

Symphonic SUPPLEMENT SERVICE MANUAL

COMPACT DISC AUTOMATIC CHANGER

CD5800

CD5800

Part number of SW801 has been changed due to material situation.

For parts order, please use new parts number as follows.

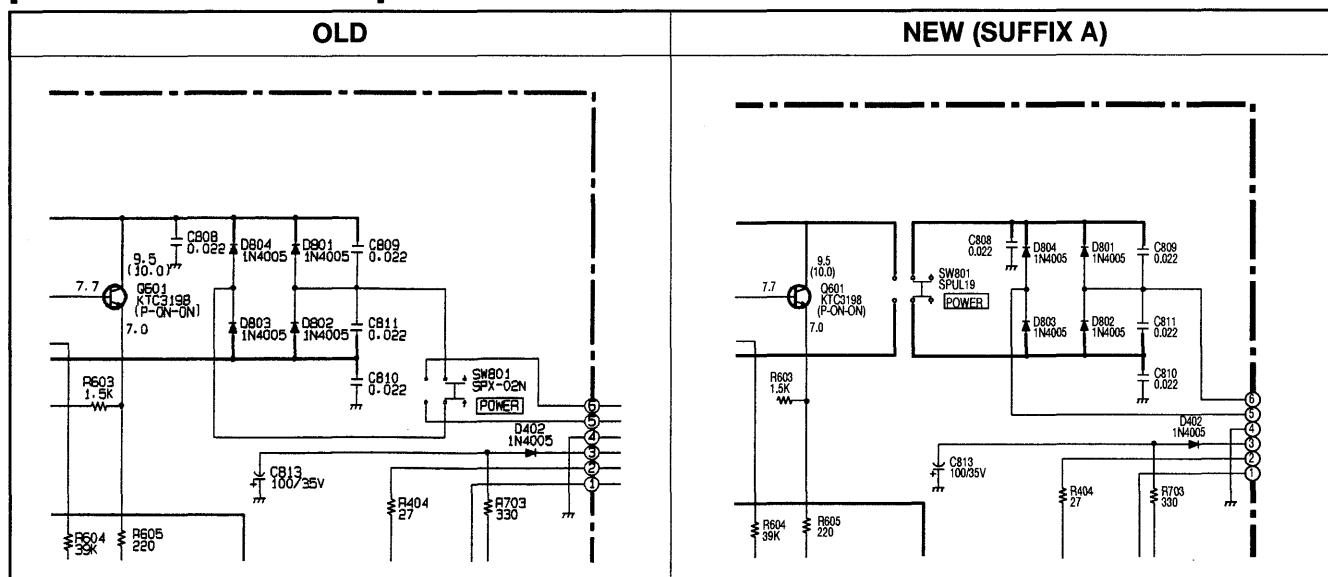
The new product has "SUFFIX A" on Rating Label.

The old product should be "0RM100167J" CHASSIS and "WAC0202AS001" AC CORD. The new product "0RM100167L" CHASSIS and "WAC0202AS002" AC CORD.

Ref No.	Description	OLD	NEW (SUFFIX A)
		Parts No.	Parts No.
[MECHANICAL PARTS LIST]			
A-11	LABEL, RATING	0VM409023	0VM409434
B1-1	MAIN CHASSIS	0RM100167J	0RM100167L
[ELECTRICAL PARTS LIST]			
	MAIN CBA	ORSA01954	ORSA01979
* SW 801	POWER SWITCH	SSP0202MM001	SSP0202AL005
	AC CORD	WAC0202AS001	WAC0202AS002

* Old POWER SWITCH SW801 (SSP0202MM001) can be used for new product, but new POWER SWITCH SW801 (SSP0202AL005) can not be used for old product.

[MAIN SCHEMATIC DIAGRAM]



E7743UD

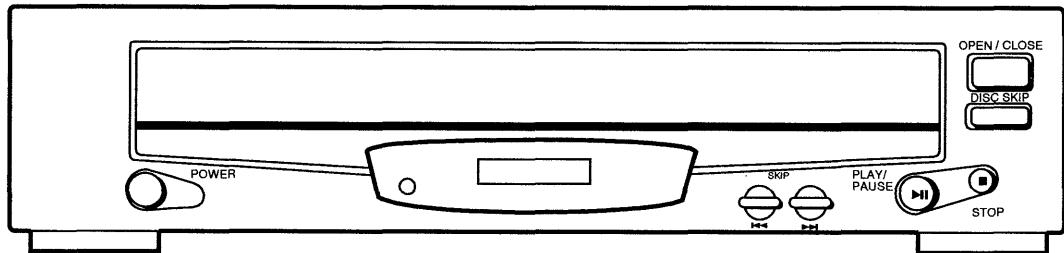
JUL. 17. 1998

Symphonic

SERVICE MANUAL

**COMPACT DISC
AUTOMATIC CHANGER**

CD5800



PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by a ▲ in the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

PRECAUTIONS

Laser Precaution

Danger: If interlock fails or is defected, the laser is able to function. The laser light is invisible, avoid direct exposure to the beam.

Warning: When servicing, (in case it is necessary to confirm Laser Beam Emission) be sure not to place your eyes any closer than 1ft or 30cm from the surface of the Object Lens on the Optical Pickup Block.

Caution: The use of controls or adjustments, or the performance of procedures other than specified here in can result in hazardous radiation exposure to the laser light.

Handling The Laser Pickup

Laser diodes are extremely susceptible to damage from static electricity. Even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly. When replacing the pickup, use a conductive mat on the floor and desk, a grounded soldering iron, and wear a wrist band connected to ground through a 1Mohm resistor to protect the laser diode from static damage. If the lens should get dusty, blow off the dust carefully from the object lens using a lens blower. If the lens should get dirty, wipe it off carefully with a sheet of cleaning paper to which a small quantity of solvent (isopropyl alcohol) is applied. Be sure not to apply any excessive force to the lens.

There are no adjustable parts in the pickup unit assembly. If it is defective, replace the whole pickup assembly.

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SPECIFICATIONS

	ITEM	CONDITIONS	UNIT	NOMINAL	LIMIT	REMARKS
1	S/N ratio	(JIS-Average)	dB	90	80	
		(Flat-Average)	dB	85	75	
2	Channel separation	1 kHz (Use B. P. Filter)	dB	81	75	
3	Channel balance	1 kHz	dB	--	<2	
4	Frequency response	20 Hz-20 kHz	dB	± 2	± 3.0	0 dB=1 kHz
5	De-emphasis	1 kHz	dB	-0.37	± 1.0	
		5 kHz		-4.53	± 2.0	
6	Harmonic distortion	16 kHz		-9.06	± 2.0	
		1 kHz	%	0.05	0.07	20 kHz (Use L. P. Filter)
7	Output voltage	1 kHz	V	1.2	± 0.4	
8	FF/FB		dB	-12	--	
9	Playability (Test Disc=TCD-725B etc)	Wedge	μm	900	600	
		Black dot	μm	800	600	
		Finger print	Does not hang up or jump			
10	Eccentricity		μm		70	
11	Vertical deviation		μm		500	
12	Shock		g		50	
13	Dynamic range		dB	85		

NOTES:

1. All Items are measured without pre-emphasis unless otherwise specified.
2. Test disc : SONY YEDS-7 , TCD-712, TCD-725B, TCD-732RA
3. Power supply: AC120 V 60 Hz
4. Load imp.: 100 K ohm
5. Room ambient temperature : +25 °C

INSTRUCTION FOR OPTICAL SYSTEM

Pickup

Electrostatic breakdown of the laser diode in the optical system block may occur to a potential difference caused by electrostatic charge accumulated on cloth, human body etc. during unpacking or repair work.

1. Short the copper pattern of pickup unit by solder before remove connector from it. (See Fig. 1)
2. Remove the solder from copper pattern of pickup unit after connector is connected. (See Fig. 1)
3. Ground for Human Body
Be sure to wear a grounding band ($1M\Omega$) that is properly grounded to remove any static electricity that may be charged on the body. (See Fig. 2)
4. Ground Work Bench
Be sure to place a conductive sheet ($1M\Omega$) or copper plate with proper grounding on the work bench or other surface on which the pickup is to be placed. (See Fig. 2)
5. Since the static electricity charge on the cloth will not escape through the body grounding band, be careful to avoid contact of the pickup with cloth.

Note : Laser diodes are so susceptible to damage from static electricity that even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly.

Laser Diode

Precautions for checking beam emission of Laser Diode

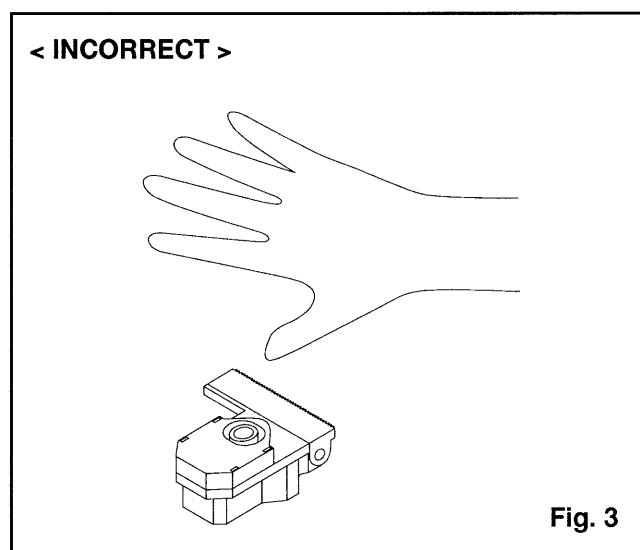
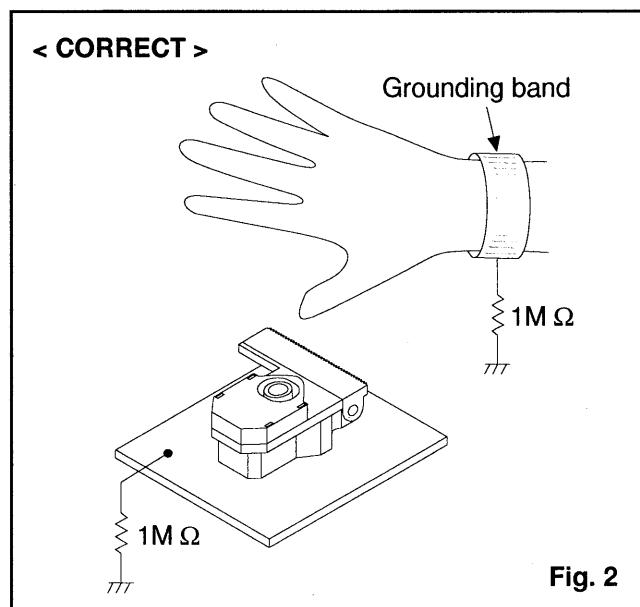
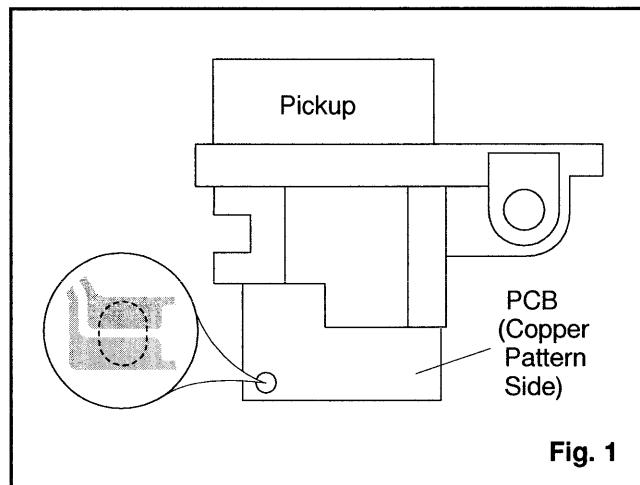
Laser diode emits laser beam through object lens and reflection beam makes focusing action to the pick up unit.

Therefore, keep your eyes at least 30 cm away from the object lens when the laser diode is on.

[Operation Check Method for Laser Diode and Focus Search Function]

When the POWER switch is turned ON after the chucking arm is removed, observe the object lens confirm that the following operations are performed properly.
(The optical system block should be at the lead-in area position when it is checked at this time.)

1. The disc table should be at the innermost position after the chucking arm is removed.
2. The diffused light of the beam can be seen when unit in the focused mode.
3. This works only if there is a disc on the tray, then just before the disk motor starts to spin, remove the disc from the tray. The pick-up unit will move in&out once then the lens moves up and down 2 to 3 times.



Operating Instructions for CD Section

1. Supply 120 VAC to the unit.
2. Turn on the power and play back the CD.
3. Mechanism operation:
 - 1) Feed operation
When you set the innermost limit switch to off, the feed motor moves the pickup to the innermost track position to turn on the limit switch, then it stops.
 - 2) Then the pickup starts focusing.
 4. Laser Pickup operation (Limit SW = ON):
 - 1) If no disc is loaded, the pickup does not start the focus search.
 - 2) If a disc is loaded, the pickup focuses try and the focus servo turns on. The disc motor starts rotating and the disk motor servo turns on.
The pickup reads the read-in data and indicates the starting tracks on a disc.

Mechanism Description

Summary of the Mechanical Operation

When the disc sensor detects one cycle the rotation, rotary motor turns counterclockwise so that the tray for the disc position number at the chucking position is positioned facing front. Then the loading motor turns clockwise to open the slide tray, until the OPEN switch turns on.

When you press OPEN/CLOSE after you load the disc, the loading motor turns counterclockwise until the CLOSE switch turns on to close the slide tray. Then, the rotary tray turns clockwise until the disc sensor detects the disc, and the chucking sensor detects the stop position. Then the loading motor turns counterclockwise to move the pickup unit upward until the UP switch turns on.

A. Moving Up Motion of the Pickup Unit

1. The loading motor turns clockwise.
2. The motion gear turns clockwise by the movement of the loading pulley and loading gear.
3. The chucking turntable moves upward.
4. The pickup unit goes up along the cam gutter of the chucking rack.
5. The open/up switch turns on by the signal from the up position detector on the motion gear.
6. The loading motor stops.

B. Moving Down Motion of the Pickup Unit

1. The loading motor turns counterclockwise.
2. The motion gear turns counterclockwise by the movement of the loading pulley and loading gear.
3. The chucking turntable moves counterclockwise.
4. The pickup unit goes down along the cam gutter of the chucking rack.
5. The down switch of the pickup unit turns on.
6. The loading motor stops.

C. Checking if a Disc is Loaded or Not

1. The rotary motor turns.
2. The rotary tray turns in the same direction as the rotary motor by the movement of the worm pulley and rotary gear.
3. The disc sensor detects the disc position number by the number of holes.
4. The disc sensor checks if a disc is loaded through the disc detection hole.
5. The chucking sensor detects the chucking position through the slit on the rotary tray.
6. The rotary motor stops when the chucking rack is located at the chucking position.

D. Opening the Slide Tray

1. The loading motor turns clockwise.
2. The motion gear turns clockwise by the movement of the loading pulley and loading gear.
3. The motion gear meshes with the rack of the slide tray.
4. The slide tray moves forward.
5. The open/up switch is turned on by the open detector on the motion gear.
6. The slide tray stops.

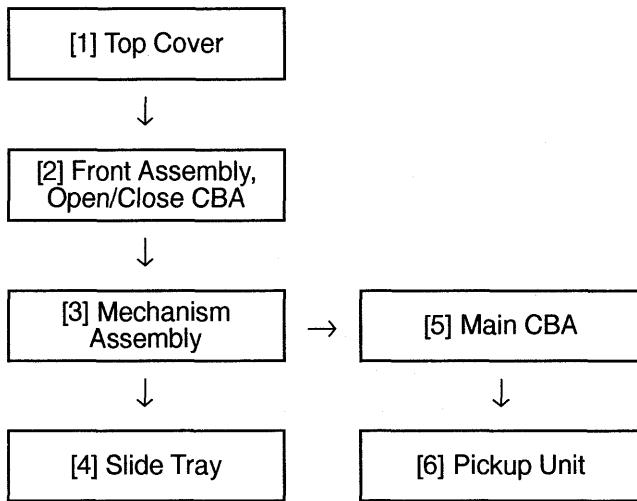
E. Closing the Slide Tray

1. The loading motor turns counterclockwise.
2. The motion gear turns counterclockwise by the movement of the loading pulley and loading gear.
3. The slide tray moves backward.
4. The close switch is turned on by the rack head of the slide tray.
5. The loading motor stops.

DISASSEMBLY INSTRUCTIONS

Disassembly Flowchart

This flowchart indicates the disassembly steps to access the item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were.



Disassembly Method

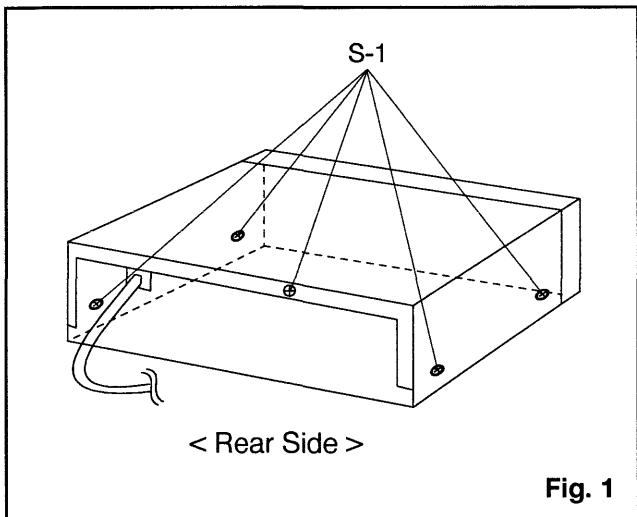
Step/ Loc. No.	Part	Removal		
		Fig. No.	Remove/ *Unlock/ Release/ Unplug/ Un-clamp/ De-solder	Note
[1]	Top cover	Fig. 1	5 (S-1)	1
[2]	Front assembly, Open/Close PCB	Fig. 2	2 (S-2), 6 (H-1), 2 (S-3)	2
[3]	Mechanism assembly	Fig. 3	4 (S-4) Stopper	3
[4]	Slide Tray	Fig. 4	(CN-1), (CN-2), (CN-3), (CN-5), Motor Pulley	4
[5]	Main PCB	Fig. 5	3 (S-6), 2 (S-5), (CN-4), (CN-10), Tab, Belt, Screw with washer	5
[6]	Pickup Unit	Fig. 6	(SW-1)	6

Notes :

- ① Order of steps in procedure. When reassembling, follow the steps in reverse order.
These numbers are also used as the identification (location) number of parts in figures.
- ② Parts to be removed or installed.
- ③ Fig. No. showing procedure or part location.
- ④ Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or de-soldered.
S=Screw, *=Unhook, unlock, release, unplug, or de-solder
5 (S-1) = 5 screws (S-1), (CN1) = connector (CN1)
8 (H-1) = 8 hooks (H-1).
- ⑤ Refer to numbered sections on the following pages.

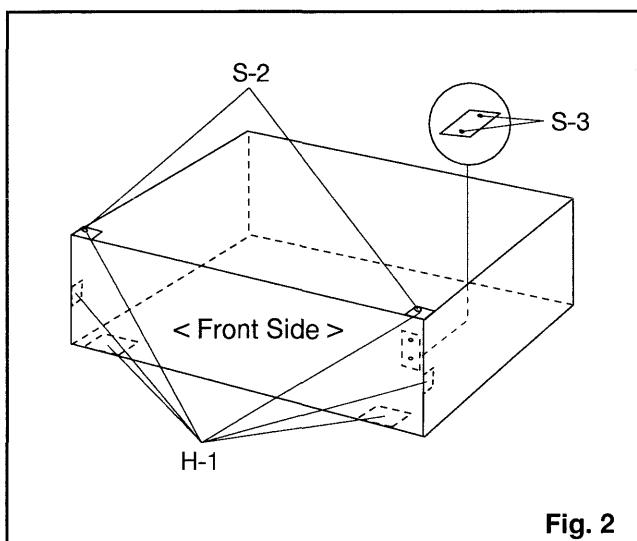
1. Top Cover Removal

1. Remove 5 screws (S-1). (Fig. 1)
2. Unhook bottom edges of both sides of the Top Cover first, then pivot the Top Cover up at the rear.
3. To re-install, reverse the above procedure.



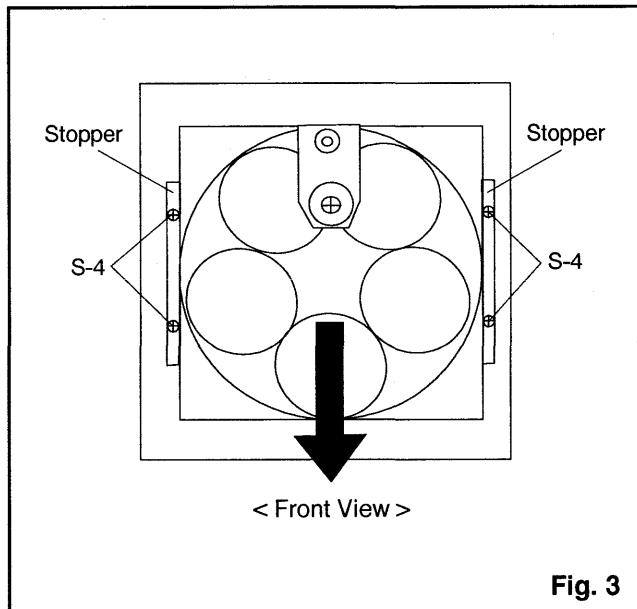
2. Front Assembly , Open/Close PCB Removal

1. Remove the Top Cover.
2. Remove 2 screws (S-2). (Fig. 2)
3. Unfasten 6 hooks (H-1) from the cabinet and then slide the Front Assembly out.
4. Remove chassis holder from the Front Panel.
5. Remove 2 screws (S-3) from the Open/Close CBA .
Then the Open/Close CBA can be removed.
6. To reinstall, reverse the above procedure.



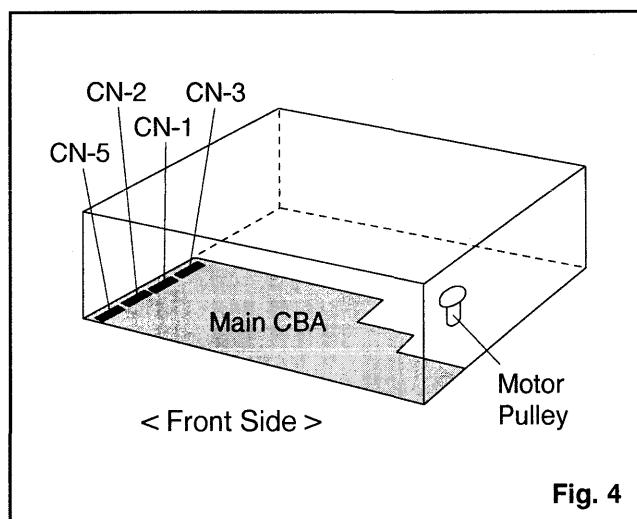
3. Mechanism Assembly Removal

1. Remove the 4 screws (S-4). (Fig. 3)
2. Remove both stoppers. (Fig. 3)



4. Slide Tray Removal

1. Pull open the slide tray in the direction shown by the arrow while turning the motor pulley counterclockwise little by little, as viewed from the top of the unit, until you feel a slight catch as the Slide Tray releases.
2. Gently slide the Slide Tray to the front of the set until it stops, then pull it up to remove it.
3. Disconnect connectors (CN-1, CN-2, CN-3, CN-5). (Fig. 4)
4. To reinstall, reverse the above procedure.



5. Main PCB Removal

Note: Follow steps 1 thru 5 before step 6 is attempted.

1. Remove 3 screws (S-6) and the belt. (Fig. 5)
2. Remove the screw with the washer that holds the motor down and the belt from the motor.
3. Remove 2 screws (S-5). Lift up the RCA Jack CBA. (Fig. 5)
4. Push the tab to the left so it will not be over the Main CBA.
5. Disconnect connectors (CN4 and CN10) (Fig. 5)
6. Lift the Main CBA in the direction shown by the arrow.
7. To reinstall, reverse the above procedure.

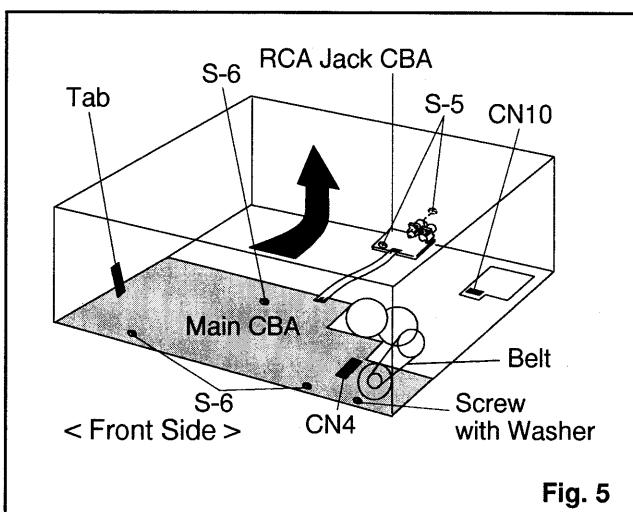


Fig. 5

6. Pickup Unit Removal

Note: Be sure the Pickup Unit is in the down position and follow steps 1 thru 4 before step 6 is attempted.

1. Remove the screw with the washer (SW-1). (Fig. 6)
2. Pull up the Pick up Unit.
3. To reinstall, reverse the above procedure.

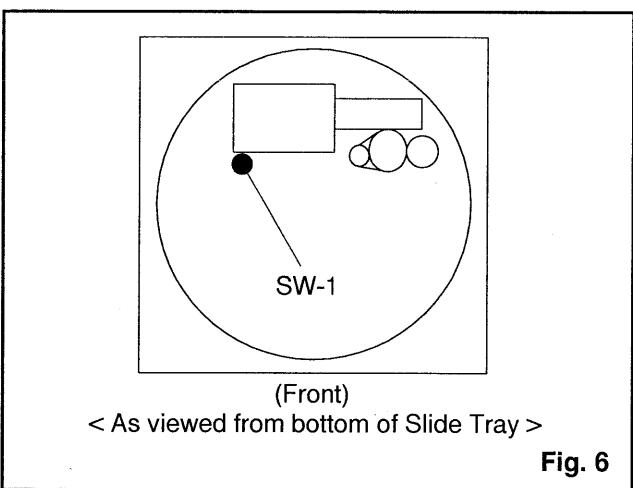
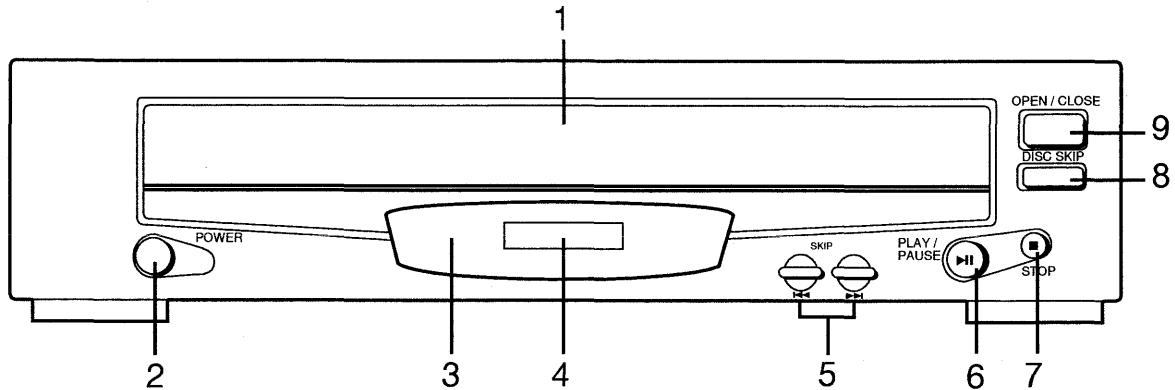


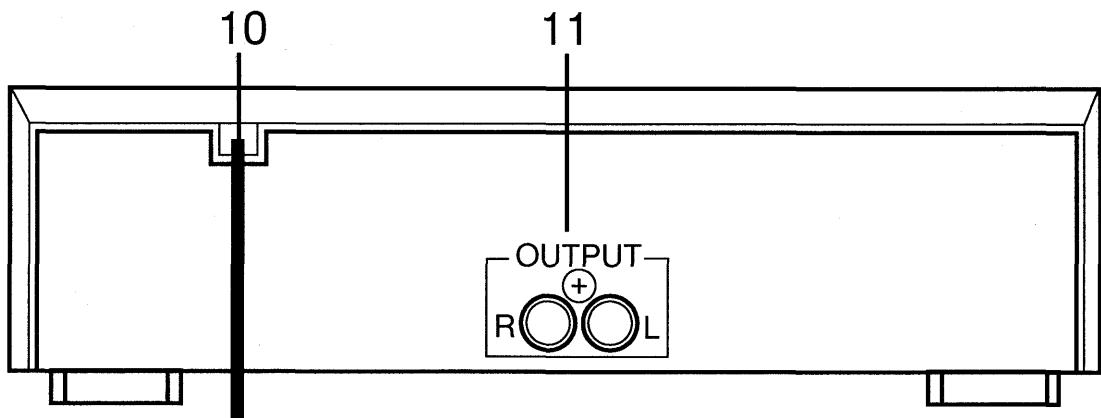
Fig. 6

OPERATING CONTROLS AND FUNCTIONS

—FRONT VIEW—



—REAR VIEW—

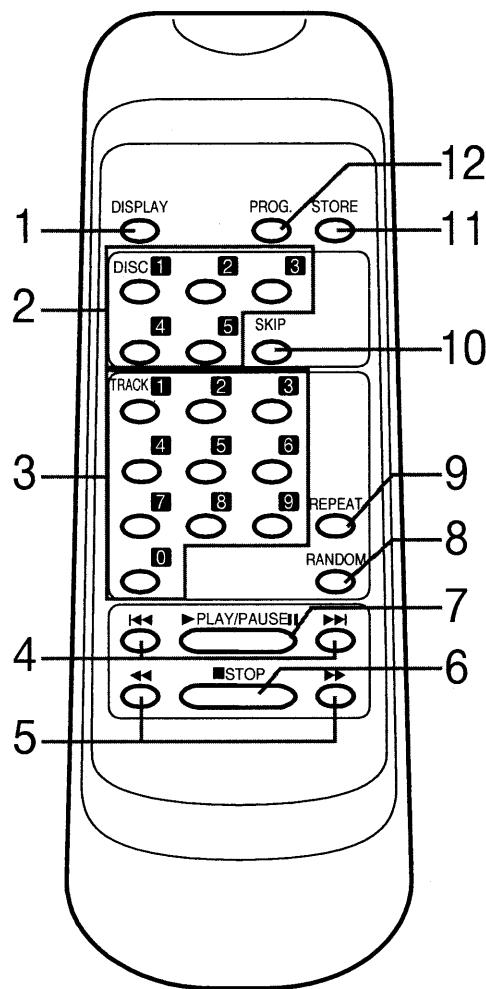


1. **Rotary Disc Tray**
2. **POWER button**- To turn power on and off.
3. **REMOTE SENSOR window**- Receives infrared signals from the remote control unit.
4. **Display**
5. **TRACK SKIP \blacktriangleleft button and \triangleright button**- Press one of these buttons in the stop or play mode to select a desired track number on the disc. Each time the buttons are pressed, the track moves forward or backward one track.
6. **PLAY/PAUSE \blacktriangleright / \blacksquare button**- Press during the playback mode to suspend play.
Press during stop or pause mode to start play.

7. **STOP \blacksquare button**- Press to stop playback. When pressed, the player stops all operations.
8. **DISC SKIP button**- Press to select disc for playback or programming from 1 to 5.
9. **OPEN/CLOSE button**- Press to open the disc tray.
Press again to close the tray.
10. **AC Power Cord**- Connect to a 120V AC/ 60 Hz power source.
11. **OUTPUT jacks**- Connect the stereo audio cable to the CD or AUX input jacks of your receiver or amplifier.

REMOTE CONTROL OPERATION

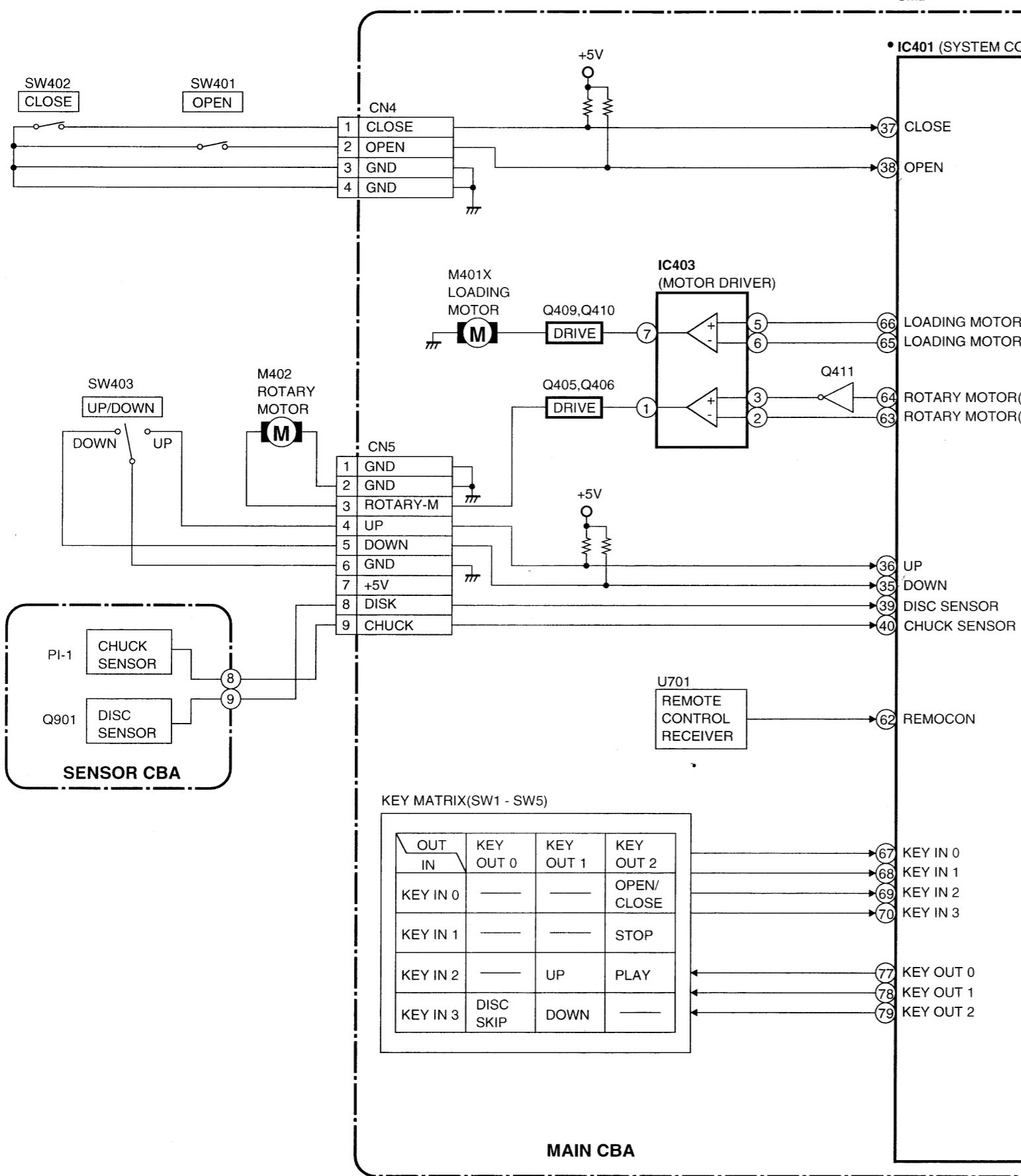
- 1. DISPLAY button-** Press to select the desired display mode: (ELAPSED) TIME or (MUSIC) TRACK NO.
- 2. DISC NUMBER buttons-** Press to select disc for playback or programming from 1 to 5.
- 3. TRACK NUMBER buttons-** Press to play or program any track.
- 4. TRACK SKIP button-** Press to skip to previous tracks or forward to other tracks.
- 5. SEARCH ►► button and ◀◀ button-** Press and hold one of these buttons in the play mode to search a desired part of the track forward or backward.
- 6. STOP button-** Press to stop playback. When pressed, the player stops all operations.
- 7. PLAY/PAUSE ► / II button-** Press during the playback mode to suspend play.
Press during stop or pause mode to start play.
- 8. RANDOM button-** Allows random track playback.
- 9. REPEAT button-** Press to select the repeat mode, either REPEAT ALL, REPEAT ONE, or OFF.
- 10. DISC SKIP button-** Press to select desired disc play or program.
- 11. STORE button-** Press to store selected disc and track during programming.
- 12. PROG. button-** Press to initiate programming of disc and tracks, to be played in any desired order.



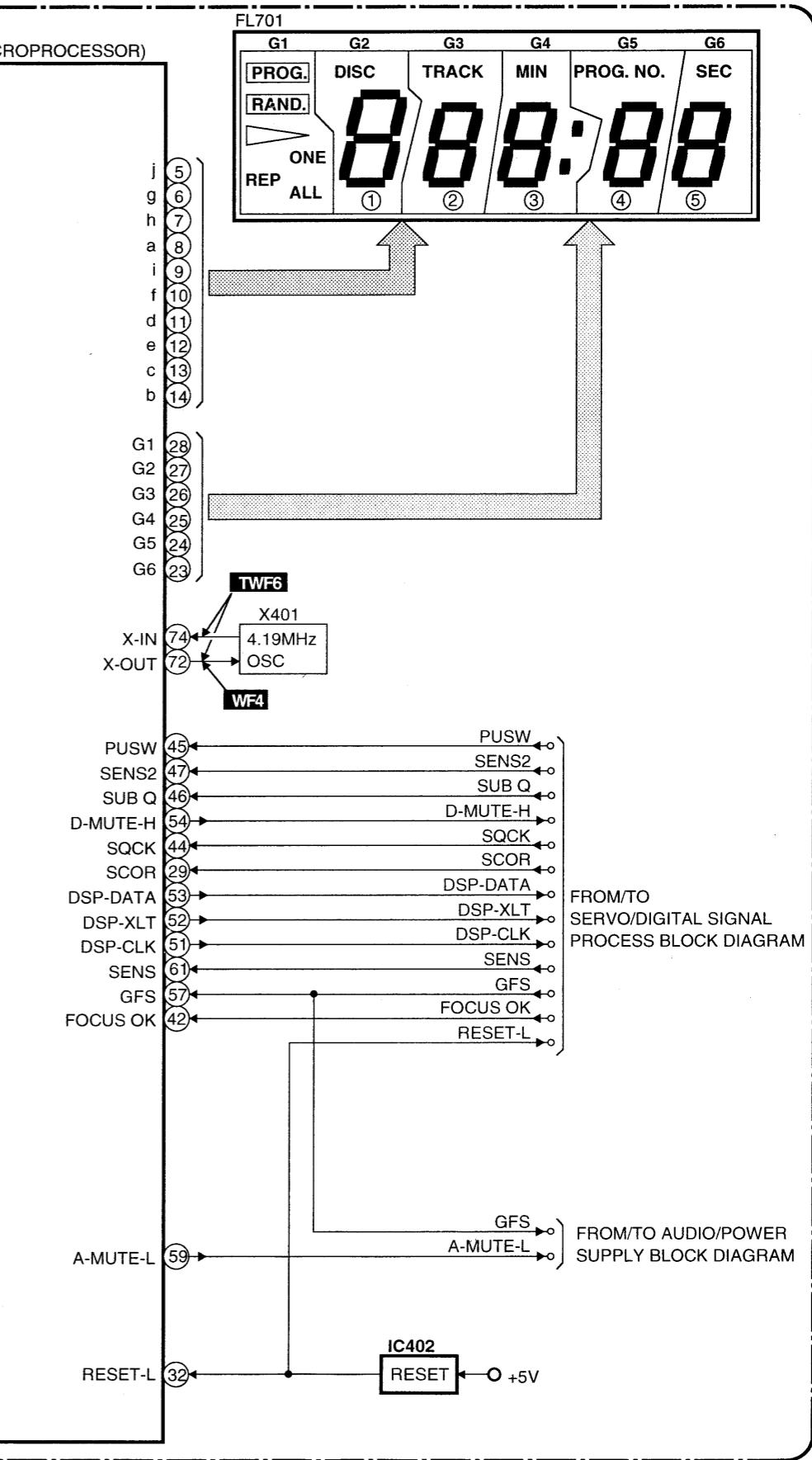
Parts No. : N9170UD

System Control Block Diagram

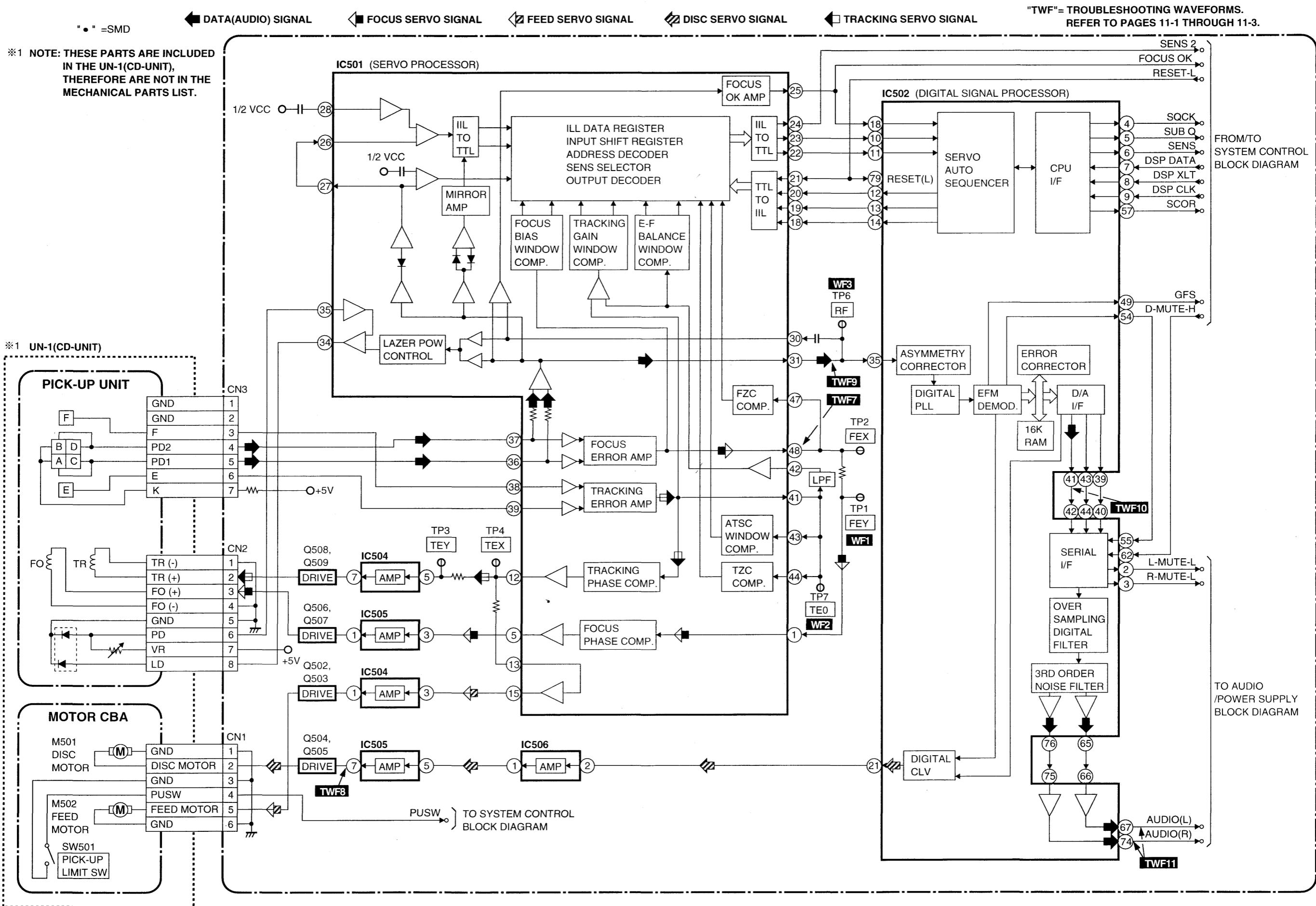
BLOCK DIAGRAMS



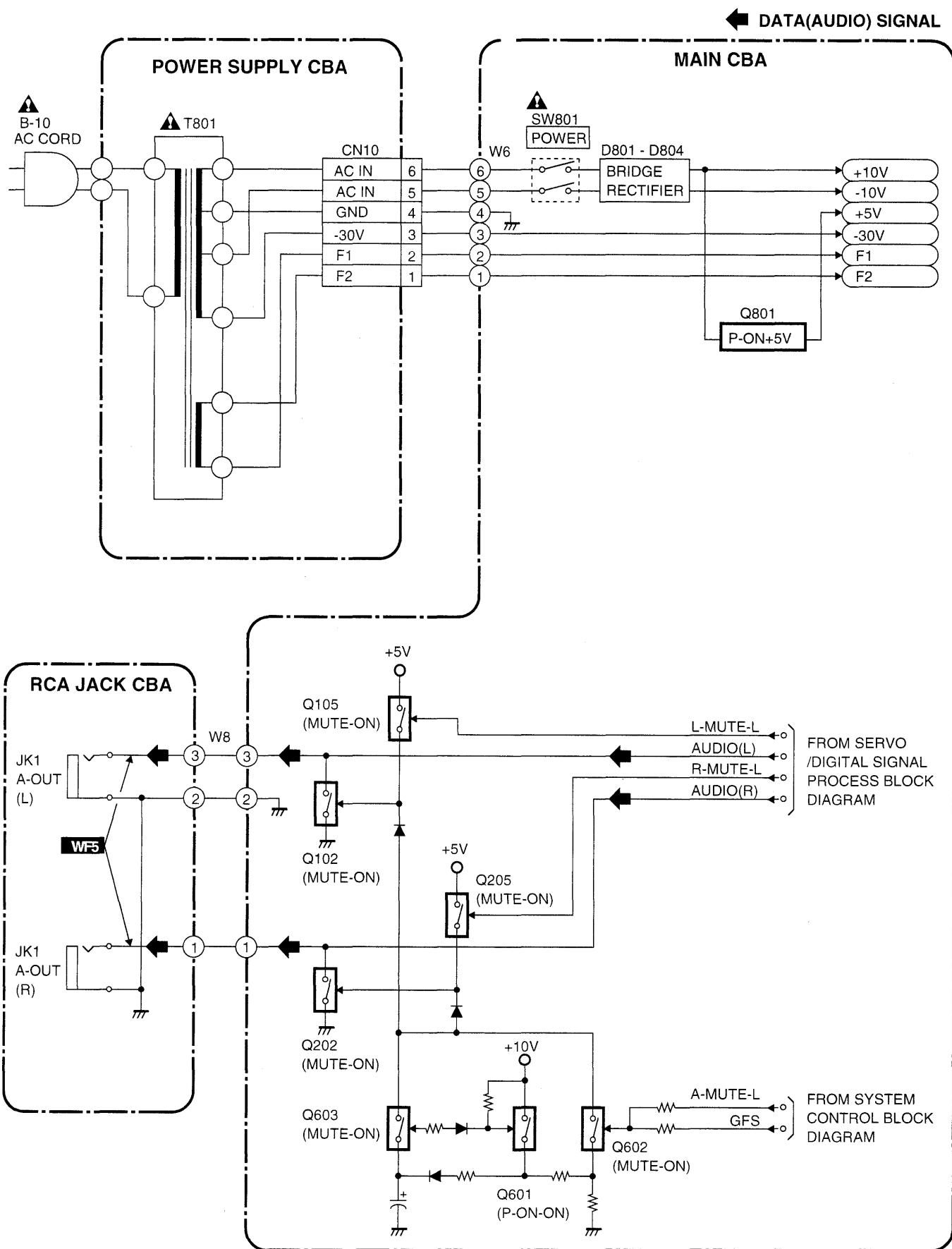
"TWF"= TROUBLESHOOTING WAVEFORMS.
REFER TO PAGES 11-1 THROUGH 11-3.



Servo/Digital Signal Process Block Diagram



Audio/Power Supply Block Diagram



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "Δ" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

* Broken Line : 

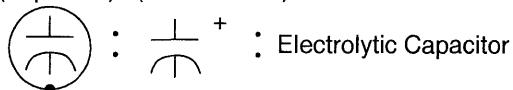
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Y)	±22.5%	20°C	-25~+85°C

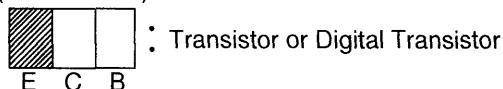
Capacitors and transistors are represented by the following symbols.

< PCB Symbols >

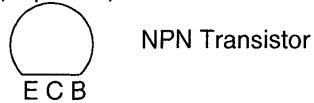
(Top View) (Bottom View)



(Bottom View)



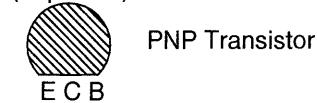
(Top View)



(Top View)



(Top View)

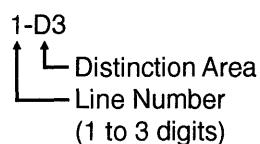


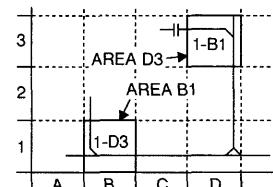
(Top View)



Notes:

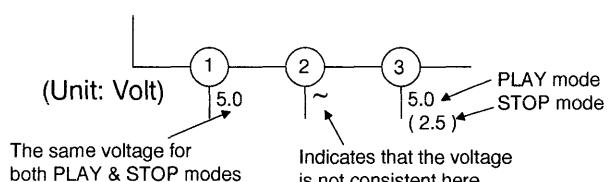
- Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
- To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
- Prefix symbol "CN" means "connector" (can disconnect and reconnect).
Prefix symbol "W" means "wire-solder holes of the PCB" (wire is soldered directly).
- How to read converged lines.

1-D3

 Distinction Area
 Line Number
 (1 to 3 digits)



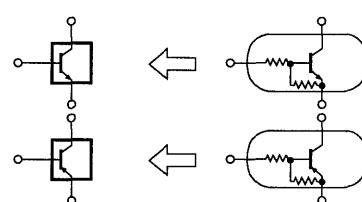
Examples:

- "1-D3" means that line number "1" goes to area "D3."
- "1-B1" means that line number "1" goes to area "B1."
- All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
- Resistor wattages are 1/6W unless otherwise specified.
- All capacitance values are indicated in μF ($P=10^{-6} \mu F$).
- All voltages are DC voltages unless otherwise specified.
- Voltage indications for PLAY and STOP modes on the schematics are as shown below.



< Schematic Diagram Symbols >

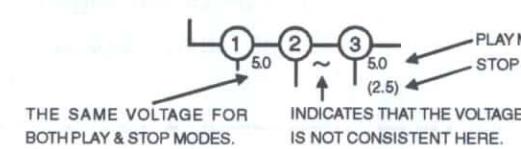
Digital Transistor



Main 1/2 Schematic Diagram

Voltage indications for PLAY and STOP modes of the Schematic Diagrams are as shown below:

***1 Note:**
These parts are included in the UN-1(CD-UNIT).
Therefore are not in the mechanical parts list.

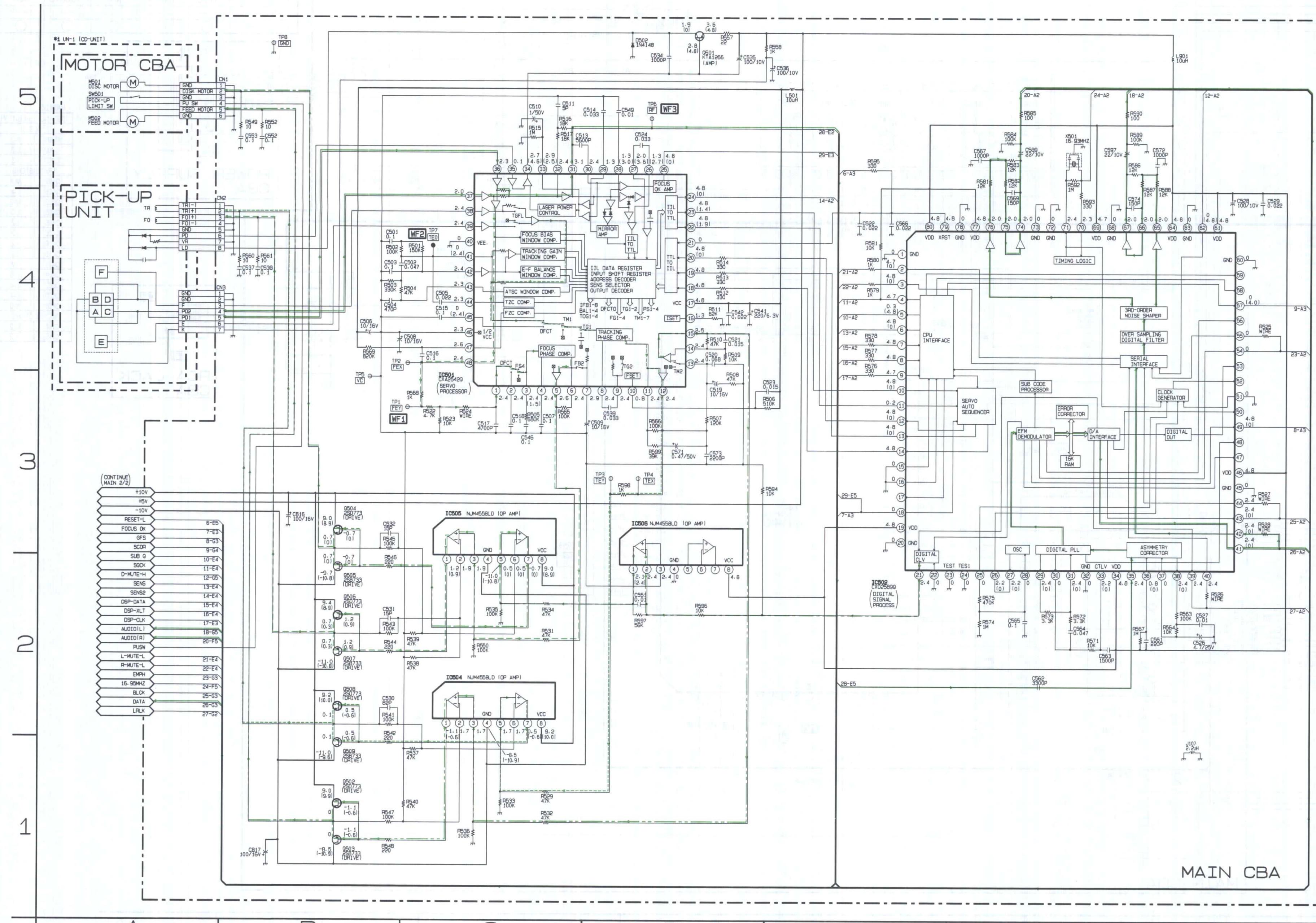


THE SAME VOLTAGE FOR BOTH PLAY & STOP MODES. INDICATES THAT THE VOLTAGE IS NOT CONSISTENT HERE.

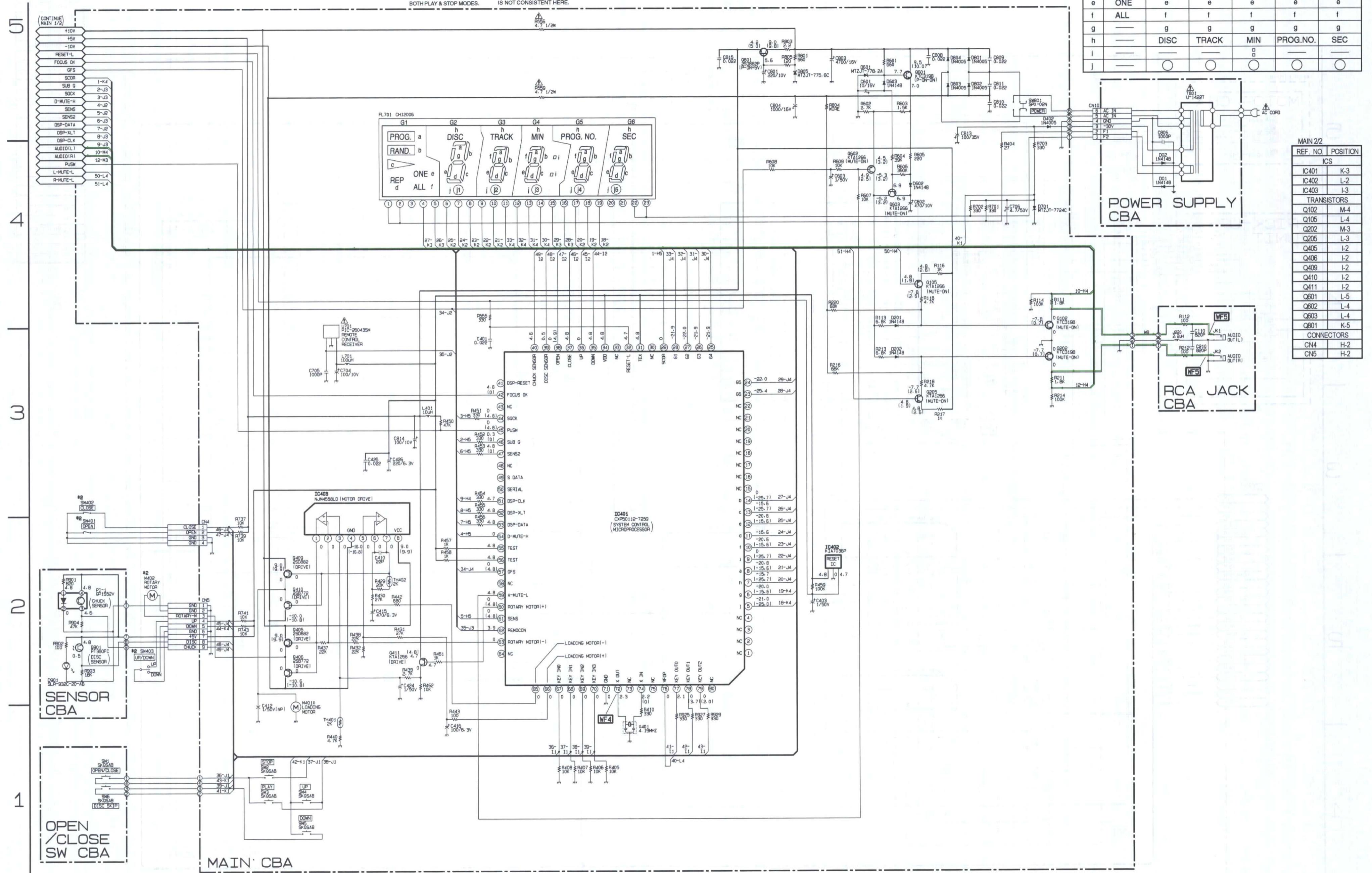
- Data(Audio) Signal
- Focus Servo Signal
- Disc Servo Signal

-- Feed Servo Signal
- - Tracking Servo Signal

MAIN 1/2	
REF. NO.	POSITION
ICS	
IC501	C-3
IC502	E-2
IC504	C-2
IC505	C-3
IC506	D-3
TRANSISTORS	
Q501	D-5
Q502	B-1
Q503	B-1
Q504	B-3
Q505	B-2
Q506	B-2
Q507	B-2
Q508	B-2
Q509	B-1
TEST POINTS	
TP1	C-3
TP2	C-4
TP3	D-3
TP4	D-3
TP5	B-3
TP6	D-5
TP7	C-4
TP8	B-5
CONNECTORS	
CN1	B-5
CN2	B-4
CN3	B-4

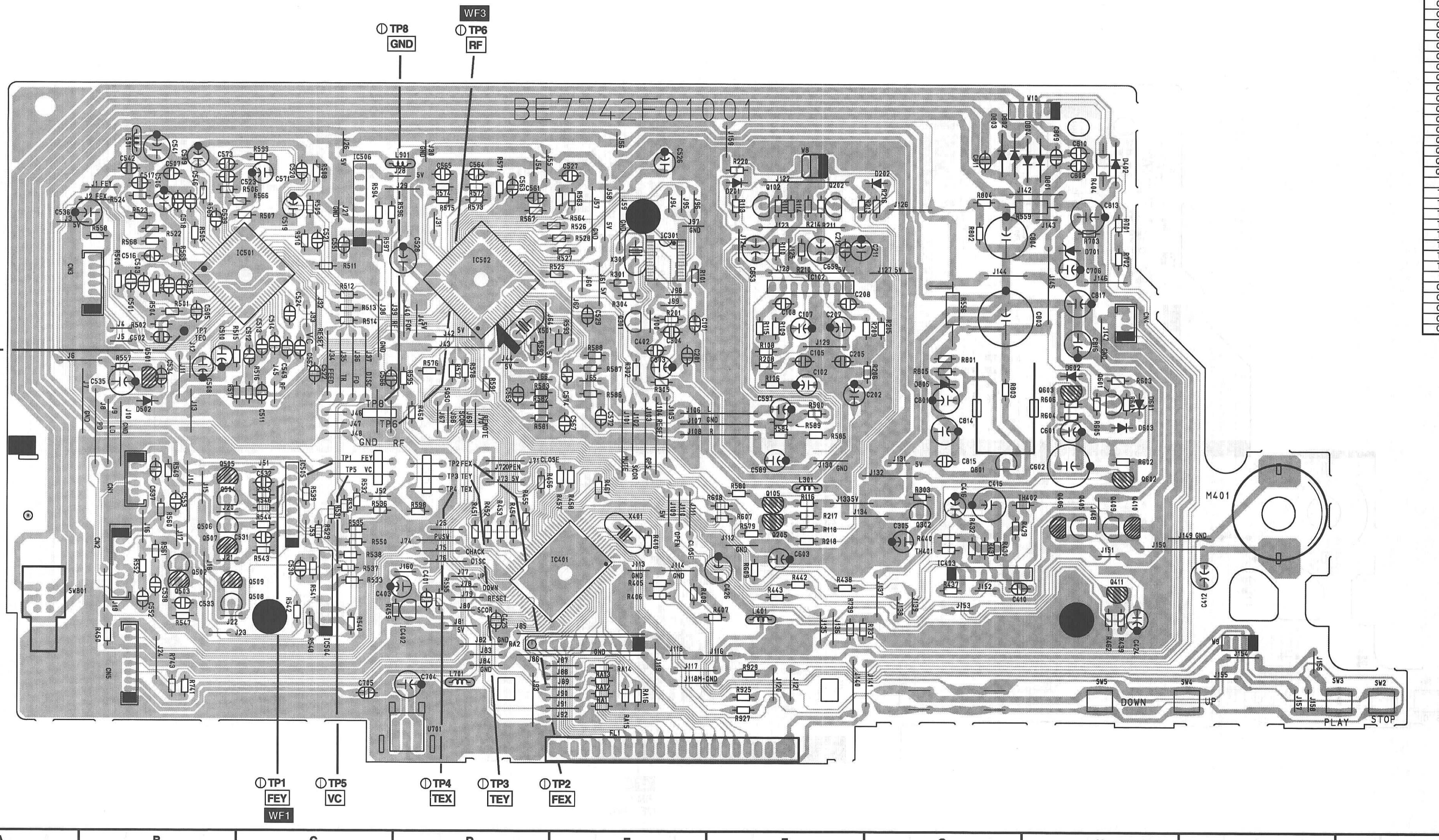


Main 2/2 Schematic Diagram



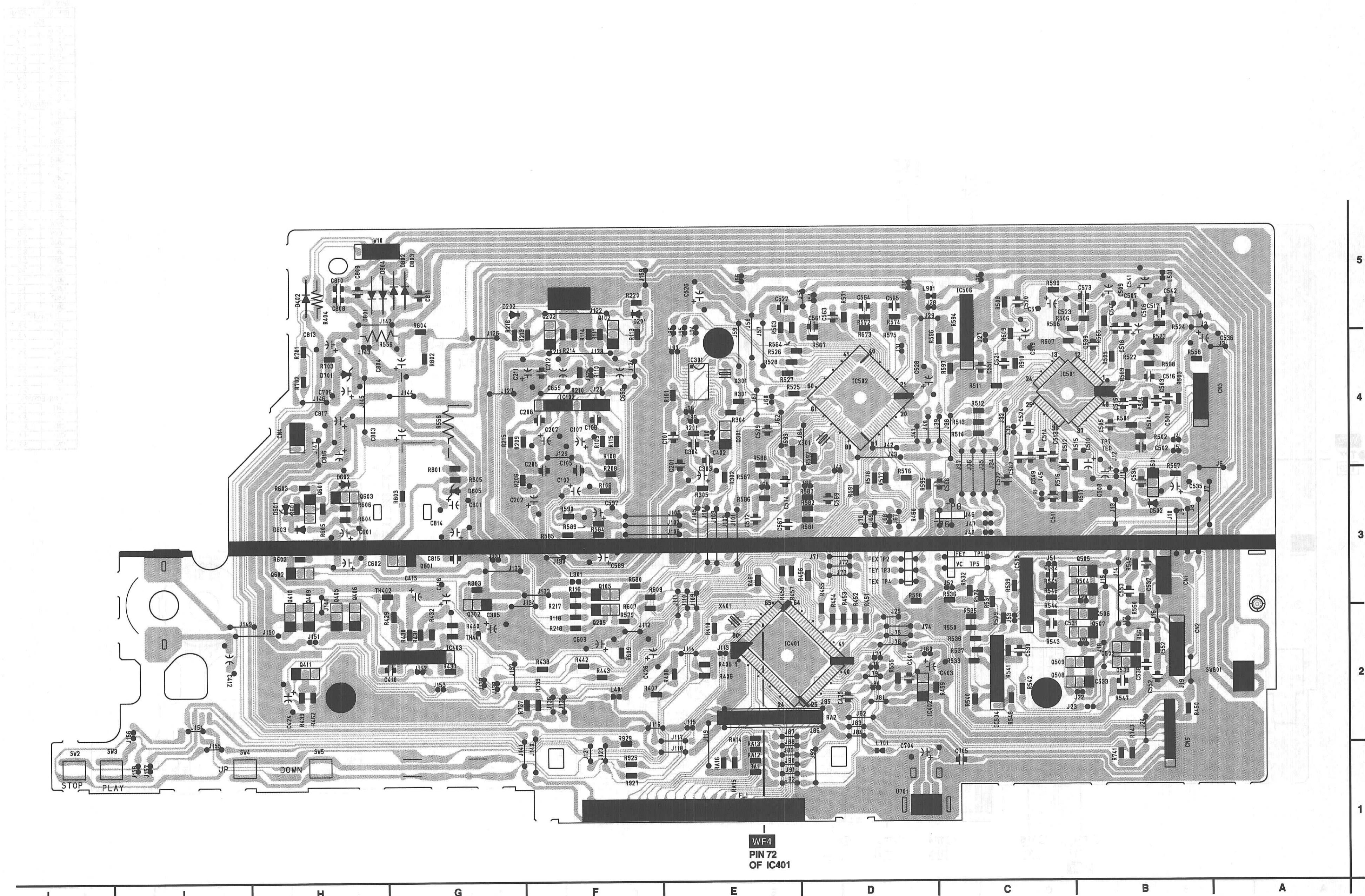
Main CBA Top View

5
4
3
2
1

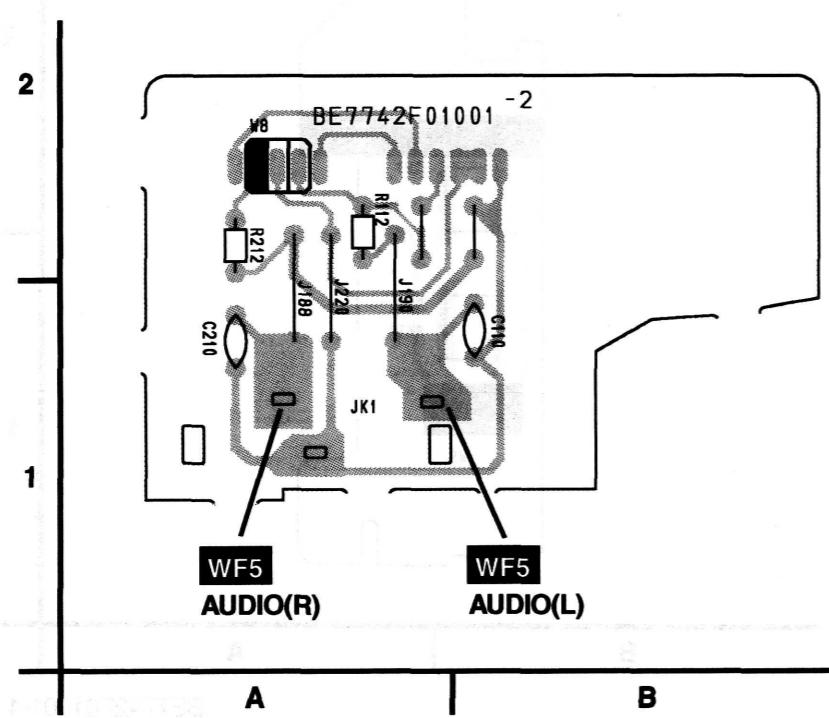


MAIN CBA		
REF. NO.	POSITION	ICS
IC401	E-2	
IC402	D-2	
IC403	G-2	
IC501	C-4	
IC502	D-4	
IC504	C-2	
IC505	C-3	
IC506	C-5	
TRANSISTORS		
Q102	F-5	
Q105	F-3	
Q202	F-5	
Q205	F-2	
Q405	H-3	
Q406	H-3	
Q409	H-3	
Q410	H-3	
Q411	H-2	
Q501	B-4	
Q502	B-2	
Q503	B-2	
Q504	B-3	
Q505	B-3	
Q506	B-2	
Q507	B-2	
Q508	C-2	
Q509	C-2	
Q601	H-3	
Q602	H-3	
Q603	H-3	
Q801	G-3	
TEST POINTS		
TP1	C-3	
TP2	D-3	
TP3	D-3	
TP4	D-3	
TP5	C-3	
TP6	C-3	
TP7	B-4	
TP8	C-3	
CONNECTORS		
CN1	B-3	
CN2	B-2	
CN3	A-4	
CN4	H-4	
CN5	B-2	

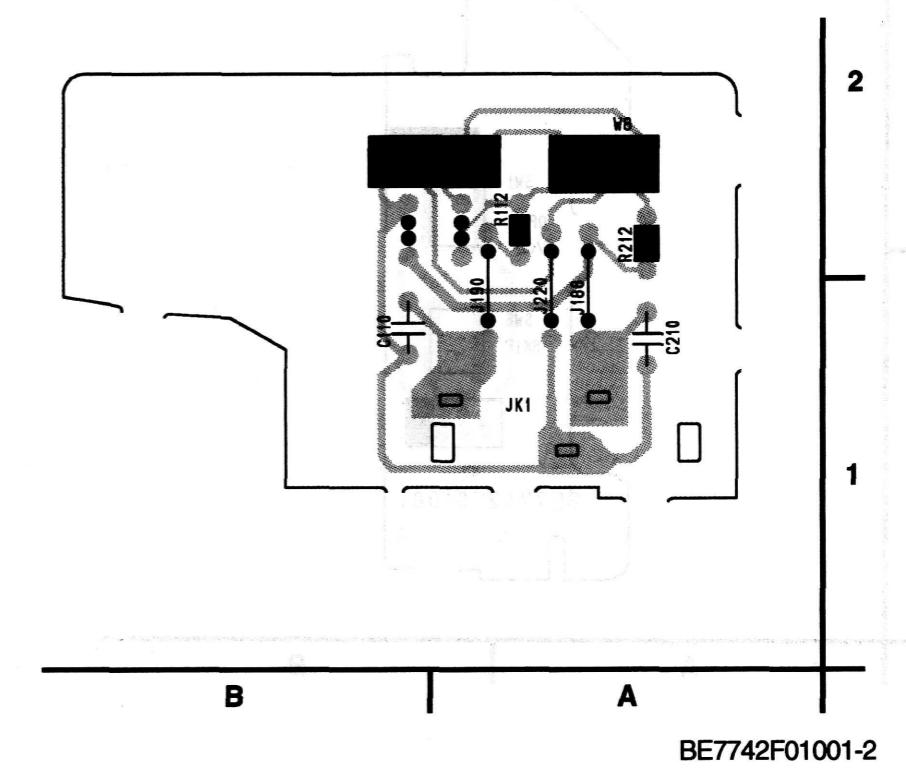
Main CBA Bottom View



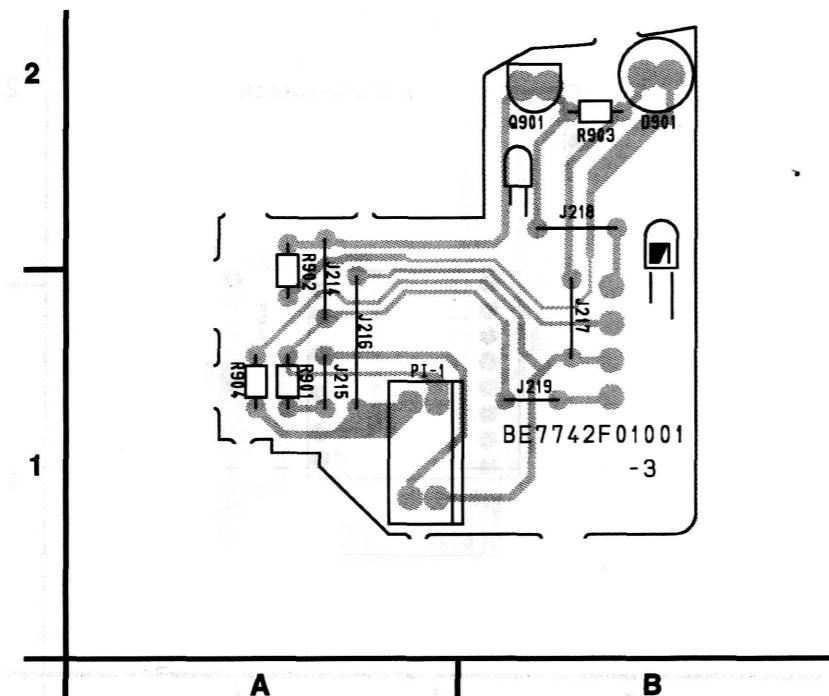
RCA Jack CBA Top View



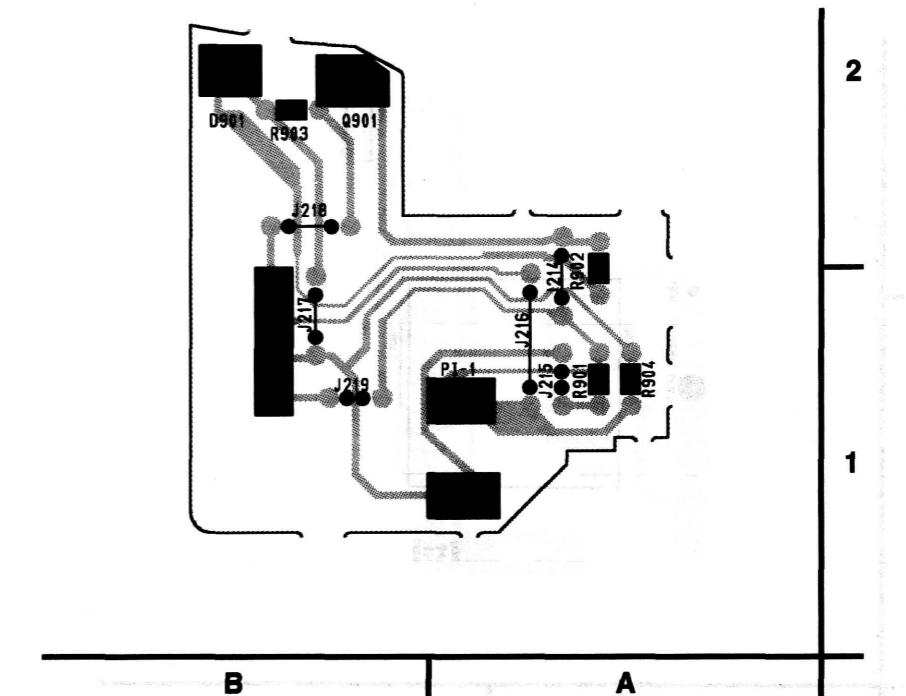
RCA Jack CBA Bottom View



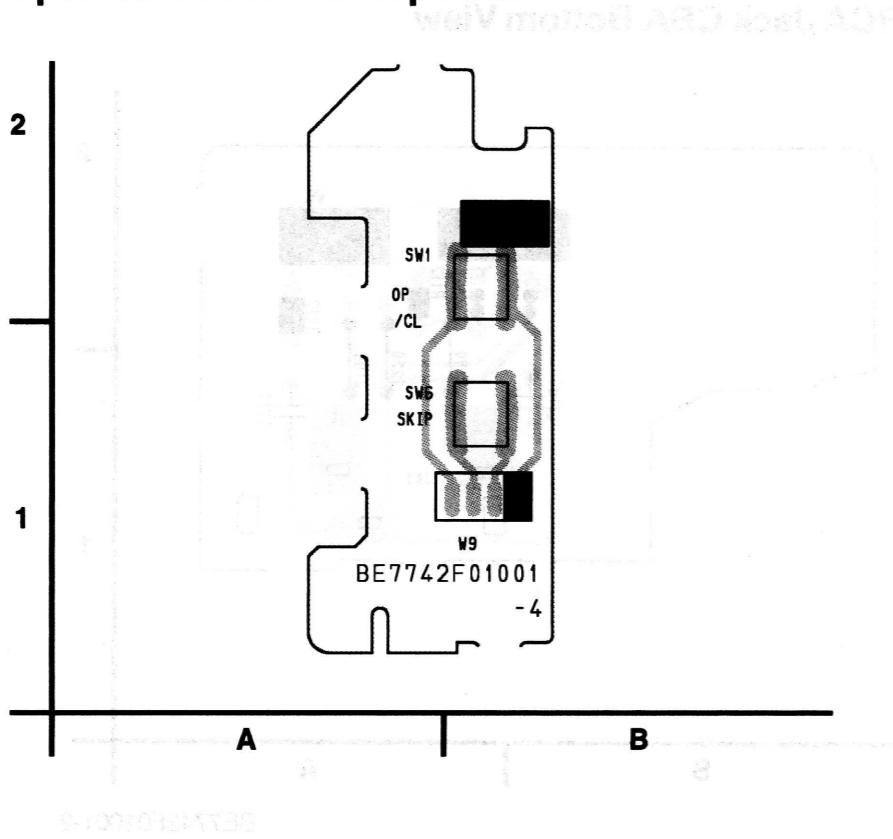
Sensor CBA Top View



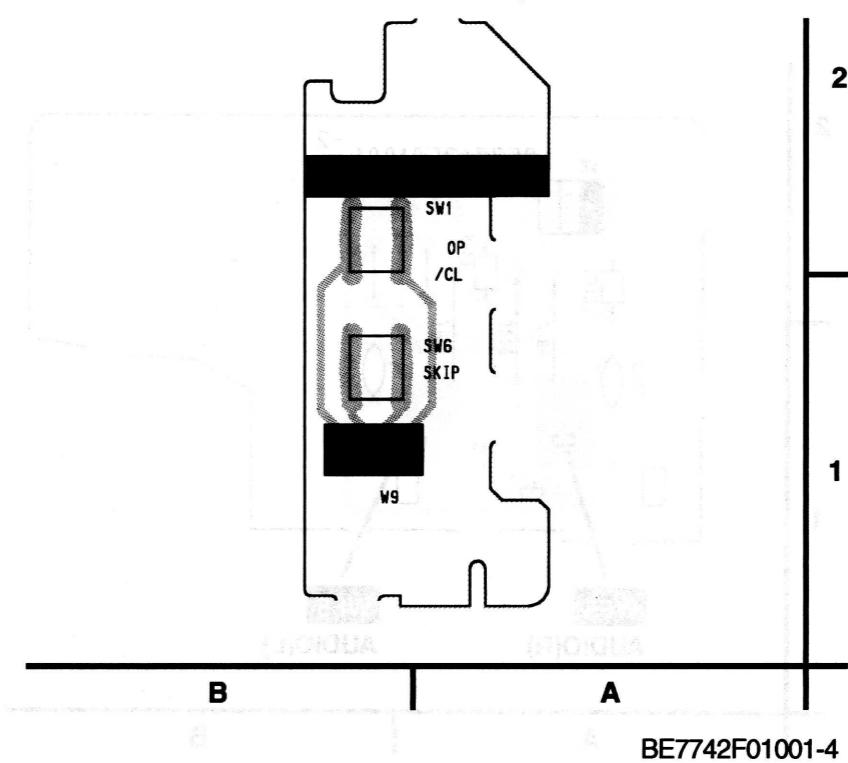
Sensor CBA Bottom View



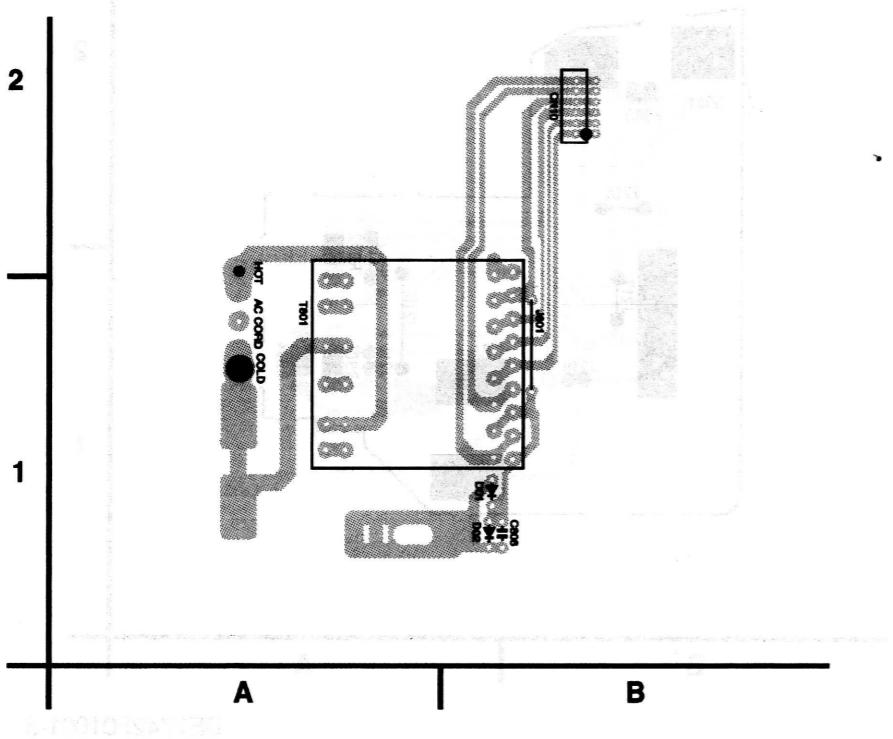
Open/Close SW CBA Top View



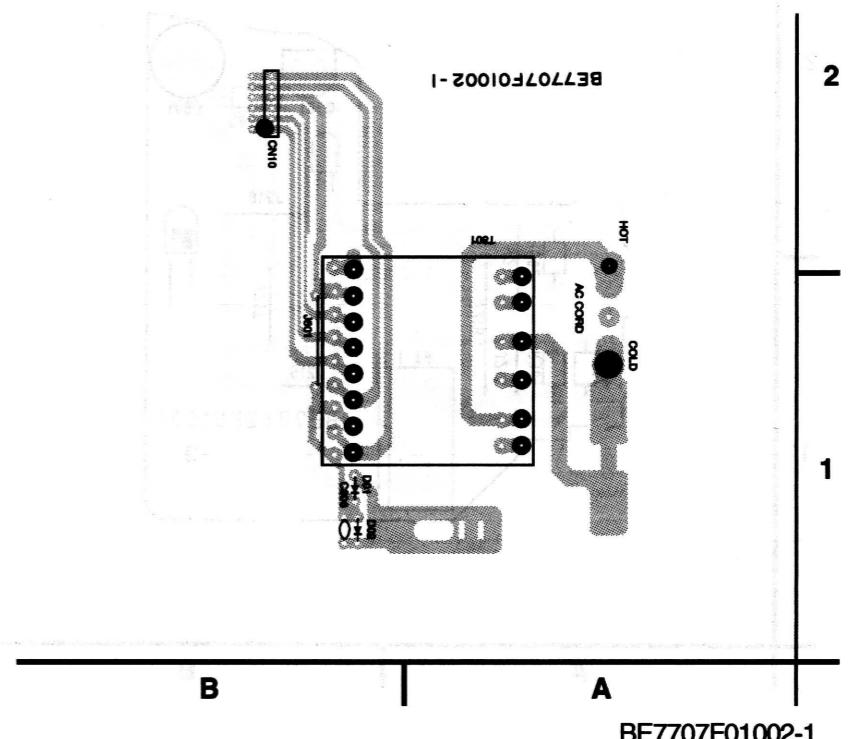
Open/Close SW CBA Bottom View



Power Supply CBA Top View

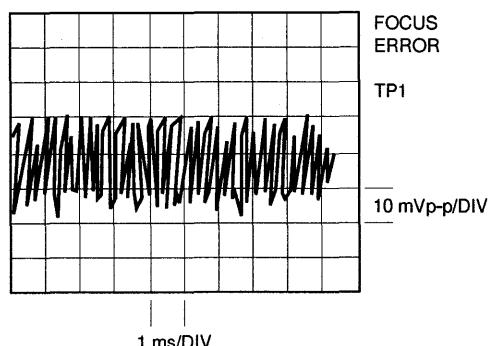


Power Supply CBA Bottom View

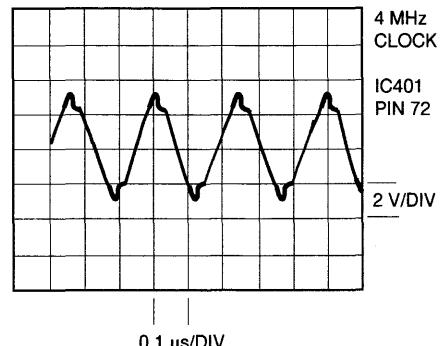


WAVEFORMS

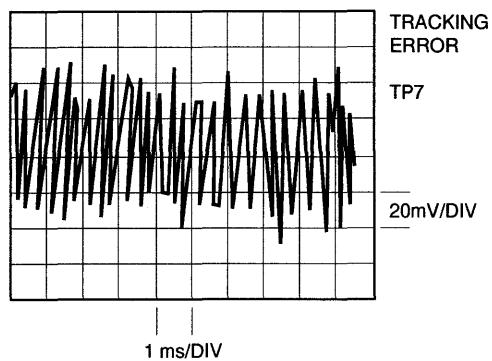
WF1



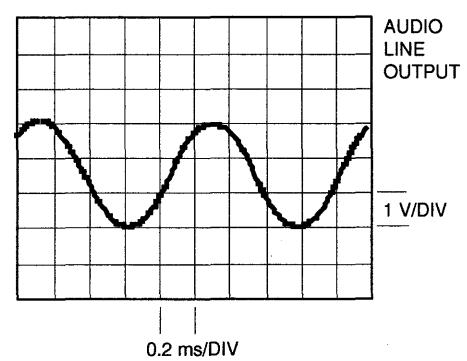
WF4



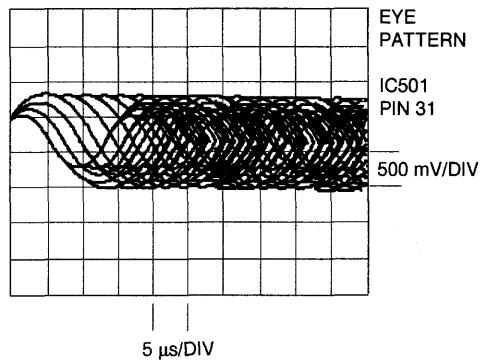
WF2



WF5



WF3

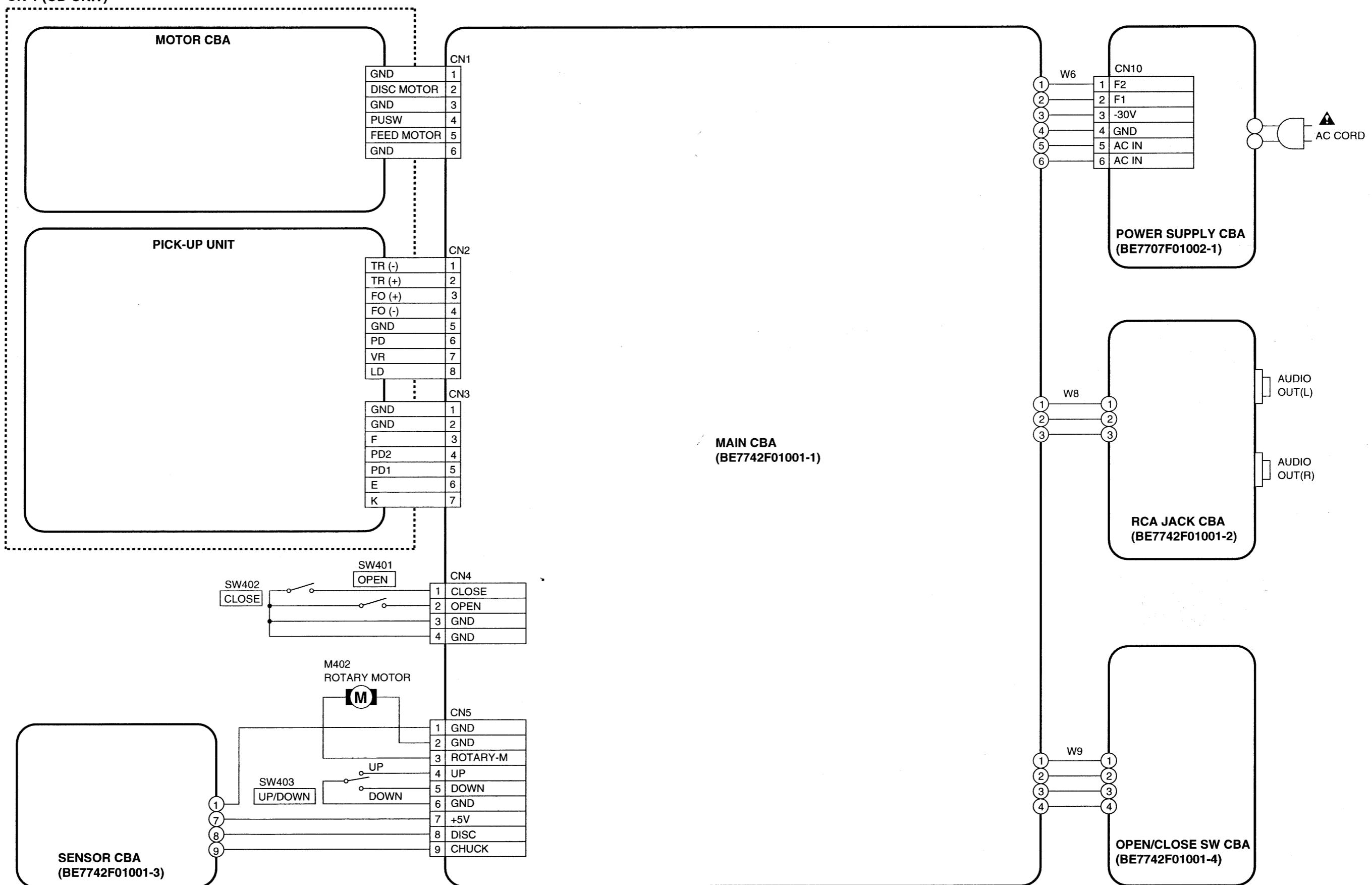


★ TWF 6~TWF 11 = REFER TO PAGE 11-3 [TROUBLESHOOTING]

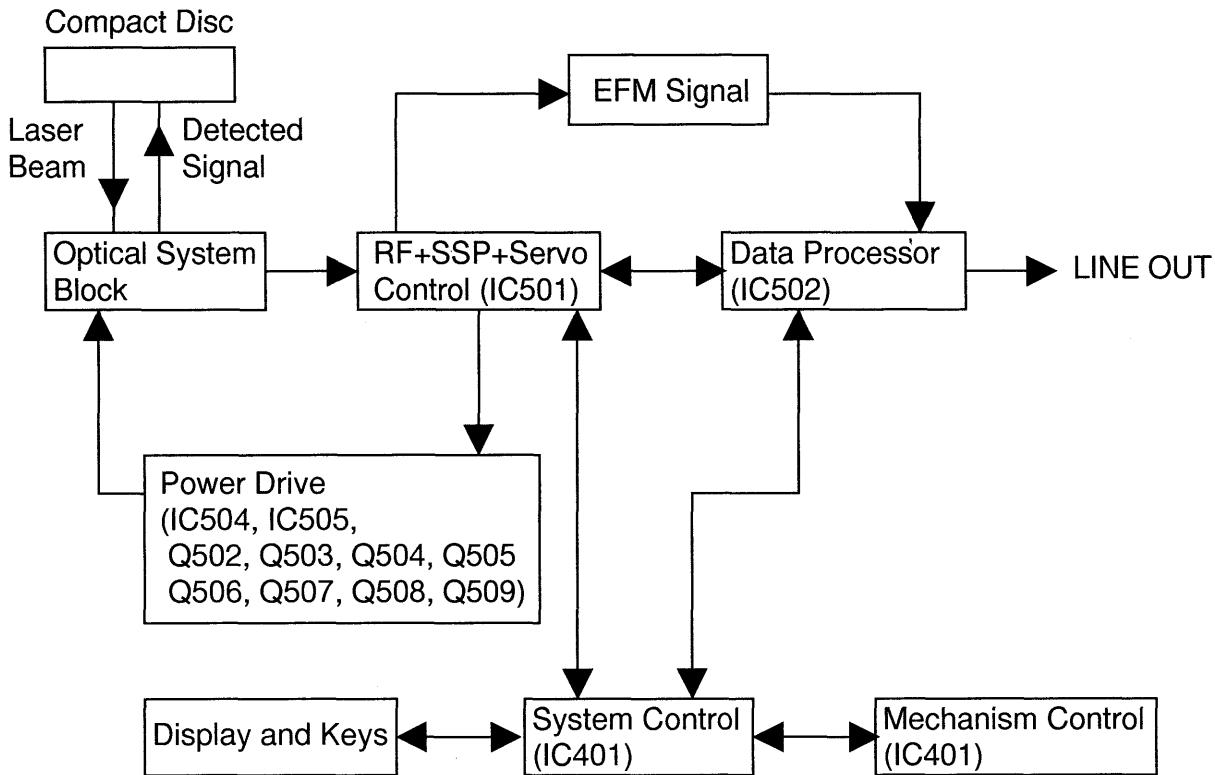
WIRING DIAGRAM

*1 NOTE: THESE PARTS ARE INCLUDED IN THE UN-1(CD-UNIT),
THEREFORE ARE NOT IN THE MECHANICAL PARTS LIST.

*1
UN-1 (CD-UNIT)



CIRCUIT DESCRIPTION



The figure above shows the system configuration of this changer. Read the following for a general description of the operation in the play mode.

The signals detected from the disc with a three-beam laser pickup are inputs to the RF Amp. and SSP (Servo Signal Processor) IC501. Analog addition/subtraction processing is made and the resulting EFM (Eight-to-four Modulation) that include audio information are sent to the data processor IC502. IC502 also outputs synchronous clock and focus and tracking error signals, which are applied to the servo control IC501. The IC outputs phase correction data and synchronous clock extracted from the EFM signals.

IC502 executes the digital processing for EFM de-modulation, and de-interleave. Error correction is done and IC501 outputs audio data that contains audio information only. In cluded IC502 converts the signals to analog audio data and outputs it to the line out.

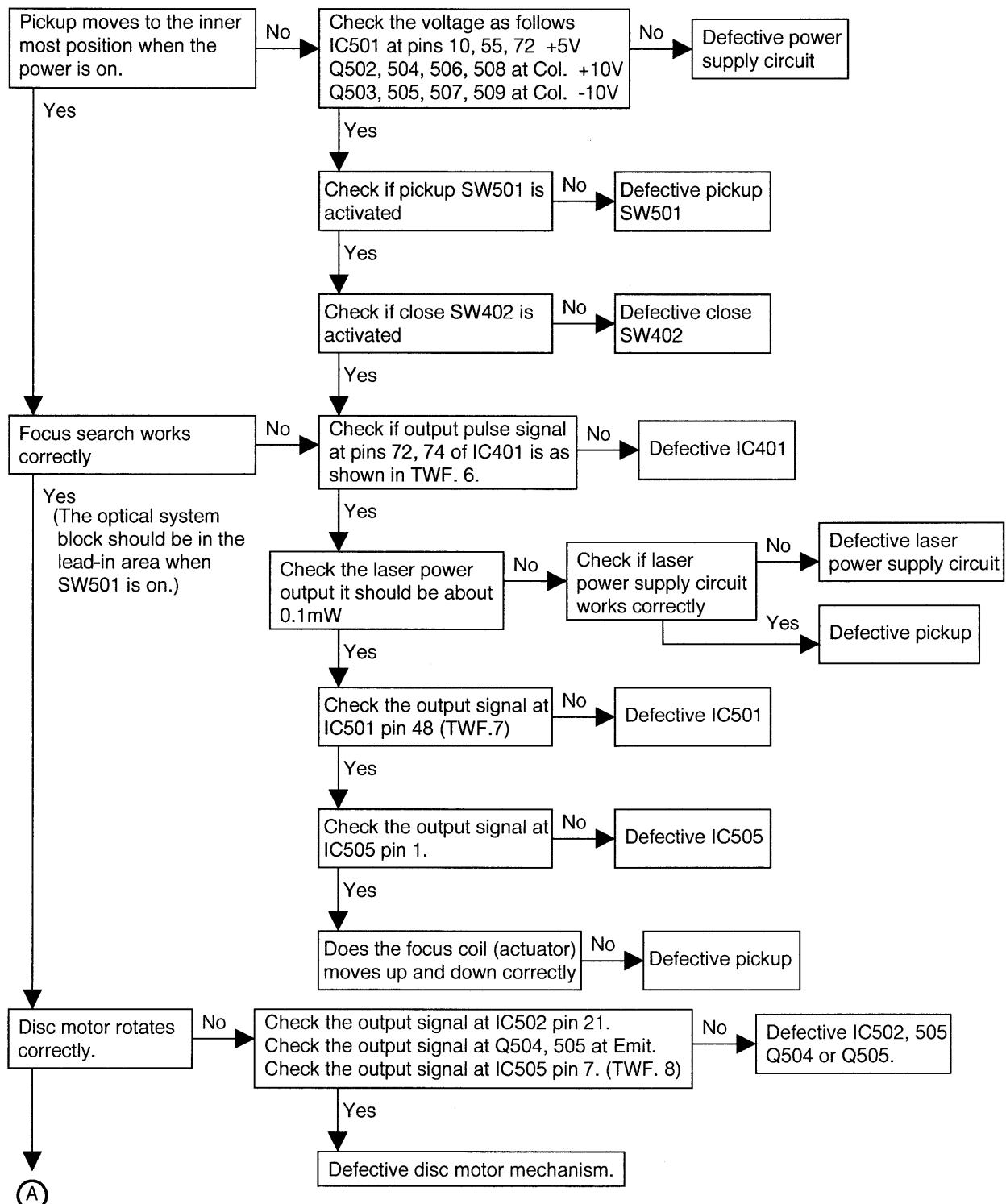
The focus and tracking error signals generated by IC501 are input to the power drive circuit (IC504, IC505, Q506, Q507, Q508, and Q509) after the phase compensation. The signals are amplified there and provided to the pickup focus and tracking actuators to control the laser beam position.

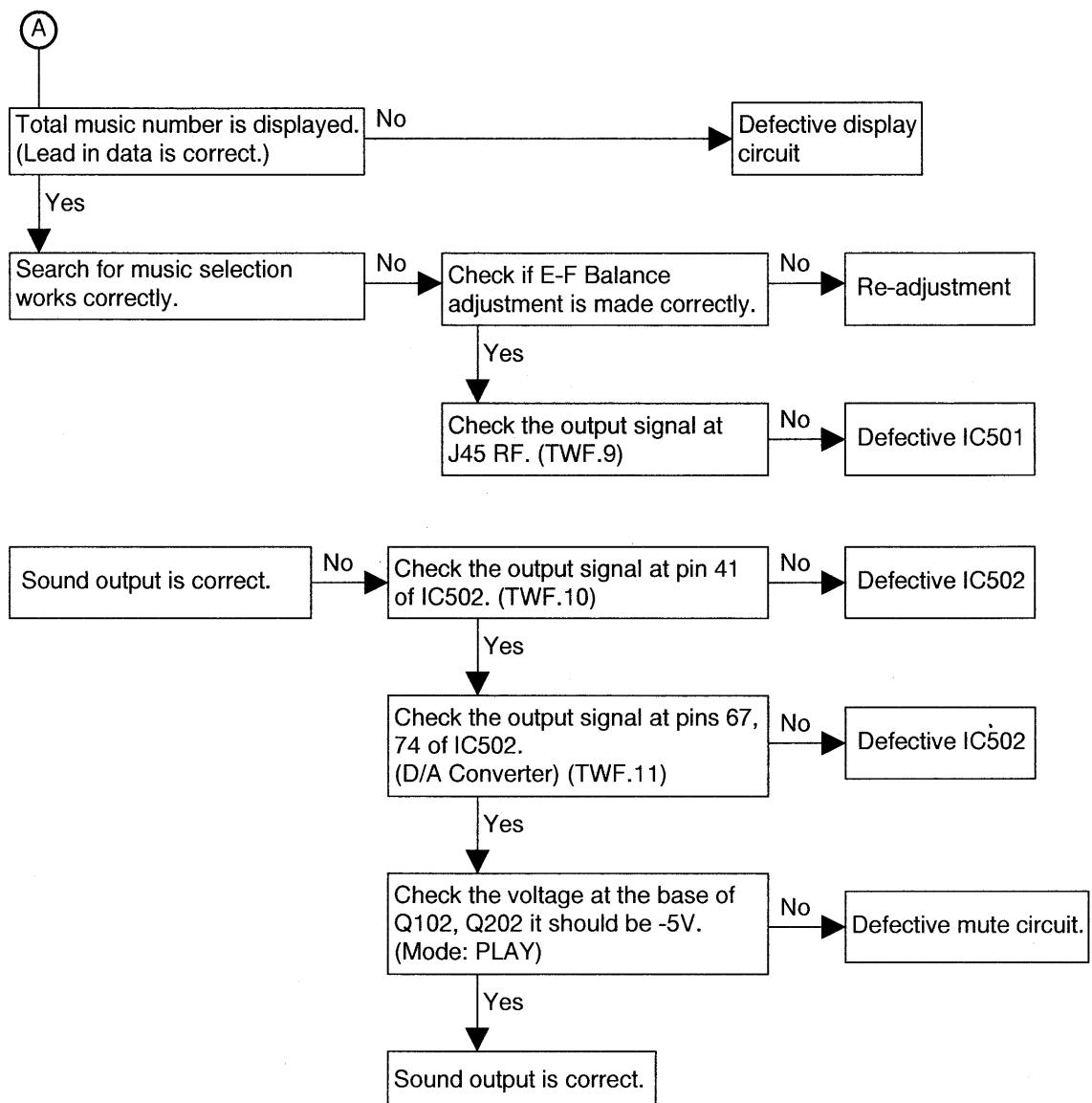
IC501 also generates the control signals for constant linear velocity and pickup position. The signals are processed through the low-pass filter and input to IC504, IC505, Q502, Q503, Q504, Q505 which amplifies the signals and outputs to drive the disc and pickup feed motors for a constant linear velocity and exact positioning of the pickup.

IC401 controls the changer's operation according to the information input by the operation keys; it processes the track detection, controls the special functions -- ASMS, pause, repeat, and programmed play -- and displays the changer operation status and track number/elapsed time.

TROUBLESHOOTING

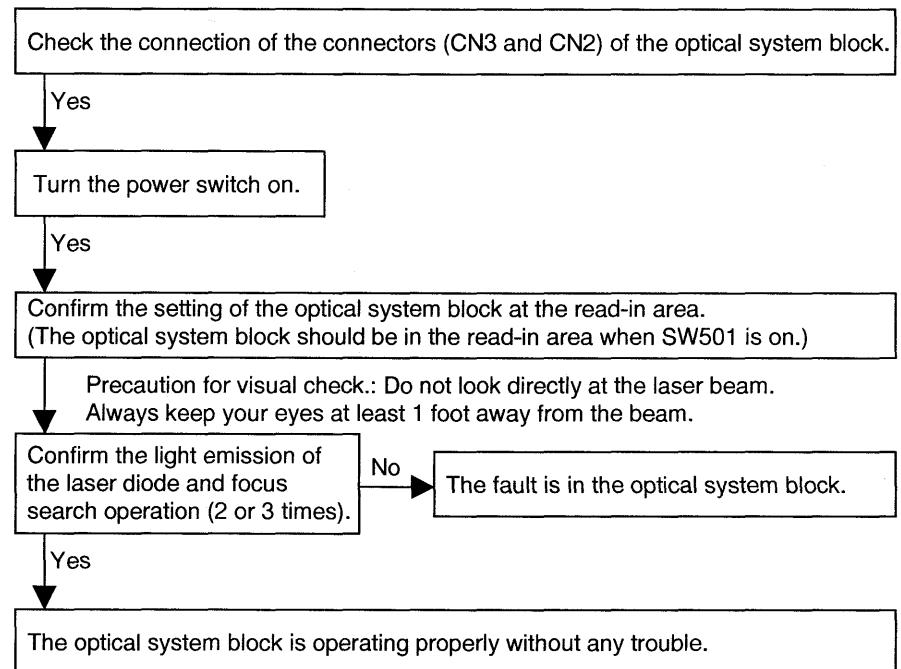
Main Section



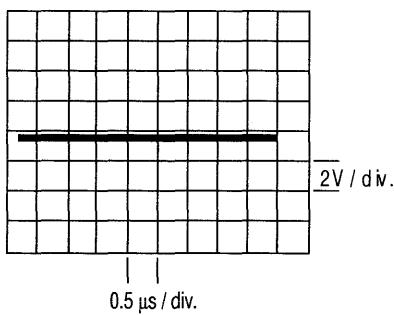


Pickup Section

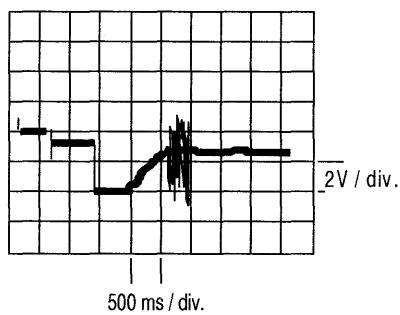
Apply the following procedure for troubleshooting to check.
Whether the trouble is in the optical system block.



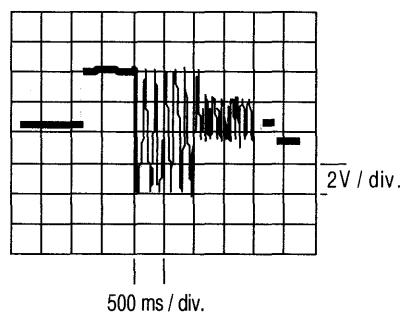
TWF. 6



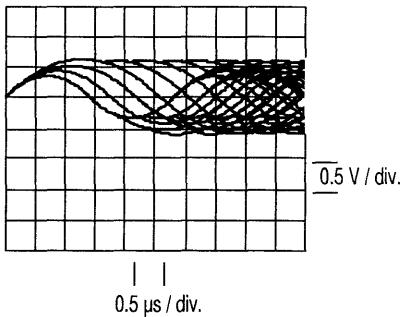
TWF. 7



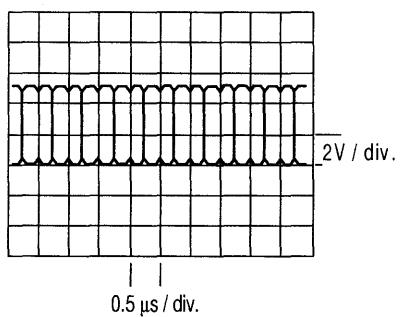
TWF. 8



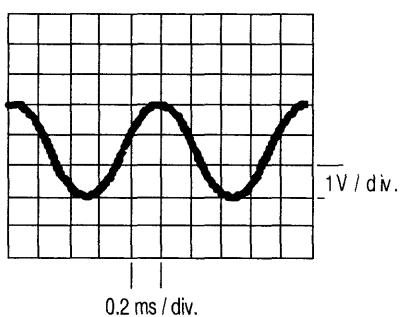
TWF. 9



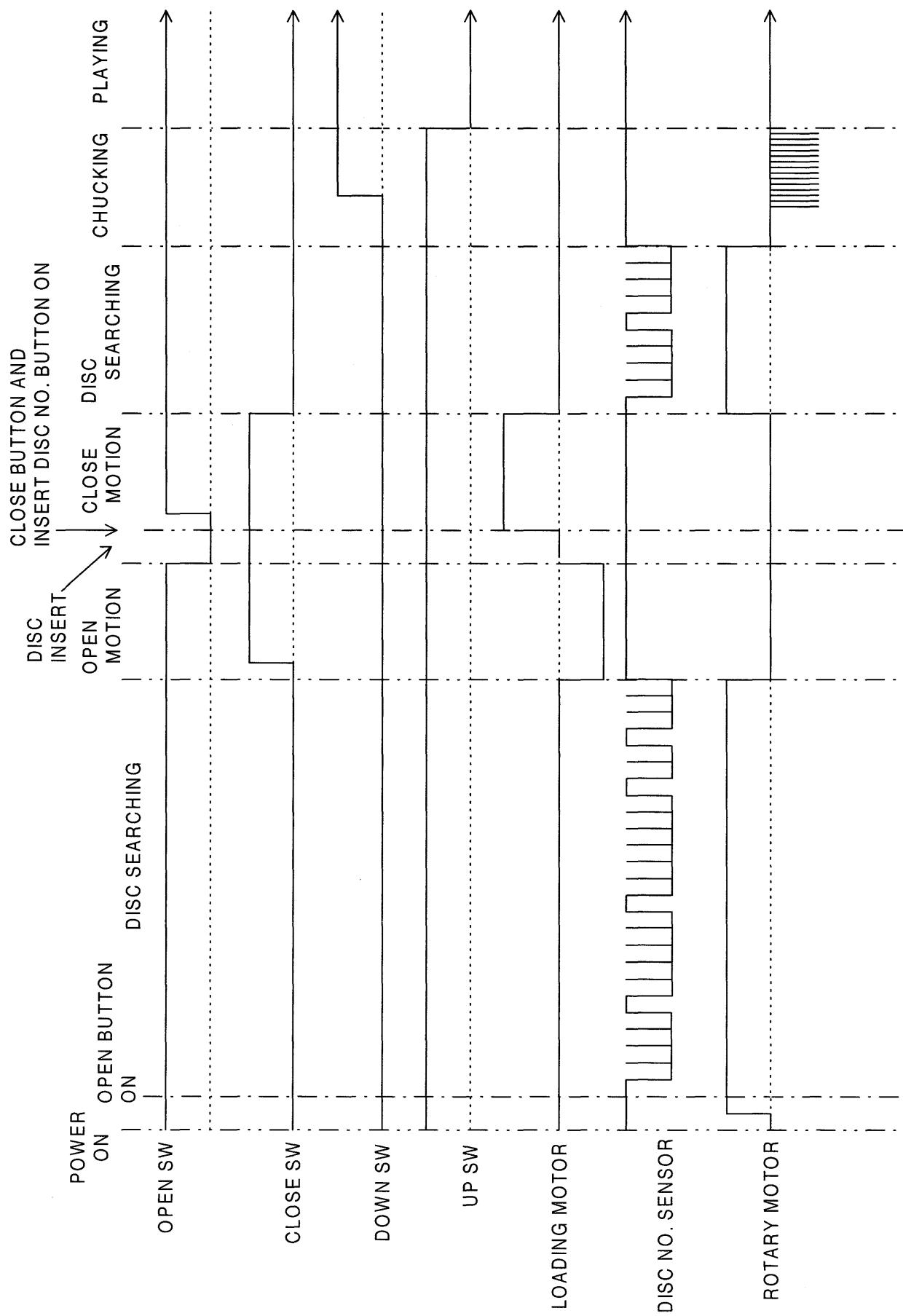
TWF. 10



TWF. 11



SYSTEM CONTROL TIMING CHART



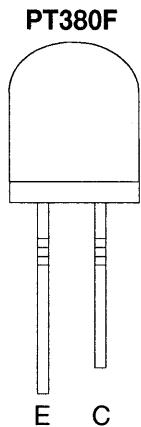
IC PIN FUNCTION

IC401

Pin No.	Signal Name	In / Out	Function
1	—	—	No Connection
2	—	—	No Connection
3	—	—	No Connection
4	—	—	No Connection
5	j	Out	Segment Output
6	g	Out	Segment Output
7	h	Out	Segment Output
8	a	Out	Segment Output
9	i	Out	Segment Output
10	f	Out	Segment Output
11	d	Out	Segment Output
12	e	Out	Segment Output
13	c	Out	Segment Output
14	b	Out	Segment Output
15	—	—	No Connection
16	—	—	No Connection
17	—	—	No Connection
18	—	—	No Connection
19	—	—	No Connection
20	—	—	No Connection
21	—	—	No Connection
22	—	—	No Connection
23	G6	Out	Grid Output
24	G5	Out	Grid Output
25	G4	Out	Grid Output
26	G3	Out	Grid Output
27	G2	Out	Grid Output
28	G1	Out	Grid Output
29	SCOR	In	SCOR (DSP)
30	—	—	No Connection
31	TEX	In	+5V Connection
32	RESET - L	In	RESET
33	—	—	No Connection
34	VDD	In	Power Supply +5V
35	DOWN	In	Chuck Down Switch (Down = " L ")
36	UP	In	Chuck Up Switch (Up = " L ")
37	CLOSE	In	Tray Close Switch (Close = " L ")
38	OPEN	In	Tray Open Switch (Open = " L ")
39	DISC SENSOR	In	Disc Sensor
40	CHUCK SENSOR	In	Chuck Sensor
41	DSP-RESET	—	No Connection
42	FOCUS OK	In	Focus OK
43	—	—	No Connection
44	SQCK	Out	SQCK

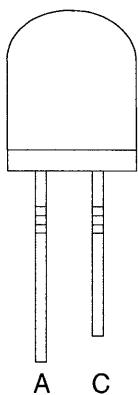
Pin No.	Signal Name	In / Out	Function
45	PUSW	In	Pick Up Innermost Detection Switch
46	SUB Q	In	SUB Q
47	SENS 2	In	Sensor Signal Input
48	—	—	No Connection
49	S DATA	—	No Connection
50	SERIAL	—	No Connection
51	DSP - CLK	Out	Clock Output
52	DSP - XLT	Out	Latch Output
53	DSP - DATA	Out	Data Output
54	D - MUTE - H	Out	Digital Mute
55	TEST	—	+5V Connection
56	TEST	—	+5V Connection
57	GFS	In	GFS
58	—	—	No Connection
59	A - MUTE - L	Out	Audio Mute
60	ROTARY MOTOR (+)	Out	Rotary Motor Drive Output
61	SENS	In	Sensor Signal Input
62	REMOCON	In	Remote Controller Input
63	ROTARY MOTOR (-)	Out	Rotary Motor Drive Output
64	—	—	No Connection
65	LOADING MOTOR (-)	Out	Loading Motor Drive Output
66	LOADING MOTOR (+)	Out	Loading Motor Drive Output
67	KEY IN 0	In	Key Matrix Signal Input
68	KEY IN 1	In	Key Matrix Signal Input
69	KEY IN 2	In	Key Matrix Signal Input
70	KEY IN 3	In	Key Matrix Signal Input
71	GND	In	Ground
72	X OUT	Out	Clock Output
73	—	—	No Connection
74	X IN	In	Clock Input
75	—	—	No Connection
76	V FDP	In	Fluorescent Display Power Supply -30 V
77	KEY OUT 0	Out	Key Matrix Signal Output
78	KEY OUT 1	Out	Key Matrix Signal Output
79	KEY OUT 2	Out	Key Matrix Signal Output
80	—	—	No Connection

LEAD IDENTIFICATIONS



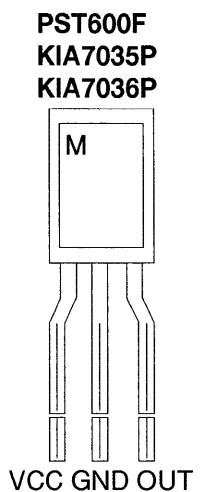
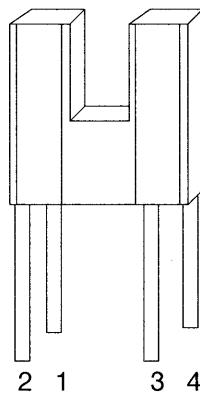
E : Emitter
C : Collector

SLR-932C-20-AB



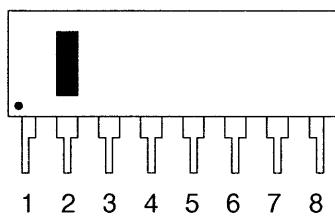
A : Anode
C : Cathode

GP1S52V

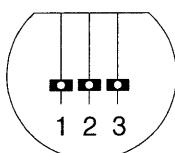
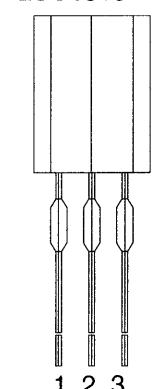


**PST600F
KIA7035P
KIA7036P**

NJM4558L

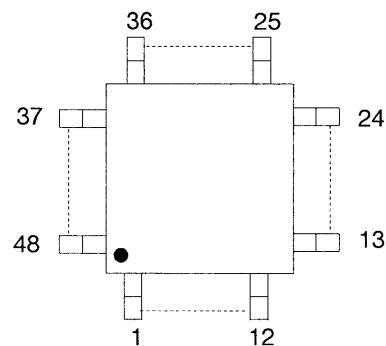


**KTC3198
2SC1815**

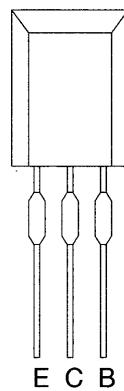


1. Emitter
2. Collector
3. Base

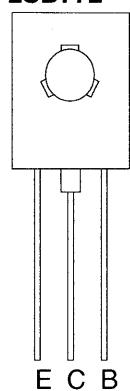
CXA2542Q



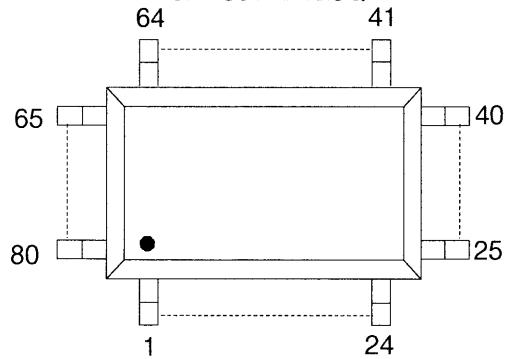
**KSA928A
2SD773
2SB773**



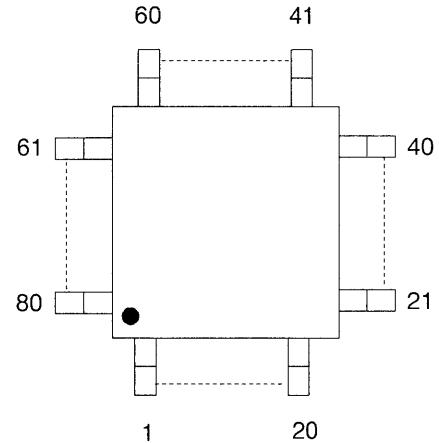
**KTC4369
2SD882
2SB772**



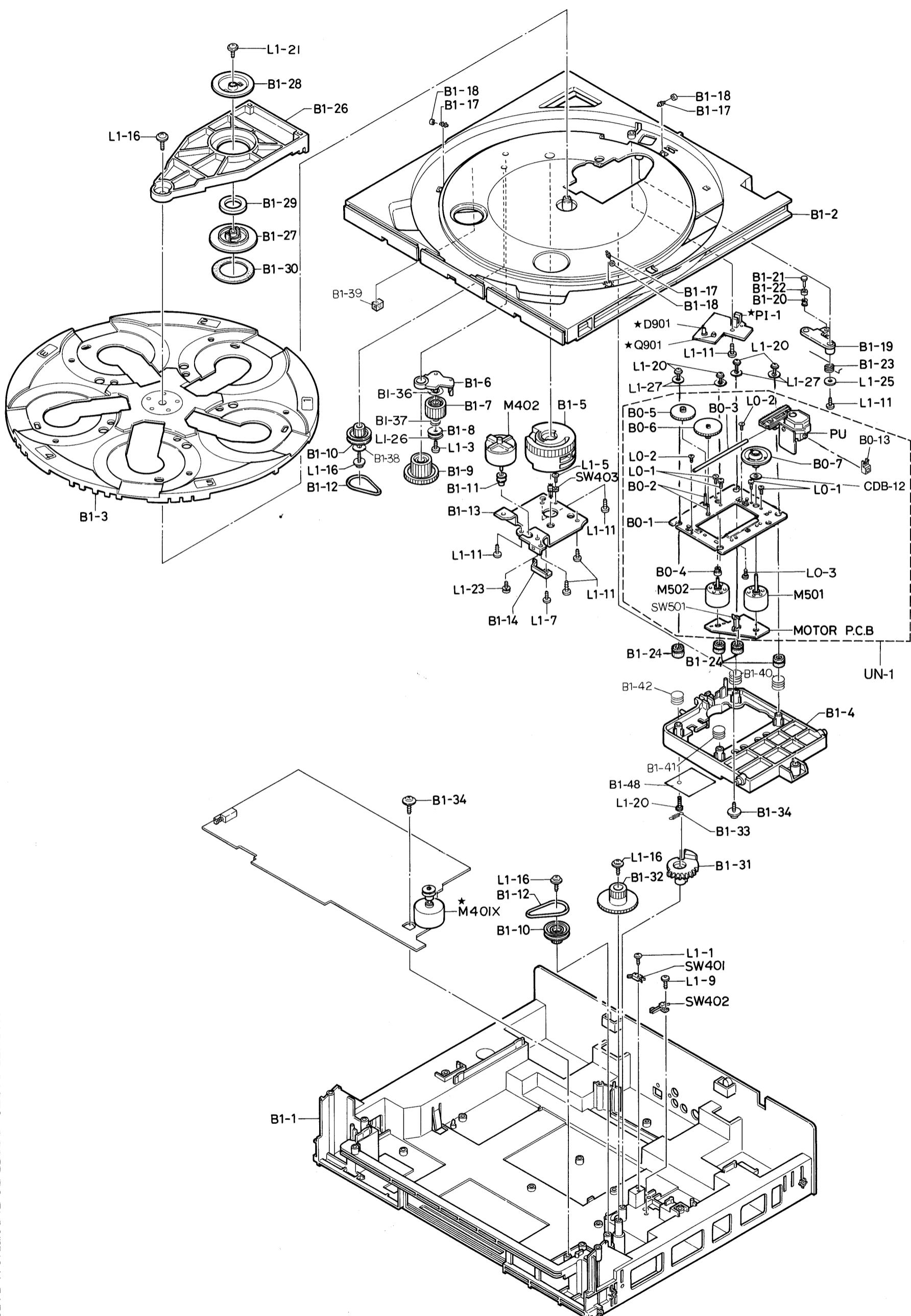
CXP50112-725Q



CXD2589Q



Mechanism View



★ MARKED PARTS : REFER TO ELECTRICAL PARTS LIST

15-1

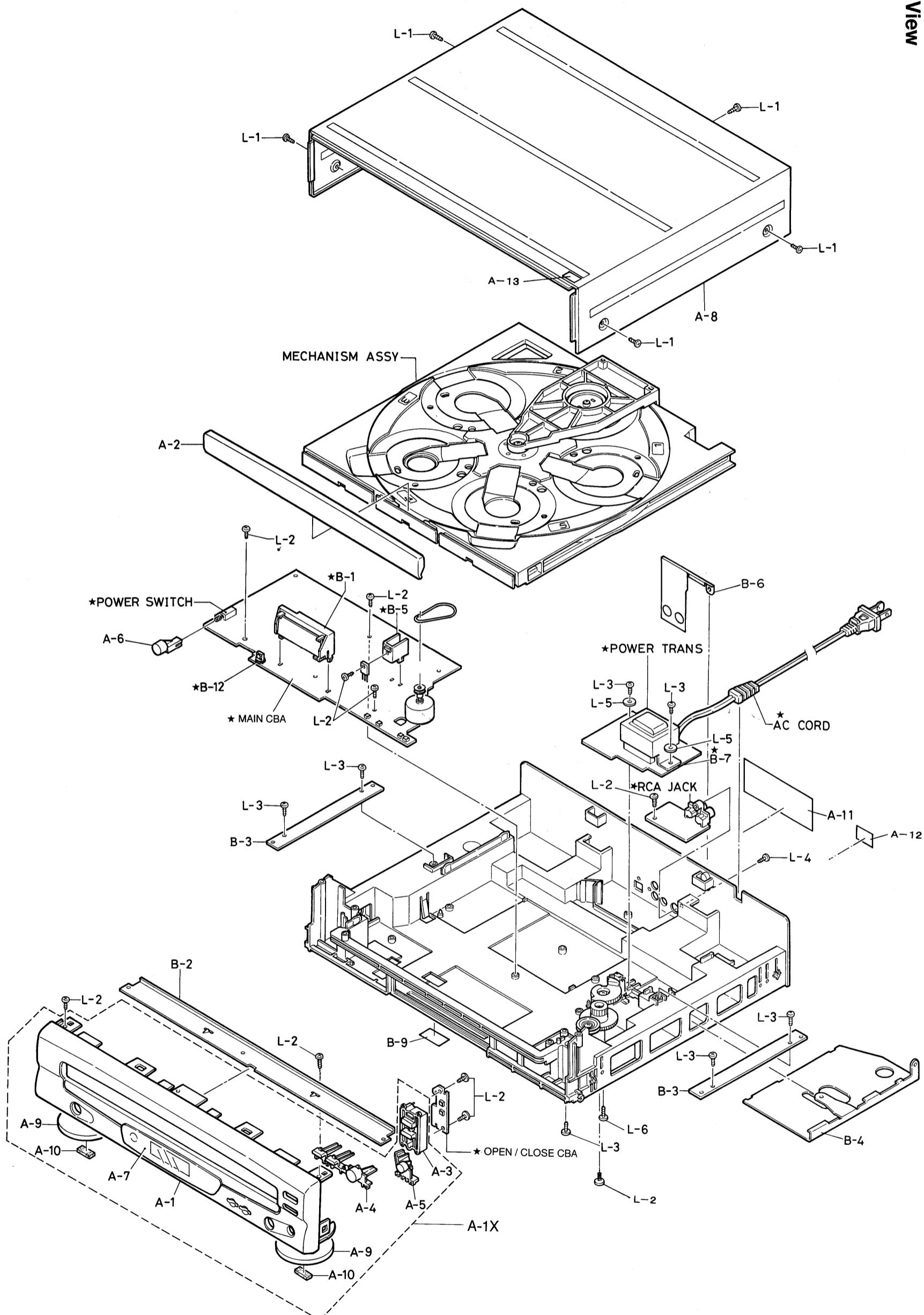
15-2

(E7742EX2)

EXPLODED VIEWS

Cabinet View

15-3

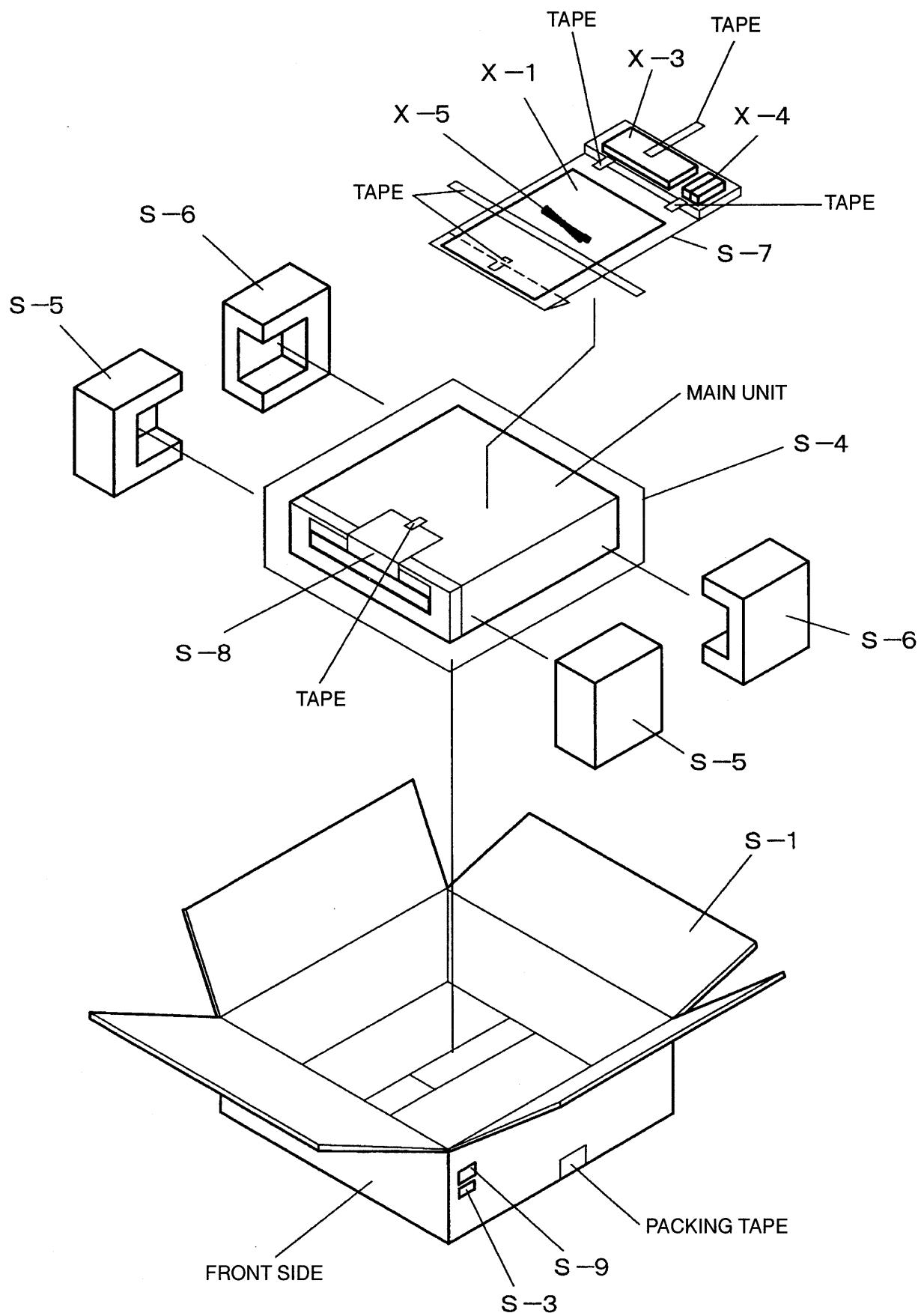


★ MARKED PARTS : REFER TO ELECTRICAL PARTS LIST

15-4

(E7742EX1)

PACKING



MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Ref. No.	Description	Part No.
A-1X	FRONT ASSEMBLY Consists of the following:	0RSA01955
A- 1	FRONT	0VM202397
A- 3	OPEN BUTTON	0RM300536
A- 4	MODE BUTTON	0RM300537
A- 5	STOP BUTTON	0RM300538
A- 7	DISPLAY WINDOW	0RM300685
A- 9	DECORATION TAPE	0RM401965A
A-10	FOOT	0VM403657
A- 2	TRAY PANEL	0RM200457
A- 6	POWER BUTTON	0RM300535
A- 8	TOP COVER	0DM100124A
A-11 	LABEL,RATING	0VM409023
A-12	DATE CODE LABEL DG(ID:U)	0RM401993
A-13	LABEL, TELEPHONE NUMBER	0VM409292
B1- 1	MAIN CHASSIS CD-780	0RM100167J
B1- 2	SLIDE TRAY	0RM100168
B1- 3	ROTARY TRAY	0FM100169
B1- 4	MECHA HOLDER CD-780	0RM200331F
B1- 5	MOTION GEAR	0RM200332
B1- 6	GEAR BRACKET	0RM300381
B1- 7	GEAR (A)	0RM401513
B1- 8	WASHER	0RM401740
B1- 9	GEAR (B)	0RM401514
B1-10	PULLEY	0RM401504
B1-11	MOTOR PULLEY R55347	21P7048
B1-12	BELT L	0RM400160
B1-13	MOTOR HOLDER	0RM401517
B1-14	PLATE SPRING or	0RM401518
	PLATE SPRING A CD-780	0VM408877
B1-17	ROLLER	0RM401524
B1-18	ROLLER TIRE	0RM400215
B1-19	LEVER S	0RM401508
B1-20	ROLLER B	0RM401510
B1-21	SHAFT S	0RM401509
B1-22	ROLLER S	0RM401507
B1-23	LEVER SPRING	0RM401511A
B1-24	DUMPER RUBBER C	0RM401738
B1-26	CHUCK ARM	0RM200334
B1-27	CHUCK DISK 253-6564	0RM300378
B1-28	YOKE PLATE	0RM401500A
B1-29	MAGNET 113-0020	0RM400150
B1-30	CHUCK SHEET 601-6983	0RM401501
B1-31	LOADING GEAR (B)	0RM300382
B1-32	LOADING GEAR (A)	0RM401516
B1-33	SPRING (B)	0RM401520
B1-34	ASSEMBLE SCREW(A) T7405	27WE023
B1-36	FELT	0RM401739
B1-37	SPRING	0RM401741
BI-38	WASHER	0RM401755
B1-39	CUSHION	0RM401764
B1-40	SPRING A	0RM401795
B1-41	SPRING B	0RM401084
B1-42	SPRING	0RM400577
B1-48	SHEET D	0RM402472

Ref. No.	Description	Part No.
B- 2	CHASSIS HOLDER	0RM200364B
B- 3	STOPPER	0RM401519
B- 4	SHIELD PLATE	0DM300204
B- 6	SHIELD PLATE A	0DM400752
B- 9	SHEET B	0RM401636
L1- 1	SCREW, P-TIGHT 1.6X8 TYPE-3	MPMIG080
L1- 3	SCREW, B-TIGHT M2X6 BIND +	GBMB2060
L1- 5	SCREW, S-TIGHT M2X4 BIND HEAD+	GBMS2040
L1- 7	SCREW, B-TIGHT M2.6X4 BIND +	GBMB9040
L1- 9	SCREW, P-TIGHT M2.6X8 BIND HEAD+	GBMP9080
L1-11	SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L1-16	SCREW, P-TIGHT M3X8 WASHER+	GCM3080
L1-20	SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L1-21	SCREW, P-TIGHT M2.6X5 WASHER +	GCM3050
L1-23	SCREW, SEMS M2.6X4 PAN +	CPM39040
L1-25	WASHER 12X3.2XT1	WPM3121
L1-26	WASHER 14X3.2XT1	WPM3141
L1-27	WASHER 10X2.6XT0.8	WPM9108
L- 1	SCREW, P-TIGHT M3X8 BIND HEAD+	GBKP3080
L- 2	SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L- 3	SCREW, P-TIGHT 3X12 WASHER HEAD+	GCM3120
L- 4	SCREW, B-TIGHT M3X8 BIND HEAD +	GBKB3080
L- 5	WASHER 14X3.2XT1	WPM3141
L- 6	SCREW, P-TIGHT M3X20 WASHER +	GCM3200
M 402	MOTOR(LOAD) RF-500FB-14415	1640346
SW 401	LEAF SWITCH MLS-1	1624205
SW 402	LEAF SWITCH	1624113
SW 403	LEAF SWITCH	1624150
W 1	6P WIRE ASSEMBLY UL1571,AWG28	WX1E7718-001
W 2	8P WIRE ASSEMBLY UL1571,AWG30	WX1E7718-002
W 3	5P SHIELD WIRE ASSEMBLY UL2854,AWG30 370MM	WX1E7718-003
W 5	9P WIRE ASSEMBLY UL1571,AWG28	WX1E7718-008
W 4	4P WIRE ASSEMBLY UL1571,AWG26,TC	WX1E7708-005
W 11	1P WIREASSEMBLY UL1571,AWG26,OS-1	WX1E2200-004
UN- 1	CD UNIT Consists of the following:	CD-766
B0- 1	CHASSIS CD-760	0RM300532
B0- 2	GEAR SHAFT CD-760	0RM401847A
B0- 3	GUIDE SHAFT CD-770	0RM401434
B0- 4	MOTOR GEAR CD-770	0RM401435
B0- 5	FEED GEAR A CD-770	0RM401462
B0- 6	FEED GEAR B CD-770	0RM401463
B0- 7	TURN TABLE CD-770	0RM401464
B0-13	PU SPACER CD-760	0RM401947
CDB-12	WASHER (A) R55268	24W9678
L0- 1	SCREW, SEMS M2X3 PAN +	CPM32030
L0- 2	C-TITE,DISH HEAD,M3X6 DISH +	GDMC3060
L0- 3	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
M 501	MOTOR (DISC) MDN4BT3FVAS	MMDZR2EMS001
M 502	MOTOR (FEED) MDN4BT3EVA	MMDZB2EMS001
PU	LASER PICKUP HPC-1M	DCCDP30SH001
SW 501	LEAF SWITCH LSA-1121EAU	SSC0101KB006
	MOTOR PCB	BE2200FB1A02
	LEAD CLAMPER GT-100M	GT-100M
PACKING		
S- 1	SHIPPING CARTON	0VM303388
S- 3	SERIAL NO. LABEL	0DM400753
S- 4	SET BAG	0DM400731
S- 5	FRONT PAD	0DM100125
S- 6	REAR PAD	0DM100126
S- 7	I/B BAG	0DM400757
S- 8	TRAY PROTECTOR SHEET	0RM401580
S- 9	BARCODE LABEL(CD5800)	0VM409026

Ref. No.	Description	Part No.
ACCESSOIRES		
X-1 ▲	INSTRUCTION BOOK	0VMN02117
X-3	REMOTE CONTROL UNIT 364/CRC001/5-CD	N9170UD
X-4	DRY BATTERY R6 UM3 1015 M15P or	XB0M451GW001
	DRY BATTERY R6P(AR)2PX	XB0M451HU002
X-5	PATCH CORD RCA TYPE	WPZ0102LG001

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Main CBA

Ref. No.	Description	Part No.
	Main CBA Consists of the following:	0RSA01954
	Main CBA Block	
	Open/Close SW CBA Block	
	Sensor CBA Block	
	RCA Jack CBA Block	

Main CBA Block

Ref. No.	Description	Part No.
	Main CBA Block	—
Consists of the following:		
CAPACITORS		
C 401	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 403	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 410	CERAMIC CAP.(AX) SL J 22pF/50V	CCA1JJTS220
C 412	ELECTROLYTIC CAP.(NON-POLE)1μF/50V M(NP)	CP1JMASNC010
C 415	ELECTROLYTIC CAP. 470μF/6.3V M	CE0KMASDL471
C 416	ELECTROLYTIC CAP. 100μF/6.3V M	CE0KMASDL101
C 424	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 425	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 426	ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMASSL221
C 501	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 502	CERAMIC CAP.(AX) F Z 0.047μF/16V	CDA1CZT0F473
C 503	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 504	CERAMIC CAP.(AX) B J 470pF/50V	CCA1JJT0B471
C 505	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 506	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMASSL100
C 507	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 508	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMASSL100
C 509	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMASSL100
C 510	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMASSL010
C 511	CERAMIC CAP. CH C 5pF/50V	CCD1JCSCH5R0
C 513	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C 514	CERAMIC CAP.(AX) F Z 0.033μF/16V	CDA1CZT0F333
C 515	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 516	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 517	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 518	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 519	ELECTROLYTIC CAP. 10μF/16V M H7	CE1CMASSL100
C 520	SEMICONDUCTOR CAP. SR K 0.068μF/25V	CDA1EKS0X683
C 521	CERAMIC CAP.(AX) Y M 0.015μF/6V	CDA0KMT0Y153
C 522	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 523	CERAMIC CAP.(AX) Y M 0.015μF/6V	CDA0KMT0Y153
C 524	CERAMIC CAP.(AX) F Z 0.033μF/16V	CDA1CZT0F333
C 526	ELECTROLYTIC CAP. 4.7μF/25V M H7	CE1EMASSL4R7
C 527	CERAMIC CAP.(AX) Y K 0.01μF/16V	CDA1CKT0Y103
C 528	ELECTROLYTIC CAP. 100μF/10V M H7	CE1AMASSL101
C 529	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 530	CERAMIC CAP.(AX) B J 82pF/50V	CCA1JJT0B820
C 531	CERAMIC CAP.(AX) SL J 15pF/50V	CCA1JJTS150

NOTE: Parts that not assigned part numbers (-----) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

Ref. No.	Description	Part No.
C 532	CERAMIC CAP.(AX) SL J 15pF/50V	CCA1JJTS150
C 534	CERAMIC CAP.(AX) B J 1000pF/50V	CDA1JJT0B102
C 535	ELECTROLYTIC CAP. 100μF/10V M H7	CE1AMASSL101
C 536	ELECTROLYTIC CAP. 100μF/10V M H7	CE1AMASSL101
C 537	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 538	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 539	CERAMIC CAP.(AX) F Z 0.033μF/16V	CDA1CZT0F333
C 541	ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMASSL221
C 542	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 546	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 549	CERAMIC CAP.(AX) Y K 0.01μF/16V	CDA1CKT0Y103
C 551	CERAMIC CAP.(AX) Y K 0.01μF/16V	CDA1CKT0Y103
C 552	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 553	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 561	CERAMIC CAP.(AX) B J 220pF/50V	CCA1JJT0B221
C 562	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 563	CERAMIC CAP.(AX) X K 1500pF/16V	CDA1CKT0X152
C 564	CERAMIC CAP.(AX) F Z 0.047μF/16V	CDA1CZT0F473
C 565	CERAMIC CAP.(AX) F Z 0.1μF/50V	CCA1JZT0F104
C 566	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 567	CERAMIC CAP.(AX) B J 1000pF/50V	CDA1JJT0B102
C 569	CERAMIC CAP.(AX) B J 150pF/50V	CCA1JJT0B151
C 571	ELECTROLYTIC CAP. 0.47μF/50V M H7	CE1JMASSLR47
C 572	CERAMIC CAP.(AX) B J 1000pF/50V	CDA1JJT0B102
C 573	CERAMIC CAP.(AX) X K 2200pF/16V	CDA1CKT0X222
C 574	CERAMIC CAP.(AX) B J 150pF/50V	CCA1JJT0B151
C 589	ELECTROLYTIC CAP. 22μF/10V M	CE1AMASDL220
C 597	ELECTROLYTIC CAP. 22μF/10V M	CE1AMASDL220
C 601	ELECTROLYTIC CAP. 10μF/16V M	CE1CMASDL100
C 602	ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C 603	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 704	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 705	CERAMIC CAP.(AX) B J 1000pF/50V	CDA1JJT0B102
C 706	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C 801	ELECTROLYTIC CAP. 220μF/10V M	CE1AMASDL221
C 803	ELECTROLYTIC CAP. 4700μF/16V M	CE1CMZPTL472
C 804	ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPDL102
C 808	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 809	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 810	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 811	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 813	ELECTROLYTIC CAP. 100μF/35V M	CE1GMASDL101
C 814	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 815	CERAMIC CAP.(AX) F Z 0.022μF/25V	CDA1EZT0F223
C 816	ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C 817	ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
CONNECTORS		
CN 1	STRAIGHT PIN HEADER, 6P IL-S- 6P-S2T2-EF	1740768
CN 2	STRAIGHT PIN HEADER, 8P IL-S- 8P-S2T2-EF	1740770
CN 3	STRAIGHT PIN HEADER, 7P IL-S- 7P-S2T2-EF	1740769
CN 4	STRAIGHT PIN HEADER, 4P IL-S- 4P-S2T2-EF	1740766

Ref. No.	Description	Part No.
CN 5	STRAIGHT PIN HEADER, 9P IL-S-9P-S2T2-EF	1740771
DIODES		
D 201	SWITCHING DIODE 1N4148 or SWITCHING DIODE 1SS254 T-77 or SWITCHING DIODE 1SS133(T-77)	NDT001N4148 A1SS254T77** QDTZ001SS133
D 202	SWITCHING DIODE 1N4148 or SWITCHING DIODE 1SS254 T-77 or SWITCHING DIODE 1SS133(T-77)	NDT001N4148 A1SS254T77** QDTZ001SS133
D 402	RECTIFIER DIODE 1N4005	ND8Z001N4005
D 502	SWITCHING DIODE 1N4148 or SWITCHING DIODE 1SS254 T-77 or SWITCHING DIODE 1SS133(T-77)	NDT001N4148 A1SS254T77** QDTZ001SS133
D 601	ZENER DIODE MTZJT-778.2A or ZENER DIODE RD8.2ES-B-T1	QDTA0MTZJ8R2 QDTB0RD8R2ES
D 602	SWITCHING DIODE 1N4148 or SWITCHING DIODE 1SS254 T-77 or SWITCHING DIODE 1SS133(T-77)	NDT001N4148 A1SS254T77** QDTZ001SS133
D 603	SWITCHING DIODE 1N4148 or SWITCHING DIODE 1SS254 T-77 or SWITCHING DIODE 1SS133(T-77)	NDT001N4148 A1SS254T77** QDTZ001SS133
D 701	ZENER DIODE MTZJT-7724C or ZENER DIODE RD24ES-B3-T1	QDT00MTZJ24 QDT300RD24ES
D 801	RECTIFIER DIODE 1N4005	ND8Z001N4005
D 802	RECTIFIER DIODE 1N4005	ND8Z001N4005
D 803	RECTIFIER DIODE 1N4005	ND8Z001N4005
D 804	RECTIFIER DIODE 1N4005	ND8Z001N4005
D 805	ZENER DIODE MTZJT-775.6C or ZENER DIODE RD5.6ES-B-T1	QDT00MTZJ5R6 QDTB0RD5R6ES
ICS		
IC 401	MICROCONTROLLER 4BIT CXP50112-725Q	QSMQA0RSN071
IC 402	IC, RESET 3.6V KIA7036P(TO-92) or IC, RESET 3.5V KIA7035P(TO-92) or IC, RESET 3.6V PST-600F	NSBLA0TJY014 NSBLA0TJY013 QSBLA0TMM012
IC 403	IC (COMPARATOR,AF AMP)NJM4558LD	NJM4558LD
IC 501	RF IC CXA2542Q	QSBLA0RSN029
IC 502	DSP IC CXD2589Q	QSMDA0RSN006
IC 504	IC (COMPARATOR,AF AMP)NJM4558LD	NJM4558LD
IC 505	IC (COMPARATOR,AF AMP)NJM4558LD	NJM4558LD
IC 506	IC (COMPARATOR,AF AMP)NJM4558LD	NJM4558LD
COILS		
L 401	INDUCTOR 10μH K 5FT or INDUCTOR 10μH K 5FT	LLARKBSTU100 LLARKMSFS100
L 501	INDUCTOR 10μH K 5FT or INDUCTOR 10μH K 5FT	LLARKBSTU100 LLARKMSFS100
L 701	INDUCTOR 100μH K 5FT or INDUCTOR 100μH K 5FT	LLARKBSTU101 LLARKMSFS101
L 901	INDUCTOR 10μH K 5FT or INDUCTOR 10μH K 5FT	LLARKBSTU100 LLARKMSFS100
J 107	INDUCTOR 2.2μH K	LLAXKBPKA2R2
TRANSISTORS		
Q 102	TRANSISTOR KTC3198GR TO-92	NQS40KTC3198
Q 105	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q 202	TRANSISTOR KTC3198GR TO-92	NQS40KTC3198
Q 205	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q 405	TRANSISTOR 2SD882(P) or TRANSISTOR KTC4369	QQQP002SD882 KTC4369
Q 406	TRANSISTOR 2SB772(P) or TRANSISTOR KTA1658	QQQP002SB772 KTA1658
Q 409	TRANSISTOR 2SD882(P) or TRANSISTOR KTC4369	QQQP002SD882 KTC4369
Q 410	TRANSISTOR 2SB772(P) or TRANSISTOR KTA1658	QQQP002SB772 KTA1658
Q 411	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q 501	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q 502	TRANSISTOR 2SD773	2SD773

Ref. No.	Description	Part No.
Q 503	TRANSISTOR 2SB733 or TRANSISTER KSA928A	2SB733 KSA928A
Q 504	TRANSISTOR 2SD773	2SD773
Q 505	TRANSISTOR 2SB733 or TRANSISTER KSA928A	2SB733 KSA928A
Q 506	TRANSISTOR 2SD773	2SD773
Q 507	TRANSISTOR 2SB733 or TRANSISTER KSA928A	2SB733 KSA928A
Q 508	TRANSISTOR 2SD773	2SD773
Q 509	TRANSISTOR 2SB733 or TRANSISTER KSA928A	2SB733 KSA928A
Q 601	TRANSISTOR KTC3198GR TO-92	NQS40KTC3198
Q 602	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q 603	TRANSISTOR KTA1266(GR)	NQS40KTA1266
Q 801	TRANSISTOR 2SD882P	2SD882P
RESISTORS		
R 111	CARBON RES. 1/6W J 1.8kΩ	RCX6JATZ0182
R 113	CARBON RES. 1/6W J 6.8kΩ	RCX6JATZ0682
R 114	CARBON RES. 1/6W J 100kΩ	RCX6JATZ0104
R 116	CARBON RES. 1/6W J 1kΩ	RCX6JATZ0102
R 118	CARBON RES. 1/6W J 4.7kΩ	RCX6JATZ0472
R 211	CARBON RES. 1/6W J 1.8kΩ	RCX6JATZ0182
R 213	CARBON RES. 1/6W J 6.8kΩ	RCX6JATZ0682
R 214	CARBON RES. 1/6W J 100kΩ	RCX6JATZ0104
R 216	CARBON RES. 1/6W J 68kΩ	RCX6JATZ0683
R 217	CARBON RES. 1/6W J 1kΩ	RCX6JATZ0102
R 218	CARBON RES. 1/6W J 4.7kΩ	RCX6JATZ0472
R 220	CARBON RES. 1/6W J 68kΩ	RCX6JATZ0683
R 404	CARBON RES. 1/4W J 27Ω or CARBON RES. 1/4W J 27Ω	1346270T RCX4JATZ0270
R 405	CARBON RES. 1/6W J 10kΩ	RCX6JATZ0103
R 406	CARBON RES. 1/6W J 10kΩ	RCX6JATZ0103
R 407	CARBON RES. 1/6W J 10kΩ	RCX6JATZ0103
R 408	CARBON RES. 1/6W J 10kΩ	RCX6JATZ0103
R 410	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 429	CARBON RES. 1/6W J 20kΩ	RCX6JATZ0203
R 430	CARBON RES. 1/6W J 27kΩ	RCX6JATZ0273
R 431	CARBON RES. 1/6W J 27kΩ	RCX6JATZ0273
R 432	CARBON RES. 1/6W J 22kΩ	RCX6JATZ0223
R 437	CARBON RES. 1/6W J 22kΩ	RCX6JATZ0223
R 438	CARBON RES. 1/6W J 22kΩ	RCX6JATZ0223
R 439	CARBON RES. 1/6W J 2.7kΩ	RCX6JATZ0272
R 440	CARBON RES. 1/6W J 4.7kΩ	RCX6JATZ0472
R 442	CARBON RES. 1/6W J 680Ω	RCX6JATZ0681
R 443	CARBON RES. 1/6W J 100Ω	RCX6JATZ0101
R 450	CARBON RES. 1/6W J 47kΩ	RCX6JATZ0473
R 451	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 452	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 453	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 454	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 455	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 456	CARBON RES. 1/6W J 330Ω	RCX6JATZ0331
R 457	CARBON RES. 1/6W J 1kΩ	RCX6JATZ0102
R 458	CARBON RES. 1/6W J 1kΩ	RCX6JATZ0102
R 459	CARBON RES. 1/6W J 100kΩ	RCX6JATZ0104
R 461	CARBON RES. 1/6W J 1kΩ	RCX6JATZ0102
R 462	CARBON RES. 1/6W J 10kΩ	RCX6JATZ0103
R 501	CARBON RES. 1/6W J 150kΩ	RCX6JATZ0154
R 502	CARBON RES. 1/6W J 100kΩ	RCX6JATZ0104
R 503	CARBON RES. 1/6W J 330kΩ	RCX6JATZ0334
R 504	CARBON RES. 1/6W J 47kΩ	RCX6JATZ0473
R 505	CARBON RES. 1/6W J 680kΩ	RCX6JATZ0684
R 506	CARBON RES. 1/6W J 510kΩ	RCX6JATZ0514
R 507	CARBON RES. 1/6W J 120kΩ	RCX6JATZ0124
R 508	CARBON RES. 1/6W J 47kΩ	RCX6JATZ0473
R 509	CARBON RES. 1/6W J 10kΩ	RCX6JATZ0103

Ref. No.	Description	Part No.
R 510	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 511	CARBON RES. 1/6W J 62k Ω	RCX6JATZ0623
	CARBON RES. 1/4W J 62k Ω	RCX4JATZ0623
R 512	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 513	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 514	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 515	CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 516	CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183
R 517	CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183
R 522	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 523	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 524	PCB JUMPER D0.6-P5.0	JW5.0T
R 525	PCB JUMPER D0.6-P5.0	JW5.0T
R 526	PCB JUMPER D0.6-P5.0	JW5.0T
R 527	PCB JUMPER D0.6-P5.0	JW5.0T
R 528	PCB JUMPER D0.6-P5.0	JW5.0T
R 529	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 531	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 532	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 533	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 534	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 535	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 536	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 537	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 538	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 539	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 540	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 541	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 542	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 543	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 544	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 545	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 546	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 547	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 548	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 549	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R 550	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 552	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R 555	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 556 ▲	F-RES R50 4R7(12.5MM) M) or FUSE RES. 1/2W J 4.7 Ω	5362479 5367479
R 557	CARBON RES. 1/6W J 22 Ω	RCX6JATZ0220
R 558	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 559 ▲	F-RES R50 4R7(12.5MM) M) or FUSE RES. 1/2W J 4.7 Ω	5362479 5367479
R 560	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R 561	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R 563	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 564	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 565	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 566	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 567	CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 568	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 569	CARBON RES. 1/6W J 820k Ω	RCX6JATZ0824
R 571	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 572	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 573	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 574	CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 575	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R 576	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 577	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 578	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 579	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 580	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 581	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 582	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123

Ref. No.	Description	Part No.
R 583	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 584	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 585	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 586	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 587	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 588	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 589	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 590	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 591	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 592	CARBON RES. 1/6W J 1M Ω	RCX6JATZ0105
R 593	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 594	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 595	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 596	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 597	CARBON RES. 1/6W J 56k Ω	RCX6JATZ0563
R 598	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 599	CARBON RES. 1/6W J 39k Ω	RCX6JATZ0393
R 601	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 602	CARBON RES. 1/6W J 2.7k Ω	RCX6JATZ0272
R 603	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 604	CARBON RES. 1/6W J 39k Ω	RCX6JATZ0393
R 605	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 606	CARBON RES. 1/6W J 390k Ω	RCX6JATZ0394
R 607	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 608	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 609	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 701	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 702	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 703	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 737	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 739	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 741	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 743	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 801	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 803	CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R 804	PCB JUMPER D0.6-P5.0	JW5.0T
R 805	CARBON RES. 1/6W J 120 Ω	RCX6JATZ0121
R 925	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 927	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 929	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
SWITCHES		
SW 2	TACT SWITCH SKQSAB	SST0101AL038
SW 3	TACT SWITCH SKQSAB	SST0101AL038
SW 4	TACT SWITCH SKQSAB	SST0101AL038
SW 5	TACT SWITCH SKQSAB	SST0101AL038
SW 801 ▲	POWER SW SPX-02N	SSP0202MM001
MISCELLANEOUS		
B- 1	DISPLAY HOLDER	0RM200339D
B- 5	HEAT SINK	0DM400734A
B-12	HOLDER	0RM402024
FL 701	FLOURECENT TUBE CH1200G	TVFD150NT002
L- 2	SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L.C	LEAD CLAMPER L=47MM	1790665
M401X	LOADING MOTOR B ASSEMBLY	0RSA01796
TH 401	THERMISTER or	QMSZ00002KD5
TH 402	THERMISTER ERTD2ZHKG202T	QMPKD2ZH202T
TP 1	THERMISTER ERTD2ZHKG202T	QMPKD2ZH202T
TP 2	PCB JUMPER D0.6-P15.0	JW15.0T
TP 3	PCB JUMPER D0.6-P7.5	JW7.5T
TP 4	PCB JUMPER D0.6-P7.5	JW7.5T
TP 5	PCB JUMPER D0.6-P15.0	JW15.0T
TP 6	PCB JUMPER D0.6-P7.5	JW7.5T
TP 7	TEST PIN RT-01T-1.3B or	JTEA001JG001
	TEST PIN RT-01T-1.3B	5700270

Ref. No.	Description	Part No.
TP 8	PCB JUMPER D0.6-P10.0	JW10.0T
U 701	REMOCON RECEIVE UNIT PIC-26043SM or REMOCON RECEIVE UNIT PIC-12043SM	USESJRSKK024
W 6	6P PARALLEL WIRE UL2468,AWG26 90MM	USESJRSKK011
X 401	CERAMIC RESONATOR 4.19MHZ	WX1E7708-017
X 501	CERAMIC RESONATOR 16.9340MHZ	FY0415LMS002
		FY0166PMR005

Open/Close Block

Ref. No.	Description	Part No.
	Open/Close CBA Block Consists of the following:	-----
SW 1	TACT SWITCH SKQSAB	SST0101AL038
SW 6	TACT SWITCH SKQSAB	SST0101AL038
W 9	4P PARALLEL WIRE UL2651,AWG26 160MM	WX1E7708-014

Sensor CBA Block

Ref. No.	Description	Part No.
	Sensor CBA Block Consists of the following:	-----
	DIODE	
D 901	LED SLR-932C-20-AB	QPQ80SLR932C
	TRANSISTOR	
Q 901	PHOTO TRANSISTOR PT380FC	QPQC00PT380F
	RESISTORS	
R 901	CARBON RES. 1/6W J 820 Ω or CARBON RES. 1/6W J 820 Ω	132A821T
R 902	CARBON RES. 1/4W J 100 Ω or CARBON RES. 1/4W J 100 Ω	RCX6JATZ0821
R 903	CARBON RES. 1/6W J 18k Ω or CARBON RES. 1/6W J 18k Ω	1345101S
R 904	CARBON RES. 1/6W J 47k Ω or CARBON RES. 1/6W J 47k Ω	RCX4JATZ0101
	MISCELLANEOUS	
PI- 1	PHOTO INTERRUPTER GP1S52V	132A183T
		RCX6JATZ0183
		132A473T
		RCX6JATZ0473
	MISCELLANEOUS	
PI- 1	PHOTO INTERRUPTER GP1S52V	QP4Z0GP1S52V

RCA Jack CBA Block

Ref. No.	Description	Part No.
	RCA Jack CBA Block Consists of the following:	-----
	DIODE	
C 110	CERAMIC CAP. B K 820pF/50V	12B3821S
C 210	CERAMIC CAP. B K 820pF/50V	12B3821S
	RESISTORS	
R 112	CARBON RES. 1/4W J 100 Ω or CARBON RES. 1/4W J 100 Ω	1345101S
R 212	CARBON RES. 1/4W J 100 Ω or CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
	MISCELLANEOUS	
JK 1	RCA JACK YKC21-0297 or RCA JACK AV2-8.4-10A	1345101S
W 8	3P PARALLEL WIRE UL2468,AWG26 210MM	RCX4JATZ0101
		1630418
		JTCF02BRP001
		WX1E7708-016

Power PCB Assembly

Ref. No.	Description	Part No.
	Power PCB Assembly Consists of the following:	0RSA01580
CAPACITOR		
C 806	CERAMIC CAP. B K 1000pF/50V	12B3102S
CONNECOTRS		
CN 10	FLAT CABLE CONNECTOR 6P HBRK-06-S-1 or FLAT CABLE CONNECTOR 6P 52287-0611	JEHBJ06JE002
DIODES		
D 01	SWITCHING DIODE 1N4148	NDTZ001N4148
D 02	SWITCHING DIODE 1N4148	NDTZ001N4148
MISCELLANEOUS		
B- 7	EARTH PLATE A	0DM400749
T 801	POWER TRANS U-1422T U-1422T or POWER TRANS PEHY48-20D	LTT48CPWP001
	AC CORD SPT-1 #18	LTT48CPTR002
		WAC0202AS001

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