNECTOR-S,4P,FRONT-LOADING & DISC-TABLE MECHA
CM26	614 247 9087	GEAR,SLIDE CUM(FRONT)
CM27	620 123 0772	SCREW WASHER,GEAR(CM26) FIX
CM28	614 253 9071	ASSY,GEAR,SLIP(FRONT)
CM29	614 247 9117	GEAR,LOADING GEAR 4(FRONT)
CM30	614 247 9124	GEAR,LOADING GEAR 3(FRONT)
CM31	614 247 9131	GEAR,LOADING GEAR 2(FRONT)
CM32	614 247 9278	SLIDE,DISC SLIDE
CM33	614 247 8837	COVER,FRONT SHUTTER
CM34	614 254 8011	ASSY,BRACKET-E,SENSOR LED (FRONT-LEFT)
CM35	614 253 8913	ASSY,CONNECTOR-S,2P,FRONT LED
CM36	614 247 8875	BRACKET-E,SENSOR RECEIVE (FRONT-RIGHT)
CM37	614 250 2662	ASSY,ROLLER,FRONT RIGHT
CM38	614 247 9162	BEARING,ROLLER SHAFT SUPPORT
CM39	614 247 9339	SPRING,TORS,ROLLER PRESS(DOWN)
CM40	614 253 7305	SPRING,TORS,ROLLER PRESS(UPPER)
CM41	614 253 8975	ASSY,CONNECTOR-S,8P,FRONT PHOTO DIODE
CM42	614 051 9808	LUG,EARTH,TO BOTTOM
CM43	614 051 9785	LUG,EARTH,BK,FOR CM34 -
or	614 051 9785	LUG,EARTH,BK,FOR CM36
CM44	614 253 8913	ASSY,CONNECTOR-S,2P,INITIAL SW
CM45	614 255 4999	ASSY,MOTOR,PLAY LOADING
CM46	614 247 9087	GEAR,SLIDE CUM(PLAY)
CM47	620 123 0772	SCREW WASHER,GEAR(CM46) FIX
CM48	614 253 9071	ASSY,GEAR,SLIP(PLAY)
CM49	614 247 9117	GEAR,LOADING GEAR 4(PLAY)
CM50	614 247 9124	GEAR,LOADING GEAR 3(PLAY)
CM51	614 247 9131	GEAR,LOADING GEAR 2(PLAY)
CM52	614 247 9278	SLIDE,DISC
CM53	614 254 8028	ASSY,LEVER,ROLLER,PLAY,LEFT
CM54	614 129 9068	LUG,LEVER(CM53) EARTH
CM55	614 129 9341	LUG,LEAD WIRE FIX
CM56	614 247 9315	SPRING,TENS,LEVER(CM53) PULL
CM57	614 254 8035	ASSY,LEVER,ROLLER,BACK,RIGHT
CM58	614 129 9068	LUG,LEVER(CM57) EARTH

Ref. No.	Part No.	Description
CM59	614 129 9341	LUG,LEAD WIRE FIX
CM60	614 248 9314	BRACKET-E,PLAY LED(P-L)
CM61	614 253 8913	ASSY,CONNECTOR-S,2P,PLAY LED
CM62	614 248 9307	BRACKET-E,PLAY SENSOR(P-R)
CM63	614 253 8944	ASSY,CONNECTOR-S,3P, PLAY SENSOR
CM64	614 129 9105	LUG,LEAD WIRE FIX
CM65	614 253 8951	ASSY,CONNECTOR-S,6P, LOCK SLIDE SW
CM66	614 247 8974	MOUNT-M,TOP PANEL FOR CHANGE
CM67	614 253 6964	ASSY,MOTOR,SHUTTER
CM68	614 253 5783	ASSY,CONNECTOR-S,2P, SHUTTER MOTOR
CM69	614 247 9124	GEAR,IDLER FOR SHUTTER
CM70	614 247 9131	GEAR,IDLER FOR SHUTTER
CM71	614 247 9049	GEAR,SHUTTER DRIVE
CM72	614 249 4066	SPRING,TORS,SHUTTER PUSH
CM73	614 253 8937	ASSY,CONNECTOR-S,3P, SHUTTER OPEN/CLOSE SW
CM74	614 247 8981	MOUNT-M,SW LEVER DRIVE
CM75	614 253 7299	BELT,SQUARE,PREVENT FOR NOISE
CM76	412 047 7308	SPECIAL WASHER,FOR DISC NOISE
	614 125 6443	CUSHION,LEAD WIRE DRESSING

FIXING PARTS (ROTARY CHANGER SECTION)

Ref. No.	Part No.	Description
CY1	411 020 9902	SCR S-TPG BRZ+FLG 3X8, SLIDE(CM4) FIX
CY2	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PWB(CM101) FIX
CY3	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM5) FIX
CY4	411 119 9103	SCR S-TPG PAN 2X16, GEAR(CM8) FIX
CY5	411 020 9902	SCR S-TPG BRZ+FLG 3X8, LEVER(CM10) FIX
CY6	411 023 2207	SCR S-TPG PAN 2.6X4, PWB(CM102) FIX
CY7	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET(CM15) FIX
CY8	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM16) FIX
CY9	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM24) FIX
CY10	411 020 9902	SCR S-TPG BRZ+FLG 3X8, SLIDE(CM32) FIX
CY11	411 020 9902	SCR S-TPG BRZ+FLG 3X8, COVER(CM33) FIX
CY12	411 023 2801	SCR S-TPG PAN 2.6X6, PWB(CM103) FIX
CY13	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET(CM34) FIX
CY14	411 023 2801	SCR S-TPG PAN 2.6X6, PWB(CM104) FIX
CY15	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET(CM36) FIX
CY16	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PWB(CM105) FIX
CY17	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM45) FIX
CY18	411 020 9902	SCR S-TPG BRZ+FLG 3X8, SLIDE(CM52) FIX
CY20	411 025 1901	SCR S-TPG PAN 2X3, LUG(CM54·CM55) FIX
CY22	411 025 1901	SCR S-TPG PAN 2X3, LUG(CM58·CM59) FIX
CY23	411 023 2801	SCR S-TPG PAN 2.6X6, PWB(CM106) FIX
CY24	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-E(CM60) FIX
CY25	411 023 2801	SCR S-TPG PAN 2.6X6, PWB(CM107) FIX
CY26	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-E(CM62) FIX
CY27	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PWB(CM108) FIX
CY28	411 020 9407	SCR S-TPG BRZ+FLG 3X14, TOP PANEL(CM3) FIX
CY29	411 020 8905	SCR S-TPG BRZ+FLG 3X10, MOUNT-M(CM66) FIX
CY30	411 044 7205	SCR PAN+SW 2X4, SHUTTTER MOTOR(CM67) FIX
CY31	411 020 9902	SCR S-TPG BRZ+FLG 3X8, GEAR(CM71) FIX
CY32	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PWB(CM109) FIX
CY33	411 020 9902	SCR S-TPG BRZ+FLG 3X8, MOTOR DRIVER PWB FIX
CY34	411 022 8408	SCR S-TPG PAN 2X8, MOUNT-M(CM74) FIX
CY35	411 023 3303	SCR S-TPG PAN 2.6X8, GEAR(CM19) FIX
CY36	411 087 6005	WASHER V 2.6X7.5X0.5, GEAR(CM19) FIX

CHUKING SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM101	614 249 5681	ASSY,PWB,CHUCKING SW(N.S.P)
CN181	614 017 2584	PLUG,7P,TO MOTOR DRIVER
CN182	614 017 2553	PLUG,4P,TO CHUCKING & PLAY-LOADING MOTOR
D1801	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D1802	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1801	614 249 1355	SWITCH,LEVER,CHUCKING OFF
S1802	614 249 1355	SWITCH,LEVER,CHUCKING ON

DISC STOP SENSOR P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM102	614 249 5704	ASSY,PWB, DISC STOP SENSOR(N.S.P)
CN185	614 224 9932	ASSY,CONNECTOR-S,3P, TO LOCK SLIDE SW
D1818	407 137 8006	PHOTO COUPLE GP1A53HR, DISC-TABLE POSITION

FRONT LED P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM103	614 249 5735	ASSY,PWB,FRONT LED(N.S.P)
	614 252 0956	COVER,SENSOR(LED)
CN189	614 017 3819	PLUG,2P,TO MECHA SENSOR
D1810	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1811	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1812	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1813	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK

Ref. No.	Part No.	Description
D1814	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1815	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK

FRONT S ENSOR P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM104	614 249 5742	ASSY,PWB,FRONT SENSOR(N.S.P)
	614 252 0956	COVER,SENSOR(PHOTO DIODE)
CN188	614 017 3871	PLUG,8P,TO MECHA SENSOR
D1830	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1831	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1832	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1833	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1834	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1835	407 159 6004	PHOTO DIODE PT380F,DISC CHECK

INITIAL SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM105	614 249 5711	ASSY,PWB,INITIAL SW(NO.1 DISC POSITION DETECTOR)(N.S.P)
CN186	614 017 2539	PLUG,2P,TO MOTOR DRIVER
D1807	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1807	614 250 0101	SWITCH,LEVER, INITIAL POSITION(RESET)

PLAY LED P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM106	614 249 5759	ASSY,PWB,PLAY LED(N.S.P)
	614 252 0956	COVER,SENSOR(LED)
CN191	614 017 3819	PLUG,2P,TO MECHA SENSOR
D1817	408 018 8108	LED SRZ-935A-1-BC-T1, DISC CHECK

PLAY SENSOR P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM107	614 249 5766	ASSY,PWB,PLAY SENSOR(N.S.P)
	614 252 0956	COVER,SENSOR(PHOTP DIODE)
CN190	614 017 3826	PLUG,3P,TO MECHA SENSOR
D1836	407 159 6004	PHOTO DIODE PT380F,DISC CHECK

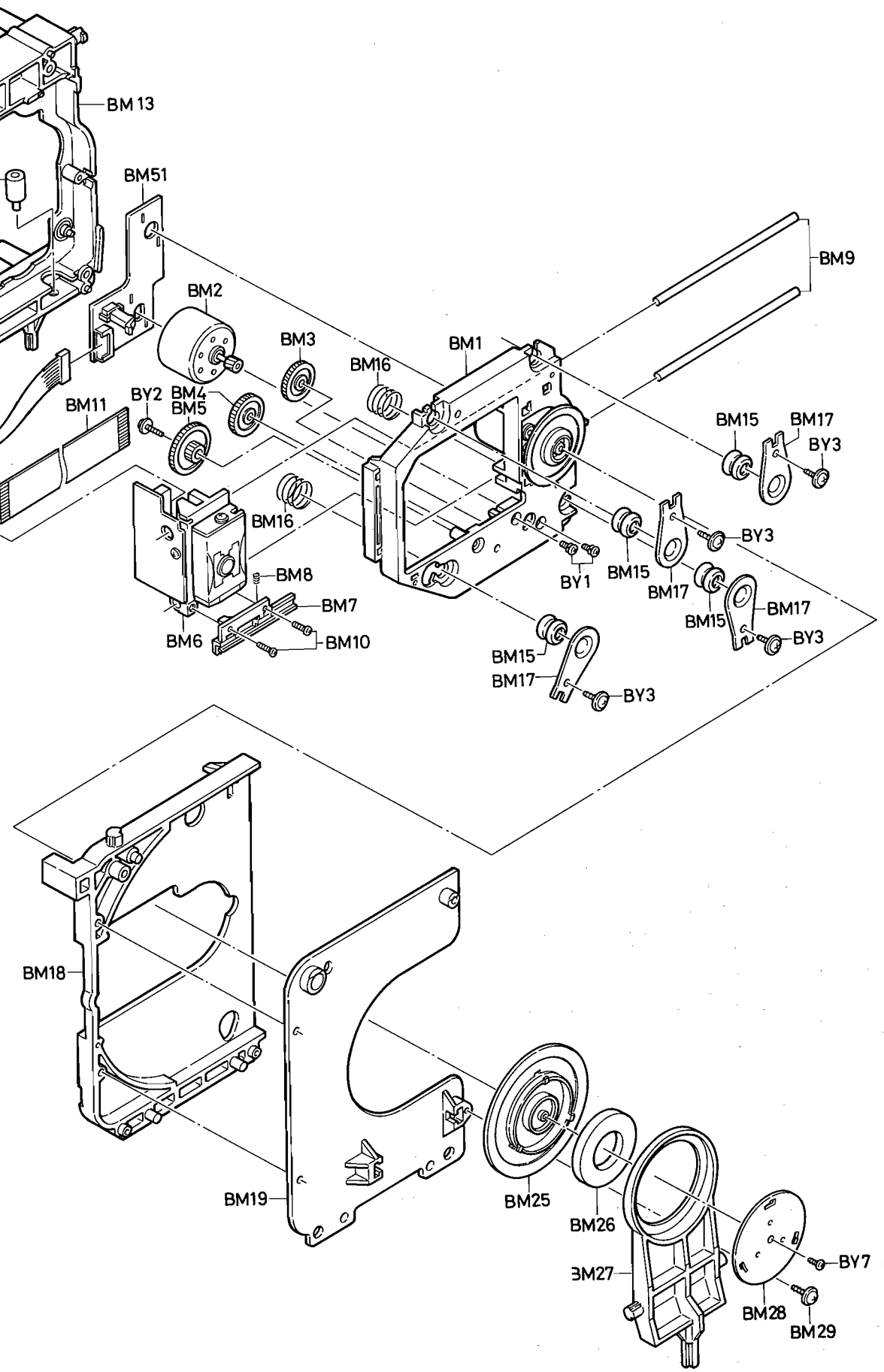
LOCK SLIDE SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM108	614 249 5698	ASSY,PWB, LOCK SLIDE SW (N.S.P)
CN183	614 017 3857	PLUG,6P,TO MOTOR DRIVER
CN184	614 017 3826	PLUG,3P,TO DISC STOP SENSOR
D1804	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D1805	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1804	614 249 1355	SWITCH,LEVER, DISC SLIDE RESET(PLAY)
S1805	614 249 1355	SWITCH,LEVER, DISC SLIDE RESET(FRONT)

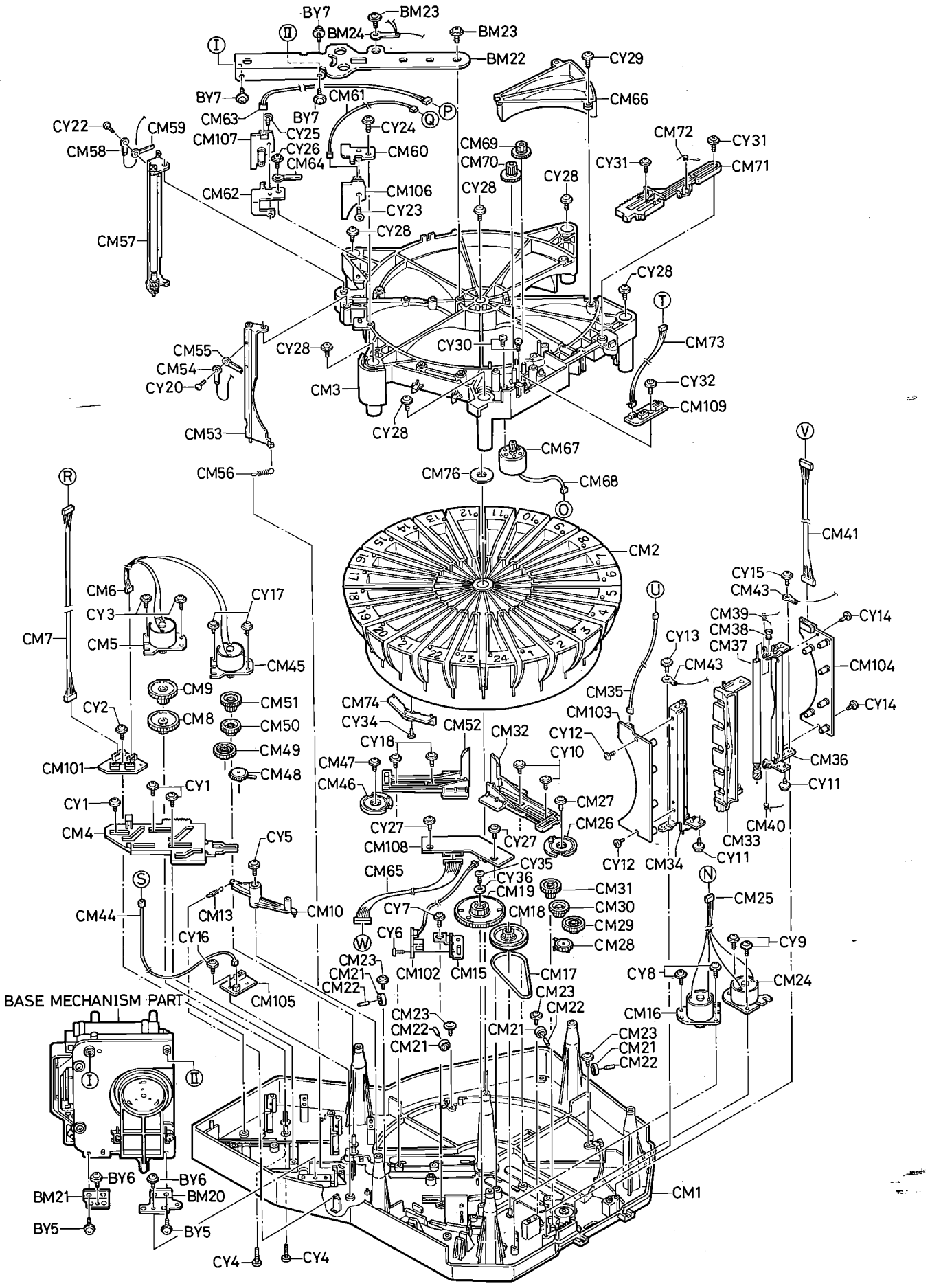
SHUTTER OPEN/CLOSE P.W.BOARD ASSY

Ref. No.	Part No.	Description
CM109	614 249 5728	ASSY,PWB,SHUTTER OPEN/CLOSE SW(N.S.P)
CN187	614 017 2546	PLUG,3P,TO MOTOR DRIVER
D1808	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D1809	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1808	614 249 1355	SWITCH,LEVER,SHUTTER,CLOSE END
S1809	614 249 1355	SWITCH,LEVER,SHUTTER,OPEN END

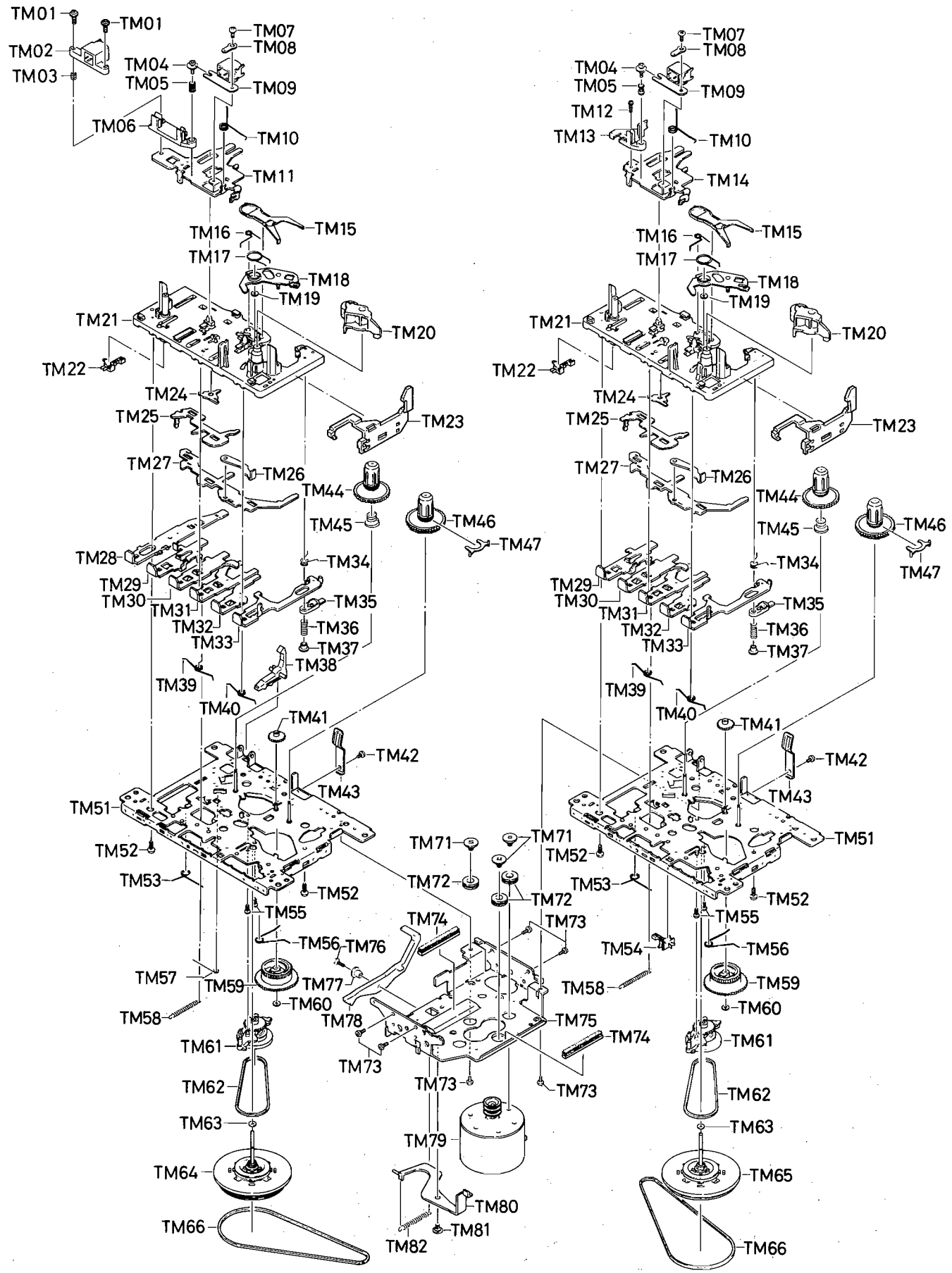
EXPLODED VIEW (CD BASE (PICKUP) MECHANISM)



EXPLODED VIEW (CD ROTARY MECHANISM)



EXPLODED VIEW (TAPE MECHANISM)



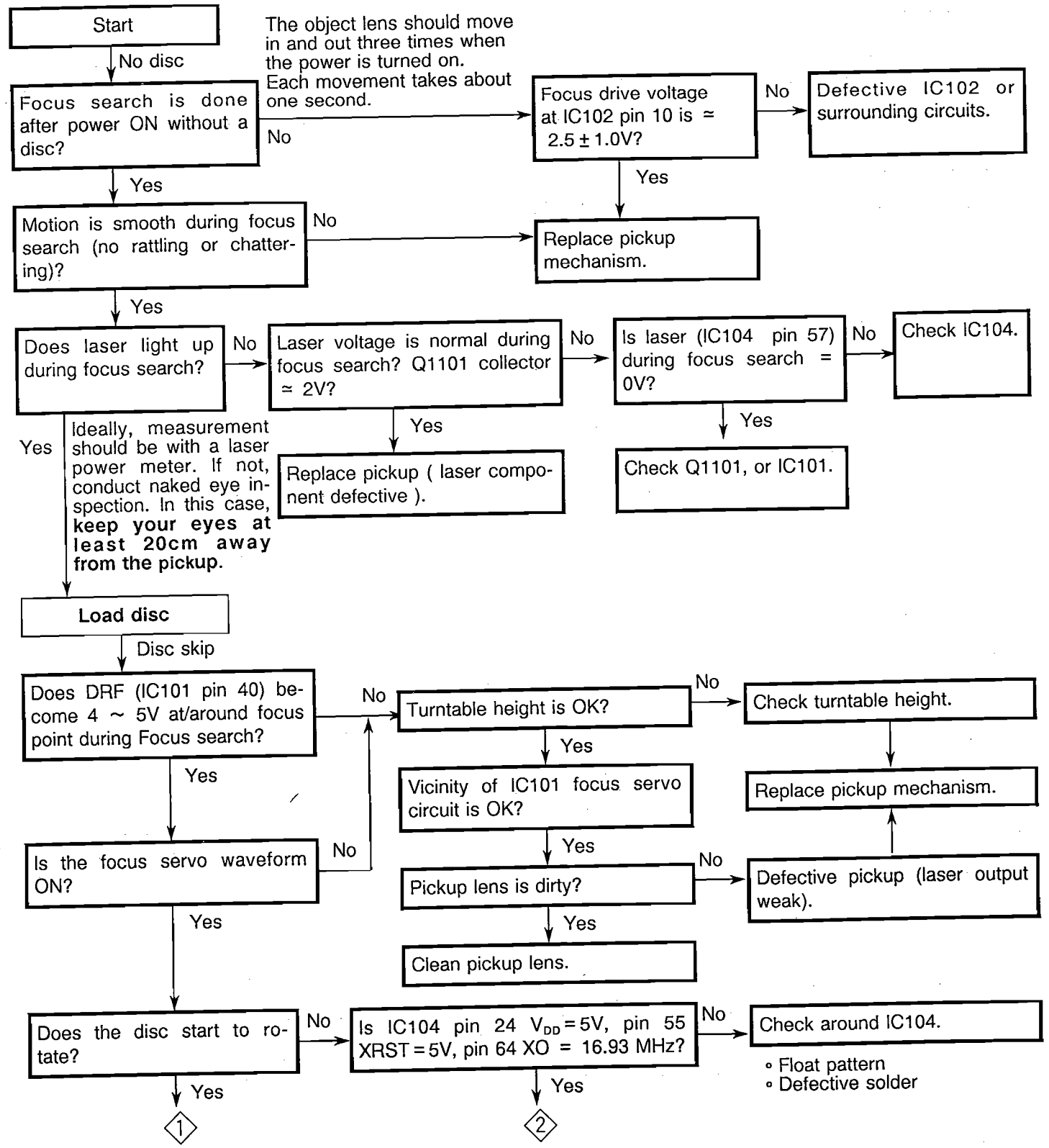
PARTS LIST

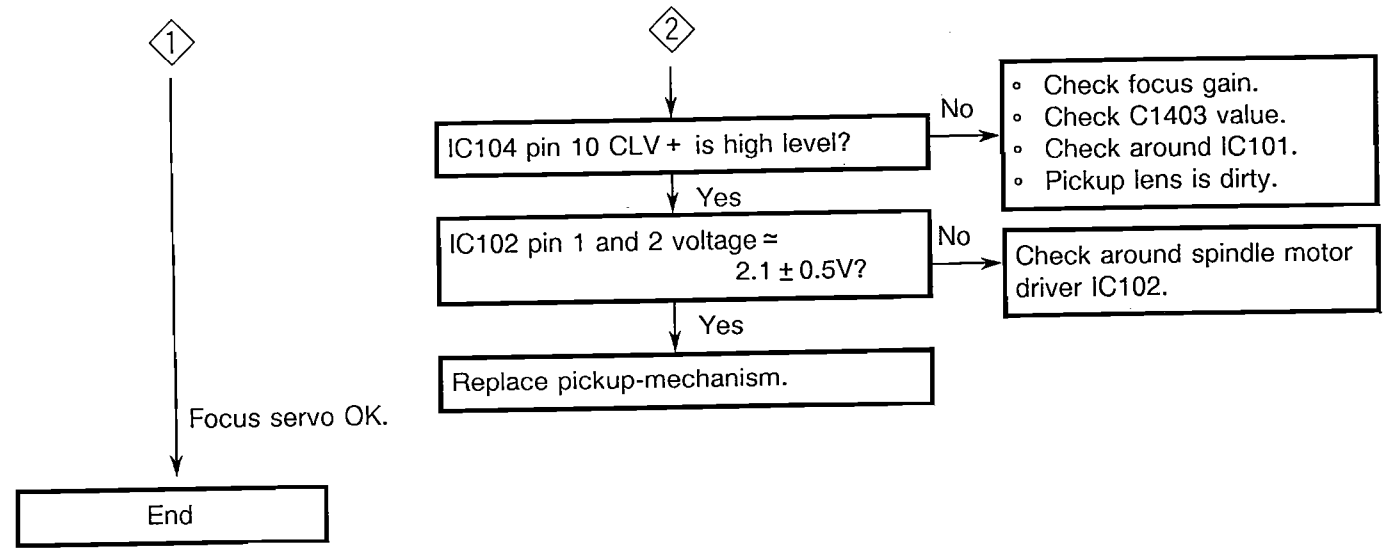
TAPE DECK MECHANISM (TM-9415TN / SP --- N.S.P)

Ref. No.	Part No.	Description
TM01	412 027 4600	SCREW,SPECIAL,+- CUP 2X8
TM02	614 021 8251	HEAD,MAGNETIC,ERASE
TM03	614 151 5090	SPRING,COIL,ERASE HEAD, DECK B
TM04	412 026 1709	SCREW,SPECIAL,AZIMUTH 2X7
TM05	614 151 7162	SPRING COIL,AZIMUTH
TM06	614 196 0470	BRACKET,HEAD PANEL
TM07	412 004 3701	SCREW,SPECIAL,+ BIND 2X3
TM08	614 208 0276	LUG,HEAD EARTH
TM09	614 221 0277	HEAD,MAGNETIC,PLAY
TM09	614 221 0277	HEAD,MAGNETIC,REC/PLAY
TM10	614 210 3432	SPRING,WIRE,PANEL(P)
TM11	614 210 6822	SLIDE,HEAD PANEL,DECK B
TM12	412 026 1501	SCREW,SPECIAL,+ 2X6,DECK A
TM13	614 146 5111	BRACKET,TAPE GUIDE,HEAD BASE,DECK A
TM14	614 211 6944	SLIDE,HEAD PANEL,DECK A
TM15	614 140 1614	LEVER,SENSING
TM16	614 152 1299	SPRING,WIRE,MAIN CONTROL
TM17	614 151 8312	SPRING,PLATE,GEAR
TM18	614 070 0916	ASSY,LEVER,GEAR PLATE
TM19	412 026 1808	WASHER,SPECIAL,POLY 1.45X3.8X0.5
TM20	614 237 2371	ASSY,PINCH ROLLER,ARM
TM21	614 067 3258	ASSY,SUB CHASSIS,BASE METAL
TM22	614 024 1693	SWITCH,LEAF,PLAY
TM23	614 205 1313	LEVER,ERASE SLIDE
TM24	614 129 0676	BOSS,REC/PLAY STOPPER
TM25	614 201 1744	SLIDE,SWITCH ACTUATOR
TM26	614 140 1539	LEVER,EJECT KICK
TM27	614 139 1120	SLIDE,PUSH BUTTON ACTUATOR
TM28	614 196 0500	LEVER,REC BUTTON
TM29	614 196 0555	LEVER,PLAY BUTTON
TM30	614 196 0517	LEVER,RWD BUTTON
TM31	614 196 0524	LEVER,FF BUTTON
TM32	614 196 0531	LEVER,STOP BUTTON
TM33	614 208 0313	LEVER,PAUSE BUTTON
TM34	614 152 1244	SPRING,WIRE,PAUSE CONTROL
TM35	614 208 0320	LEVER,PAUSE
TM36	614 151 7186	SPRING,COIL,PAUSE LEVER
TM37	614 129 0669	BOSS,PAUSE STOPPER
TM38	614 140 1508	LEVER,REC SAFETY,DECK B
TM39	614 152 1251	SPRING,WIRE,BUTTON LEVER A
TM40	614 152 1268	SPRING,WIRE,BUTTON LEVER B
TM41	614 134 9046	GEAR,FAST FORWARD
TM42	412 026 2003	SCREW,SPECIAL,+C TITE 2X4
TM43	614 151 8299	SPRING PLATE,PACK
TM44	614 204 5695	ASSY,REEL,SUPPLY
TM45	614 208 0351	SPRING,COMP,BACK TENSION
TM46	614 204 5701	ASSY,REEL,TAKE UP
TM47	614 195 5094	LEVER,SENSOR
TM51	614 067 2770	ASSY,CHASSIS,TAPE MECHANISM
TM52	412 026 2201	SCREW,SPECIAL, P TITE BIND 2X5
TM53	614 152 1282	SPRING,WIRE,PLAY/STOP LEVER
TM54	614 195 4424	SWITCH,LEAF,STOP
TM55	412 026 2300	SCREW,SPECIAL,CAMERA TAPPING
TM56	614 152 1275	SPRING,WIRE,EJECT ACTUATOR
TM57	614 152 1305	SPRING,WIRE,REC BUTTON, DECK B
TM58	614 151 4703	SPRING,COIL,PLAY BUTTON LEVER(S)
TM59	614 134 9053	GEAR,CAM
TM60	412 013 5000	WASHER,SPECIAL,POLY 1.2X3.8X0.3
TM61	614 069 2273	ASSY,PULLEY,REVERSE/FORWARD
TM62	614 195 5087	BELT,SQUARE,REVERSE/FORWARD
TM63	412 026 2508	WASHER,SPECIAL,POLY 2X3.5X0.3
TM64	614 068 1871	ASSY,FLYWHEEL DISK,DECK B
TM65	614 196 0197	ASSY,FLYWHEEL DISK,DECK A
TM66	614 234 1377	BELT,SQUARE,MAIN
TM71	412 026 1907	SCREW,SPECIAL,M COLLAR
TM72	614 126 6831	CUSHION,RUBBER,MOTOR
TM73	412 026 2003	SCREW,SPECIAL,+C TITE 2X4
TM74	614 126 6848	CUSHION,ANTI VIBRATION
TM75	614 122 9553	BRACKET,MOTOR
TM76	412 031 7901	SCEWR,SPECIAL,C TITE 2X6
TM77	614 129 0683	BOSS,COLLAR B
TM78	614 140 1676	LEVER,PLAY KICK B
TM79	614 234 0929	ASSY,MOTOR,TAPE DRIVE
TM80	614 139 8679	LEVER,PLAY KICK A
TM81	412 005 8101	SCREW,SPECIAL,PK COLLAR A
TM82	614 151 4758	SPRING,COIL,PLAY KICK LEVER

1. Defective Focus Search of CD (1) (No Disc rotation. no dISC appears on the display.)

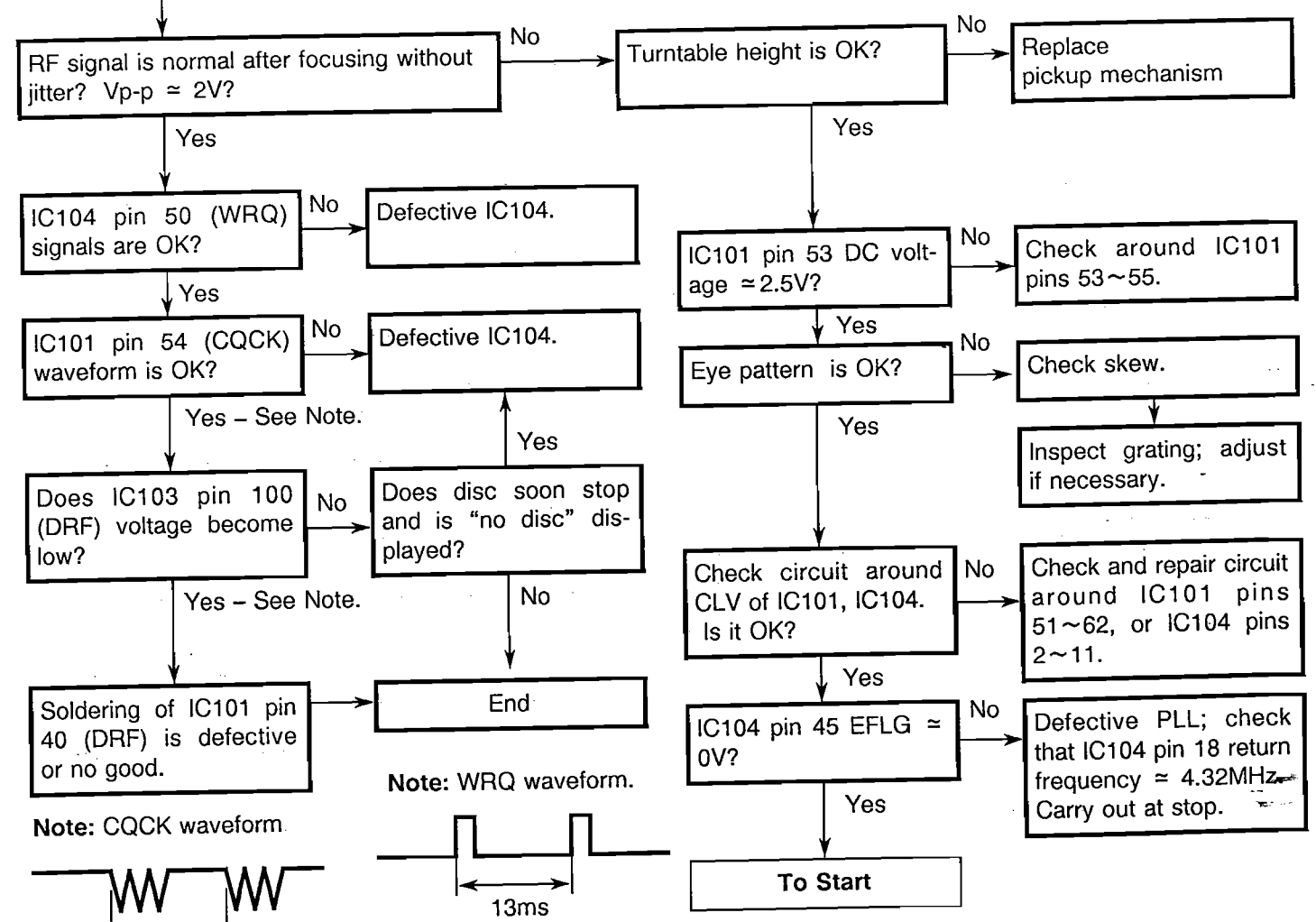
Operating conditions:
- Pickup return OK
- Disc skip OK
- Display OK
- Base mechanism OK





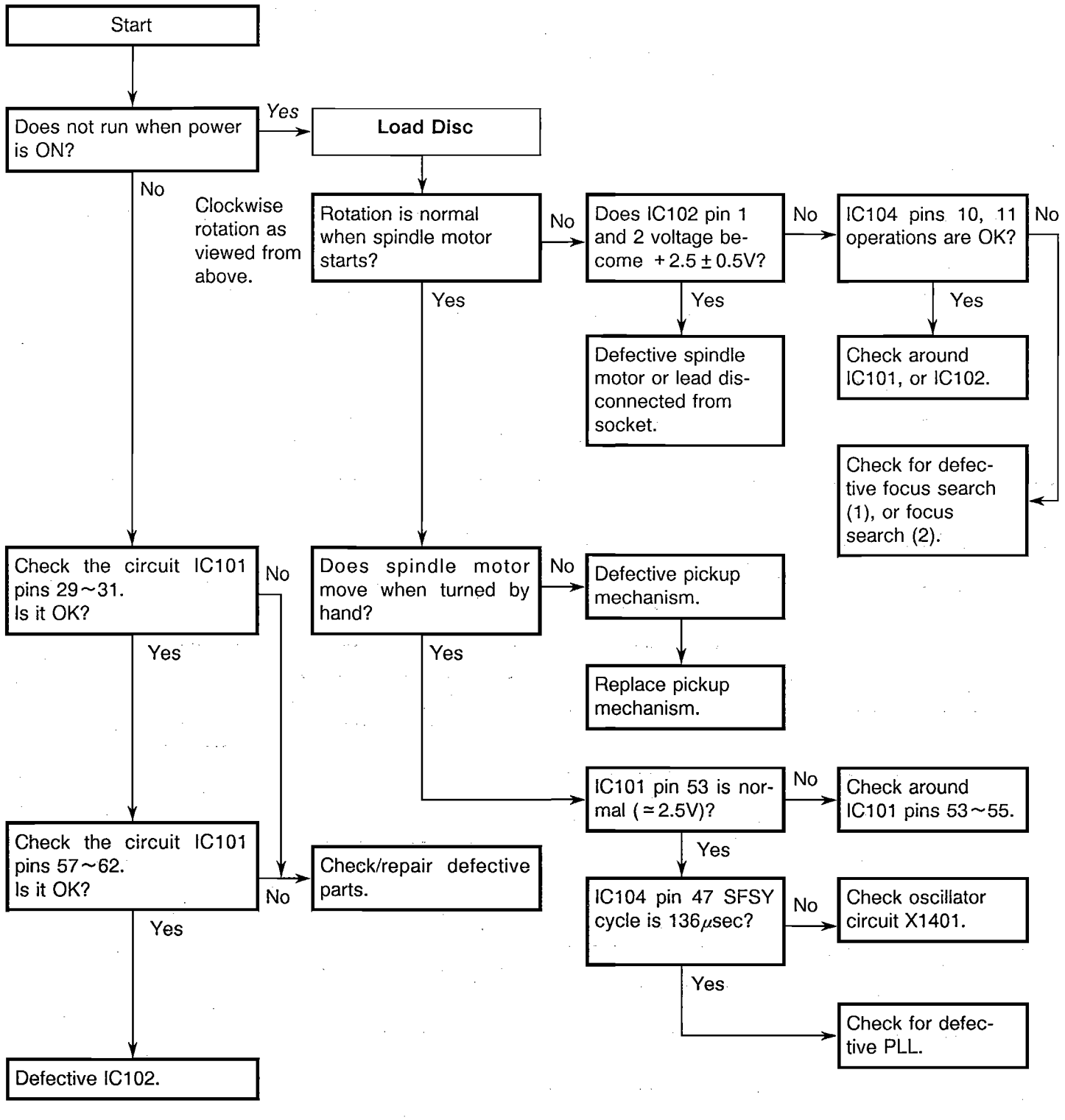
2. Defective Focus Search of CD (2) (Disc rotates but soon stops. NO DISC is displayed)

Operating conditions:
- Pickup return OK
- Open/Close OK
- Display OK
- Focus search (lens move) OK
- Base mechanism up/down OK
- Focusing servo on OK



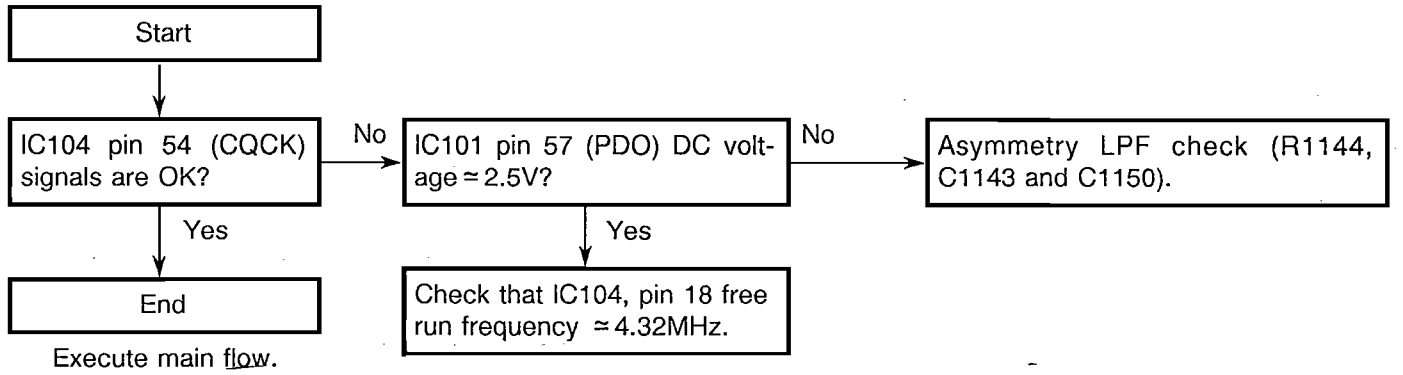
3. Defective Spindle Motor Rotation of CD

Operating conditions:
- Pickup return OK
- Focus search (lens move) OK
- Display OK
- Focusing servo on OK
- XRST = 5V OK
- Tracking servo on OK



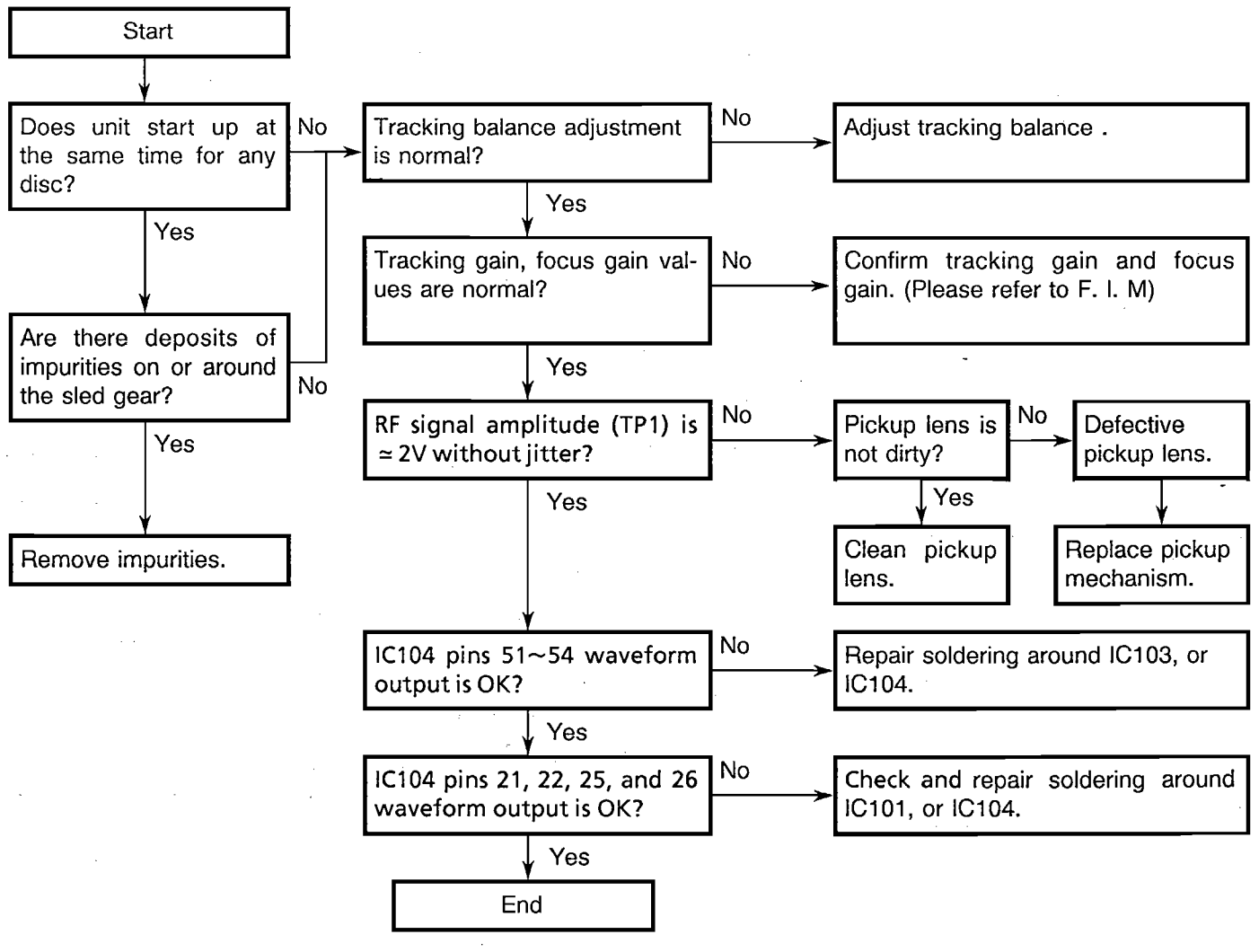
4. Defective PLL of CD

Operating conditions:
- Pickup return OK
- Focus search (lens move) OK
- Sled servo on OK
- Tracking servo on OK
- Focusing servo on OK



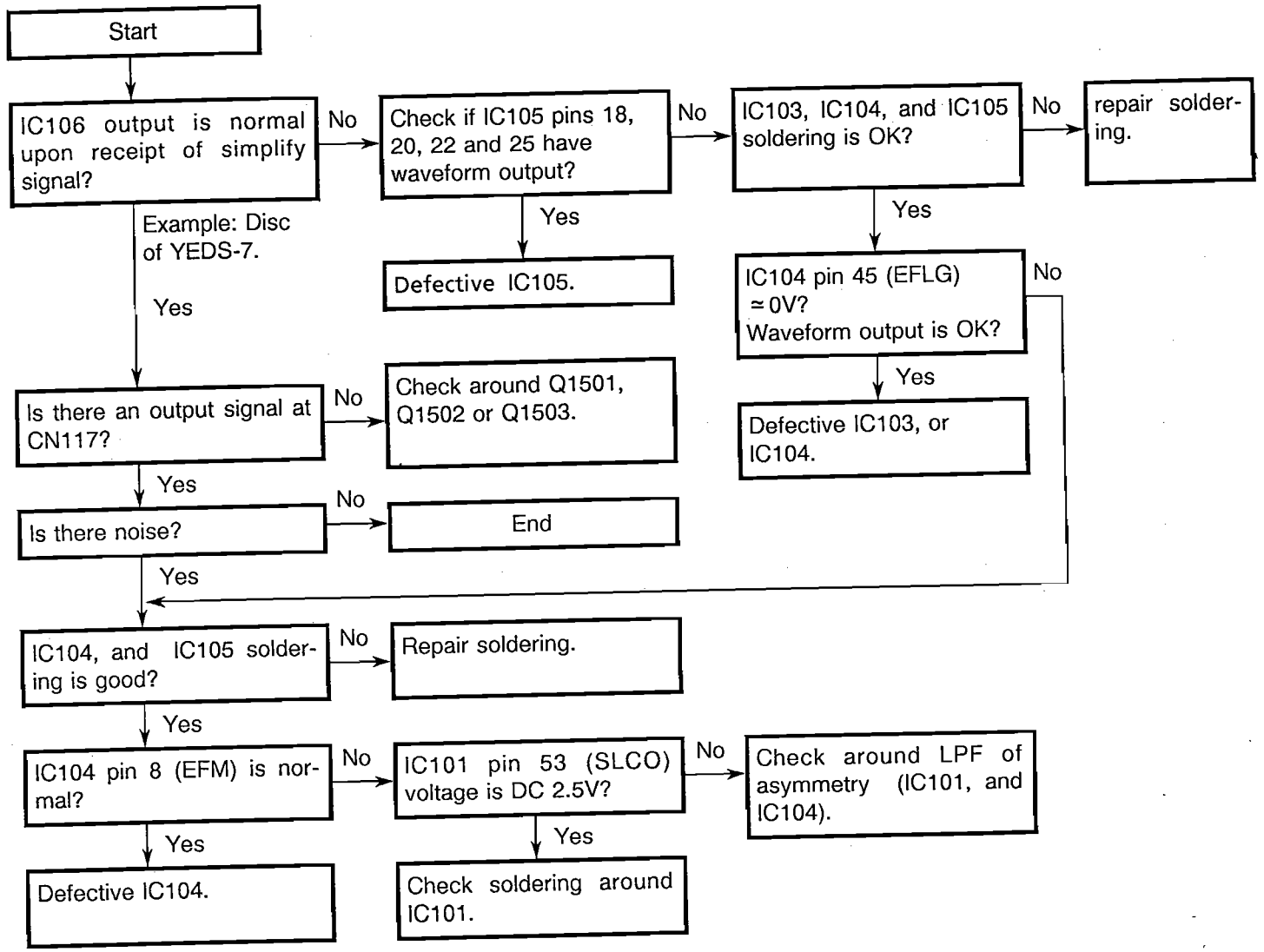
5. Track Jumping of CD

Operating conditions:
- Pickup return OK
- Open/Close OK
- Focusing servo on OK
- Sled servo on OK
- Focus search (lens move) OK
- Tracking servo on OK
- Display OK



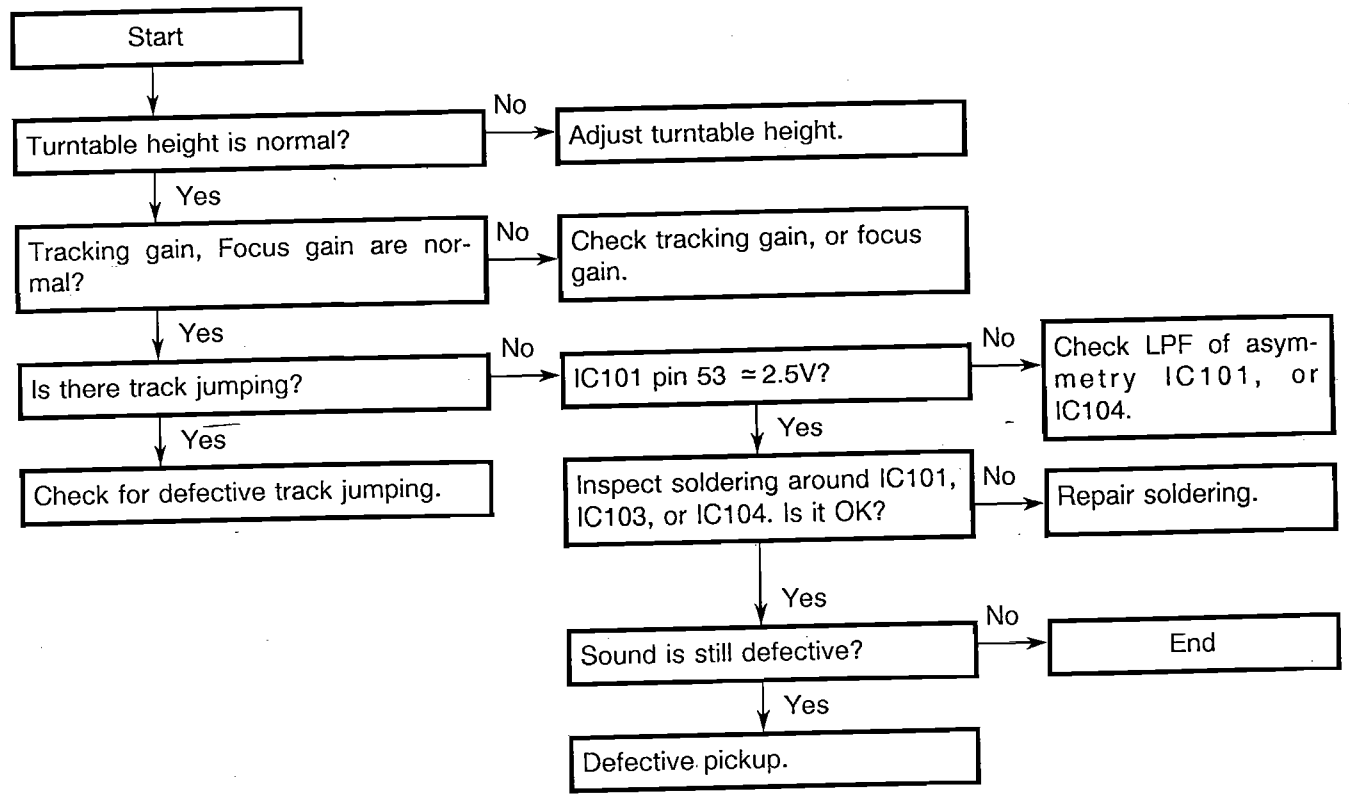
6. Defective Sound of CD (Sound is absent or distorted.)

Operating conditions:
- Pickup return OK
- Normal eye pattern, RF signal OK
- Display OK



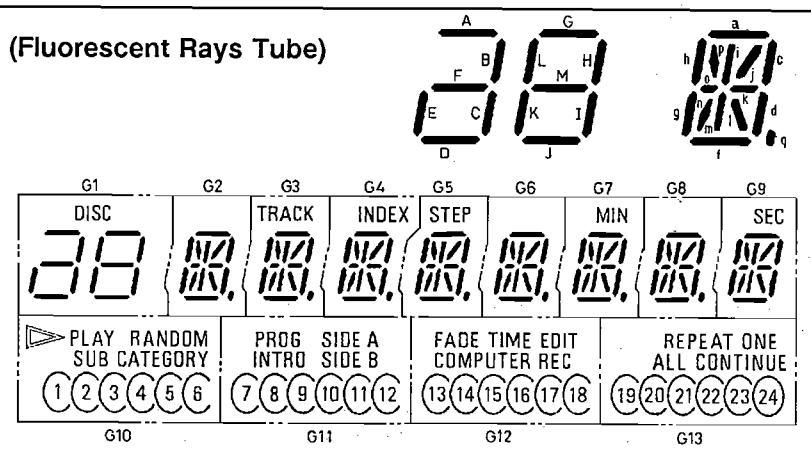
7. Defective Sound of CD (Sound is absent or distorted.)

Operating conditions:
- Pickup return OK
- Eye pattern defective
- Display OK



DISPLAY BLOCK

FL171 1AD4T41A01400 (Fluorescent Rays Tube)



Anode Grid Assignment

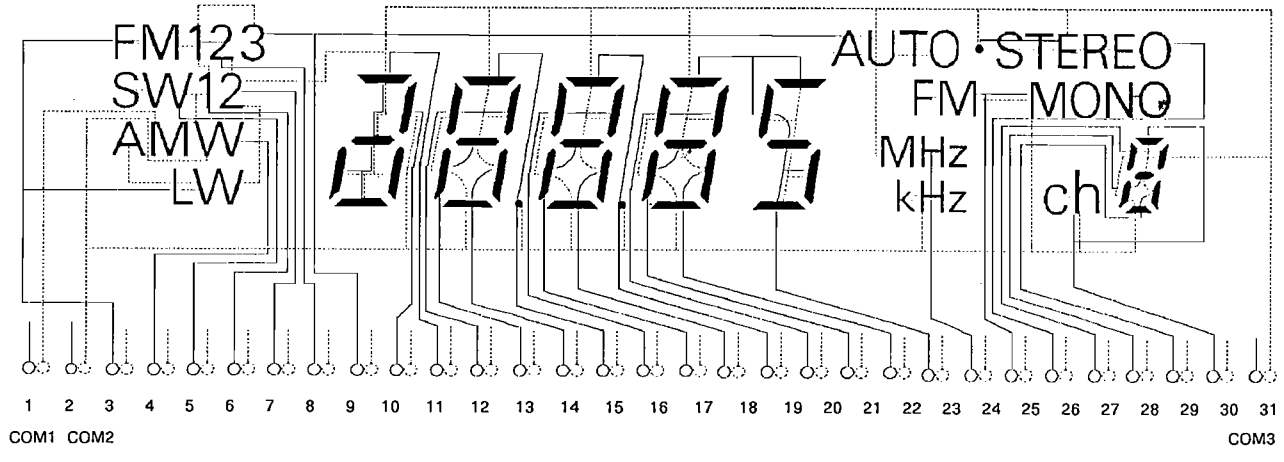
	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	SA	SB	SC	SD	SE	SF
G1	I	C	K	E	M	F	D	J	H	B	L	---	G	A	---	DISC
G2	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	---
G3	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	TRACK
G4	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	INDEX
G5	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	STEP
G6	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	---
G7	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	MIN
G8	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	---
G9	m	l	n	d	o	k	g	f	h	p	j	i	c	a	---	SEC
G10	1	2	3	4	5	6	▷ PLAY	RANDOM	1-C	2-C	3-C	4-C	5-C	6-C	SUB	CATEGORY
G11	7	8	9	10	11	12	PROG.	INTRO	7-C	8-C	9-C	10-C	11-C	12-C	SIDE A	SIDE B
G12	13	14	15	16	17	18	TIME	FADE	13-C	14-C	15-C	16-C	17-C	18-C	EDIT	COMPUTER REC
G13	19	20	21	22	23	24	REPEAT	ONE	19-C	20-C	21-C	22-C	23-C	24-C	ALL	CONTINUE

Pin Assignment

Pin No.	1	2	3	4	5	6	7	8	9	10
Assignment	F	F	NP	G1	G2	G3	G4	G5	G6	G7
Pin No.	11	12	13	14	15	16	17	18	19	20
Assignment	G8	G9	G10	G11	G12	G13	SF	SE	SD	SC
Pin No.	21	22	23	24	25	26	27	28	29	30
Assignment	SB	SA	S9	S8	S7	S6	S5	S4	S3	S2
Pin No.	31	32	33	34	35					
Assignment	S1	S0	NP	F	F					

F: Filament G1 ~ G13: Grid S0 ~ SF: Anode NP: No pin

LCD26 1AD4T40A03600 (Liquid Crystal Display)



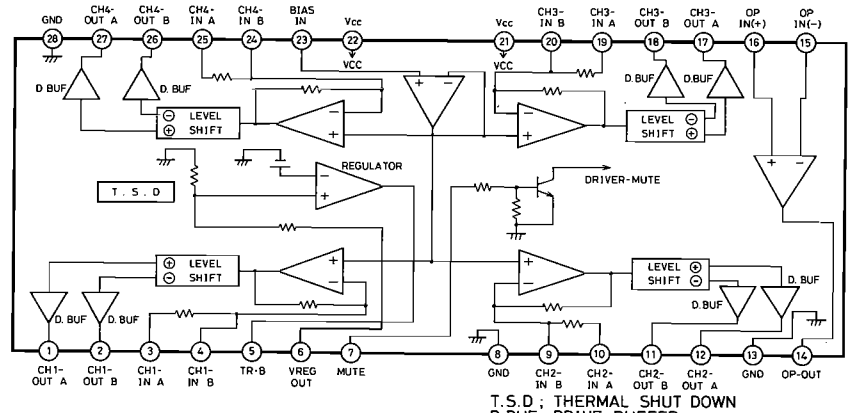
IC BLOCK DIAGRAM

IC101 LA9210M (Servo Signal Processor)

No.	Name	I / O	Function
1	NC		Non Connection
2	VEE		-5V
3	E	I	IV Convert Input (from Photo Diode E)
4	F	I	IV Convert Input (from Photo diode F)
5	FN	I	IV Converter Input
6	FO	O	IV Converter Output
7	TEAO	O	Tracking Error Amplifier Output
8	VREF2	I	Reference Voltage 2
9	VREF3	I	Reference Voltage 3
10	TES1	I	Test Input
11	ATSC	I	+ Input of Anti Shock Detect Amplifier
12	ATSC-	I	- Input of Anti Shock Detect Amplifier
13	TPA+	I	- Input of Tracking Pulse Amplifier
14	TPA-	I	+ Input of Tracking Pulse Amplifier
15	TPAO	O	Tracking Pulse Amplifier Output
16	TOFS	I	Input for Tracking Offset
17	THDS	I	Tracking Servo Hold Switch
18	TD+	I	Add the Track Jump Pulse
19	JPO	O	Track Jump Pulse Amplifier Output
20	SLEQ	I	Input for Sled Servo Equalizer
21	TDO	O	Tracking Actuator Coil Driver Output
22	FDO	O	Focus Actuator Coil Driver Output
23	FD-	I	Input for Focus Actuator Coil Driver
24	FSW	I	Focus Servo Switch
25	NC		Non Connection
26	FEAO	O	Focus Error Amplifier Output
27	FE+	I	+ Input of Focus Error Amplifier
28	FD+	I	+ Input of Focus Actuator Coil Driver
29	SPO	O	CLV Error Amplifier Output
30	SPO-	I	Input for Spindle Motor Driver
31	SPDO	O	Spindle Motor Driver Output
32	VEE		-5V
33	SLDO	O	Sled Motor Driver Output
34	SL-	I	- Input of Sled Motor Driver
35	SL+	I	+ Input of Sled Motor Driver
36	VCC		+5V
37	SLSW	I	Sled Servo Switch
38	DEFO	O	Defect Signal Output
39	FREQ	I	Input for VCO
40	DRF	O	Focusing Servo ON : High Level

No.	Name	I / O	Function
41	NC		Non Connection
42	JP-	I	- Input of Track Jump Pulse Amplifier
43	JP+	I	+ Input of Track Jump Pulse Amplifier
44	THLD	I	Hold of Output Voltage of Tracking Servo
45	TGL	I	Tracking Gain Low
46	TOFF	I	Input For Off the Tracking Servo
47	TES	O	Tracking Error Signal
48	HFL	O	Detect Track Signal
49	FZD	O	Detect S Carve of Focus Error Signal
50	FOCS	I	Input For Off the Focus Servo
51	CLV-	I	- Input of CLV Error Amplifier
52	CLV+	I	+ Input of CLV Error Amplifier
53	SLCO	O	Slice Level Control Amplifier Output
54	EFMO	I	EFMO (RF) Signal
55	AI	I	EFMO (RF) Signal
56	VDD		+5V
57	PDO	I	+ Input of VCO Control Amplifier
58	PDO-	I	- Input of VCO Control Amplifier
59	VCOC	I	VCO Control Amplifier Output
60	VCOO	O	VCO Output
61	LF1	I	Input of Low Pass Filter
62	CLK	I	Clock
63	LASER	I	Laser Control Signal
64	66/60	I	Select of DSP LC7866 / LC7861
65	NC		Non Connection
66	DF2	I	Input for Defect Pulse width Control
67	DF1	I	Input for Defect Pulse width Control
68	PH3	O	Defect Detect Timing
69	BH	I	Track Detect Timing
70	PH	I	Focus Detect Timing
71	GND		Ground
72	RF SUM	O	RF SUM Amplifier Output
73	RFS-	O	IV Converter Output
74	LDO	O	Laser Diode ON
75	LDS	I	Input of Auto Laser Power Control
76	LDC	I	Input of Auto Laser Power Control
77	VDD		+5V
78	FIN1	I	IV Convert Input (From Photo Diode A+C)
79	FIN2	I	IV Convert Input (From Photo Diode B+D)
80	VREF1	I	Reference Voltage 1

IC102 BA6398FP (Dual Motor & Actuator Coil Driver)



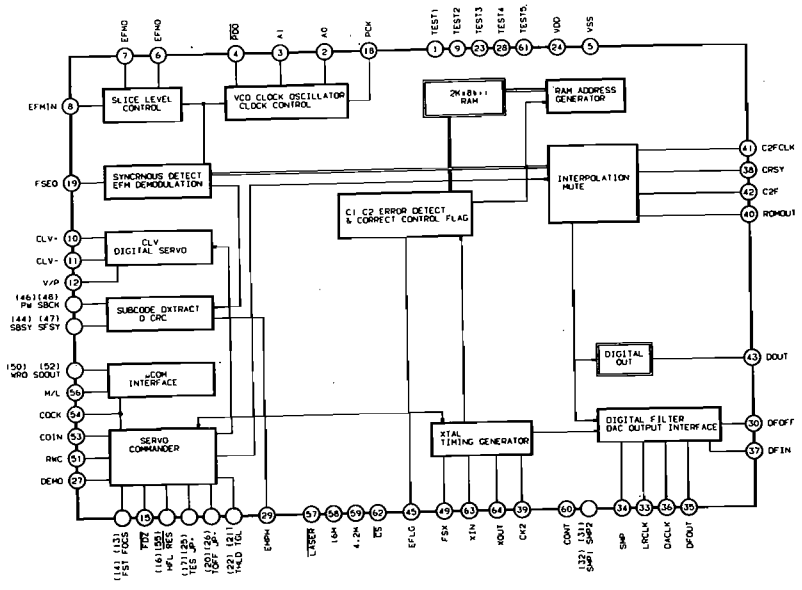
T.S.D ; THERMAL SHUT DOWN
D.BUF; DRIVE BUFFER

IC BLOCK DIAGRAM

IC104 LA7861KE (Digital Signal Processor)

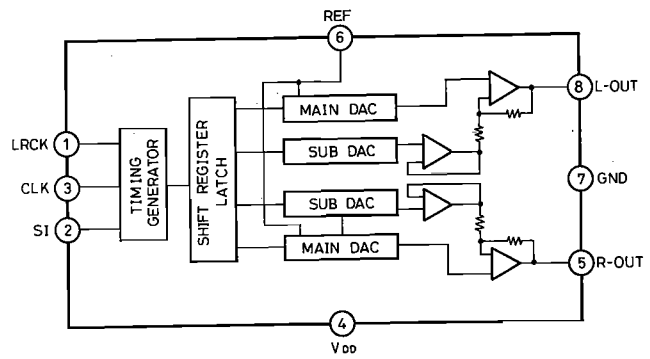
No	PIN NAME	I/O	DESCRIPTION
1	TEST1	I	For TEST. Normal time is non connection.
2	AO	O	Input from VCO output in LA9210 .(8.6436MHz)
3	AI	I	Phase comparison output of VCO and EFM signal.
4	PDO	O	
5	VSS		GND
6	$\overline{EFMO}$	O	Negative output through amplitude limiter. Anti-phase of $\overline{EFMO}$. This signal use SLICE LEVEL CONTROL.
7	EFMO	O	Positive output through amplitude limiter. Anti-phase of EFMO. This signal use SLICE LEVEL CONTROL.
8	EFMIN	I	Inputting HF signal of 1~2V_{p-p}. This signal use SLICE LEVEL CONTROL.
9	TEST2	I	For TEST. Normal time is non connection.
10	CLV+	O	Output for DISC MOTOR CONTROL.
11	CLV-	O	Output for DISC MOTOR CONTROL.
12	V/P	O	CLV rough Servo time : Output "H" Phase control time : Output"L"
13	FOCS	O	Output "H" : Lens pull up with slowly than stop the
14	FST	O	Focus Servo. If $\overline{FZD}$ generate, it reset output of FOCS.
15	$\overline{FZD}$	I	For lead-in of Focus
16	HFL	I	Comply with command of track jump, it oscillate kick Pulse, JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
17	TES	I	Comply with command of track jump, it oscillate kick Pulse, JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
18	PCK	O	PCK Monitor (4.3218MHz)
19	FSEQ	O	SYNC (FS of truth) detected from EFM signal = SYNC of counter : "H" (Latch Output during in 1 frame)
20	TOFF	O	Comply with command of track jump, it oscillate kick
21	TGL	O	Pulse, JP+ & JP-. It jump the prescribed number of
22	THLD	O	track (1,4,16,64).
23	TEST3	I	For TEST. Normal time is non connection.
24	VDD		+5V
25	JP+	O	Comply with command of track jump, it oscillate kick
26	JP-	O	Pulse, JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
27	DEMO	I	For adjustment of production process. Sound on function.
28	TEST4	I	For TEST. Normal time is non connection.
29	EMPH	O	Output is "H" time, it need de-emphasis
30	DFOFF	I	ON / OFF Switching of Digital Filter. Output "H" : Filter OFF

No	PIN NAME	I/O	DESCRIPTION
31	SMP2	O	Output of signal to DAC, Signal of Latch & L/R select,
32	SMP1	O	Signal for Sampling Hold
33	LRCLK	O	Output of signal to DAC, Signal of Latch & L/R select,
34	SMP	O	Signal for Sampling Hold
35	DFOUT	O	Output of signal to DAC, Signal of Latch & L/R select, Signal for Sampling Hold
36	DACLK	O	Output of signal to DAC, Signal of Latch & L/R select, Signal for Sampling Hold
37	DFIN	O	For TEST. Normal time is non connection.
38	LRSY	O	For output of signal that Comply with CD-ROM
39	CK2	O	For output of signal that Comply with CD-ROM
40	ROMOUT	O	For output of signal that Comply with CD-ROM
41	C2FLCK	O	For output of signal that Comply with CD-ROM
42	C2F	O	For output of signal that Comply with CD-ROM
43	DOUT	O	Output of DIGITAL OUT
44	SBSY	O	Synchronizing signal of sub-code block.
45	EFLG	O	For correction monitor of C1, C2, single, double.
46	PW	O	SFSY is Synchronizing signal of sub-code & frame. Clock
47	SFSY	O	of eighth send to SBCK then read out the sub-code of
48	SBCK	I	P, Q, R, S, T, U, V, & W.
49	FSX	O	Output of Synchronizing signal (7.35KHz)
50	WRQ	O	Data sub-code Q pass the CRC check then WRQ do
51	RWC	I	"H". It detect at external, Data read out from SQOUT
52	SQOUT	O	by send the $\overline{CQCK}$. RWC set the "H" by Micro
53	COIN	I	Processor then it let command by send with
54	$\overline{CQCK}$	I	Synchronizing $\overline{CQCK}$ command data.
55	$\overline{RES}$	I	Turn on the Power Supply time : Once "L"
56	M/L	I	Data of SQOUT want at the LBS first time : M/L set the "L".
57	$\overline{LASER}$	O	This output can control at Serial Control from Micro Processor
58	16M	O	16M Output (16.9344MHz)
59	4M	O	4M Output (4.2336MHz)
60	CONT	O	This output can control at Serial Control from Micro Processor
61	TEST5	I	For TEST. Normal time is non connection.
62	$\overline{CS}$	I	Chip select Terminal. This terminal "L" : LC7866 is active (Internal Resistor : Pull Down)
63	XIN	I	Connection Terminal of crystal oscillation (16.9344MHz)
64	XOUT	O	Connection Terminal of crystal oscillation (16.9344MHz)

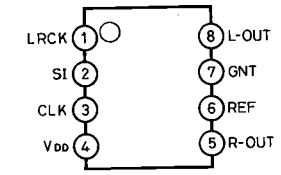


IC BLOCK DIAGRAM

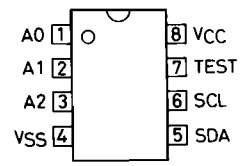
IC105 μPD6379GR (Digital to Analog (D/A) Converter for Digital Audio)



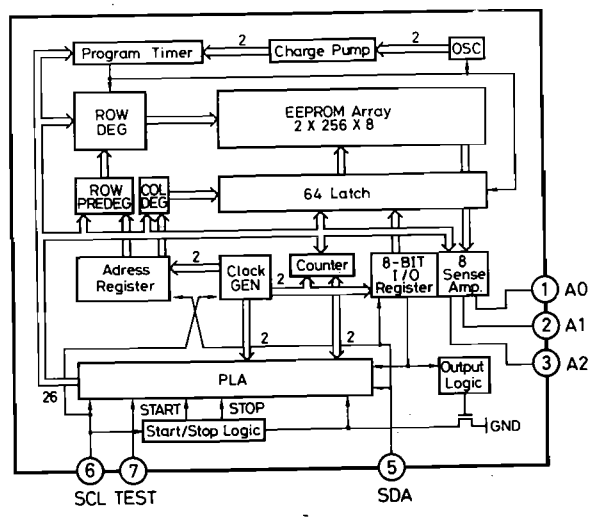
No.	Name	I/O	Function
1	LRCK	I	Left / Right Clock. Distinction signal for Input data(SI). L-ch data : Low
2	SI	I	Serial Input. Input for serial data..
3	CLK	I	Clock. Read Clock for serial data input.
4	V_{DD}	-	Power supply
5	R. OUT	O	R-ch Output
6	REF	-	Voltage Reference
7	GND	-	Ground
8	L. OUT	O	L-ch Output



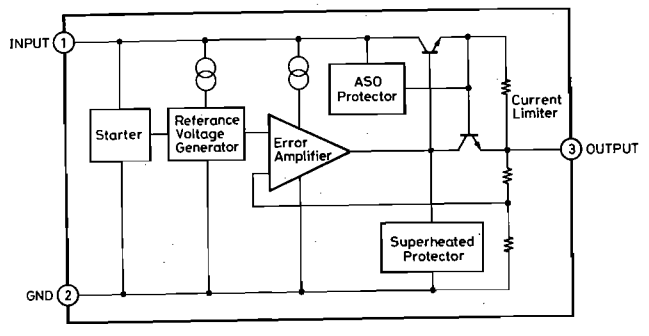
IC112 LE24C04S1 (4k-Bit Serial Access EEPROM)



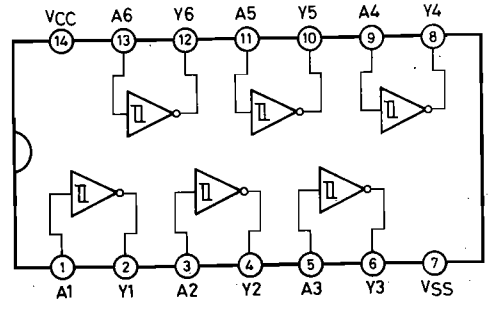
Pins	Name
A0·A1·A2	Address Input
VSS	GND
SDA	Serial Data
SCL	Serial Clock
TEST	Test Input
VCC	Power Source



IC161 L7809ML (3-Terminal Power Regulator)



IC184 · 185 MLC74HC14A (Hex Schmitt Inverter)



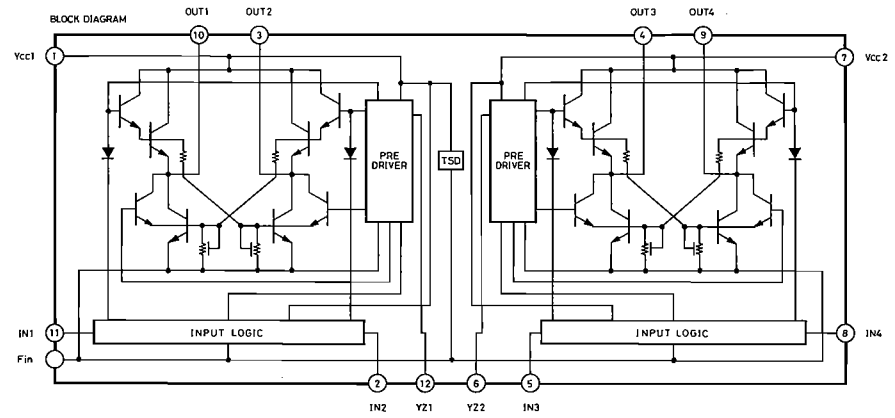
IC BLOCK DIAGRAM

IC111 CXP82432-107Q (Micro Processor for CD Changer)

No.	Name	I / O	Function
1	WRQ	I	Inter Face to DSP (Sub-Q Request)
2	PHOTO	I	Sensor signal(disc-table stop) for set the disc-table position
3	LIMIT	I	Sensor signal(limit) for limit the pickup position
4	IR	I	Receive of Infrared Ray (Remocon) Signal
5			Not used (Ground)
6	P CONT	O	Power supply control for CD
7			Not used (open)
8	D MUTE	O	Mute Control Signal for Driver IC(IC102) (ON = High)
9	CD AF	O	Auto function signal(CD)
10	ROM CLK	O	Clock signal for control of EEPROM(IC112)
11	ROM SDA	I/O	Data signal for control of EEPROM(IC112)
12	SENS SW	O	Power supply control for LED of sensor (ON = High)
13	CQCK	O	Inter Face to DSP (Clock)
14	SQOUT	I	Inter Face to DSP (Sub-Q Data)
15	COIN	O	Inter Face to DSP (Command Data)
16	POWER IN	I	Power ON / OFF Signal (ON = High)
17	SYNCRO (C COPY)	O	Synchronize signal for tape deck mechanism is manually operated Not used (open)
18	FUNCT	I	Function signal (CD = High)
19	DUB IN	I	Dubbing signal (REC SW)
20	MEC0	I	Switch signal from mechanism
21	MEC1	I	Switch signal from mechanism
22	MEC2	I	Switch signal from mechanism
23	MEC3	I	Switch signal from mechanism
24	SENS0	I	Initialize key signal for EEPROM
25	SENS1	I	Sensor signal from mechanism
26	SENS2	I	Sensor signal from mechanism
27	SENS3	I	Sensor signal from mechanism
28	SENS4	I	Sensor signal from mechanism
29	SENS5	I	Sensor signal from mechanism
30	SENS6	I	Sensor signal from mechanism
31	SENS7	I	Sensor signal from mechanism
32	KEY0	I	Key signal
33	KEY1	I	Key signal
34	KEY2	I	Key signal
35			Not used (open)
36	SEL0	I	Selection Signal (Not used)
37	HI SPEED	O	Speed control signal for motor of disc-table
38	RESET	I	Initial reset
39	EXTAL		Clock Generator (4.19MHz)
40	XTAL		Clock Generator (4.19MHz)
41	VSS	-	Ground
42	TX		Not used (open)
43	TEX		Not used (Ground)
44	TURN +	O	Control signal for motor of disc-table
45	TURN -	O	Control signal for motor of disc-table
46	AVREF	-	Reference voltage for AD converter
47	AVSS		Ground for AD converter
48	F LOAD +	O	Control signal for motor of front loading
49	F LOAD -	O	Control signal for motor of front loading
50	P LOAD +	O	Control signal for motor of play loading
51	P LOAD -	O	Control signal for motor of play loading
52	CHUCK +	O	Control signal for motor of chucking
53	CHUCK -	O	Control signal for motor of chucking
54	SHUT +	O	Control signal for motor of shutter
55	SHUT -	O	Control signal for motor of shutter
56	S0	O	Segment Signal output for FL Display
57	S1	O	Segment Signal output for FL Display
58	S2	O	Segment Signal output for FL Display
59	S3	O	Segment Signal output for FL Display
60	S4	O	Segment Signal output for FL Display
61	S5	O	Segment Signal output for FL Display
62	S6	O	Segment Signal output for FL Display
63	S7	O	Segment Signal output for FL Display
64	S8	O	Segment Signal output for FL Display
65	S9	O	Segment Signal output for FL Display
66	S10	O	Segment Signal output for FL Display
67	S11	O	Segment Signal output for FL Display
68	S12	O	Segment Signal output for FL Display
69	S13	O	Segment Signal output for FL Display
70	S14	O	Segment Signal output for FL Display
71	S15	O	Segment Signal output for FL Display
72			Not used (open)
73			Not used (open)
74			Not used (open)
75	T12	O	Digit Signal output for FL Display
76	T11	O	Digit Signal output for FL Display
77	T10	O	Digit Signal output for FL Display
78	T9	O	Digit Signal output for FL Display
79	T8	O	Digit Signal output for FL Display
80	T7	O	Digit Signal output for FL Display
81	T6	O	Digit Signal output for FL Display
82	T5	O	Digit Signal output for FL Display
83	T4	O	Digit Signal output for FL Display
84	T3	O	Digit Signal output for FL Display
85	T2	O	Digit Signal output for FL Display
86	T1	O	Digit Signal output for FL Display
87	T0	O	Digit Signal output for FL Display
88	VFDP	-	-30V
89	VDD	-	+5V
90	NC	-	Not used (open)
91	VSS	-	Ground
92	DSP RES	O	Reset control signal for DSP
93	SL +	O	Control signal for motor of sled
94	SL -	O	Control signal for motor of sled
95	CD MUTE	O	Mute control signal for analog
96	ATTN	O	Inter Face to DAC (Data)
97	MODN	O	Inter Face to DAC (Clock)
98			Not used (open)
99	RWC	O	Inter Face to DSP (Command Latch)
100	DRF	I	DRF Signal

IC BLOCK DIAGRAM

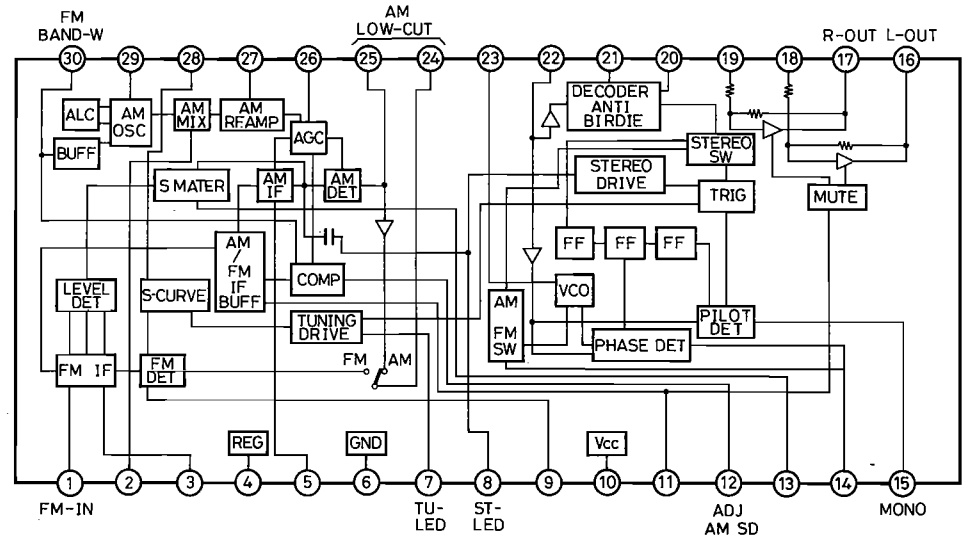
IC181 · 182 · 183 LB1648 (Motor Driver)



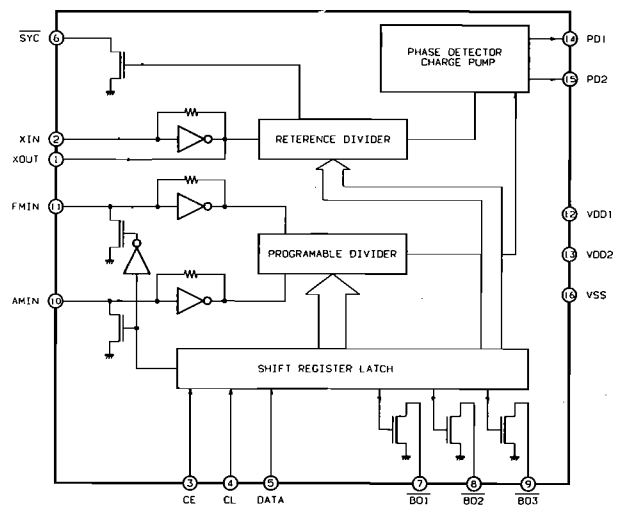
LOGIC TRUTH TABLE

IN1	IN2	OUT1	OUT2	IN3	IN4	OUT3	OUT4
0	0	OPEN	OPEN	0	0	OPEN	OPEN
1	0	H	L	1	0	H	L
0	1	L	H	0	1	L	H
1	1	L	L	1	1	L	L

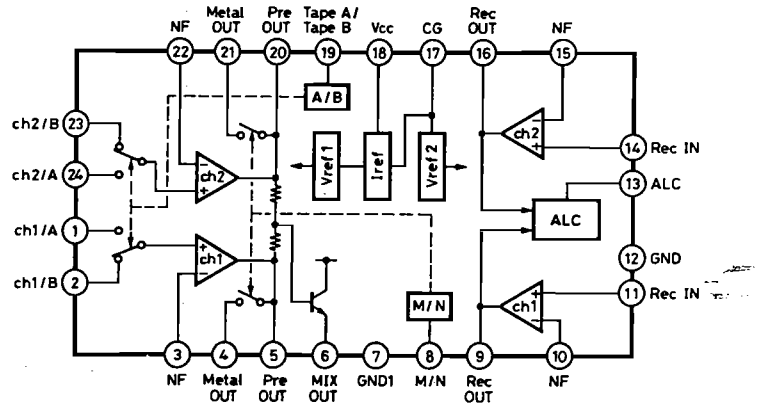
IC231 LA1836 (Tuner System)



IC245 LM7001 (PLL Frequency Synthesizer)



IC371 TA8189N (Dual Pre-Amplifier System for Tape Deck)



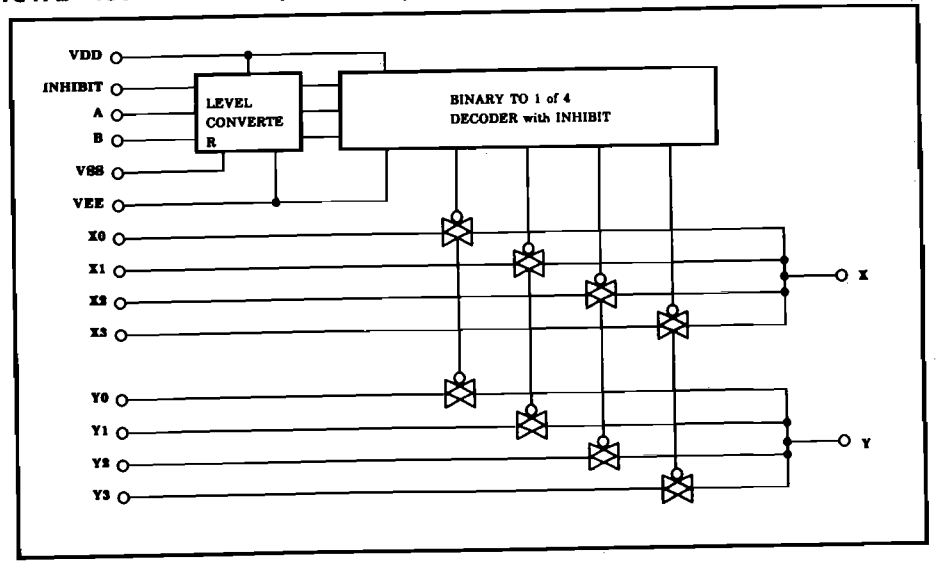
IC BLOCK DIAGRAM

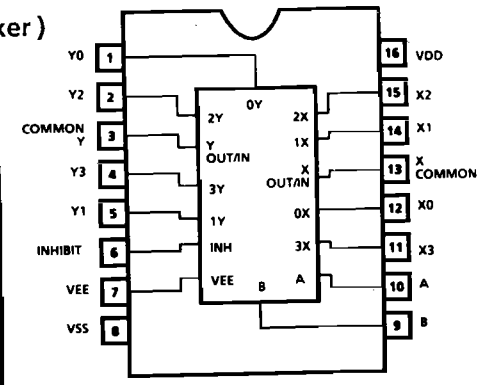
IC261 M38222M2-052FP (Micro Processor for Tuner - Amplifier)

No.	Name	I/O	Description	
1	V_{L2}	-	Power Supply for LCD Drive	
2	V_{L1}	-	Power Supply for LCD Drive	
3	DEST	I	The destination	
4	KEY1	I	Key Input (12 Key)	
5	KEY2	I	Key Input (12 Key)	
6	VD LED	O	VIDEO Function LED	Light up = High
7	PH LED	O	PHONO Function LED	Light up = High
8	TU LED	O	TUNER Function LED	Light up = High
9	CD LED	O	CD Function LED	Light up = High
10	TP LED	O	TAPE Function LED	Light up = High
11	SP RY	O	Speaker Relay	ON = High
12	SURUND	O	Surround	ON = High
13	H MUTE	O	-40dB Muting	ON = Low
14	MUTE	O	-∞ Muting	ON = High
15	BASS	O	Dynamic BASS	ON = Low
16	FUNC C	O	Function C	
17	FUNC B	O	Function B	
18	FUNC A	O	Function A	
19	VOL UP	O	Volume Up	
20	VOL DWN	O	Volume Down	
21	POW RY	O	Power Relay	ON = High
22	FUNCT	O	Function State	CD Function = Low
23	REM	I	Remote Controller	
24	V CHECK	I	Detect for Stoppage Failure of Electricity = Low	
25	CD AF	I	CD Auto Function	CD = High Pulse
26	CD PEND	I	CD Power Off	Power Off Complete = Low
27	RESET	I	System Reset	
28	CD STOP	O	CD Stop	Stop = High Pulse
29	POWER	O	Power State	Power ON = High
30	X_{IN}	I	Oscillation Ceramic Terminal for Main Clock	
31	X_{OUT}	O	Oscillation Ceramic Terminal for Main Clock	
32	V_{SS}	-	Ground	
33	STB LED	O	STAND-BY LED	Light up = High
34	PROTECT	I	Protection for Power Amplifier	Wrong = Low
35	SD	I	Station Detection	Detect = Low
36	ST	I	Stereo Detection	STEREO = Low
37	DATA	O	Data for PLL Frequency Synthesizer IC control	
38	CL	O	Clock for PLL Frequency Synthesizer IC Control	
39	CE	O	Clock Enable for PLL IC Control	
40	MONO	O	Compel Monaural	

No.	Name	I/O	Description	
41	TU POW	O	Power Supply for Tuner	ON = High
42	TU MUTE	O	Muting for Tuner	ON = Low
43	AUTO	O	Auto Tuning for Tuner	AUTO = High
44		O	Not Used	Usually = Low
45		O	Not Used	Usually = Low
46		O	Not Used	Usually = Low
47	SEG25	O	Segment Signal Output for LCD	
48	SEG24	O	Segment Signal Output for LCD	
49	SEG23	O	Segment Signal Output for LCD	
50	SEG22	O	Segment Signal Output for LCD	
51	SEG21	O	Segment Signal Output for LCD	
52	SEG20	O	Segment Signal Output for LCD	
53	SEG19	O	Segment Signal Output for LCD	
54	SEG18	O	Segment Signal Output for LCD	
55	SEG17	O	Segment Signal Output for LCD	
56	SEG16	O	Segment Signal Output for LCD	
57	SEG15	O	Segment Signal Output for LCD	
58	SEG14	O	Segment Signal Output for LCD	
59	SEG13	O	Segment Signal Output for LCD	
60	SEG12	O	Segment Signal Output for LCD	
61	SEG11	O	Segment Signal Output for LCD	
62	SEG10	O	Segment Signal Output for LCD	
63	SEG9	O	Segment Signal Output for LCD	
64	SEG8	O	Segment Signal Output for LCD	
65	SEG7	O	Segment Signal Output for LCD	
66	SEG6	O	Segment Signal Output for LCD	
67	SEG5	O	Segment Signal Output for LCD	
68	SEG4	O	Segment Signal Output for LCD	
69	SEG3	O	Segment Signal Output for LCD	
70	SEG2	O	Segment Signal Output for LCD	
71	SEG1	O	Segment Signal Output for LCD	
72	SEG0	O	Segment Signal Output for LCD	
73	V_{CC}	-	Power Supply	
74	V_{REF}	-	Reference Voltage for A / D	
75	AV_{SS}	-	Ground for A / D	
76	COM3	O	Common for LCD	
77	COM2	O	Common for LCD	
78	COM1	O	Common for LCD	
79	COM0	O	Common for LCD	
80	V_{L3}	-	Power Supply for LCD Drive	

IC472 · 486 BU4052BC (Dual 2-Input 4-ch Analog Multiplexer / De-Multiplexer)





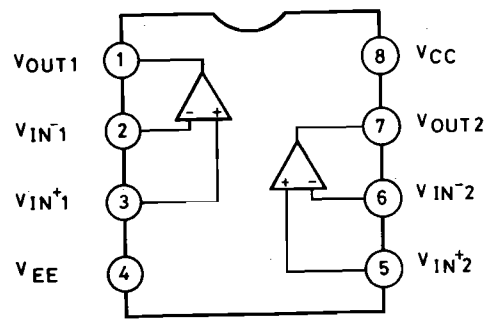
TRUTH TABLE

CONTROL INPUTS			[ON] CHANNEL
INHIBIT	A	B	
L	L	L	X0 Y0
L	H	L	X1 Y1
L	L	H	X2 Y2
L	H	H	X3 Y3
H	X	X	NONE

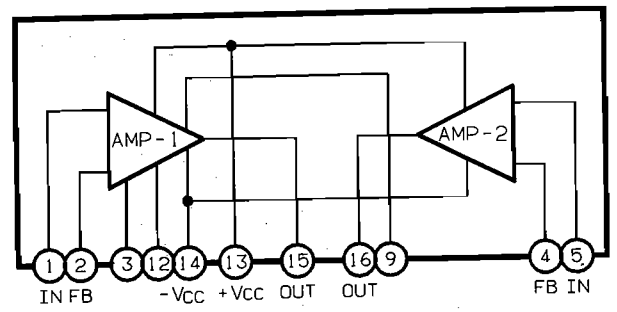
X : DON'T CARE

IC BLOCK DIAGRAM

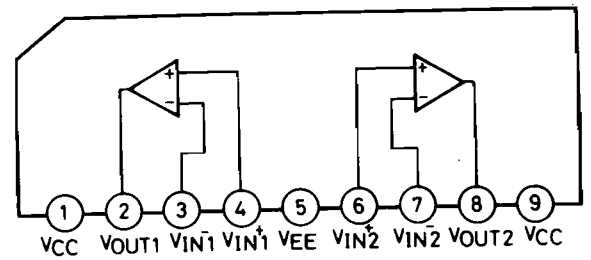
IC479 LA6458DS (Dual Operational Amplifier)



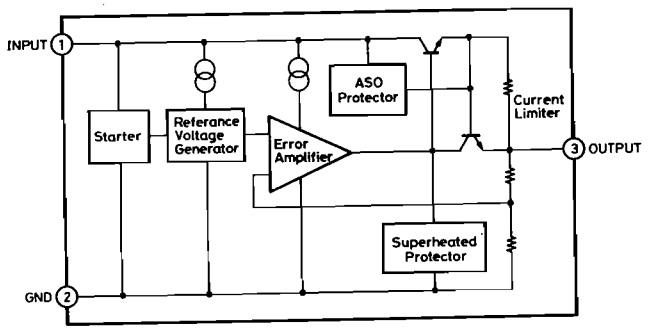
IC491 STK-401-130 (2-ch AF Power Amplifier)



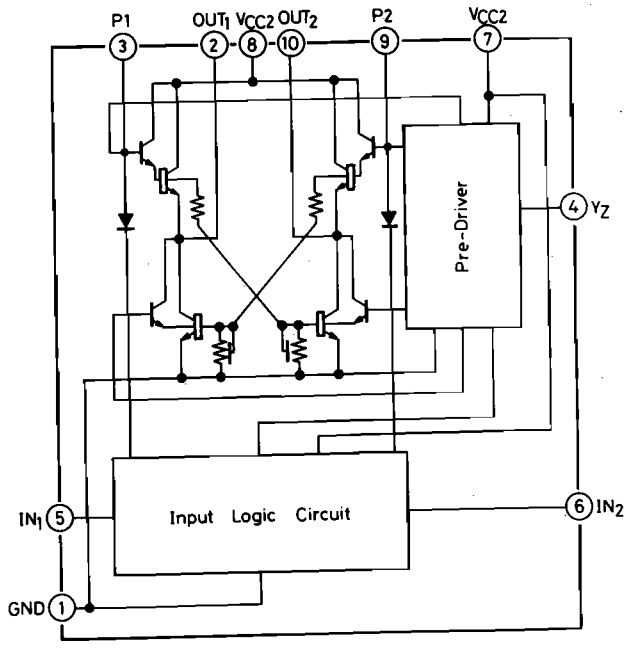
IC480 · 482 · 485
LA6458S (Dual Operational. Amplifier)



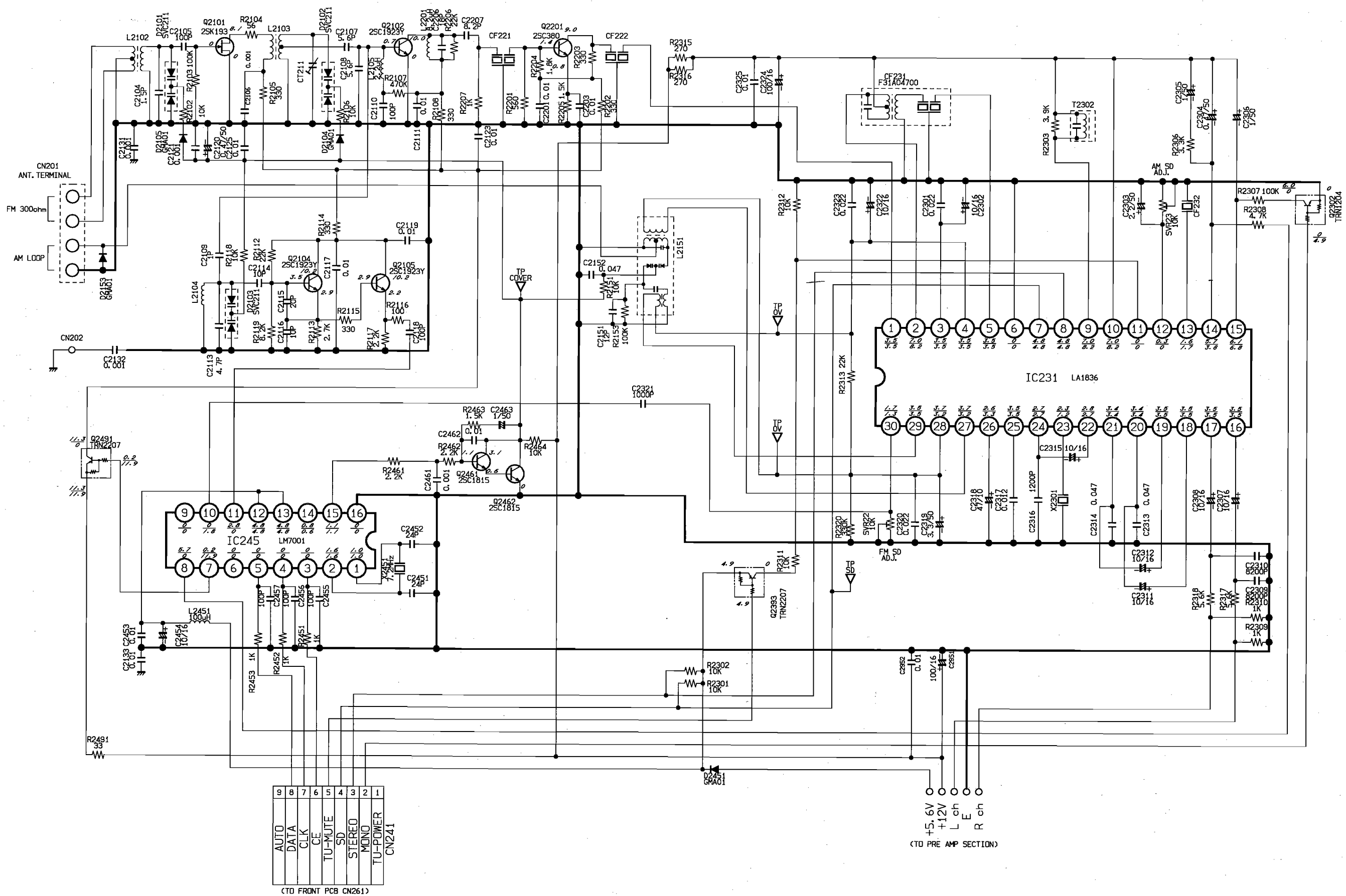
IC490 L7805ML (3-Terminal Regulator)
IC493 L79M12ML (3-Terminal Regulator)
IC494 · IC495 · IC496 L7812ML (3-Terminal Regulator)



IC483 LB1641 (Volume Motor Driver)

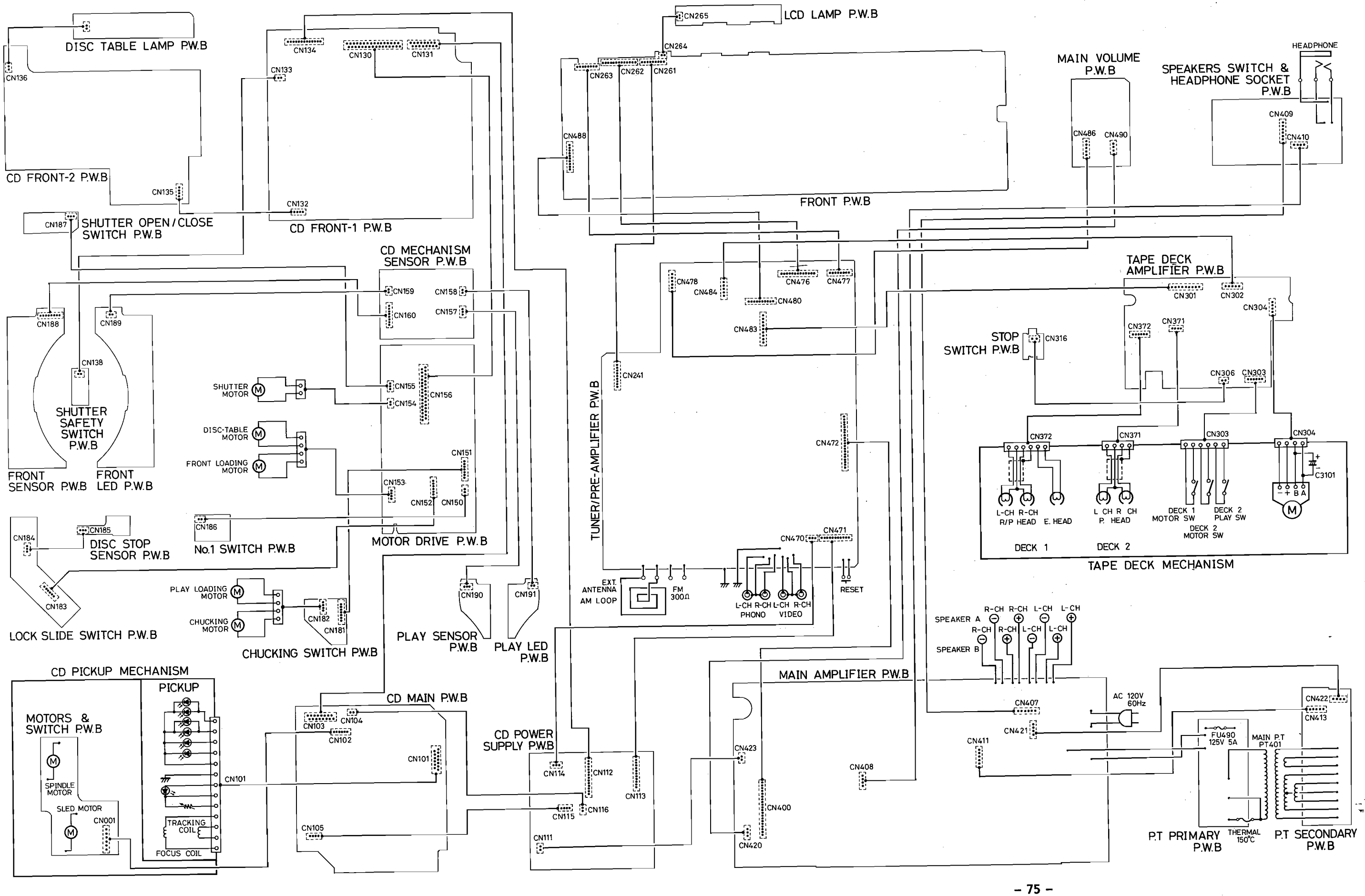


SCHEMATIC DIAGRAM (TUNER)

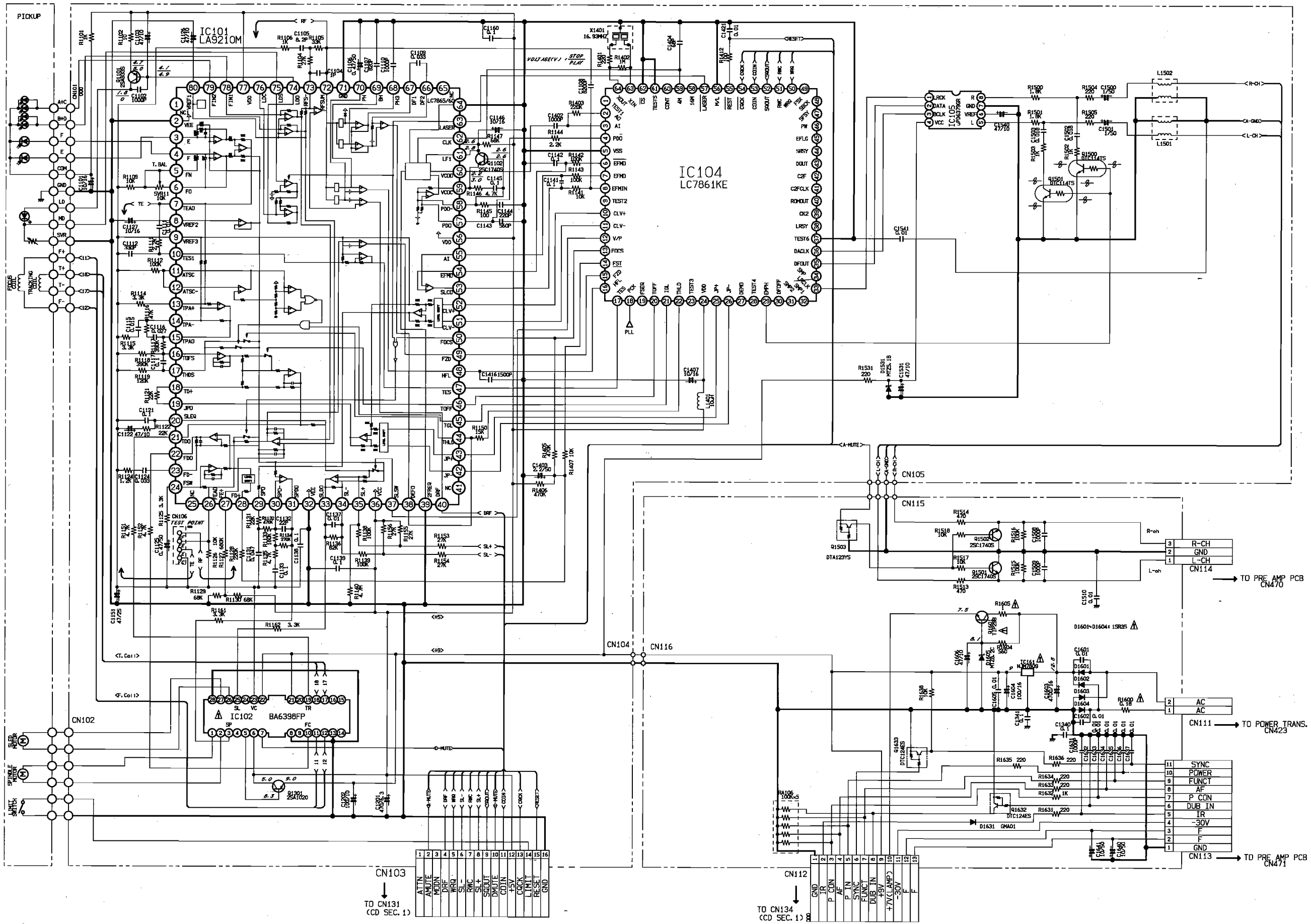


This is a basic schematic diagram.

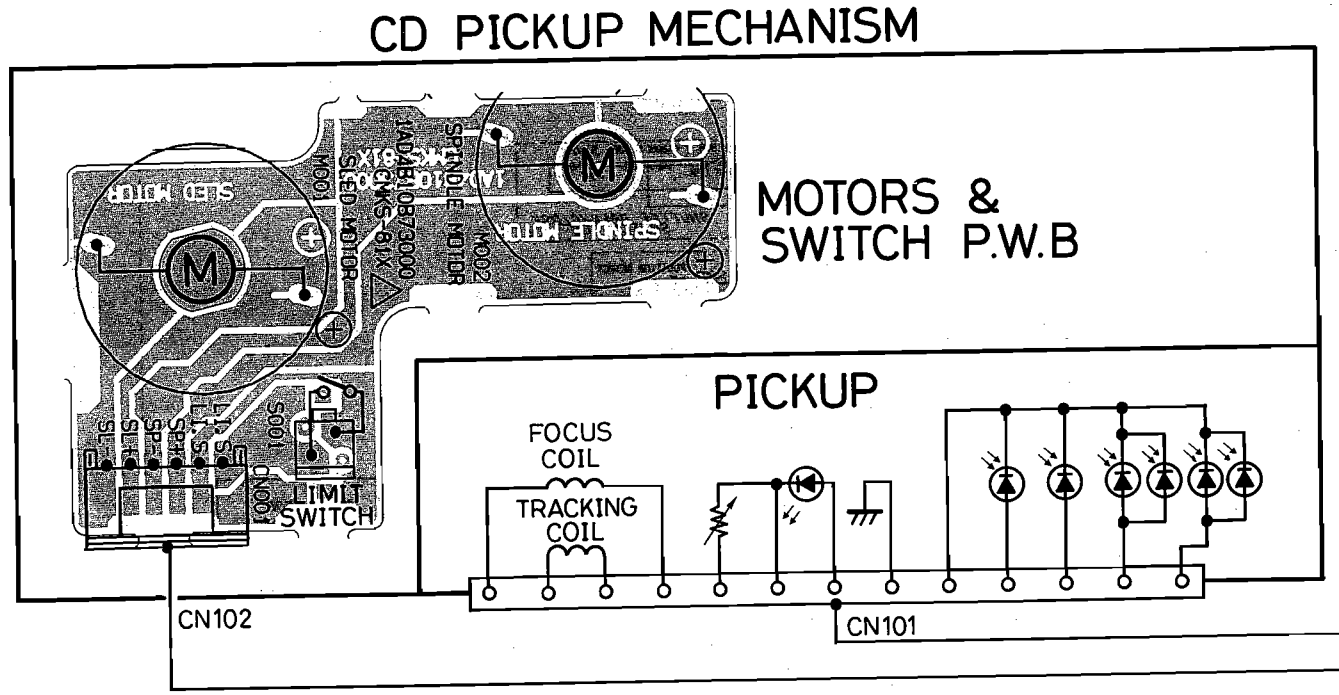
WIRING CONNECTION

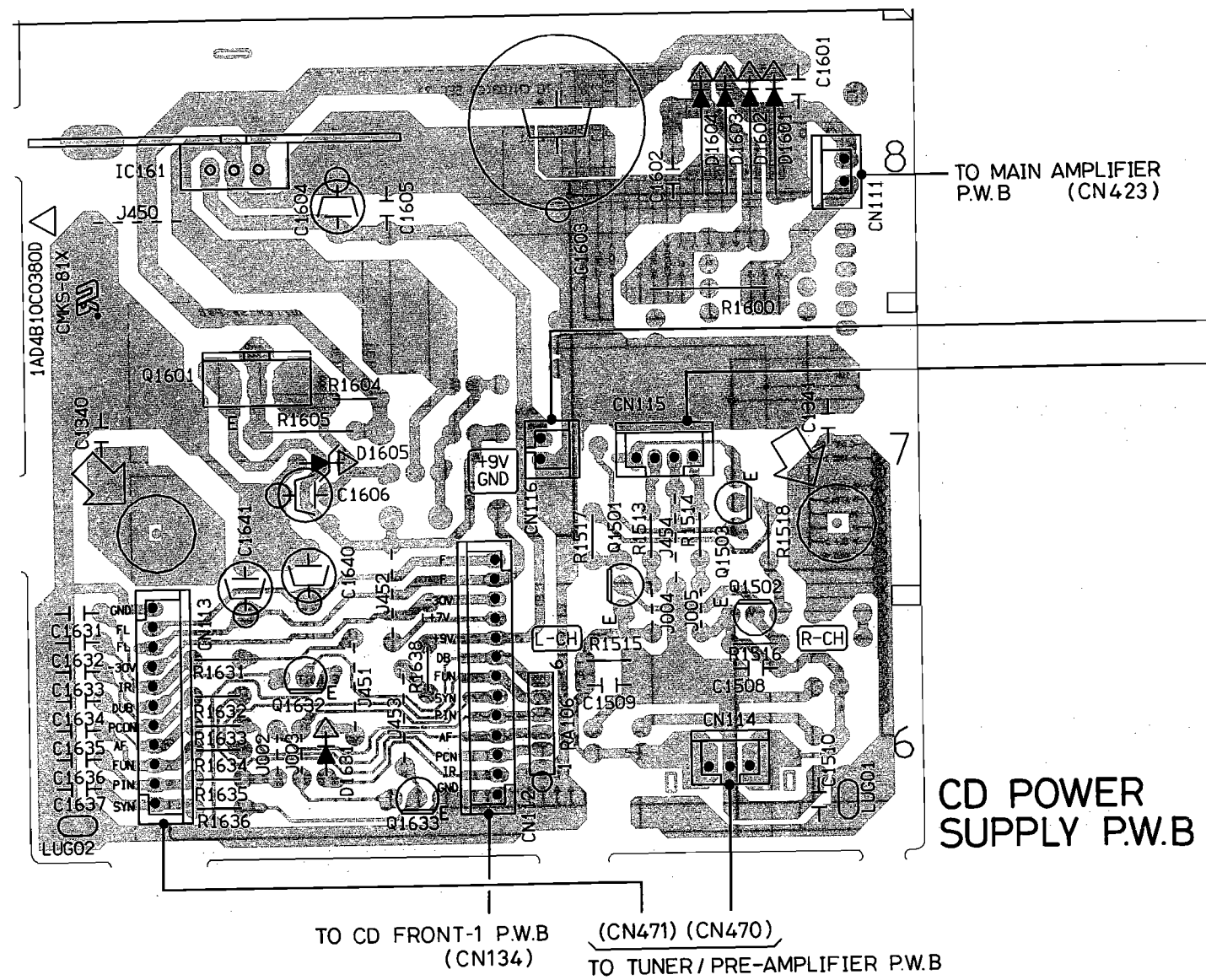


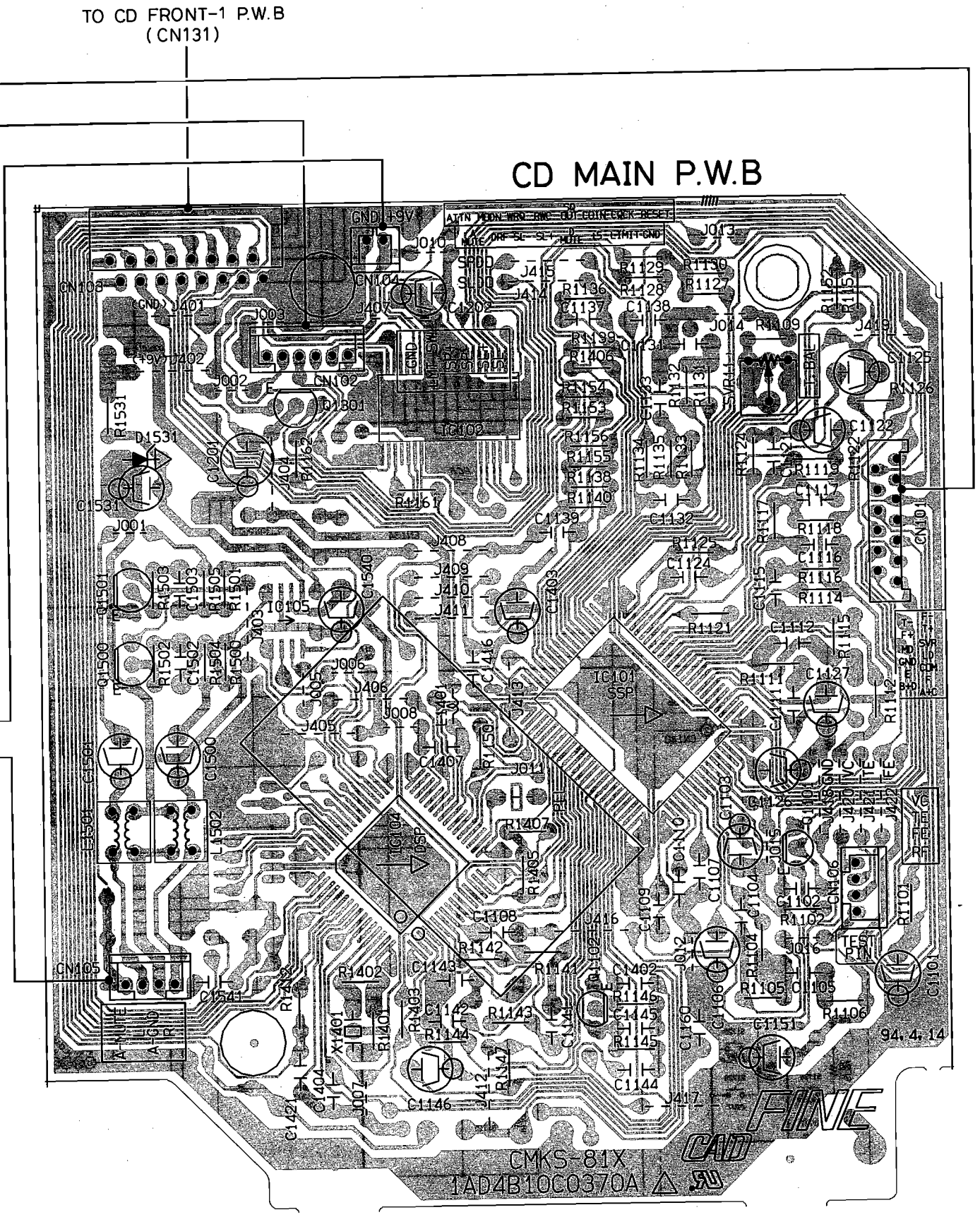
SCHEMATIC DIAGRAM (CD MAIN)



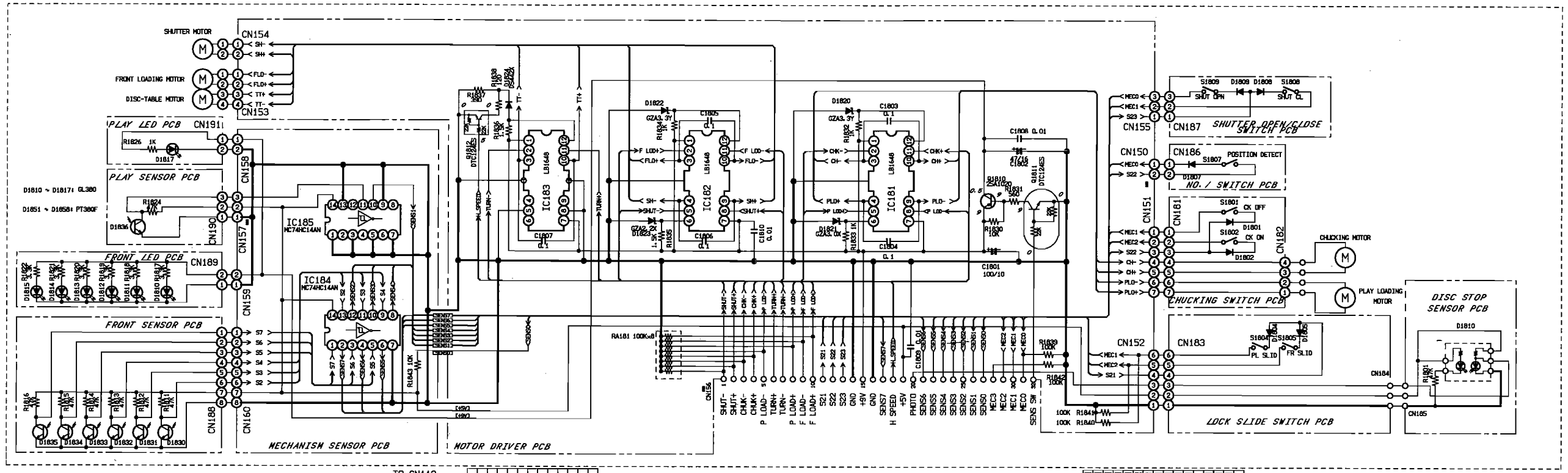
This is a basic schematic diagram.


CD PICKUP MECHANISM
MOTORS & SWITCH P.W.B
PICKUP
FOCUS COIL
TRACKING COIL
LIMIT SWITCH
SLED MOTOR
SPINDLE MOTOR
CN102
CN101


TO MAIN AMPLIFIER P.W.B (CN423)
CD POWER SUPPLY P.W.B
TO CD FRONT-1 P.W.B (CN134)
(CN471) (CN470)
TO TUNER / PRE-AMPLIFIER P.W.B

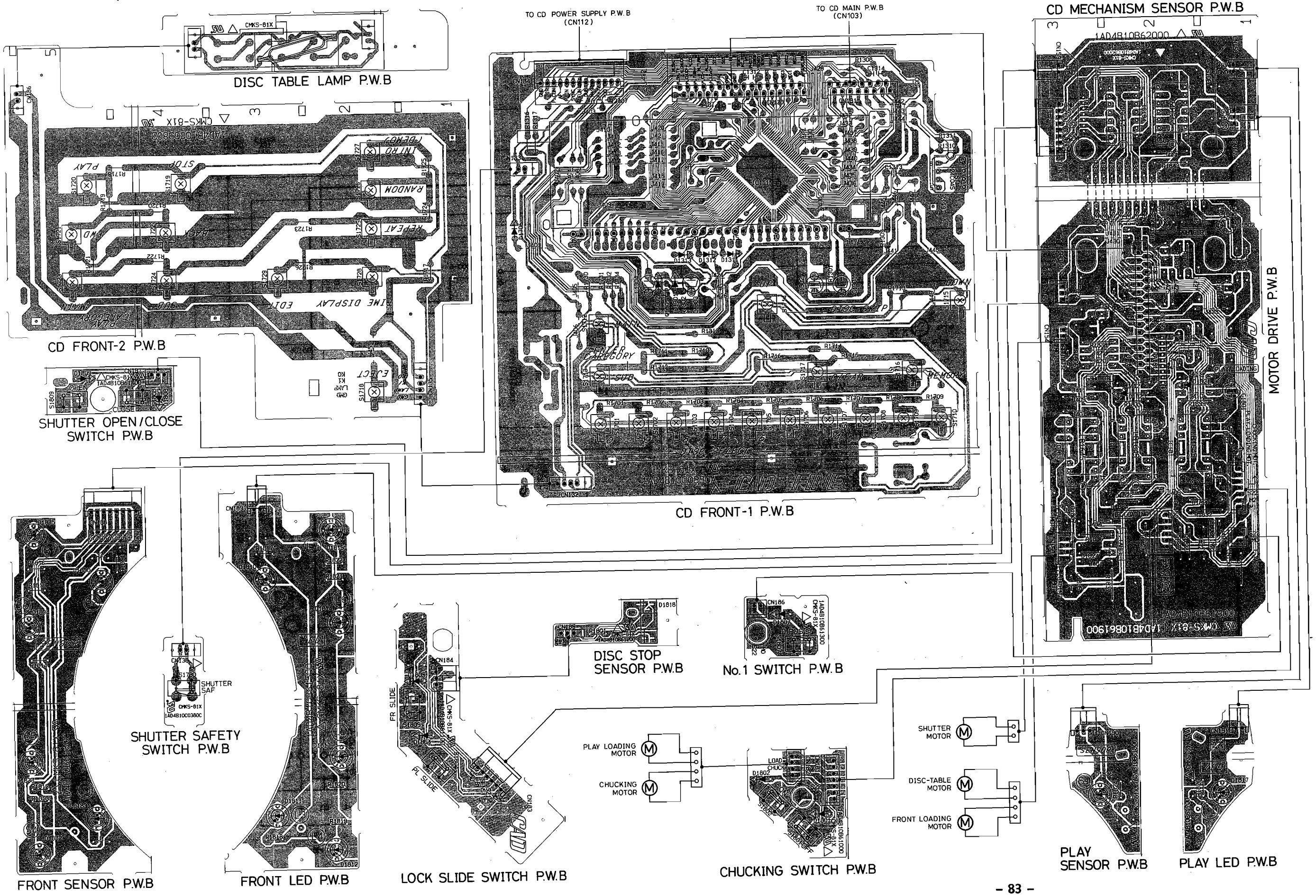

TO CD FRONT-1 P.W.B (CN131)
CD MAIN P.W.B
CMKS-81X
1AD4B10C0370A
94.4.14

SCHEMATIC DIAGRAM (CD MECHANISM)

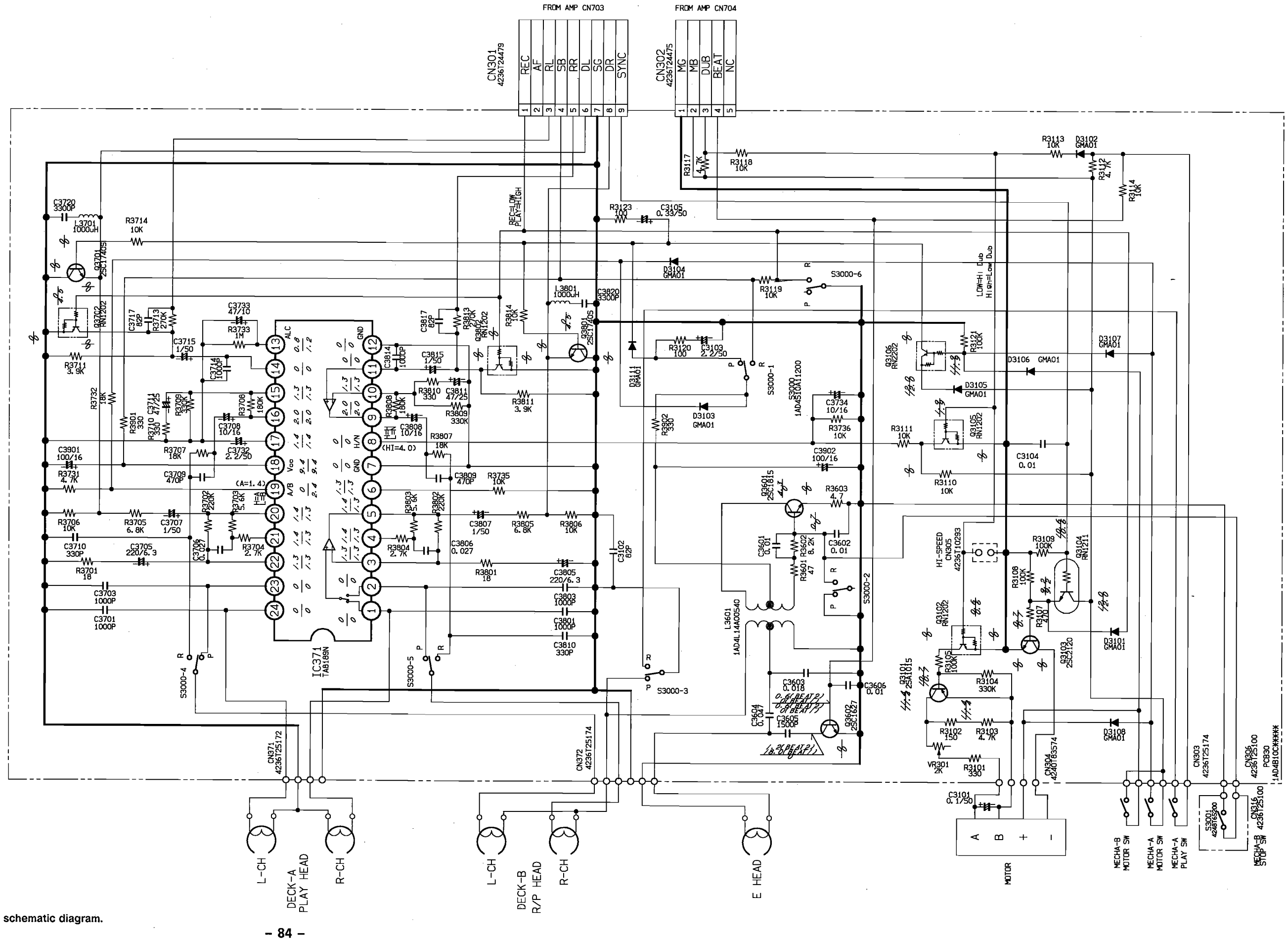


This is a basic schematic diagram.

WIRING DIAGRAM (CD MECHANISM)

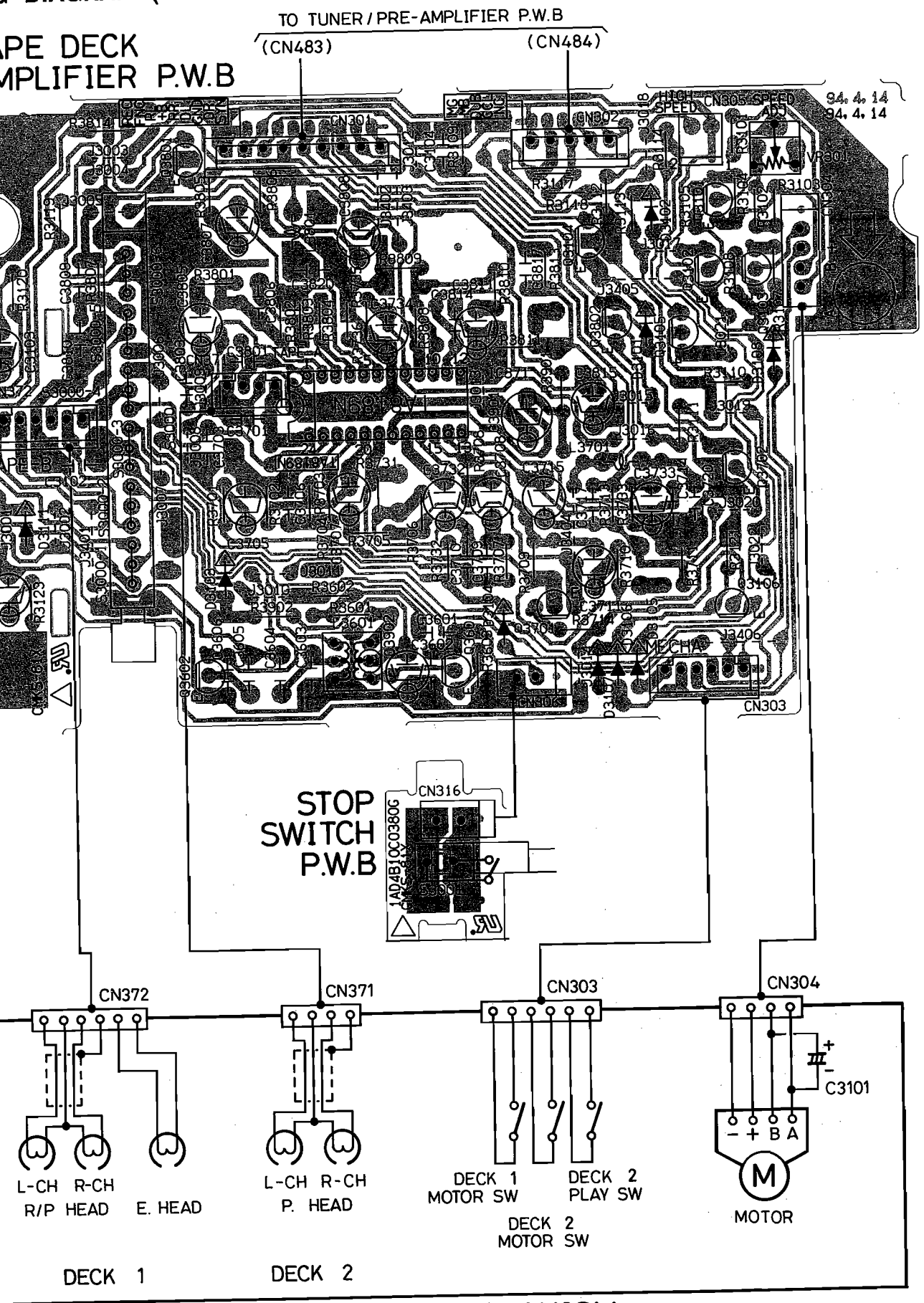


SCHEMATIC DIAGRAM (TAPE DECK AMPLIFIER)



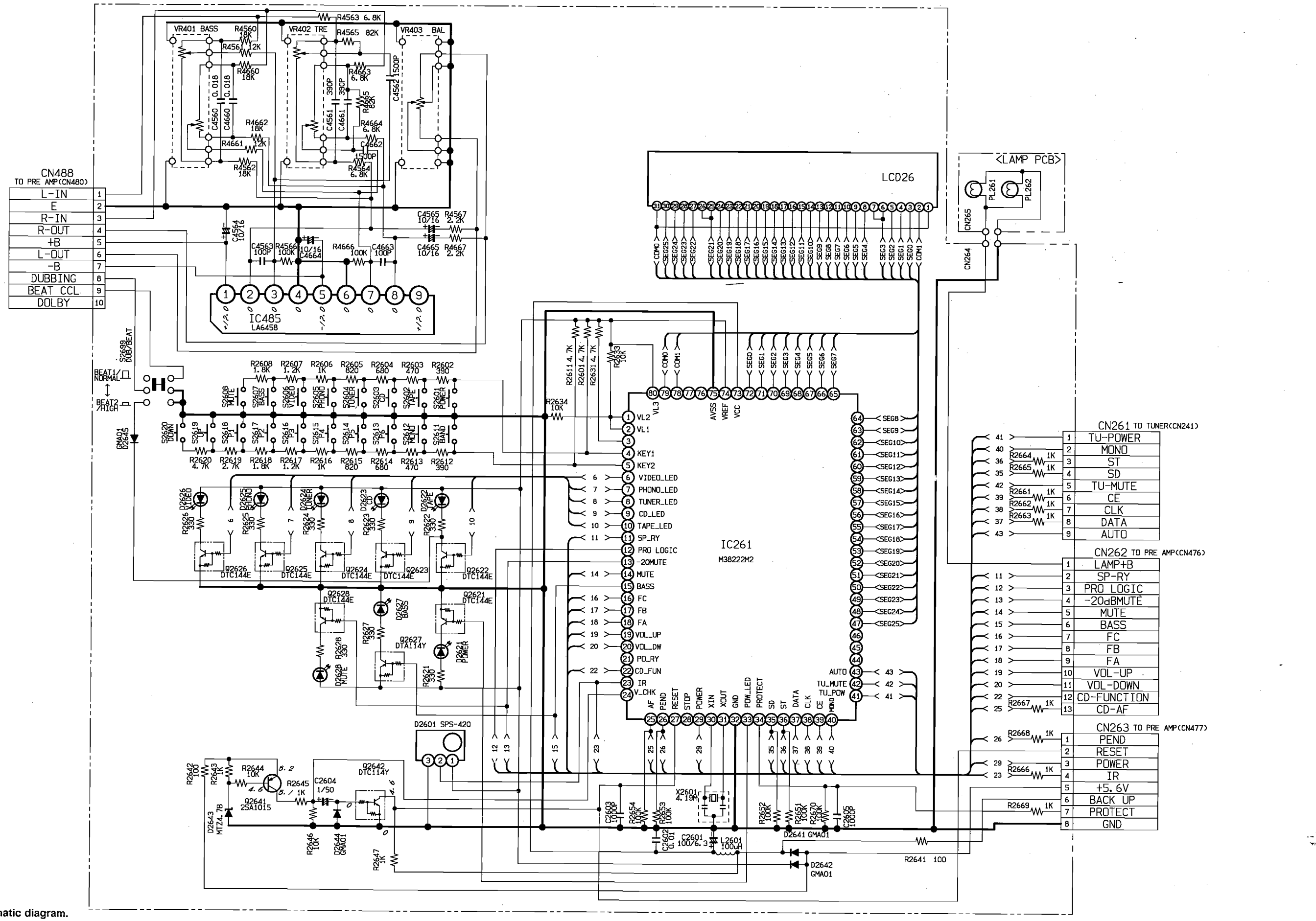
This is a basic schematic diagram.

G DIAGRAM (TAPE DECK AMPLIFIER)



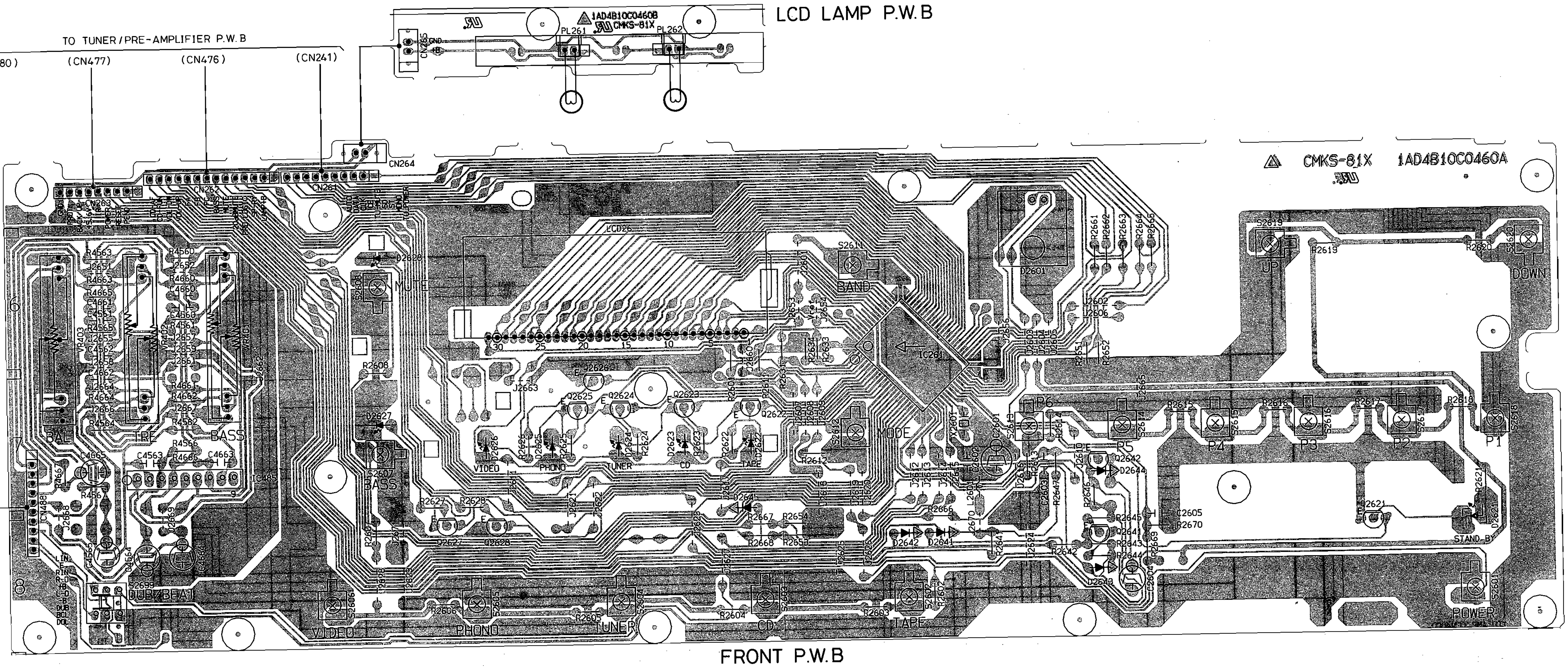
TAPE DECK MECHANISM

MEMO

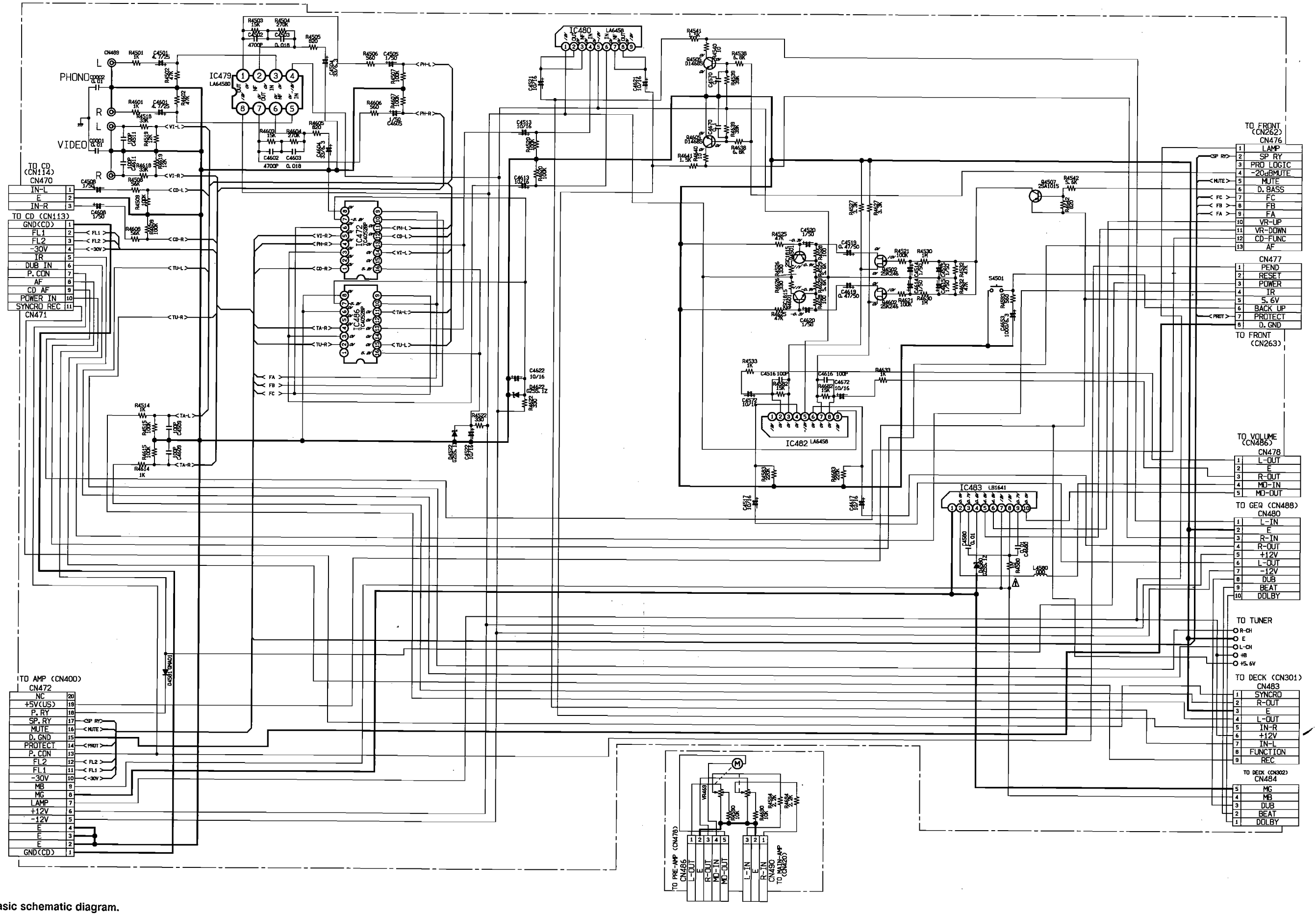


basic schematic diagram.

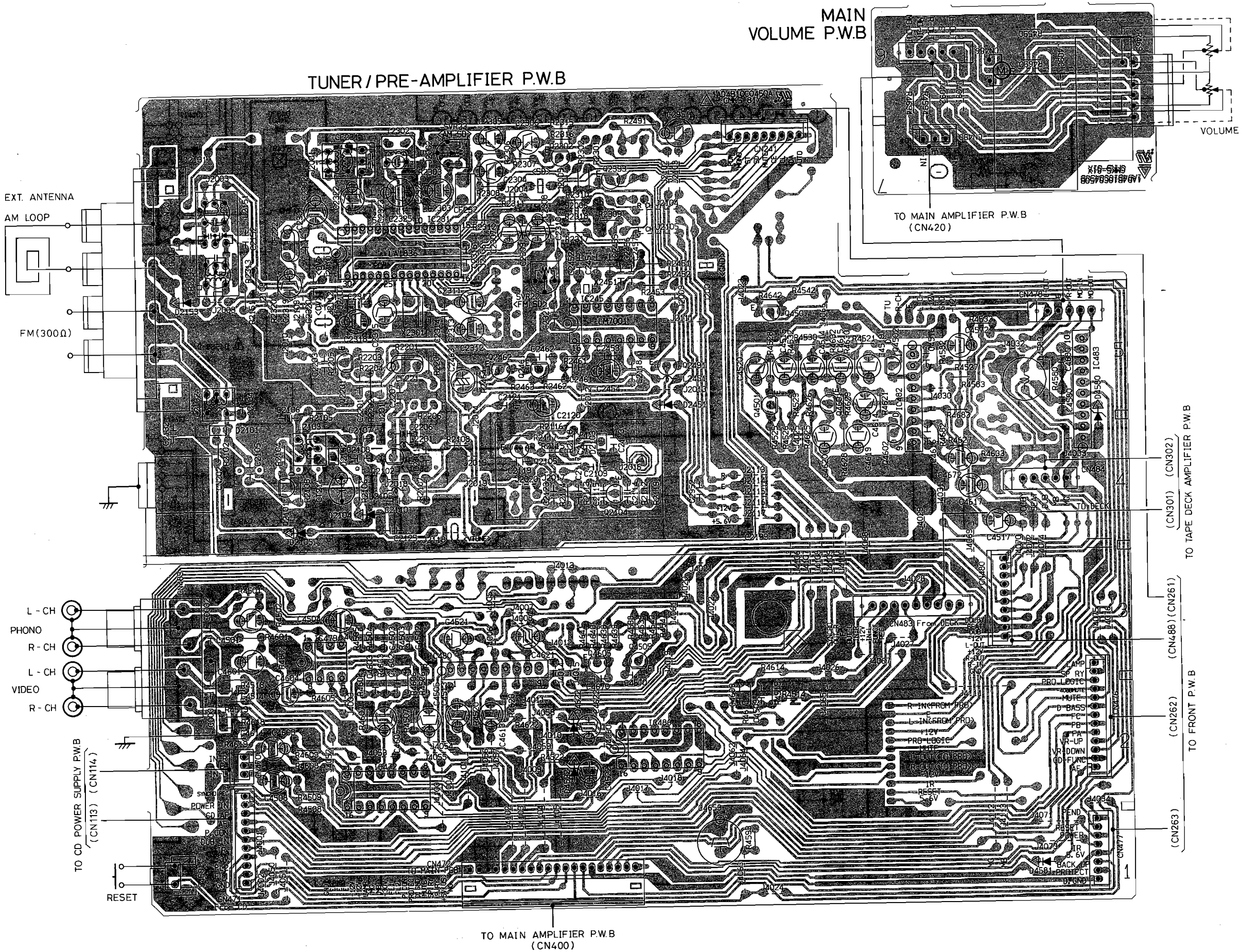
G DIAGRAM (FRONT)



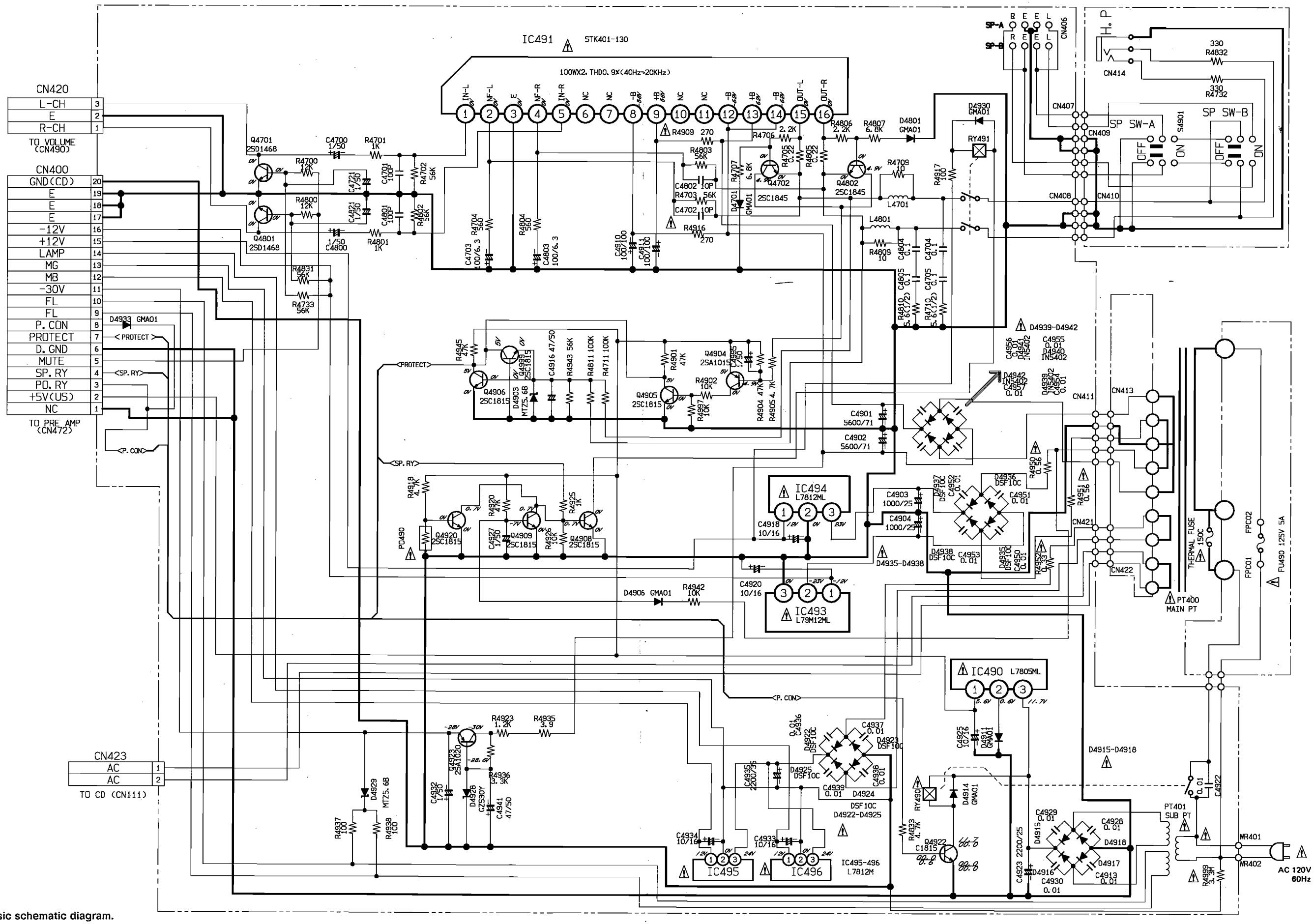
MATIC DIAGRAM (PRE-AMPLIFIER)



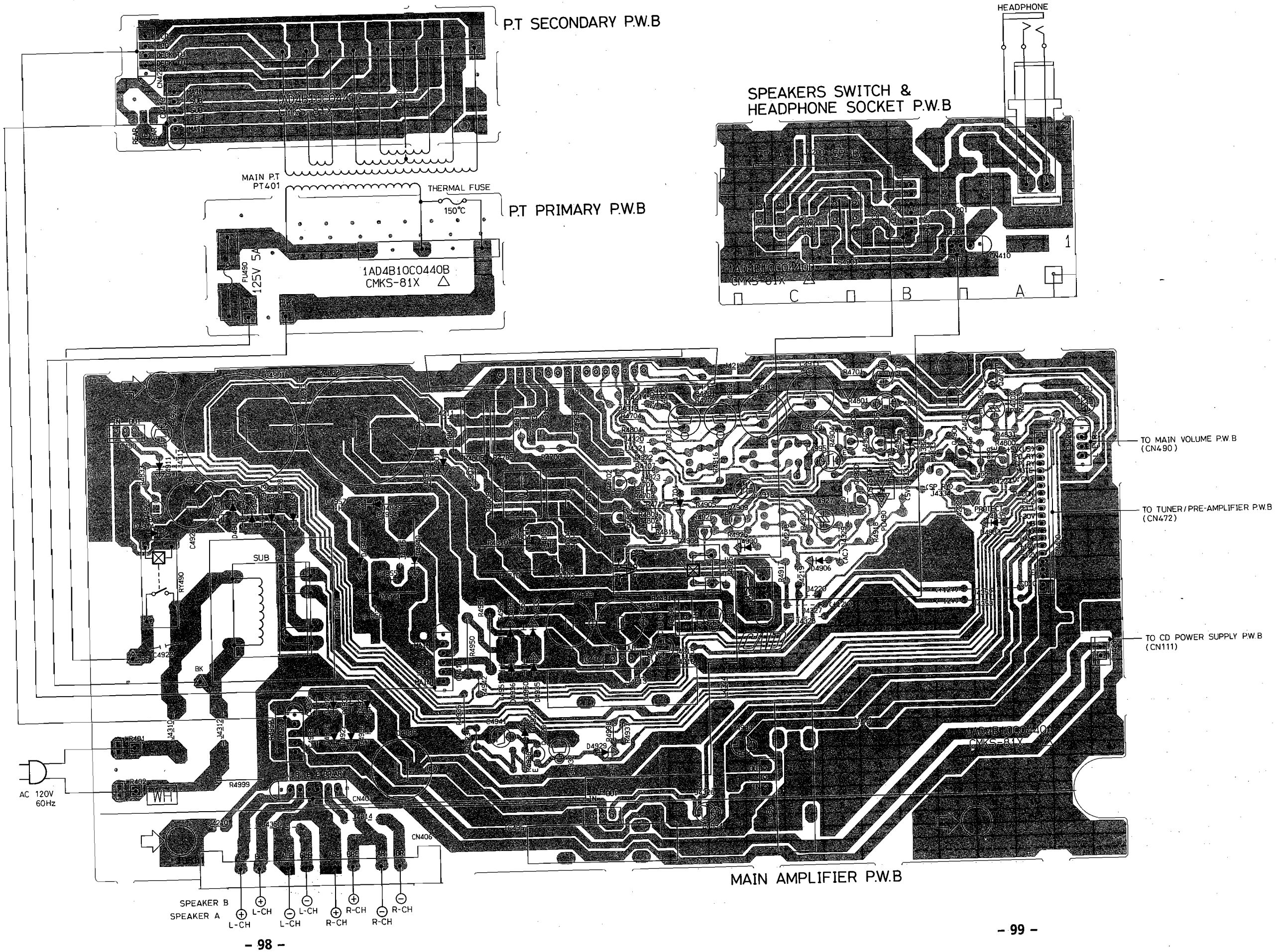
basic schematic diagram.


MAIN
VOLUME P.W.B
VOLUME
TO MAIN AMPLIFIER P.W.B
(CN420)
TUNER / PRE-AMPLIFIER P.W.B
EXT. ANTENNA
AM LOOP
FM(300Ω)
L - CH
PHONO
R - CH
L - CH
VIDEO
R - CH
TO CD POWER SUPPLY P.W.B
(CN113) (CN114)
RESET
TO MAIN AMPLIFIER P.W.B
(CN400)
TO TAPE DECK AMPLIFIER P.W.B
(CN301) (CN302)
TO FRONT P.W.B
(CN263) (CN262) (CN488)(CN261)

MATIC DIAGRAM (MAIN-AMPLIFIER)



basic schematic diagram.


P.T SECONDARY P.W.B
1AD4B10C0440C
CMKS-81X △
MAIN P.T
PT401
THERMAL FUSE
150°C
P.T PRIMARY P.W.B
FU490
125V 5A
1AD4B10C0440B
CMKS-81X △
HEADPHONE
SPEAKERS SWITCH &
HEADPHONE SOCKET P.W.B
1AD4B10C0440D
CMKS-81X △
C
B
A
TO MAIN VOLUME P.W.B
(CN490)
TO TUNER/PRE-AMPLIFIER P.W.B
(CN472)
TO CD POWER SUPPLY P.W.B
(CN111)
SUB
MAIN
AC 120V
60Hz
SPEAKER B
SPEAKER A
L-CH
R-CH
MAIN AMPLIFIER P.W.B

GES OF IC FOR CD-MAIN SECTION

Unit: Volt

210M

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ode	0	0	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.6	2.6	2.5	2.5	2.5	2.5
ode	0	0	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.6	2.6	2.5	2.5	2.5	2.5
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
ode	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	0	2.5	2.4	2.4	2.5	2.5	2.5	0
ode	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.5	2.4	2.5	Fluc	2.5	Fluc	0
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
ode	2.5	2.5	2.5	5.0	5.0	0	0	0	0	0	0	0	5.0	5.0	0	0
ode	Fluc	2.5	2.5	5.0	0	0	0	4.2	0	0	0	0	5.0	0	0	0
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
ode	4.2	0	0	0	2.6	2.4	2.4	5.0	2.6	2.6	Fluc	4.0	2.8	2.1	5.0	0
ode	4.2	0	0	Fluc	2.6	2.5	2.5	5.0	2.5	2.5	2.2	4.1	2.6	2.1	0	0
Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
ode	0	2.0	Fluc	1.6	1.3	1.2	0	1.3	1.6	5.0	0	5.0	5.0	1.6	1.6	1.6
ode	0	3.3	3.7	3.0	2.2	3.5	0	2.8	1.7	4.0	0	4.0	5.0	1.7	1.7	1.7

398FP

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ode	4.2	4.2	2.5	2.5	8.0	5.0	0	0	2.5	0	4.1	0	0	8.4	0	0
ode	Fluc	Fluc	Fluc	2.5	7.8	5.0	5.0	0	0	2.5	4.1	4.2	0	8.4	0	0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28				
ode	4.1	4.1	2.6	2.5	8.9	8.9	2.5	2.5	2.5	4.2	4.2	0				
ode	Fluc	Fluc	0	2.5	8.9	8.9	2.5	2.5	Fluc	Fluc	Fluc	0				

361KE

* W/EMP : 5.0 V

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ode	0	2.3	2.3	2.7	0	2.3	2.3	2.6	0	0	0	5.0	0	2.5	4.2	4.2
ode	0	2.3	2.3	2.4	0	2.5	2.5	2.6	0	Fluc	0	0	0	2.5	4.2	0
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
ode	0.5	1.7	0	5.0	5.0	0	0	5.0	0	0	0	0	0	5.0	1.3	1.3
ode	0.6	2.0	5.0	0	5.0	0	0	5.0	0	0	0	0	0 *	5.0	1.3	1.3
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
ode	2.5	2.5	0	2.3	0	2.5	2.3	1.8	2.5	4.6	2.6	0	2.3	0	2.5	0
ode	2.5	2.5	1.7	2.3	0	2.5	2.4	Fluc	2.5	0	2.7	0	0	0	2.5	0
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
ode	2.5	0	0	0	0	5.0	5.0	0	5.0	2.3	2.0	5.0	0	0	2.5	2.5
ode	2.5	0	0	0	0	5.0	5.0	0	0	2.3	2.0	5.0	0	0	2.5	2.5

379GR

Pin No.	1	2	3	4	5	6	7	8
ode	Fluc	0	Fluc	5.0	2.1	3.5	0	2.1
ode	Fluc	Fluc	Fluc	5.0	2.1	3.5	0	2.1

2432-107Q

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ode	0	5	5	5	0	4.6	0	5	0	5	5	0	5	0	0	4.6
ode	Fluc	5	5	5	0	4.6	0	5	0	5	5	0	5	Fluc	0	4.6
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
ode	0	0.8	0	0.5	1.8	1.6	0	5	0	0	0	0	0	0	0	5
ode	0	0.8	0	0.5	1.4	0.8	0	5	0	0	0	0	0	0	0	5
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
ode	5	5	0	0	5	5	2.3	2.7	0	5	0	5	5	5	0	0
ode	5	5	0	0	5	5	2.4	2.7	0	5	0	5	5	5	0	0
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
ode	0	5	5	5	5	5	5	-1.8	-29	-29	-18	-1.2	-1.5	-22	-1.4	0
ode	0	5	5	5	5	5	5	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc
Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
ode	-29	-32	-29	-26	-1.1	-29	-1.6	-27	-27	-27	-27	-27	-27	-27	-27	-27
de	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	-27	-27	-27	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc
Pin No.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
ode	-27	-27	-27	-27	-27	-27	-27	-32	5	5	0	5	0	0	4.7	5
de	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	-32	5	5	0	5	0	0	0	5
Pin No.	97	98	99	100												
ode	5	0	0	0												
de	5	0	Fluc	4.2												

Fluc: Fluctuation

VOLTAGES OF IC FOR CD-MAIN SECTION

IC112 LE24C04S1

Measuring Pin No.	1	2	3	4	5	6	7	8
Stop/ Play Mode	0	0	0	0	5	5	0	5

IC181 LB1648

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Stop Mode	9	5	0.5	0.5	5	2.8	9	5	0.5	0.5	5	3

IC182 LB1648

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Stop Mode	9	0	0	0.5	5	2.1	9	5	0.5	0	0	3

IC183 LB1648

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Stop Mode	9	5	0.5	0	0	0	9	0	0	0.5	5	1.2

IC184 MLC74HC14A

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Stop Mode	5	0	5	0	5	0	0	0	5	0	5	0	5	5

IC185 MLC74HC14A

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Stop Mode	0	5	0	5	0	5	0	5	0	0	5	5	0	5

For parts or service contact

SFS CORPORATION SFS Corporation : 1200 West Artesia Blvd., Compton, California 90220

May./'94/2000 NS Printed in Japan.

Notice

FISHER

☐ CORRECTION ☑ PRODUCTION CHANGE

☐ SERVICE FLASH ☐ ADD INFORMATION

☐ ☐

FILE NO.

Please add this notice to the Service Manual listed below.

Category : **Digital High-Fidelity System** Date : Jun. 1996

Model : **TAD-9415**

Destination : US Reference No. : SM580319 Issue Number : 1

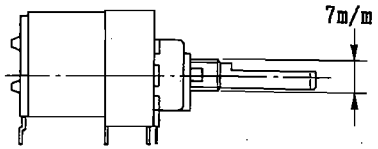
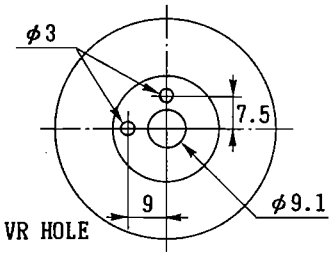
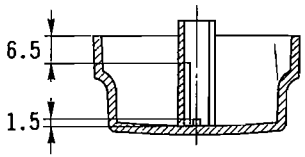
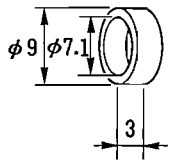
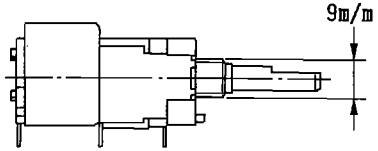
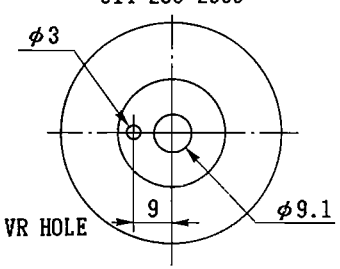
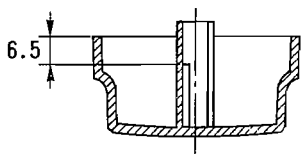
The reason of change.
A : Misprint B : Quality Reliabilities C : Standardization
D : Design E : F :
G :

Page & Section	Ref. No.		Part No.	Description	Q'ty	Interchange-ability	Reason
PARTS LIST P43	1	Old	614 259 2939 (1AD2PAM0013--A)	ASSY,PANEL,FRONT (PANEL,FRONT)	1		
	1	New	614 259 2939 (1AD2PAM0013--B)	ASSY,PANEL,FRONT (PANEL,FRONT)	1	Serial No. 35429651 ~	D
PARTS LIST P43	13	Old	614 257 2894 (1AD2KNM0027--)	KNOB,ROTARY,VOLUME	1		
	13	New	614 257 2894 (1AD2KNM0027--A)	KNOB,ROTARY,VOLUME	1	Serial No. 35429651 ~	D
PARTS LIST P47	81	Old	614 259 6258 (1AD4B10C0450B)	ASSY,PWB,MAIN-VOL(N.S.P) (PWB,MAIN-VOL)	1		
	81	New	614 259 6258 (1AD4B10C0450BA)	ASSY,PWB,MAIN-VOL(N.S.P) (PWB,MAIN-VOL)	1	Serial No. 35429651 ~	D
PARTS LIST P48	VR469	Old	614 263 3700	VR,ROTARY,100K,VOLUME	1		
	VR469	New	645 009 3869	VR,ROTARY,100K,VOLUME	1	Serial No. 35429651 ~	D

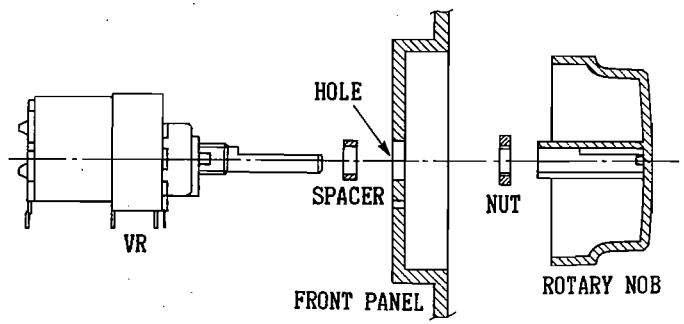
NEW type isn't compatible with OLD type in this change.
- *Handle exchange of each part shown as above with a method mentioned in the back page.*
- *In case of exchange of each part shown as above, order part code mentioned in the back page.*

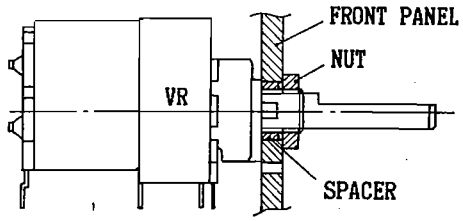
Product Cord :129 438 00

SANYO FISHER SERVICE CORPORATION
1200 West Artesia Blvd., Compton, California, 90220.

	VR	FRONT PANEL ASSY	ROTARY NOB	SPACER	MAIN VOL PWB ASSY
OLD	614 263 3700 	614 287 5117 	614 287 4721 	614 287 2949 	Not Supply
NEW	645 009 3869 	614 259 2939  or 614 287 5117	614 257 2894  or 614 287 4721	Unnecessory	614 259 6258

OLD





NEW