

CDP-7F

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model



SPECIFICATIONS

COMPACT DISC PLAYER

System	Compact disc digital audio system
Disc	Compact disc
Laser diode properties	Material : GaAlAs Wavelength : 780 nm Emission duration : Continuous Laser output : Max. 0.6 mW* *This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the optical pick-up block.
Spindle speed	200 r.p.m. to 500 r.p.m. (CLV)
Scan velocity	1.2 - 1.4 m/sec.
Error correction	Sony Super Strategy Cross Interleave Reed Solomon Code
Number of channels	2
D-A conversion	16-bit linear
Frequency response	20 - 20,000 Hz ± 0 dB
Harmonic distortion	Less than 0.008 % (1 kHz)
Dynamic range	More than 90 dB
Channel separation	More than 85 dB
Wow and flutter	Below measurable limit
Outputs	Line outputs Output level 2 V rms (at MSB) Load impedance over 50 kilohms Headphones 10 mW at 32 ohms
Disc	
Track pitch	1.6 μ m
Sampling frequency	44.1 kHz
Quantization	16 bit linear quantizing/channel
Modulation system	EFM
Transfer rate	2.03 Mbit/sec. (before modulation)

General

Power requirements:	AEP model: 220 V ac, 50/60 Hz UK model: 240 V ac, 50/60 Hz US, Canadian model: 120 V ac, 60 Hz E model: 110 - 120 or 220 - 240 V ac adjustable, 50/60 Hz
Power consumption:	12 W
Dimensions:	Approx. 215 x 55 x 250 mm (w/h/d) (8 $\frac{1}{2}$ x 2 $\frac{1}{4}$ x 9 $\frac{7}{8}$ in.) including projecting parts and controls
Weight:	Approx. 2 kg (4 lbs 7 oz)

- Continued on page 2 -

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

COMPACT DISC PLAYER
SONY®



SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

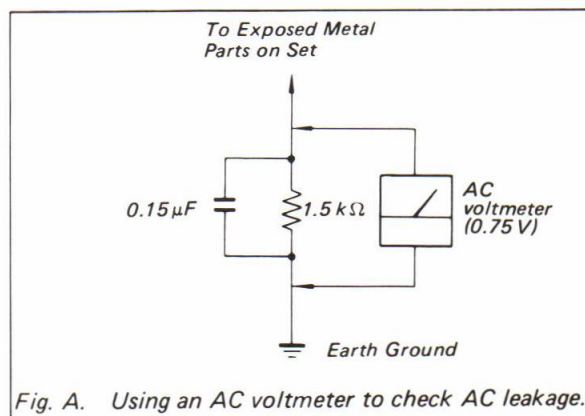
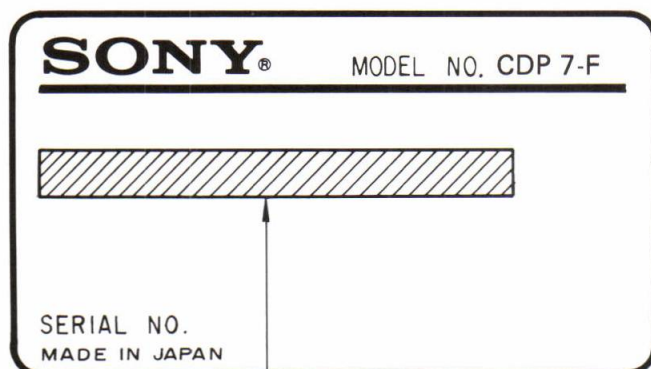


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION

— Specification Label —



AEP model: AC: 220 V ~ 50/60 Hz 12 W

UK model: AC: 240 V ~ 50/60 Hz 12 W

US, Canadian model: AC: 120 V ~ 60 Hz 12 W

E model: AC: 110 ~ 120 V, 220 ~ 240 V
~ 50/60 Hz 12 W

NOTES ON HANDLING THE OPTICAL BLOCK (KSS-121A)

The laser diode inside the optical block may be damaged by static electricity in clothes or the human body.

The following procedures are required when unpacking and repairing KSS-121A in order to avoid static electricity damage.

1. Body grounding

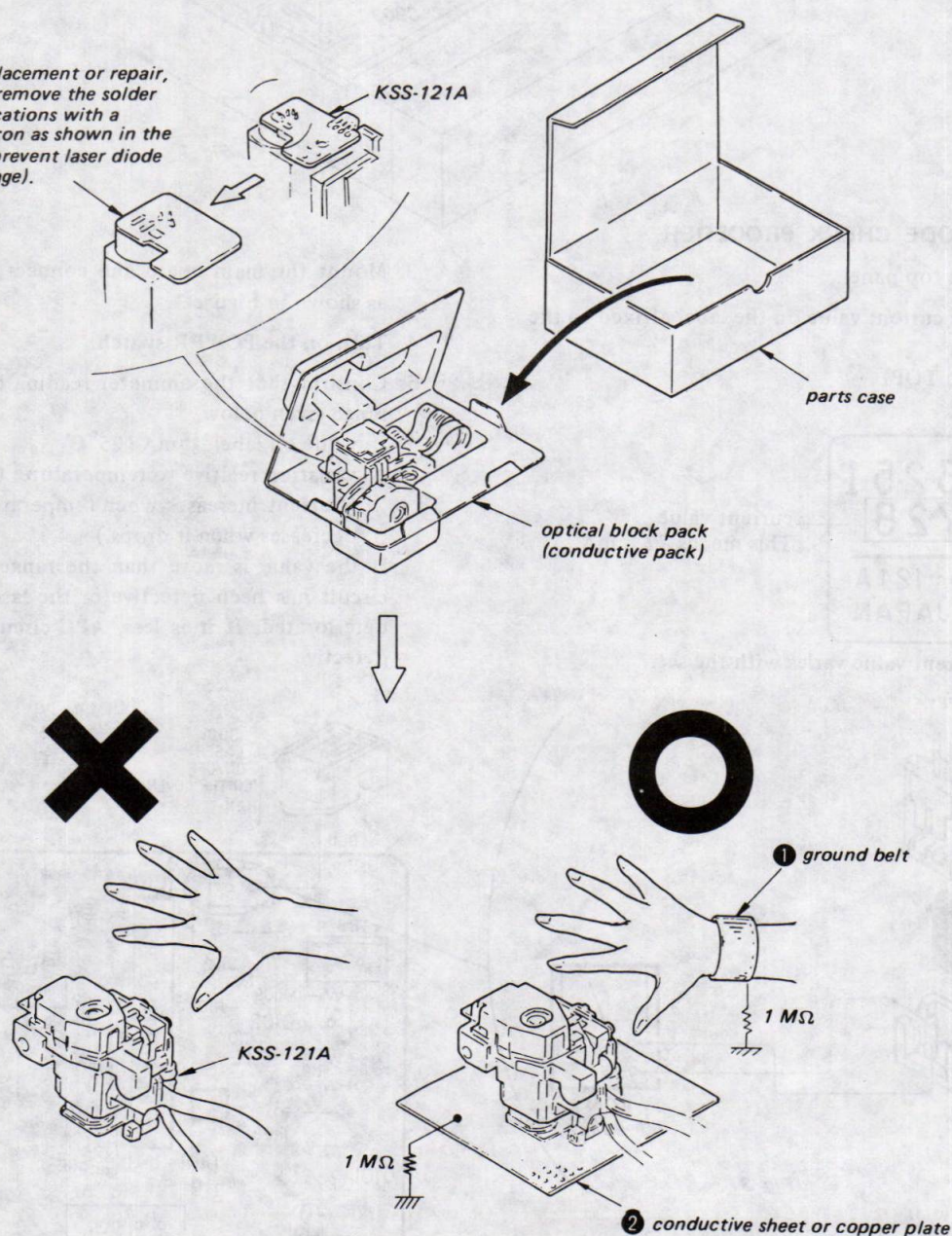
Be sure to wear a ground belt (less than $10^8 \Omega$) in order to release the static electricity stored in the body.

2. Workbench grounding

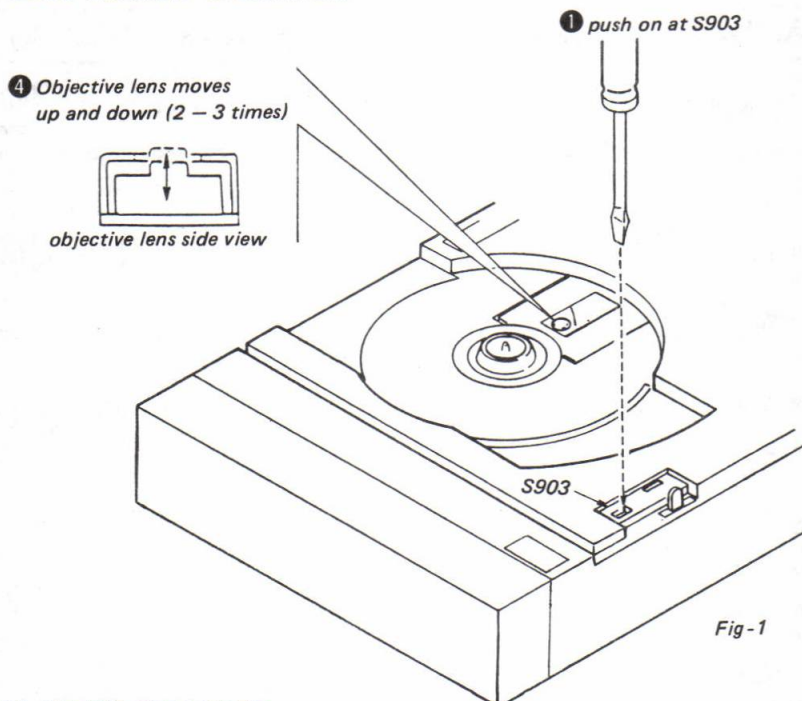
Place a conductive sheet (less than $10^9 \Omega$) or copper plate on the bench where KSS-121A is to be placed to ground it.

3. Static electricity in the clothing will not be released by the ground belt, so be careful not to let KSS-121A touch clothing.

During replacement or repair, be sure to remove the solder at these locations with a soldering iron as shown in the figure (to prevent laser diode static damage).

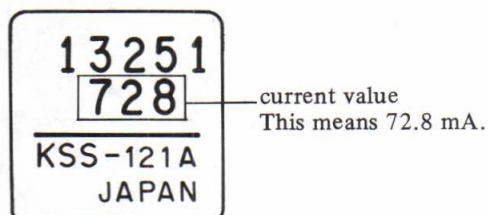


CHECKING FOCUS SEARCH OPERATION



LASER DIODE CHECK PROCEDURE

1. Close the top panel.
2. Read the current value on the label affixed to the TOP.
(Label on TOP)



The current value varies with the set.

Fig-2

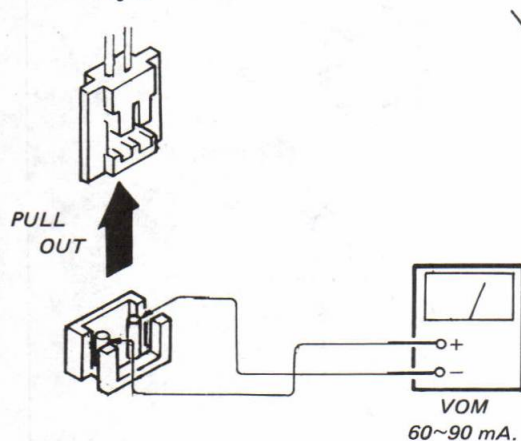
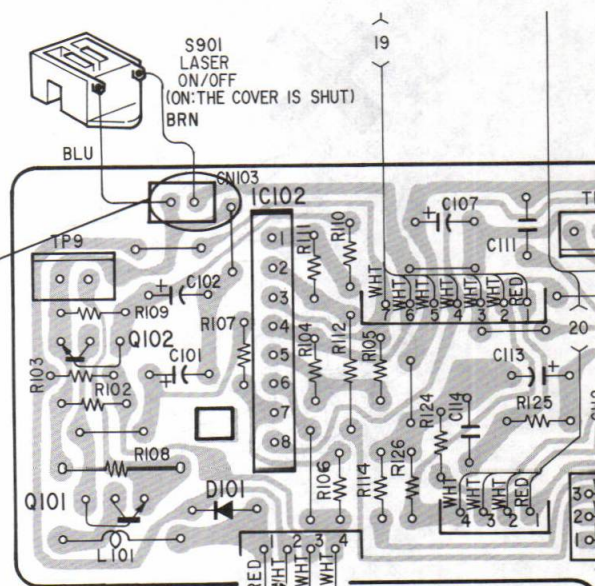


Fig-3

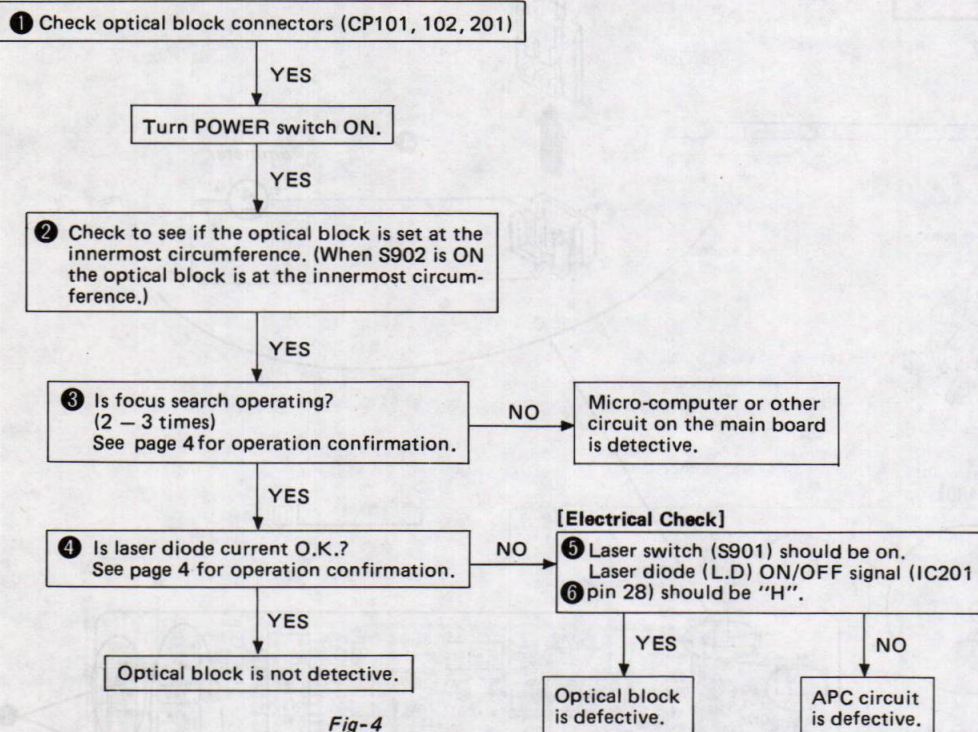
3. Mount the main board and connect an ammeter as shown in Figure 3.
4. Turn on the POWER switch.
5. Confirm that the ammeter reading is within the range given below.
value on label $\pm \frac{1}{5}$ mA (25°C)
variation relative to temperature: 0.4 mA/°C
(Current increases when temperature rises and decreases when it drops.)

If the value is more than the range given, APC circuit has been defective or the laser diode has deteriorated. If it is less, APC circuit or TOP is defective.



DIAGNOSIS OF OPTICAL BLOCK (KSS-121A) BREAKDOWN

1. Follow the procedure below to determine if the optical block has broken down.



2. The checking locations listed above are shown here.

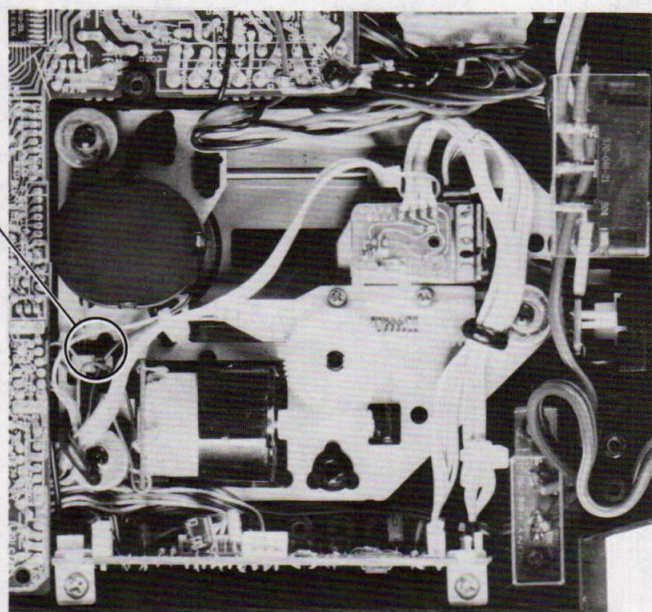
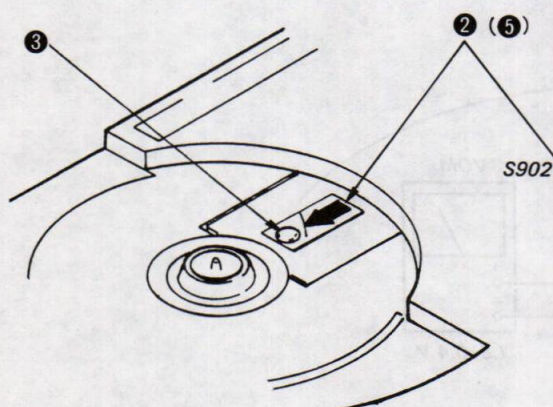
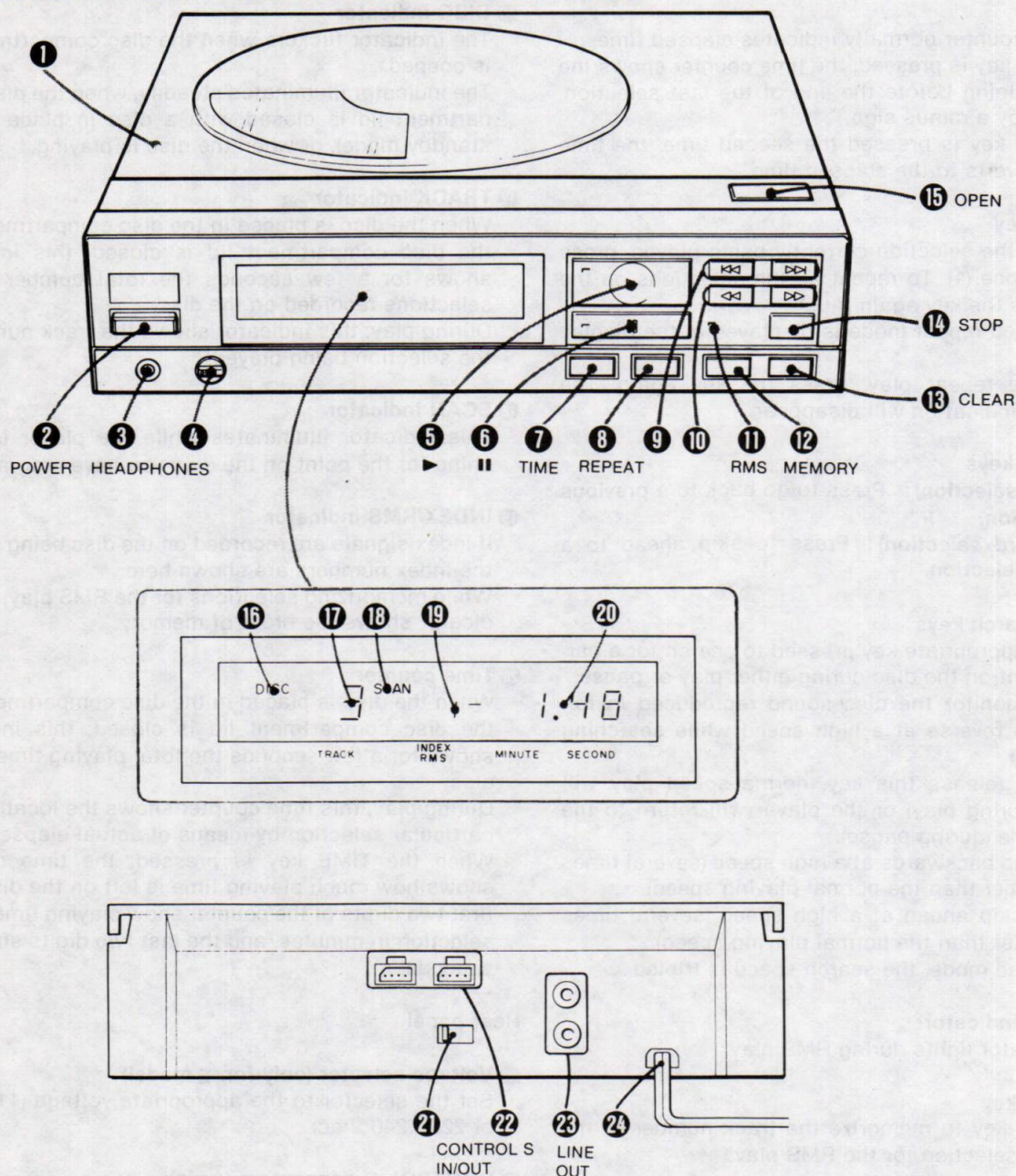


Fig-5



LOCATION AND FUNCTION OF CONTROLS



Front panel

1 Disc compartment lid

To open the disc compartment lid, press the OPEN button and slightly lift up the lid. Place a compact disc in the compartment. To close the lid, lightly push the labeled portion down.

2 POWER switch

Depress to turn on the power (ON). To turn the power off, press the switch again (OFF).

3 HEADPHONES jack (stereo minijack)

Connect headphones with a stereo miniplug here.

4 Headphones volume control

Adjust the headphone volume when listening with the headphones.

5 ► (play) key and indicator

Press to start normal disc play or RMS play. The indicator on this key will illuminate.

6 II (pause) key and indicator

Press to pause during play. The indicator on this key will illuminate. To release the pause mode, press this key again. The indicator will go off and disc play will resume.

7 TIME key

The time counter normally indicates elapsed time. When this key is pressed, the time counter shows the time remaining before the end of the last selection, preceded by a minus sign. When this key is pressed the second time, the time counter reverts to the elapsed time.

8 REPEAT key

To repeat the selection currently being played, press this key once (1). To repeat all the selections on the disc, press the key again (ALL).

The selected repeat mode is displayed in the display window.

To release repeat play, press the key again. The displayed indication will disappear.

9 AMS/RMS keys

◀◀ (back selection): Press to go back to a previous selection.

▶▶ (forward selection): Press to skip ahead to a later selection.

10 Manual search keys

Keep the appropriate key pressed to search for a particular point on the disc during either play or pause. You can monitor the disc sound reproduced in forward or in reverse at a high speed while searching during play.

When you release this key, normal-speed play will resume (during play) or the player will return to the pause mode (during pause).

◀◀: To go backwards at a high speed (several times higher than the normal playing speed).

▶▶: To skip ahead at a high speed (several times higher than the normal playing speed).

In the pause mode, the search speed is tripled.

11 RMS play indicator

This indicator lights during RMS play.

12 MEMORY key

Press this key to memorize the track number of the displayed selection for the RMS play.

13 CLEAR key

While memorizing the track numbers for the RMS play, press this key to clear the track number of the selection which was memorized last.

14 STOP key

When this key is pressed, disc play is reset to the very beginning of the first selection and the player stands by.

15 OPEN button

With one touch of this button, the disc compartment lid opens.

Display window**16 DISC indicator**

The indicator flickers when the disc compartment lid is opened.

The indicator illuminates steadily, when the disc compartment lid is closed with a disc in place (in the standby mode), or when the disc is playing.

17 TRACK indicator

When the disc is placed in the disc compartment and the disc compartment lid is closed, this indicator shows for a few seconds the total number of the selections recorded on the disc.

During play, this indicator shows the track number of the selection being played.

18 SCAN indicator

This indicator illuminates while the player is searching for the point on the disc you have programmed.

19 INDEX/RMS indicator

If index signals are recorded on the disc being played, the index numbers are shown here.

While memorizing selections for the RMS play, this indicator shows the order of memory.

20 Time counter

When the disc is placed in the disc compartment and the disc compartment lid is closed, this indicator shows for a few seconds the total playing time of the disc.

During play, this time counter shows the location in a particular selection by means of actual elapsed time. When the TIME key is pressed, the time counter shows how much playing time is left on the disc. The first two digits of the counter show playing time of the selection in minutes, and the last two digits show the seconds.

Rear panel**21 Voltage selector (only for E model)**

Set the selector to the appropriate voltage (110 - 120 or 220 - 240 V ac).

22 CONTROL S connectors (4-pin)

OUT: Connect to the CONTROL S IN of other Sony audio equipment for the remote control of the total audio system.

IN: Connect to the CONTROL S OUT of an optional Sony system control tuner or receiver for the remote control of the total audio system.

The optional Sony RM-D1K remote control kit can also be connected here to remotely operate the CDP-7F. For details, read the instruction manual of the RM-D1K.

23 LINE OUT jacks (phono jacks)

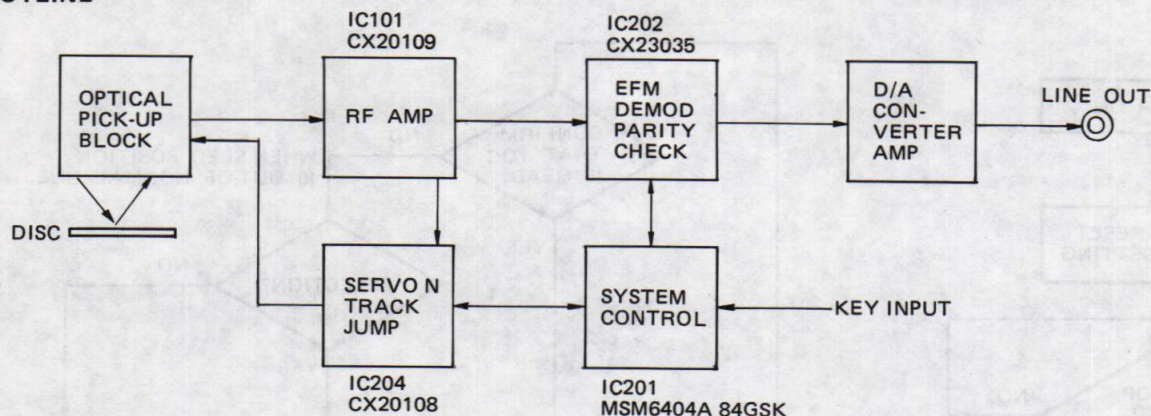
These jacks can be connected to the CD or auxiliary input jacks of an amplifier using the supplied connecting cord.

24 AC power cord

SECTION 1 OUTLINE

CIRCUIT DESCRIPTION

1-1. OUTLINE



Above block diagram shows configuration of this set. Master control IC201 serves as the center of all operation. System control IC assumes interface between man and machine like key input and remote control input.

For example, if PLAY button is pressed from key input, system control IC works in routine operation to make PLAY mode. It gives every kind of commands for IC204, 202 and they are in PLAY mode.

Through IC204 and IC202 use common data bus, they distinguish a command for IC204 or IC202 by a higher rank 4 bit value of each command from system control IC201.

Command for IC204: higher rank 4 bit 0000-0011 (0-3 with hexadecimal number system) are used.

Command for IC202: higher rank 4 bit 1010-1110 (A-E with hexadecimal number system) are used. IC204 controls servo (focus, tracking, sled) mainly. IC202 checks EFM demodulation and CRC.

1-2. SIGNAL FLOW

The compact disc player applies a laser beam to the pits on the compact disc, which represent recorded music information, and extracts the changes in the reflected light and converts them into analog signals.

The following is an explanation of the signal flow on this model.

The changes in laser light reflection are extracted as current changes by the pick-up section photodiode. (The current flow changes according to the amount of light hitting the photodiode.) This signal is applied to IC101 RF amp. At the same time, tracking error and focus error detection is done by the photodiode, and those signals are also applied to the RF amp.

The signal is amplified at IC101 and output from pin (20). This signal is called the EFM signal, and besides music data, includes time and location data called the sync signal and Q data, as well as CRC check signal and others.

This signal is applied to IC202, and these signals are written in to the RAM all at once. Next the signals are read out from this RAM and divided into the different types of data mentioned above.

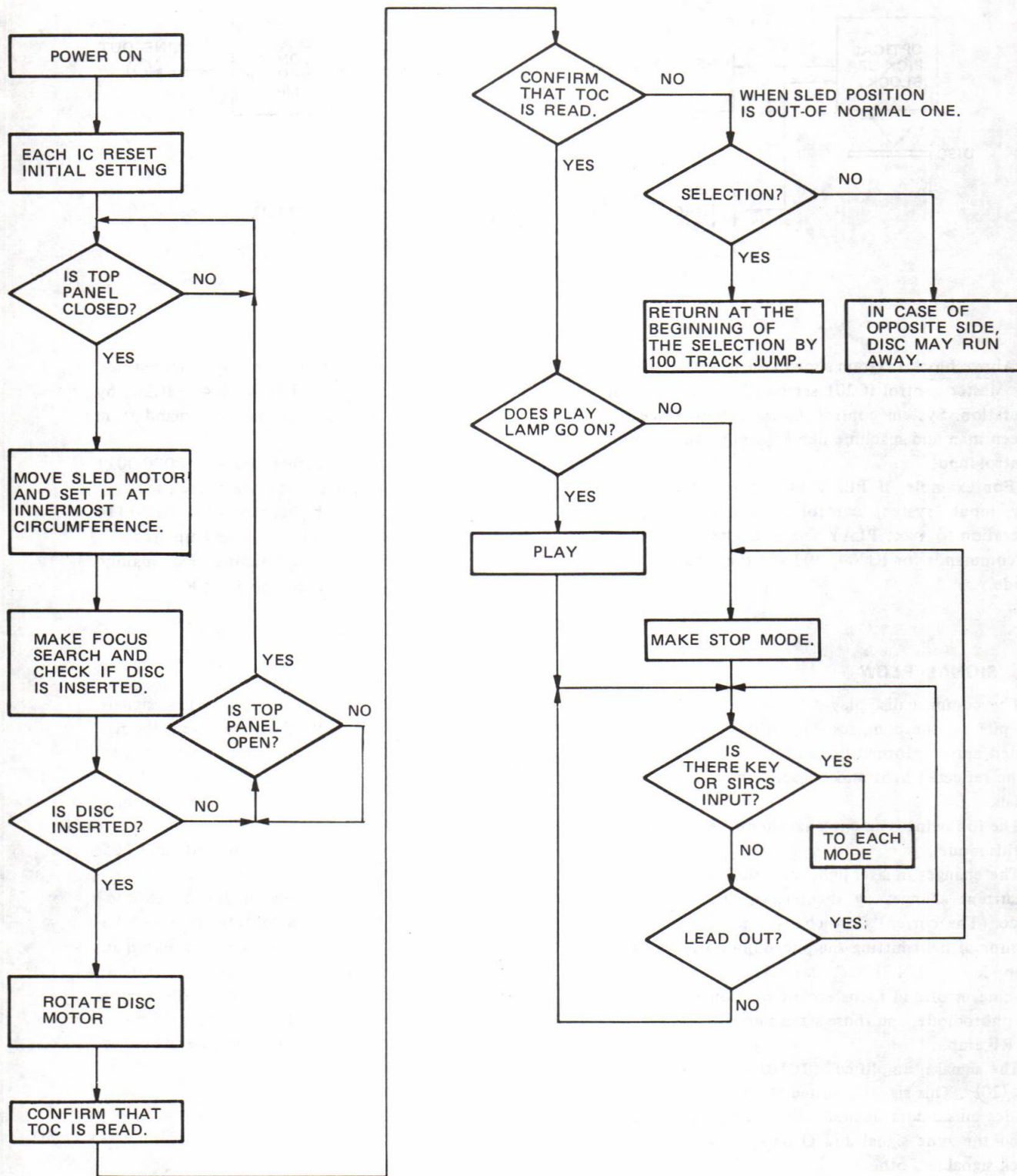
Then CRC check is done and if there are any errors they are corrected.

The music data only is then sent out to IC205 D/A converter.

The D/A converter on this model is the integrated type, and integrates a uniform current at a time width in proportion to input data, to obtain an analog voltage value which corresponds to the data.

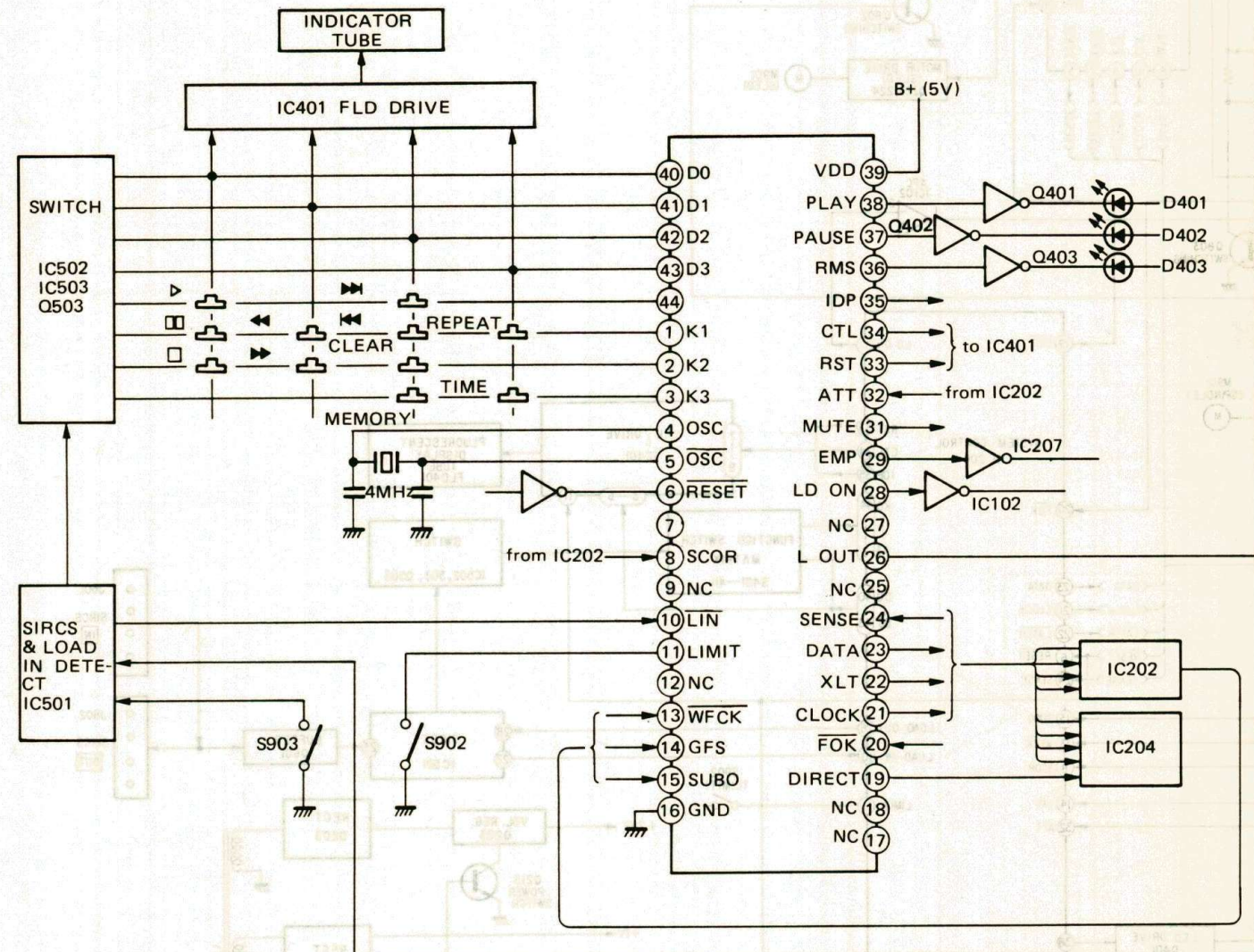
This voltage is sample extracted at the analog switch and applied to the low pass filter. This is done alternately for L-CH and R-CH, and the music is played.

The illustration below shows flow chart of simple operation after power is ON.



1-3. IC201

IC201 (MSM6404A-84GSK) is a 4 bit system controller, and performs digit signal output to the function keys, SUBQ signal take-in and processing, display tube and servo system control, etc. The pin functions are shown in the diagram below.

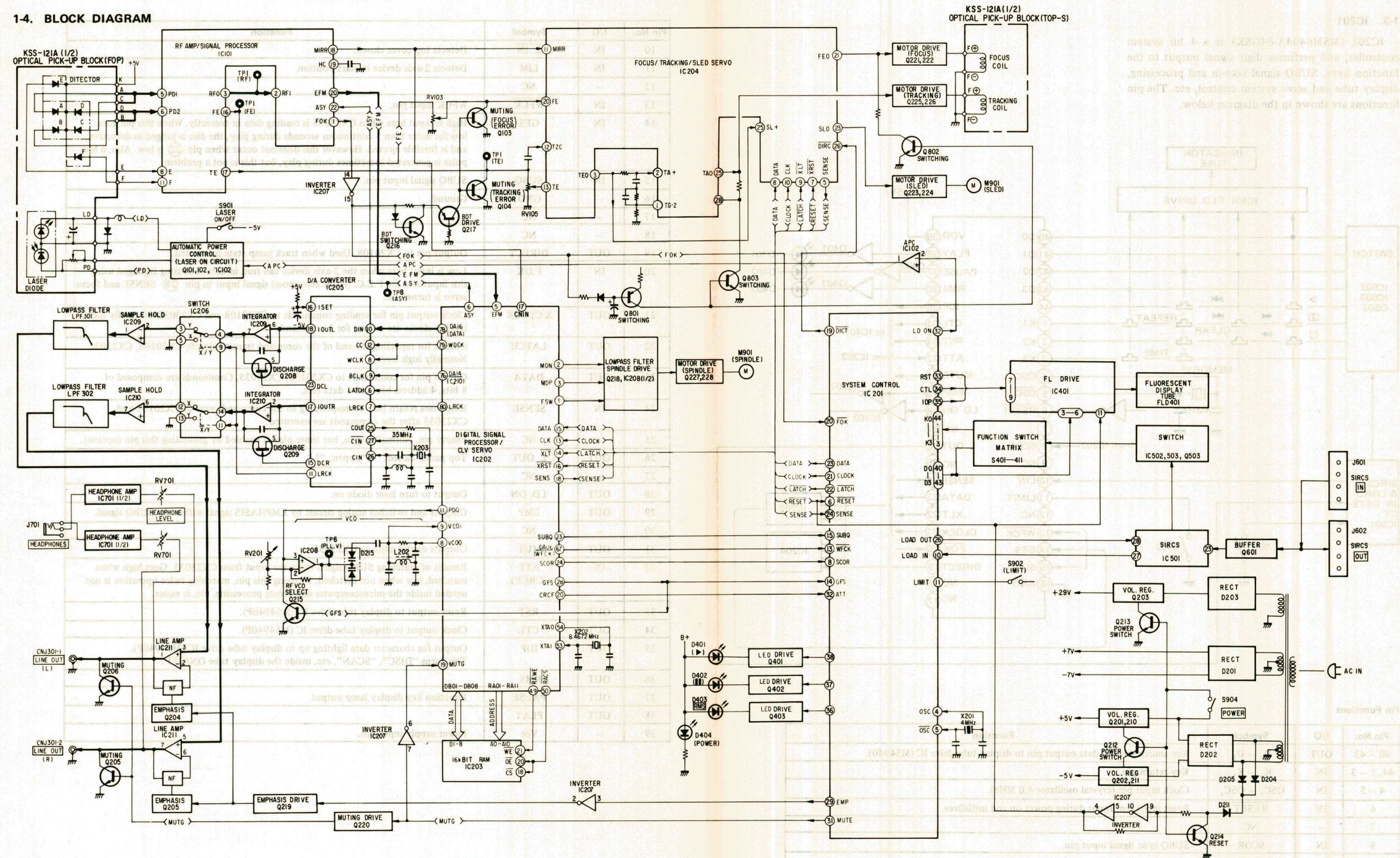


Pin Functions

Pin No.	I/O	Symbol	Function
40 - 43	OUT	D ₀ - D ₃	Key source pin and data output pin to display tube drive IC (M54940).
44, 1 - 3	IN	K ₀ - K ₃	Key return pin.
4 - 5	IN	OSC ₀ - OSC ₁	Clock input pin (crystal oscillator 4.0 MHz).
6	IN	RESET	Reset input pin. Input during power on and initializes.
7	-	NC	
8	IN	SCOR	SUBQ sync signal input pin.
9	-	NC	

Pin No.	I/O	Symbol	Function
10	IN	L IN	Detects top cover closed.
11	IN	LIM	Detects 2-axis device in start position.
12	-	NC	
13	IN	WFCK	WFCK input pin.
14	IN	GFS	High is input here when CX23035 is reading data in correctly. When this pin goes low for more than 5 continuous seconds during play, the disc is judged as defective and is forcible ejected. However this does not occur when pin (22) is low. Also, a low pulse is generated sometimes during play, but this is not a problem.
15	IN	SUBQ	SUBQ signal input pin.
16	-	GND	Ground.
17	-	NC	
18	-	NC	
19	OUT	DIRECT	Output pin to CX20108. Used when track jump state is inverted.
20	IN	F.O.K	Low is input here when the 2-axis device can read in data. Focusing is judged using this input and the F.Z.C. (focus zero cross) signal input to pin (28) SENSE and focus servo is turned on.
21	OUT	X CLOCK	Clock output pin for sending commands to CX20108 and CX23035. Normally high level. 8 clocks are output for 1 command.
22	OUT	LATCH	Output for reporting the end of the command transmission to CX20108, CX23035. Normally high level.
23	OUT	DATA	Output pin for commands to CX20108, CX23035. Commands are composed of 8 bits, 4 address bits and 4 data bits.
24	IN	SENSE	Responses return here corresponding to the commands sent to CX20108 and CX23035 after the commands are executed.
25	-	NC	Empty pin. Normally open, but timer play is enabled by grounding this pin (option).
26	OUT	L OUT	Top panel, closed: "H", open: "L".
27	-	NC	
28	OUT	LD. ON	Output to turn laser diode on.
29	OUT	EMP	Outputs and switches analog circuit by EMPHASIS signal within the SUBQ signal.
30	-	NC	
31	OUT	MUT	Outputs digital mute to CX23035.
32	IN	ATT (CRCF)	Results of matching SUBQ signal twice are input from CX23035. Goes high when matched, low when not matched. By using this pin, matching twice operation is not needed inside the microcomputer and access processing, etc. is easier.
33	OUT	RST	Reset output to display tube drive IC (M54940P).
34	OUT	CTL	Clock output to display tube drive IC (M54940P).
35	OUT	IDP	Output for character data lighting up to display tube drive IC (M54940P). This turns "DISC", "SCAN", etc. inside the display tube ON/OFF.
36	OUT	RMS.	
37	OUT	PAUSE	Function key display lamp output.
38	OUT	PLAY	
39	-	Vcc	Power supply input pin.

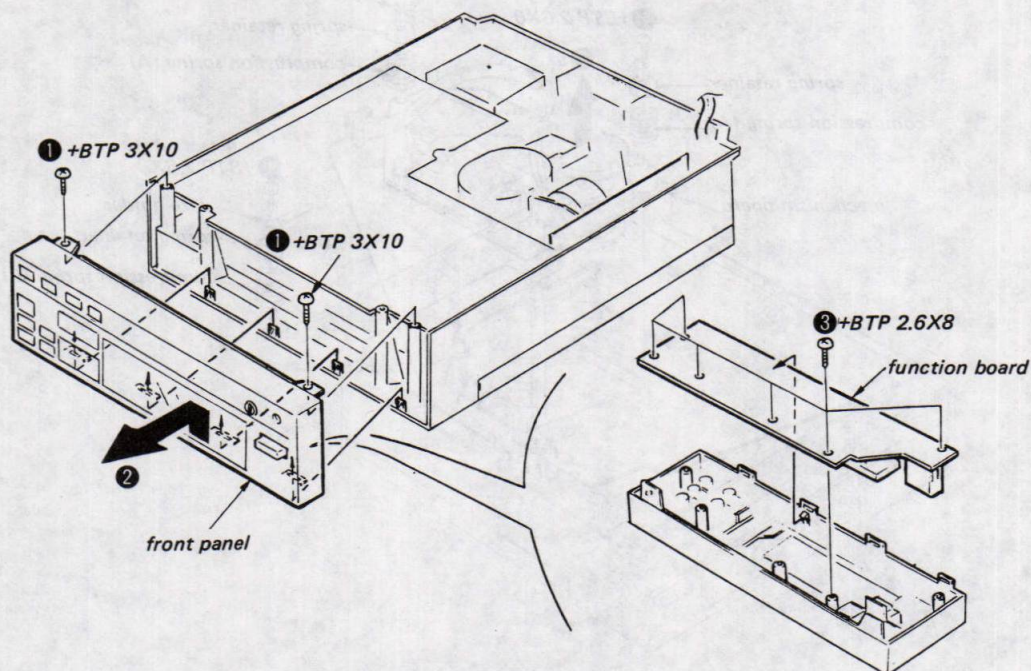
1-4. BLOCK DIAGRAM



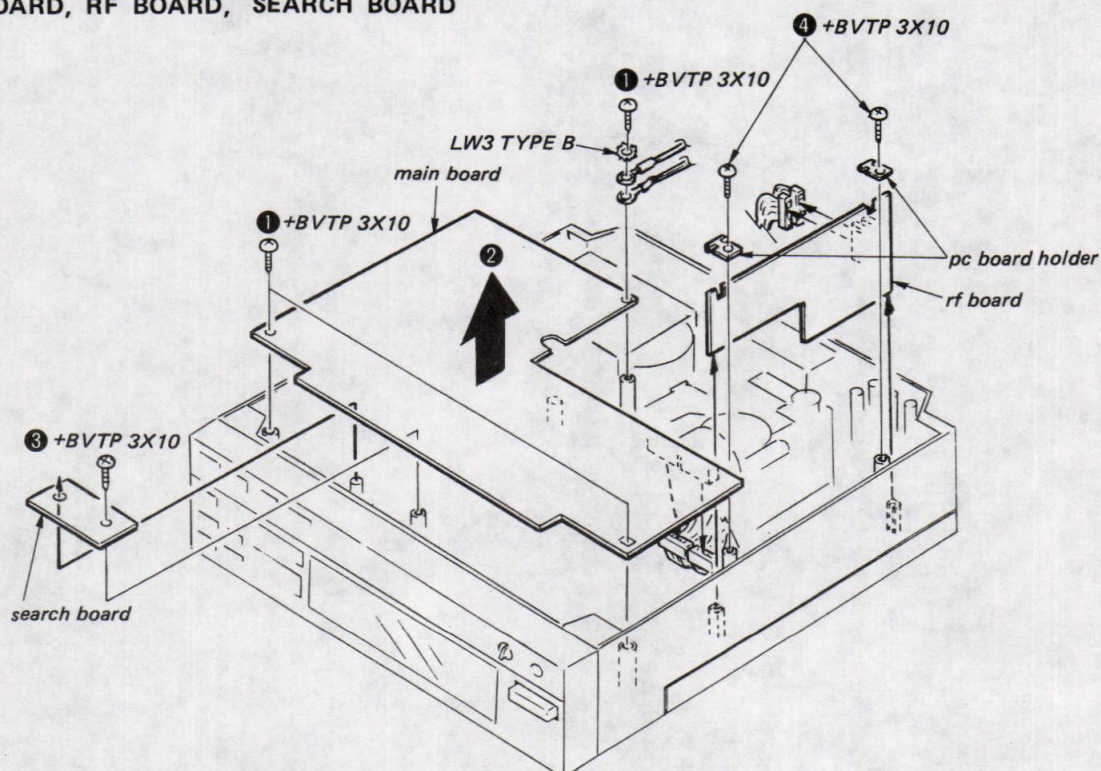
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

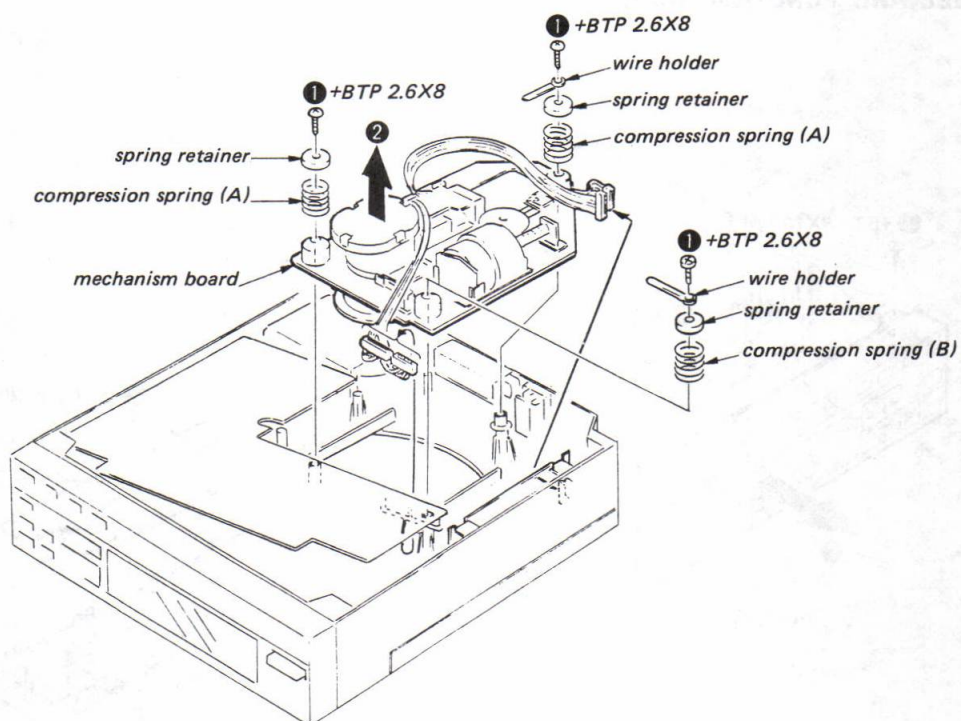
FRONT PANEL AND FUNCTION BOARD



MAIN BOARD, RF BOARD, SEARCH BOARD



MECHANISM BOARD

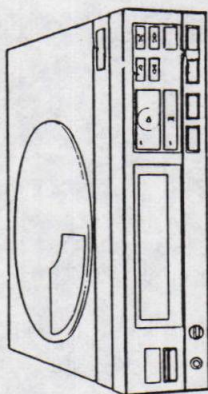


SECTION 3 ADJUSTMENTS

- Adjustment should be made in order of Laser power (1), Focus bias and Laser power (2).

ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Make the adjustment with the set placed in its standing position on its side as shown.
If the set is not placed to play mode because the normal focus servo control is not obtained—place the set to play mode in horizontal position and then in this condition.

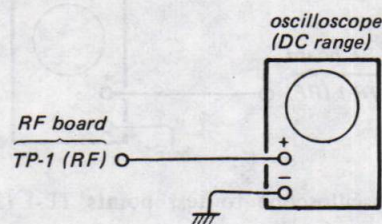


3. Use YEDS-1 disc unless otherwise indicated.
4. Use the oscilloscope with more than 10 MΩ impedance.
5. When data can not be read out, the disk stops rotating within 20 seconds.
When the disk stops rotating, turn the power switch on again.

Laser Power Adjustment (1)

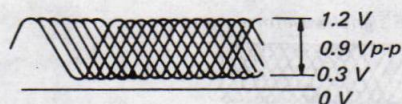
This adjustment should be made when replacing TOP (T-type Optical Pick-up).

Procedure:



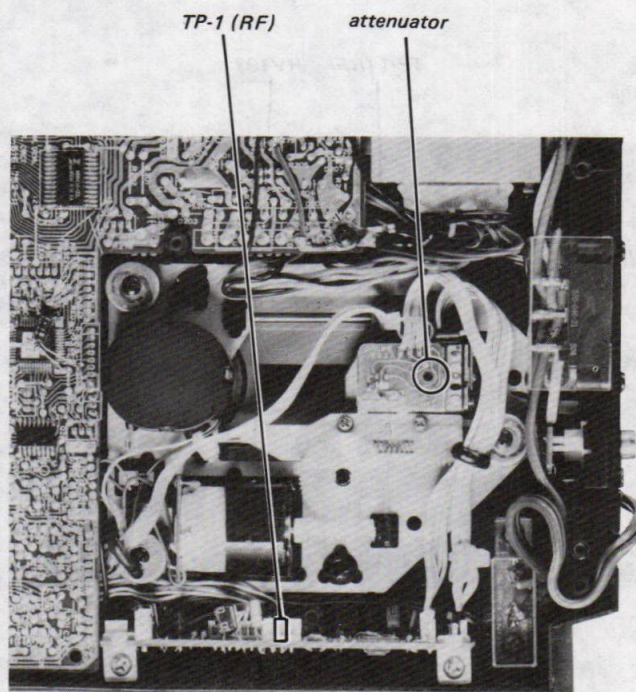
1. Connect oscilloscope to test points TP-1 (RF) and ground.
2. Turn POWER switch on.
3. Put disc (YEDS-1) in and press ▷ button.
4. Adjust TOP's attenuator so that the waveform is as shown in the figure below.

RF signal waveform



VOLT/DIV: 0.2 V
TIME/DIV: 500 ns

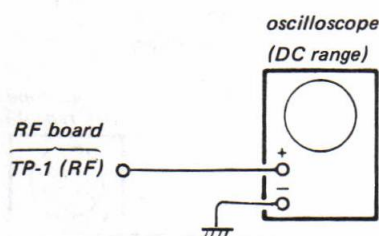
Adjustment Location: main board



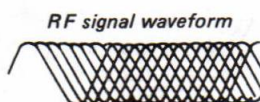
Focus Bias Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

Procedure:

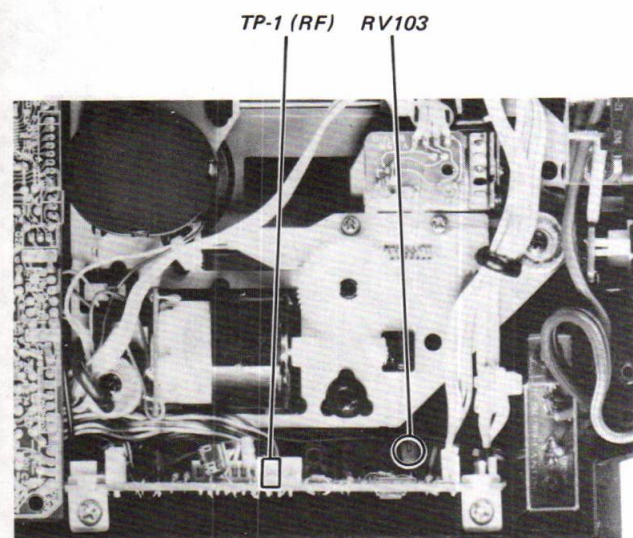


1. Connect oscilloscope to test points TP-1 (RF) and ground.
2. Turn POWER switch on.
3. Put disc (YEDS-1) in and press ► button.
4. Adjust RV103 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.



Adjustment Location: main board

(Component side)



Laser Power Adjustment (2)

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

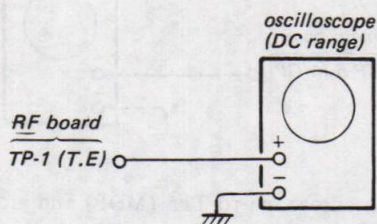
After laser power adjustment (1) and focus bias adjustment (2), check laser power again.

1. Check the waveform by the same procedure of laser power adjustment (1) on page 17.
2. If it is out of specification, adjust TOP's Volume.

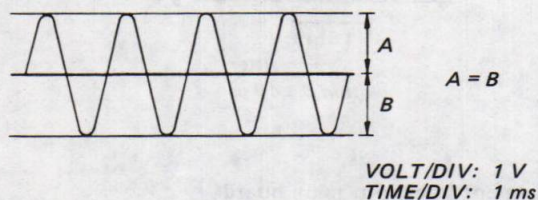
E-F Balance Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

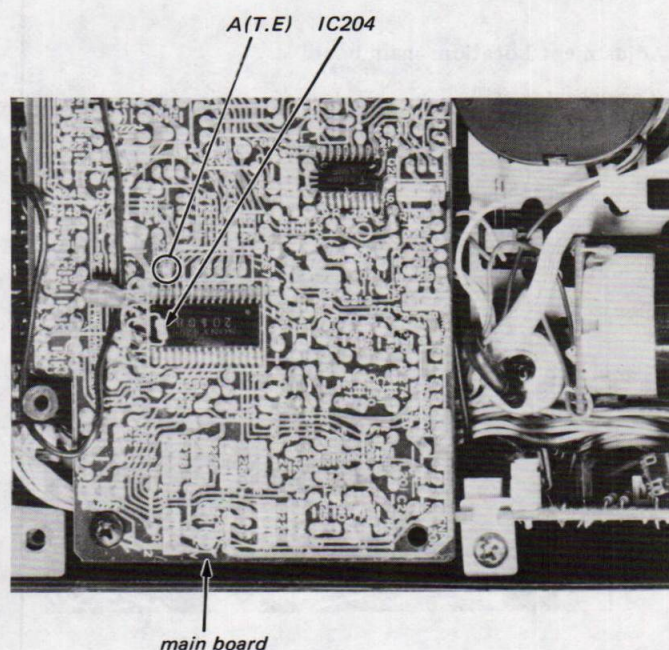
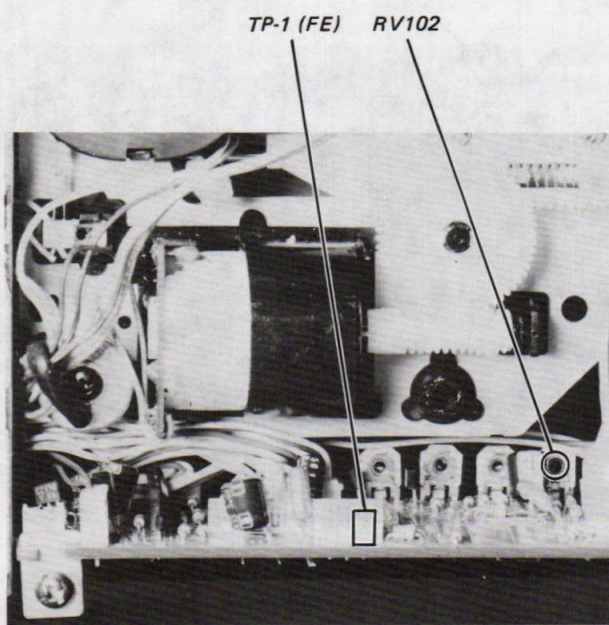
Procedure:



1. Ground point A on main board.
2. Connect oscilloscope to test point TP-1 (T.E) and TP (ground).
3. Put disc (YEDS-1) in.
4. Turn POWER switch on.
5. Adjust RV102 so that the traverse waveform is symmetrical above and below.

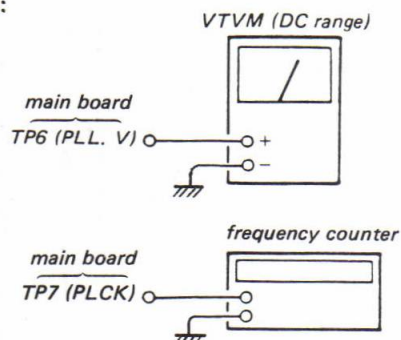


Adjustment Location: main board



RF PLL Frequency Adjustment / Lock Frequency Check

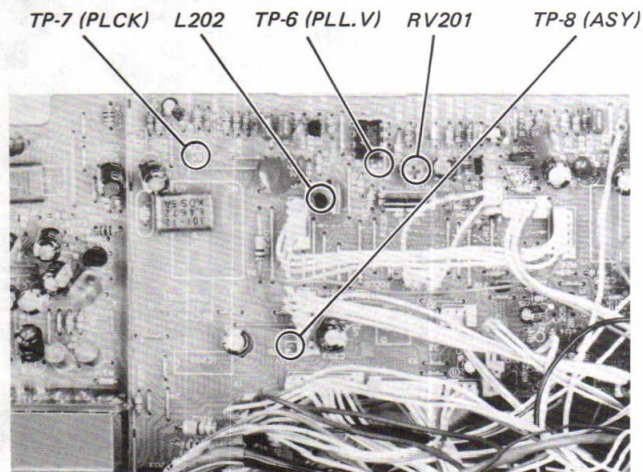
Procedure:



1. Ground test point TP8 (ASY).
2. Connect VTVM to test points TP6 (PLL.V) and ground.
3. Turn POWER switch on.
4. Adjust RV201 so that the reading on VTVM is 0 ± 50 mV.
5. Connect the frequency counter to test points TP7 (PLCK) and ground.
6. Adjust L202 so that the reading on frequency counter is 4.2818 MHz.
... (RF PLL frequency adjustment)
7. Remove lead wire connecting TP8 (ASY) and ground.
8. Put disc (YEDS-1) in and press $\triangleright$ button.
9. Confirm that the reading on frequency counter is 4.3218 MHz.

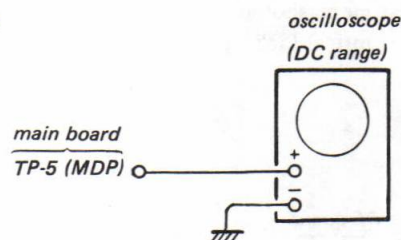
Adjustment Location: main board

(Component side)

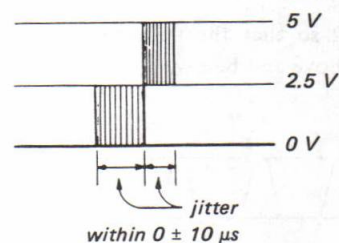


CLV Phase Lock Check

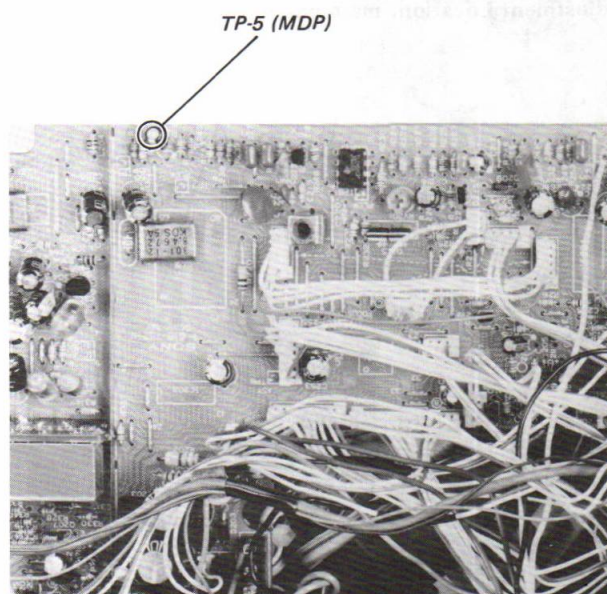
Procedure:



1. Connect oscilloscope to TP5 (MDP) and ground.
2. Turn POWER switch on.
3. Put disc (YEDS-1) in and press $\triangleright$ button.
4. Check the waveform is as shown in the figure below.



Adjustment Location: main board



REFERENCE

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

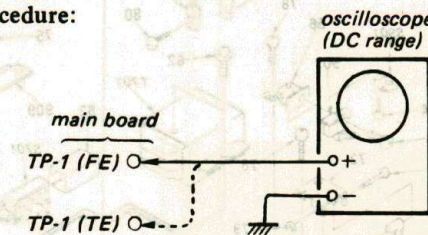
Symptoms	Gain	Focus	Tracking
• The time until music starts becomes longer for STOP → ▶ PLAY or automatic selection (◀▶▶▶ buttons pressed. (Normally takes about 2 seconds.)		low	low or high
• Music does not start and disc continues to rotate for STOP → ▶ PLAY or automatic selection (◀▶▶▶ buttons pressed.)		—	low
• Disc stops rotating shortly after STOP → PLAY.		low or high	—
• Sound is interrupted during PLAY. Or time counter display stops progressing.		—	low
• More poise during 2-axis device operation.		high	high

The following is a simple adjustment method.

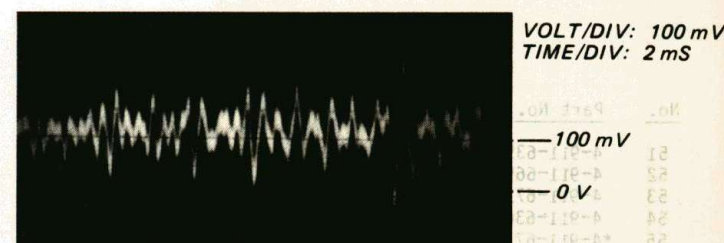
— Simple Adjustment —

Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

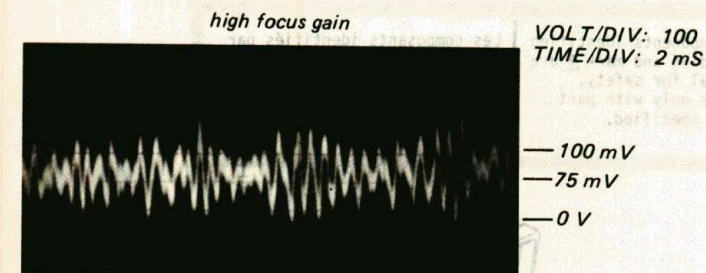
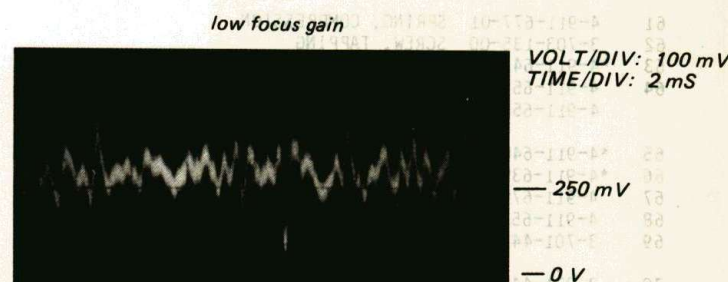
Procedure:



- Keep the set horizontal.
(If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
- Insert disc (YEDS-1) and press PLAY button.
- Connect oscilloscope to main amp board TP-1 (F•E)
- Adjustment RV104 so that the waveform is as shown in the figure below. (focus gain adjustment)



- Incorrent Examples (DC level changes more than on adjusted waveform)

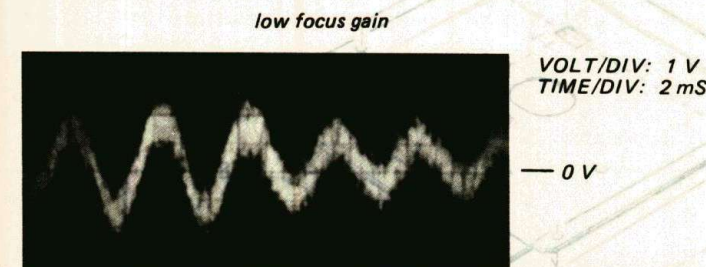


- Connect oscilloscope to main board TP-1 (T.E).

- Adjust RV105 so that the waveform is as shown in the figure below. (tracking gain adjustment)



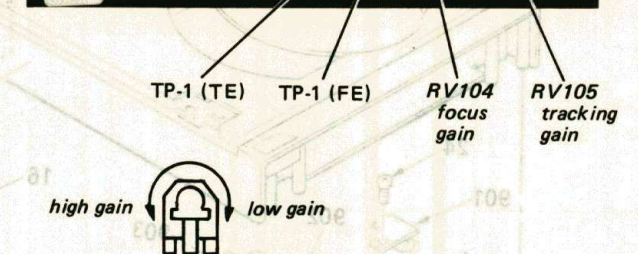
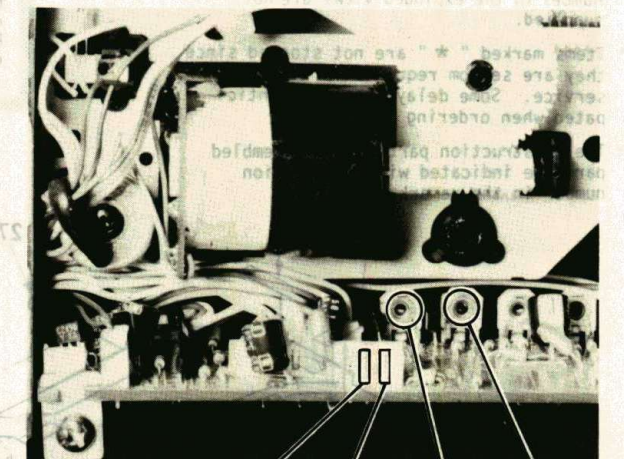
- Incorrect Examples (fundamental wave appears)



- high tracking gain
(higher fundamental wave than for low gain)



Adjustment Location: main board



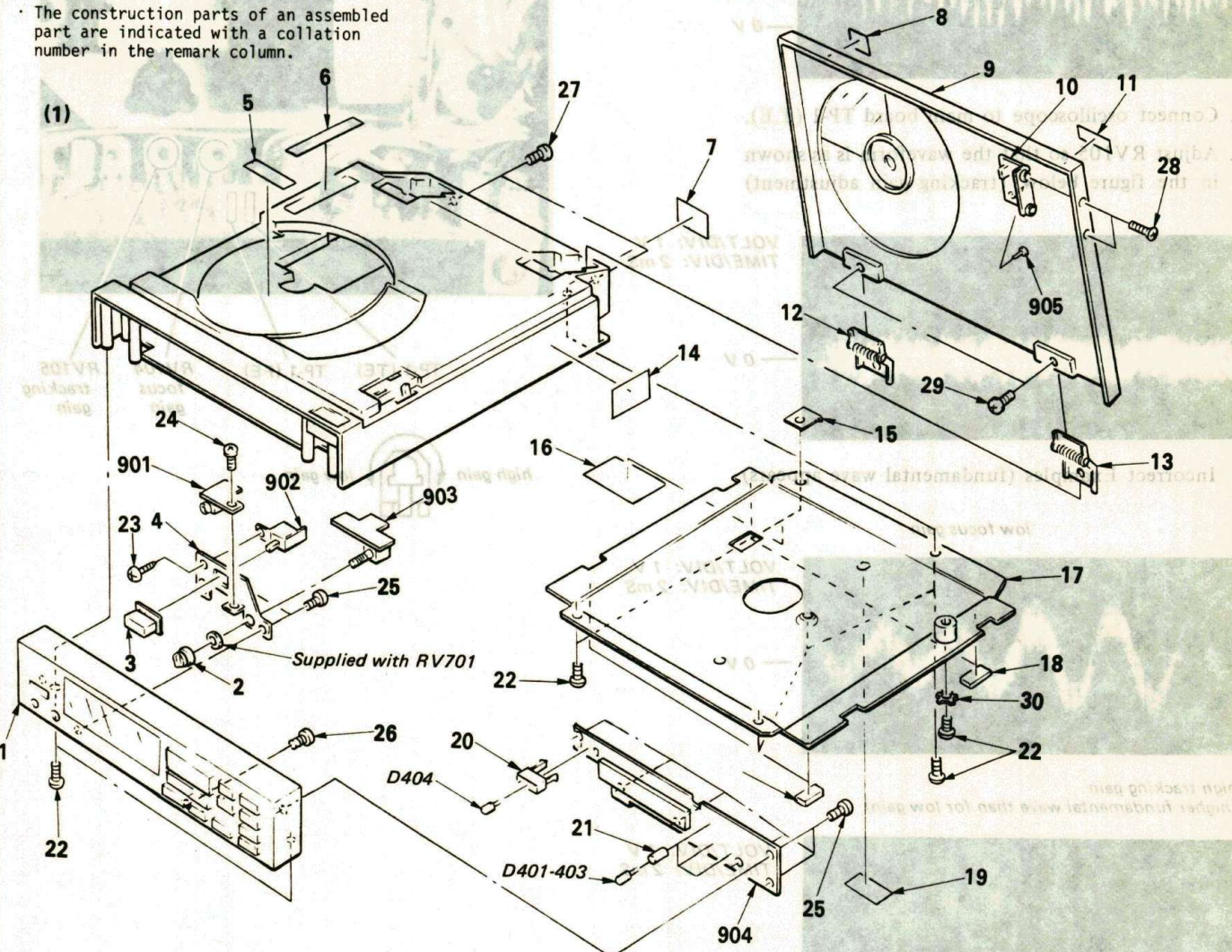
SECTION 4 EXPLODED VIEWS AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

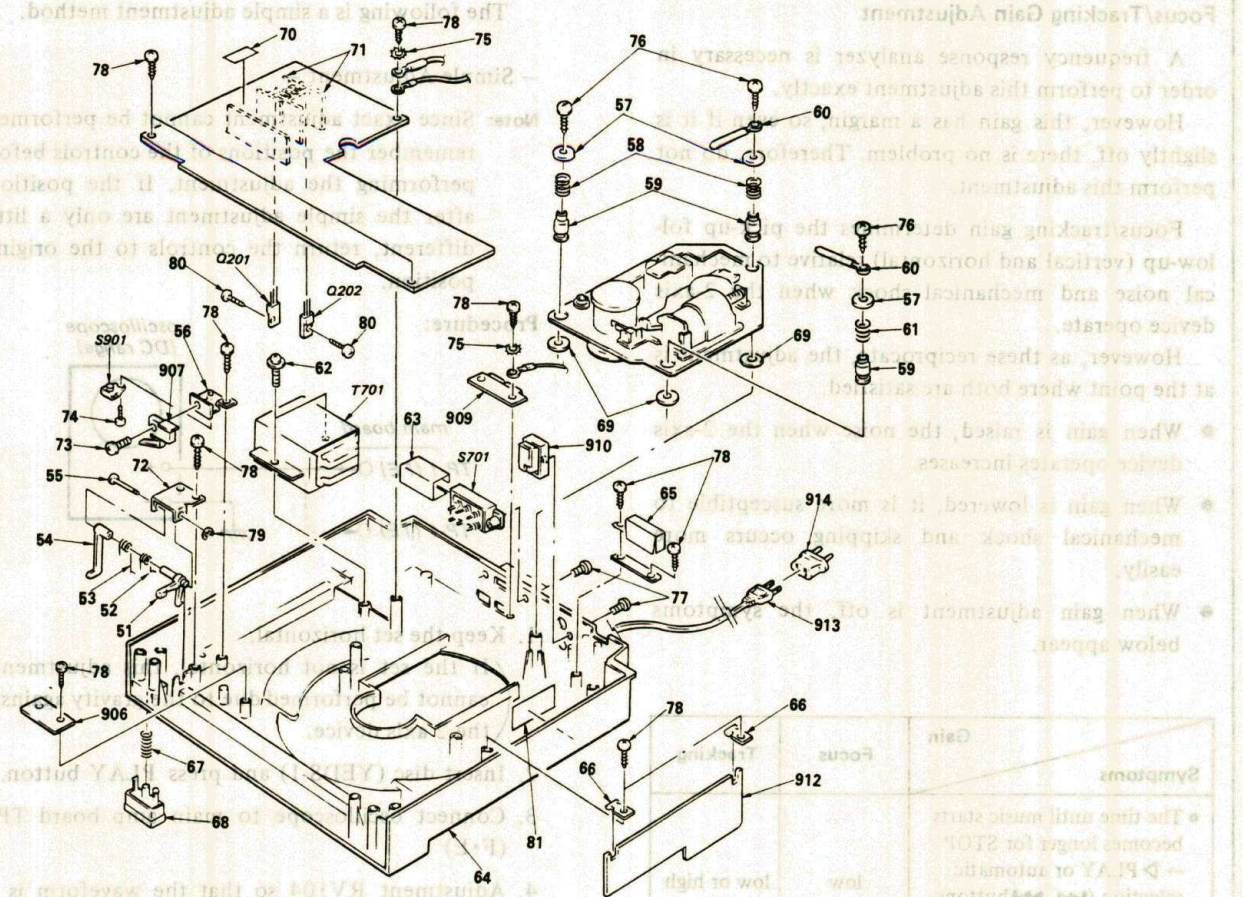
The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	X-4910-431-2	(US,Canadian)...PANEL ASSY, FRONT		17	*X-4910-430-1	PLATE SUB ASSY, BOTTOM	
2	X-4910-431-1	(AEP,UK,E).....PANEL ASSY, FRONT		18	4-911-645-01	LEG	
3	4-911-628-01	KNOB, VOLUME		19	*3-703-845-01	(US,Canadian,UK)...LABEL (N)(U/C), MAIN CAUTION	
4	X-4910-426-1	BUTTON ASSY, POWER		20	*4-911-633-01	HOLDER, LED	
5	*4-911-632-01	HOLDER, VOL		21	4-911-676-01	SPACER, LED	
6	4-908-711-01	LABEL, CAUTION, LENS		22	7-685-147-19	SCREW +BTP 3X10 TYPE2 N-S	
7	4-911-648-01	COVER, FRAME		23	7-628-253-15	SCREW +PS 2X5	
				24	7-628-254-15	SCREW +PS 2.6X6	
				25	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
				26	7-685-132-19	SCREW +BTP 2.6X5 TYPE2 N-S	
8	*4-911-660-01	(E).....LABEL, MODEL NUMBER		27	7-621-773-95	SCREW +B 2.6X6	
9	*4-911-663-01	(AEP).....LABEL, MODEL NUMBER		28	7-685-204-19	SCREW +KTP 2X6 TYPE2 NON-SLIT	
10	*4-911-664-01	(UK).....LABEL, MODEL NUMBER		29	7-682-545-09	SCREW +B 3X4	
11	*4-911-665-01	(US,Canadian)...LABEL, MODEL NUMBER		30	7-623-422-07	LW 3, TYPE B	
12	3-703-710-01	STICKER, SONY SYMBOL (12)		901	*1-616-757-11	PC BOARD, JACK	
13	X-4910-432-1	COVER ASSY		902	*1-616-758-11	PC BOARD, POWER SW	
14	4-911-643-01	COVER, SW		903	*1-616-756-11	PC BOARD, V.R.	
15	4-911-673-01	SEAL, COVER		904	*A-4657-016-A	MOUNTED PCB, FUNCTION	
16	4-911-644-01	HINGE		905	1-506-527-11	PLUG, SHORT	

(2)

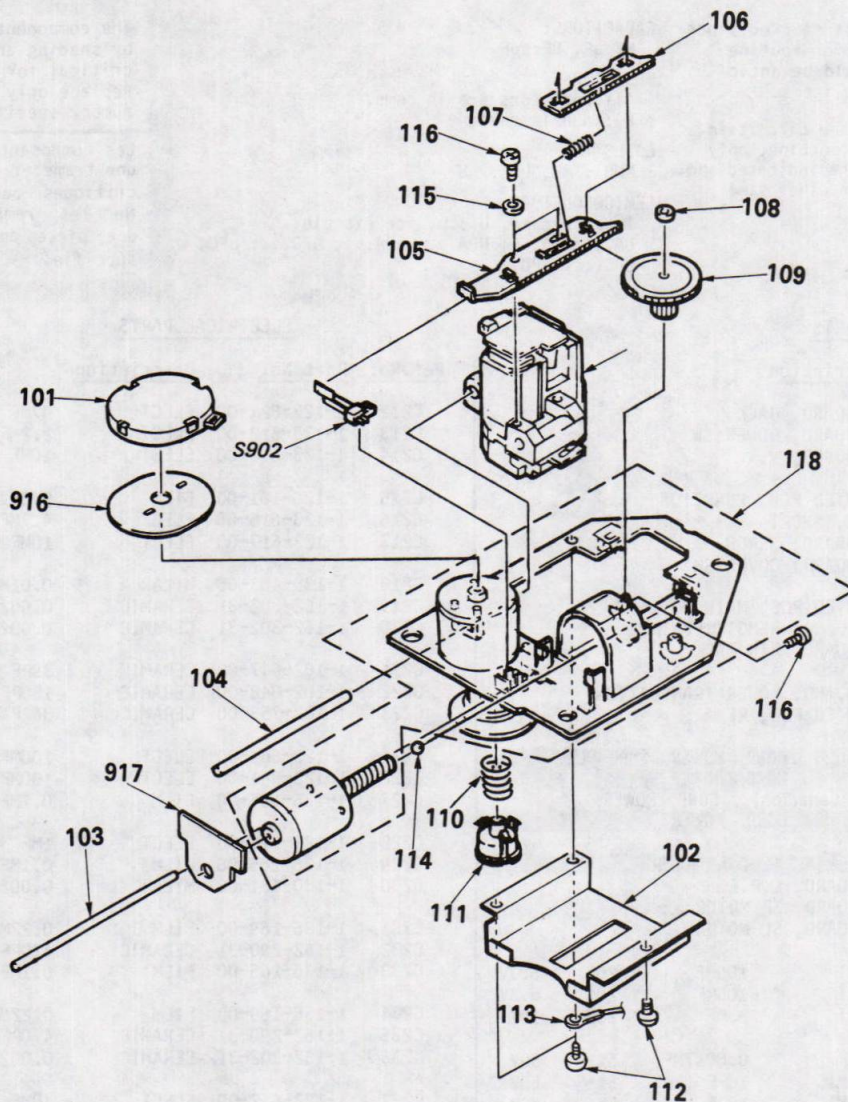


The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	4-911-635-01	LEVER, LOCK		75	7-623-422-07	LW 3, TYPE B	
52	4-911-669-01	SPRING		76	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
53	4-911-671-01	SPRING		77	7-685-147-19	SCREW +BTP 3X10 TYPE2 N-S	
54	4-911-636-01	LEVER, UP		78	7-685-647-14	SCREW +BTP 3X10 TYPE2 N-S	
55	*4-911-675-01	SHAFT, LOCK LEVER		79	7-624-104-04	STOP RING 2.0, TYPE -E	
56	*4-911-638-01	HOLDER, SW		80	7-682-547-04	SCREW +P 3X6	
57	4-910-414-01	RETAINER, SPRING		81	3-701-030-00	LABEL, SERIAL NUMBER	
58	4-911-682-01	SPRING, COMPRESSION		906	*1-616-889-11	PC BOARD, SERCH	
59	4-911-679-01	RUBBER, FLOATING		907	*1-616-759-11	PC BOARD, COVER SW	
60	*3-701-822-00	HOLDER, WIRE		908	*A-4657-018-A	MOUNTED PCB, MAIN	
61	4-911-677-01	SPRING, COMPRESSION		909	*1-616-755-11	PC BOARD, REMOTE CONTROL	
62	3-703-135-00	SCREW, TAPPING		910	*1-616-760-11	PC BOARD, PIN JACK	
63	*4-911-641-01	(E).....COVER (B), POWER		911	*1-616-761-11	PC BOARD, POWER TRANSLATION	
64	4-911-659-01	(E).....FRAME		912	*A-4657-019-A	MOUNTED PCB, RF	
	4-911-659-11	(US,Canadian,AEP,UK)...FRAME		913	*A-1-534-817-XX	(AEP).....CORD, POWER, EULO PLUG	
65	*4-911-640-01	COVER (A), POWER			*A-1-551-188-XX	(E).....CORD, POWER	
66	*4-911-639-01	HOLDER, PC BOARD			1-551-506-XX	(US,Canadian)...CORD, POWER	
67	4-911-670-01	SPRING, COMPRESSION			*A-1-551-884-00	(UK).....CORD, POWER	
68	4-911-653-01	BUTTON, OPEN		914	*A-1-526-565-00	(E)...AC PLUG ADAPTOR	
69	3-701-443-21	WASHER, 5		915	*1-616-754-11	PC BOARD, L.P.F.	
70	3-831-441-XX	CUSHION (B), CABINET		S901	1-507-956-11	JACK	
71	*4-363-146-00	HEAT SINK, V.OUT		T701	*A-1-448-283-11	(E).....TRANSFORMER, POWER	
72	4-911-637-01	HOLDER, LEVER		T701	*A-1-448-288-13	(US,Canadian)...TRANSFORMER, POWER	
73	7-621-255-55	SCREW +P 2X8		T701	*A-1-448-289-11	(AEP).....TRANSFORMER, POWER	
74	7-627-551-58	SCREW, PRECISION +P 1.4X3		T701	*A-1-448-290-11	(UK).....TRANSFORMER, POWER	

(3)



No.	Part No.	Description	Remarks
101	*4-911-678-01	COVER, MOTOR	
102	4-911-646-01	ORNAMENT, TOP	
103	*4-910-431-01	SHAFT, SLIDE	
104	*4-910-431-11	SHAFT, SLIDE	
105	4-910-425-01	RACK (A)	
106	4-910-442-01	RACK (B)	
107	4-910-462-01	SPRING, COMPRESSION (RACK)	
108	4-910-418-01	BUSHING (DIA. 4)	
109	4-910-432-02	GEAR, SLED	
110	4-910-427-01	SPRING, COMPRESSION	
111	4-911-694-01	CAP, CENTERING	

No.	Part No.	Description	Remarks
112	7-685-861-09	SCREW +BVTT 2.6X5 (S)	
113	7-623-507-01	LUG, 2.6	
114	7-671-112-11	BALL, STEEL	
115	7-688-002-01	W 2.6, SMALL	
116	7-621-775-15	SCREW +B 2.6X4	
117	8-848-016-01	DEVICE, OPTICS (KSS-121A)	
118	A-4608-308-A	MOTOR ASSY, THREAD (M901.M902)	
916	*1-616-764-11	PC BOARD, SP MOTOR	
917	*1-616-763-11	PC BOARD, SL MOTOR	
S902	1-570-202-11	SWITCH, LEAF	

NOTE:

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ P.

RESISTORS

All resistors are in ohms.

F : nonflammable

COILS

MMH : mH, UH : μ H

SEMICONDUCTORS

In each case, U : μ , for example:

UA...: μ A..., UPA...: μ PA..., UPC...: μ PC,

UPD...: μ PD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	*1-616-757-11	PC BOARD, JACK
902	*1-616-758-11	PC BOARD, POWER SW
903	*1-616-756-11	PC BOARD, V.R.
904	*A-4657-016-A	MOUNTED PCB, FUNCTION
905	1-506-527-11	PLUG, SHORT
906	*1-616-889-11	PC BOARD, SERCH
907	*1-616-759-11	PC BOARD, COVER SW
908	*A-4657-018-A	MOUNTED PCB, MAIN
909	*1-616-755-11	PC BOARD, REMOTE CONTROL
910	*1-616-760-11	PC BOARD, PIN JACK
911	*1-616-761-11	PC BOARD, POWER TRANSLATION
912	*A-4657-019-A	MOUNTED PCB, RF
913	 1-534-817-XX	(AEP).....CORD, POWER, EURO PLUG
	 1-551-188-XX	(E).....CORD, POWER
	1-551-506-XX	(US, Canadian)...CORD, POWER
	 1-551-884-00	(UK).....CORD, POWER
914	 1-526-565-00	(E)....AC PLUG ADAPTOR
915	*1-616-754-11	PC BOARD, L.P.F.
916	*1-616-764-11	PC BOARD, SP MOTOR
917	*1-616-763-11	PC BOARD, SL MOTOR
C101	1-123-661-00	ELECT 100MF 20% 6.3V
C102	1-123-661-00	ELECT 100MF 20% 6.3V
C103	1-123-645-00	ELECT 33MF 20% 10V
C104	1-130-479-00	MYLAR 0.0047MF 5% 50V
C105	1-162-205-31	CERAMIC 18PF 5% 50V
C106	1-162-205-31	CERAMIC 18PF 5% 50V
C107	1-123-661-00	ELECT 100MF 20% 6.3V
C108	1-123-661-00	ELECT 100MF 20% 6.3V
C109	1-162-282-31	CERAMIC 100PF 10% 50V
C110	1-162-282-31	CERAMIC 100PF 10% 50V
C111	1-130-489-00	MYLAR 0.033MF 5% 50V
C112	1-162-302-31	CERAMIC 0.0022MF 20% 16V
C113	1-123-610-00	ELECT 0.47MF 20% 50V
C114	1-162-306-31	CERAMIC 0.01MF 20% 16V
C115	1-162-306-31	CERAMIC 0.01MF 20% 16V
C116	1-162-306-31	CERAMIC 0.01MF 20% 16V
C117	1-162-294-31	CERAMIC 0.001MF 10% 50V
C201	1-123-311-00	ELECT 1000MF 20% 10V
C202	1-123-311-00	ELECT 1000MF 20% 10V
C203	1-123-359-00	ELECT 47MF 20% 50V
C204	1-123-620-00	ELECT 10MF 20% 35V
C205	1-123-617-00	ELECT 10MF 20% 16V
C206	1-123-324-00	ELECT 1000MF 20% 16V
C207	1-123-324-00	ELECT 1000MF 20% 16V
C208	1-123-617-00	ELECT 10MF 20% 16V
C209	1-123-617-00	ELECT 10MF 20% 16V
C210	1-123-661-00	ELECT 100MF 20% 6.3V
C211	1-123-661-00	ELECT 100MF 20% 6.3V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C212	1-123-821-00	ELECT 47MF 20% 16V
C213	1-123-612-00	ELECT 2.2MF 20% 50V
C214	1-123-617-00	ELECT 10MF 20% 16V
C215	1-136-161-00	FILM 0.047MF 5% 50V
C216	1-123-616-00	ELECT 4.7MF 20% 25V
C217	1-123-617-00	ELECT 10MF 20% 16V
C218	1-130-483-00	MYLAR 0.01MF 5% 50V
C219	1-162-302-31	CERAMIC 0.0022MF 20% 16V
C220	1-162-302-31	CERAMIC 0.0022MF 20% 16V
C221	1-102-647-00	CERAMIC 39PF 5% 50V
C222	1-102-848-00	CERAMIC 180PF 5% 50V
C223	1-102-753-00	CERAMIC 36PF 5% 50V
C225	1-123-661-00	ELECT 100MF 20% 6.3V
C226	1-123-661-00	ELECT 100MF 20% 6.3V
C227	1-136-165-00	FILM 0.1MF 5% 50V
C228	1-123-611-00	ELECT 1MF 20% 50V
C229	1-136-165-00	FILM 0.1MF 5% 50V
C230	1-130-481-00	MYLAR 0.0068MF 5% 50V
C231	1-136-169-00	FILM 0.22MF 5% 50V
C232	1-162-290-31	CERAMIC 470PF 10% 50V
C233	1-136-165-00	FILM 0.1MF 5% 50V
C234	1-136-169-00	FILM 0.22MF 5% 50V
C235	1-162-290-31	CERAMIC 470PF 10% 50V
C236	1-162-302-31	CERAMIC 0.0022MF 20% 16V
C237	1-123-617-00	ELECT 10MF 20% 16V
C239	1-130-489-00	MYLAR 0.033MF 5% 50V
C240	1-162-304-31	CERAMIC 0.0047MF 20% 16V
C241	1-130-487-00	MYLAR 0.022MF 5% 50V
C242	1-130-475-00	MYLAR 0.0022MF 5% 50V
C243	1-162-291-31	CERAMIC 560PF 10% 50V
C244	1-162-302-31	CERAMIC 0.0022MF 20% 16V
C245	1-162-294-31	CERAMIC 0.001MF 10% 50V
C246	1-130-489-00	MYLAR 0.033MF 5% 50V
C247	1-136-169-00	FILM 0.22MF 5% 50V
C248	1-162-294-31	CERAMIC 0.001MF 10% 50V
C249	1-136-161-00	FILM 0.047MF 5% 50V
C250	1-124-183-00	ELECT 2.2MF 20% 50V
C251	1-124-184-00	ELECT 3.3MF 20% 50V
C252	1-136-169-00	FILM 0.22MF 5% 50V
C253	1-123-661-00	ELECT 100MF 20% 6.3V
C254	1-162-209-31	CERAMIC 27PF 5% 50V
C255	1-162-209-31	CERAMIC 27PF 5% 50V
C256	1-123-661-00	ELECT 100MF 20% 6.3V
C257	1-162-213-31	CERAMIC 39PF 5% 50V
C258	1-162-213-31	CERAMIC 39PF 5% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C259	1-162-291-31	CERAMIC	560PF	10%	50V
C260	1-123-661-00	ELECT	100MF	20%	6.3V
C261	1-123-661-00	ELECT	100MF	20%	6.3V
C262	1-102-513-00	CERAMIC	18PF	5%	50V
C263	1-162-215-31	CERAMIC	47PF	5%	50V
C264	1-162-215-31	CERAMIC	47PF	5%	50V
C265	1-162-294-31	CERAMIC	0.001MF	10%	50V
C266	1-123-661-00	ELECT	100MF	20%	6.3V
C267	1-123-821-00	ELECT	47MF	20%	16V
C268	1-123-821-00	ELECT	47MF	20%	16V
C269	1-123-612-00	ELECT	2.2MF	20%	50V
C270	1-162-302-31	CERAMIC	0.0022MF	20%	16V
C271	1-162-306-31	CERAMIC	0.01MF	20%	16V
C273	1-162-306-31	CERAMIC	0.01MF	20%	16V
C274	1-161-974-00	CERAMIC	0.1MF	20%	16V
C301	1-103-733-00	POLYSTYRENE	0.0022MF	5%	50V
C302	1-103-733-00	POLYSTYRENE	0.0022MF	5%	50V
C303	1-123-821-00	ELECT	47MF	20%	16V
C304	1-123-821-00	ELECT	47MF	20%	16V
C305	1-103-709-00	POLYSTYRENE	220PF	5%	50V
C306	1-103-709-00	POLYSTYRENE	220PF	5%	50V
C307	1-123-661-00	ELECT	100MF	20%	6.3V
C308	1-123-661-00	ELECT	100MF	20%	6.3V
C309	1-130-480-00	MYLAR	0.0056MF	5%	50V
C310	1-130-480-00	MYLAR	0.0056MF	5%	50V
C311	1-130-471-00	MYLAR	0.001MF	5%	50V
C312	1-130-471-00	MYLAR	0.001MF	5%	50V
C313	1-130-471-00	MYLAR	0.001MF	5%	50V
C314	1-130-471-00	MYLAR	0.001MF	5%	50V
C315	1-124-185-00	ELECT	4.7MF	20%	50V
C316	1-124-185-00	ELECT	4.7MF	20%	50V
C317	1-103-705-00	POLYSTYRENE	150PF	5%	50V
C318	1-103-705-00	POLYSTYRENE	150PF	5%	50V
C401	1-162-294-31	CERAMIC	0.001MF	10%	50V
C501	1-162-286-31	CERAMIC	220PF	10%	50V
C502	1-162-286-31	CERAMIC	220PF	10%	50V
C503	1-162-306-31	CERAMIC	0.01MF	20%	16V
C504	1-162-306-31	CERAMIC	0.01MF	20%	16V
C505	1-162-306-31	CERAMIC	0.01MF	20%	16V
C508	1-161-330-00	CERAMIC	0.01MF	30%	25V
C601	1-162-294-31	CERAMIC	0.001MF	10%	50V
C602	1-161-974-00	CERAMIC	0.1MF	20%	16V
C801	1-123-611-00	ELECT	1MF	20%	50V
C802	1-123-610-00	ELECT	0.47MF	20%	50V
C803	1-123-608-00	ELECT	0.22MF	20%	50V
C804	1-131-383-00	TANTALUM	10MF	10%	6.3V
C805	1-131-387-00	TANTALUM	47MF	10%	6.3V
C901	1-101-002-00	CERAMIC	0.0022MF		50V
C902	1-101-002-00	CERAMIC	0.0022MF		50V
CN203	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP101	*1-564-511-41	PLUG, CONNECTOR 8P			
CNP102	*1-564-507-21	PLUG, CONNECTOR 4P			
CNP103	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CNP201	*1-564-507-41	PLUG, CONNECTOR 4P			
CNP202	*1-564-509-11	PLUG, CONNECTOR 6P			
CNP501	*1-564-342-11	PIN, CONNECTOR 8P			
CNP502	*1-564-342-11	PIN, CONNECTOR 8P			
CNP503	*1-564-338-00	PIN, CONNECTOR 4P			
CNP504	*1-564-337-00	PIN, CONNECTOR 3P			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP505	*1-564-336-00	PIN, CONNECTOR 2P
CNP506	*1-564-337-00	PIN, CONNECTOR 3P
CNP507	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P
CNP801	*1-564-510-11	PLUG, CONNECTOR 7P
CNP901	*1-564-336-00	PIN, CONNECTOR 2P
CP201	1-232-974-11	COMPOSITION CIRCUIT BLOCK
CP501	1-232-953-11	COMPOSITION CIRCUIT BLOCK
CP701	1-232-951-11	COMPOSITION CIRCUIT BLOCK
CP702	1-232-952-11	COMPOSITION CIRCUIT BLOCK
D101	8-719-911-19	DIODE 1SS119
D201	8-719-511-20	DIODE 1SVB20
D202	8-719-511-20	DIODE 1SVB20
D203	8-719-200-02	DIODE 10E-2
D204	8-719-911-19	DIODE 1SS119
D205	8-719-911-19	DIODE 1SS119
D206	8-719-913-02	DIODE HZ30-2L
D207	8-719-910-69	DIODE HZ6C3L
D208	8-719-910-69	DIODE HZ6C3L
D209	8-719-951-13	DIODE HZ5CLL
D210	8-719-911-19	DIODE 1SS119
D211	8-719-911-19	DIODE 1SS119
D212	8-719-911-19	DIODE 1SS119
D213	8-719-951-13	DIODE HZ5CLL
D214	8-719-911-19	DIODE 1SS119
D215	8-719-902-79	DIODE KV1236Z
D216	8-719-911-19	DIODE 1SS119
D217	8-719-200-02	DIODE 10E-2
D218	8-719-921-13	DIODE HZ24CLL
D401	8-719-301-43	DIODE SEL2410E-C
D402	8-719-301-52	DIODE SEL2810A-C
D403	8-719-301-43	DIODE SEL2410E-C
D404	8-719-301-38	DIODE SEL2210S-C
D501	8-719-911-19	DIODE 1SS119
D502	8-719-911-19	DIODE 1SS119
D503	8-719-911-19	DIODE 1SS119
D601	8-719-911-19	DIODE 1SS119
D801	8-719-911-19	DIODE 1SS119
FLD401	1-519-349-11	INDICATOR TUBE, FLUORESCENT
IC101	8-752-010-90	IC CX20109
IC102	8-759-600-02	IC M5218L
IC201	8-759-921-73	IC MSM6404A-84GS-K
IC202	8-759-912-52	IC CX23035
IC203	8-759-302-69	IC HM6116FP-3
IC204	8-752-010-80	IC CX20108
IC205	8-752-013-30	IC CX20133
IC206	8-759-300-71	IC HD140538FP
IC207	8-759-200-79	IC TC4049BF
IC208	8-759-990-82	IC TL082CP
IC209	8-759-908-17	IC TL082CPS
IC210	8-759-908-17	IC TL082CPS
IC211	8-759-745-64	IC NJM4560M
IC401	8-759-600-35	IC M54940P
IC501	8-759-802-29	IC LM6416E-1841
IC502	8-759-201-01	IC TC4066BF
IC503	8-759-201-01	IC TC4066BF
IC701	8-759-745-64	IC NJM4560M

ELECTRICAL PARTS

Ref.No.	Part No.	Description
J601	*1-564-980-11	PIN, CONNECTOR 4P
J602	*1-564-980-11	PIN, CONNECTOR 4P
J701	1-562-917-11	JACK (SMALL TYPE DIA. 3.5)
J901	1-507-912-11	JACK, PIN 2P
L101	1-408-117-00	MICRO INDUCTOR 10UH
L201	1-408-117-00	MICRO INDUCTOR 10UH
L202	1-426-212-11	COIL (RF)
L203	1-408-551-00	MICRO INDUCTOR 1UH
L204	1-410-021-11	MICRO INDUCTOR 10UH
L205	1-410-021-11	MICRO INDUCTOR 10UH
L206	1-410-021-11	MICRO INDUCTOR 10UH
L501	1-410-033-11	MICRO INDUCTOR 100UH
LPF301	1-235-620-11	FILTER, LOW PASS
LPF302	1-235-620-11	FILTER, LOW PASS
PS201	1-532-679-00	LINK, IC
PS202	1-532-679-00	LINK, IC
PS203	1-532-679-00	LINK, IC
PS204	1-532-679-00	LINK, IC
Q101	8-729-177-44	TRANSISTOR 2SD774-5
Q102	8-729-606-33	TRANSISTOR 2SC2603F
Q103	8-729-900-79	TRANSISTOR DTC143TS
Q104	8-729-900-79	TRANSISTOR DTC143TS
Q201	8-729-400-81	TRANSISTOR 2SD1266-Q
Q202	8-729-400-10	TRANSISTOR 2SB941-R
Q203	8-729-378-91	TRANSISTOR 2SD789
Q204	8-729-107-77	TRANSISTOR 2SC3623-L
Q205	8-729-107-77	TRANSISTOR 2SC3623-L
Q206	8-729-107-77	TRANSISTOR 2SC3623-L
Q207	8-729-107-77	TRANSISTOR 2SC3623-L
Q208	8-729-800-44	TRANSISTOR 2SK152-4
Q209	8-729-800-44	TRANSISTOR 2SK152-4
Q210	8-729-606-33	TRANSISTOR 2SC2603F
Q211	8-729-117-54	TRANSISTOR 2SA1175
Q212	8-729-900-80	TRANSISTOR DTC114ES
Q213	8-729-900-80	TRANSISTOR DTC114ES
Q214	8-729-900-89	TRANSISTOR DTC144ES
Q215	8-729-900-80	TRANSISTOR DTC114ES
Q216	8-729-900-89	TRANSISTOR DTC144ES
Q217	8-729-117-54	TRANSISTOR 2SA1175
Q218	8-729-606-33	TRANSISTOR 2SC2603F
Q219	8-729-900-65	TRANSISTOR DTA144ES
Q220	8-729-900-65	TRANSISTOR DTA144ES
Q221	8-729-801-93	TRANSISTOR 2SD1387
Q222	8-729-801-83	TRANSISTOR 2SB1013
Q223	8-729-801-93	TRANSISTOR 2SD1387
Q224	8-729-801-83	TRANSISTOR 2SB1013
Q225	8-729-801-93	TRANSISTOR 2SD1387
Q226	8-729-801-83	TRANSISTOR 2SB1013
Q227	8-729-801-93	TRANSISTOR 2SD1387
Q228	8-729-801-83	TRANSISTOR 2SB1013
Q229	8-729-606-33	TRANSISTOR 2SC2603F
Q401	8-729-900-89	TRANSISTOR DTC144ES
Q402	8-729-900-89	TRANSISTOR DTC144ES
Q403	8-729-900-89	TRANSISTOR DTC144ES
Q503	8-729-900-90	TRANSISTOR DTC144ES
Q601	8-729-900-61	TRANSISTOR DTA114ES
Q801	8-729-900-65	TRANSISTOR DTA144ES

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q802	8-729-900-74	TRANSISTOR DTC143TS			
Q803	8-729-900-74	TRANSISTOR DTC143TS			
R102	1-247-823-00	CARBON	470	5%	1/6W
R103	1-249-421-11	CARBON	2.2K	5%	1/6W
R104	1-247-859-00	CARBON	15K	5%	1/6W
R105	1-249-429-11	CARBON	10K	5%	1/6W
R106	1-247-873-00	CARBON	56K	5%	1/6W
R107	1-247-831-00	CARBON	1K	5%	1/6W
R108	1-247-692-11	CARBON	22	5%	1/4W
R109	1-247-831-00	CARBON	1K	5%	1/6W
R110	1-247-845-00	CARBON	3.9K	5%	1/6W
R111	1-249-429-11	CARBON	10K	5%	1/6W
R112	1-249-429-11	CARBON	10K	5%	1/6W
R113	1-247-831-00	CARBON	1K	5%	1/6W
R114	1-249-429-11	CARBON	10K	5%	1/6W
R115	1-247-861-00	CARBON	18K	5%	1/6W
R116	1-247-893-00	CARBON	390K	5%	1/6W
R117	1-247-883-00	CARBON	150K	5%	1/6W
R118	1-247-831-00	CARBON	1K	5%	1/6W
R119	1-247-897-00	CARBON	560K	5%	1/6W
R120	1-247-883-00	CARBON	150K	5%	1/6W
R121	1-247-881-00	CARBON	120K	5%	1/6W
R123	1-247-863-00	CARBON	22K	5%	1/6W
R124	1-247-867-00	CARBON	33K	5%	1/6W
R125	1-247-879-00	CARBON	100K	5%	1/6W
R126	1-249-429-11	CARBON	10K	5%	1/6W
R201	1-217-387-00	FUSIBLE	10	5%	1/4W F
R202	1-247-256-00	CARBON	4.7K	5%	1/2W
R203	1-247-807-00	CARBON	100	5%	1/6W
R204	1-247-831-00	CARBON	1K	5%	1/6W
R205	1-247-847-00	CARBON	4.7K	5%	1/6W
R206	1-247-863-00	CARBON	22K	5%	1/6W
R209	1-249-421-11	CARBON	2.2K	5%	1/6W
R210	1-249-421-11	CARBON	2.2K	5%	1/6W
R211	1-247-815-00	CARBON	220	5%	1/6W
R212	1-247-815-00	CARBON	220	5%	1/6W
R213	1-247-823-00	CARBON	470	5%	1/6W
R214	1-247-887-00	CARBON	220K	5%	1/6W
R215	1-247-879-00	CARBON	100K	5%	1/6W
R216	1-247-903-00	CARBON	1M	5%	1/6W
R217	1-249-437-11	CARBON	47K	5%	1/6W
R218	1-247-867-00	CARBON	33K	5%	1/6W
R219	1-247-879-00	CARBON	100K	5%	1/6W
R220	1-247-725-11	CARBON	10K	5%	1/4W
R221	1-249-429-11	CARBON	10K	5%	1/6W
R222	1-247-863-00	CARBON	22K	5%	1/6W
R223	1-247-841-00	CARBON	2.7K	5%	1/6W
R224	1-215-453-00	METAL	22K	1%	1/6W
R225	1-215-453-00	METAL	22K	1%	1/6W
R226	1-247-847-00	CARBON	4.7K	5%	1/6W
R227	1-247-852-00	CARBON	7.5K	5%	1/6W
R228	1-247-867-00	CARBON	33K	5%	1/6W
R229	1-247-857-00	CARBON	12K	5%	1/6W
R230	1-247-831-00	CARBON	1K	5%	1/6W
R231	1-247-879-00	CARBON	100K	5%	1/6W
R232	1-247-879-00	CARBON	100K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R233	1-247-879-00	CARBON	100K	5%	1/6W
R234	1-247-851-00	CARBON	6.8K	5%	1/6W
R235	1-247-864-00	CARBON	24K	5%	1/6W
R236	1-247-847-00	CARBON	4.7K	5%	1/6W
R238	1-215-453-00	METAL	22K	1%	1/6W
R239	1-215-445-00	METAL	10K	1%	1/6W
R240	1-215-441-00	METAL	6.8K	1%	1/6W
R241	1-215-441-00	METAL	6.8K	1%	1/6W
R242	1-249-429-11	CARBON	10K	5%	1/6W
R243	1-249-429-11	CARBON	10K	5%	1/6W
R244	1-247-863-00	CARBON	22K	5%	1/6W
R245	1-247-903-00	CARBON	1M	5%	1/6W
R246	1-249-429-11	CARBON	10K	5%	1/6W
R247	1-247-843-00	CARBON	3.3K	5%	1/6W
R248	1-247-869-00	CARBON	39K	5%	1/6W
R249	1-247-887-00	CARBON	220K	5%	1/6W
R250	1-247-815-00	CARBON	220	5%	1/6W
R251	1-249-429-11	CARBON	10K	5%	1/6W
R253	1-247-819-00	CARBON	330	5%	1/6W
R254	1-247-851-00	CARBON	6.8K	5%	1/6W
R255	1-249-434-11	CARBON	27K	5%	1/6W
R256	1-247-807-00	CARBON	100	5%	1/6W
R257	1-247-845-00	CARBON	3.9K	5%	1/6W
R258	1-247-873-00	CARBON	56K	5%	1/6W
R259	1-247-807-00	CARBON	100	5%	1/6W
R260	1-247-807-00	CARBON	100	5%	1/6W
R262	1-249-434-11	CARBON	27K	5%	1/6W
R263	1-247-831-00	CARBON	1K	5%	1/6W
R264	1-247-903-00	CARBON	1M	5%	1/6W
R265	1-247-859-00	CARBON	15K	5%	1/6W
R266	1-247-831-00	CARBON	1K	5%	1/6W
R267	1-247-851-00	CARBON	6.8K	5%	1/6W
R268	1-249-429-11	CARBON	10K	5%	1/6W
R269	1-247-837-00	CARBON	1.8K	5%	1/6W
R270	1-247-879-00	CARBON	100K	5%	1/6W
R271	1-249-437-11	CARBON	47K	5%	1/6W
R272	1-249-429-11	CARBON	10K	5%	1/6W
R273	1-247-851-00	CARBON	6.8K	5%	1/6W
R274	1-249-429-11	CARBON	10K	5%	1/6W
R275	1-247-807-00	CARBON	100	5%	1/6W
R276	1-247-827-00	CARBON	680	5%	1/6W
R277	1-249-437-11	CARBON	47K	5%	1/6W
R278	1-247-202-00	CARBON	27	5%	1/2W
R279	1-249-429-11	CARBON	10K	5%	1/6W
R280	1-247-827-00	CARBON	680	5%	1/6W
R281	1-247-863-00	CARBON	22K	5%	1/6W
R282	1-249-429-11	CARBON	10K	5%	1/6W
R283	1-247-807-00	CARBON	100	5%	1/6W
R284	1-247-889-00	CARBON	270K	5%	1/6W
R285	1-247-831-00	CARBON	1K	5%	1/6W
R301	1-247-879-00	CARBON	100K	5%	1/6W
R302	1-247-879-00	CARBON	100K	5%	1/6W
R303	1-249-421-11	CARBON	2.2K	5%	1/6W
R304	1-249-421-11	CARBON	2.2K	5%	1/6W
R305	1-249-429-11	CARBON	10K	5%	1/6W
R306	1-249-429-11	CARBON	10K	5%	1/6W
R307	1-249-434-11	CARBON	27K	5%	1/6W
R308	1-249-434-11	CARBON	27K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R309	1-249-429-11	CARBON	10K	5%	1/6W
R310	1-249-429-11	CARBON	10K	5%	1/6W
R311	1-247-864-00	CARBON	24K	5%	1/6W
R312	1-247-864-00	CARBON	24K	5%	1/6W
R313	1-247-849-00	CARBON	5.6K	5%	1/6W
R314	1-247-849-00	CARBON	5.6K	5%	1/6W
R315	1-247-849-00	CARBON	5.6K	5%	1/6W
R316	1-247-849-00	CARBON	5.6K	5%	1/6W
R317	1-249-429-11	CARBON	10K	5%	1/6W
R318	1-249-429-11	CARBON	10K	5%	1/6W
R319	1-247-857-00	CARBON	12K	5%	1/6W
R320	1-247-857-00	CARBON	12K	5%	1/6W
R321	1-247-831-00	CARBON	1K	5%	1/6W
R322	1-247-831-00	CARBON	1K	5%	1/6W
R323	1-247-903-00	CARBON	1M	5%	1/6W
R324	1-247-903-00	CARBON	1M	5%	1/6W
R325	1-249-421-11	CARBON	2.2K	5%	1/6W
R326	1-249-421-11	CARBON	2.2K	5%	1/6W
R327	1-247-847-00	CARBON	4.7K	5%	1/6W
R328	1-247-847-00	CARBON	4.7K	5%	1/6W
R329	1-247-823-00	CARBON	470	5%	1/6W
R330	1-247-823-00	CARBON	470	5%	1/6W
R331	1-247-867-00	CARBON	33K	5%	1/6W
R332	1-247-867-00	CARBON	33K	5%	1/6W
R333	1-247-831-00	CARBON	1K	5%	1/6W
R334	1-247-831-00	CARBON	1K	5%	1/6W
R335	1-247-823-00	CARBON	470	5%	1/6W
R336	1-247-823-00	CARBON	470	5%	1/6W
R337	1-247-879-00	CARBON	100K	5%	1/6W
R338	1-247-879-00	CARBON	100K	5%	1/6W
R339	1-249-429-11	CARBON	10K	5%	1/6W
R340	1-249-429-11	CARBON	10K	5%	1/6W
R401	1-247-819-00	CARBON	330	5%	1/6W
R402	1-247-821-00	CARBON	390	5%	1/6W
R403	1-247-819-00	CARBON	330	5%	1/6W
R404	1-247-819-00	CARBON	330	5%	1/6W
R501	1-247-903-00	CARBON	1M	5%	1/6W
R502	1-247-831-00	CARBON	1K	5%	1/6W
R503	1-247-863-00	CARBON	22K	5%	1/6W
R504	1-249-429-11	CARBON	10K	5%	1/6W
R508	1-247-831-00	CARBON	1K	5%	1/6W
R601	1-247-807-00	CARBON	100	5%	1/6W
R602	1-247-861-00	CARBON	18K	5%	1/6W
R603	1-247-857-00	CARBON	12K	5%	1/6W
R604	1-247-861-00	CARBON	18K	5%	1/6W
R605	1-247-783-00	CARBON	10	5%	1/6W
R701	1-247-851-00	CARBON	6.8K	5%	1/6W
R702	1-247-851-00	CARBON	6.8K	5%	1/6W
R703	1-247-801-00	CARBON	56	5%	1/6W
R704	1-247-801-00	CARBON	56	5%	1/6W
R801	1-247-831-00	CARBON	1K	5%	1/6W
R802	1-247-863-00	CARBON	22K	5%	1/6W
R803	1-247-847-00	CARBON	4.7K	5%	1/6W
R804	1-247-859-00	CARBON	15K	5%	1/6W
R805	1-247-869-00	CARBON	39K	5%	1/6W
R806	1-247-879-00	CARBON	100K	5%	1/6W
R807	1-247-863-00	CARBON	22K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV102	1-230-945-11	RES, ADJ, METAL GLAZE 470K
RV103	1-230-497-11	RES, ADJ, METAL GLAZE 22K
RV104	1-230-497-11	RES, ADJ, METAL GLAZE 22K
RV105	1-230-496-11	RES, ADJ, METAL GLAZE 10K
RV201	1-230-521-11	RES, ADJ, METAL GLAZE 2.2K
RV701	1-230-306-11	RES, VAR, CARBON 10K/10K
S401	1-553-856-00	SWITCH, KEY BOARD
S402	1-553-856-00	SWITCH, KEY BOARD
S403	1-553-856-00	SWITCH, KEY BOARD
S404	1-553-856-00	SWITCH, KEY BOARD
S405	1-553-856-00	SWITCH, KEY BOARD
S406	1-553-856-00	SWITCH, KEY BOARD
S407	1-553-856-00	SWITCH, KEY BOARD
S408	1-553-856-00	SWITCH, KEY BOARD
S409	1-553-856-00	SWITCH, KEY BOARD
S410	1-553-856-00	SWITCH, KEY BOARD
S411	1-553-856-00	SWITCH, KEY BOARD
S901	1-507-956-11	JACK
S902	1-570-202-11	SWITCH, LEAF
S903	1-570-381-11	SWITCH, SLIDE
S904	1-570-043-11	SWITCH, PUSH (1 KEY)
T701	 1-448-283-11	(E).....TRANSFORMER, POWER
T701	 1-448-288-13	(US,Canadian)...TRANSFORMER, POWER
T701	 1-448-289-13	(AEP).....TRANSFORMER, POWER
T701	 1-448-290-13	(UK).....TRANSFORMER, POWER
TP1	*1-564-506-11	PLUG, CONNECTOR 3P
X201	1-527-822-00	OSCILLATOR, CERAMIC
X202	1-567-301-11	OSCILLATOR, CRYSTAL
X203	1-527-948-00	VIBRATOR, CRYSTAL
X501	1-567-342-11	OSCILLATOR, CERAMIC

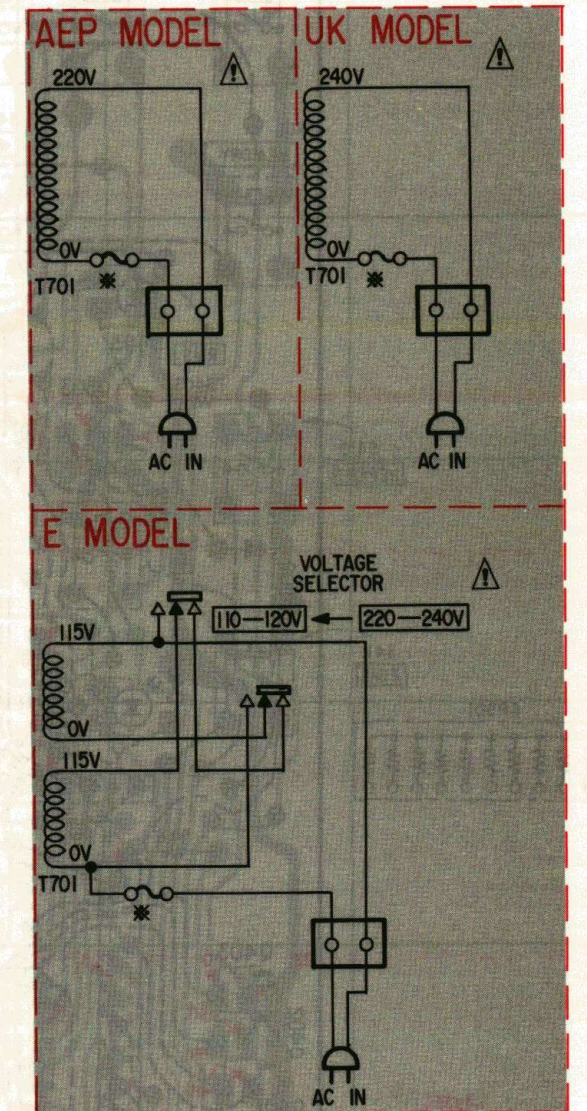
ACCESSORY & PACKING MATERIAL

Part No.	Description
1-551-734-11	CORD, CONNECTION (RK-74A)
1-558-150-11	CORD, CONNECTION
3-701-630-00	BAG, POLYETHYLENE
3-703-390-01	INSTRUCTION
3-760-726-11	MANUAL, INSTRUCTION
3-849-119-00	BAG, PROTECTION
4-911-684-01	MASTER CARTON, 4 SETS
4-911-685-01	SHEET, PROTECTION
4-911-686-01	CUSHION (LEFT)
4-911-687-01	CUSHION (RIGHT)
4-911-688-01	INDIVIDUAL CARTON

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

A



※ NOT REPLACEABLE : BUILT IN TRANSFORMER.

- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{F}$ 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.

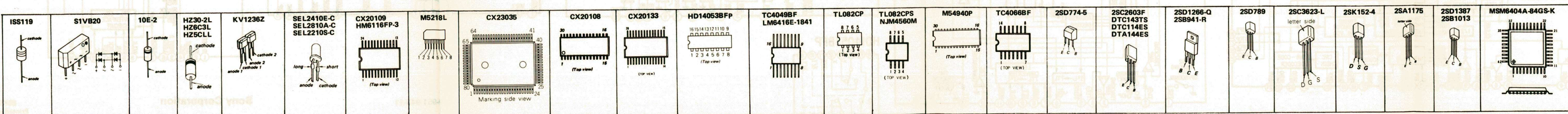
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

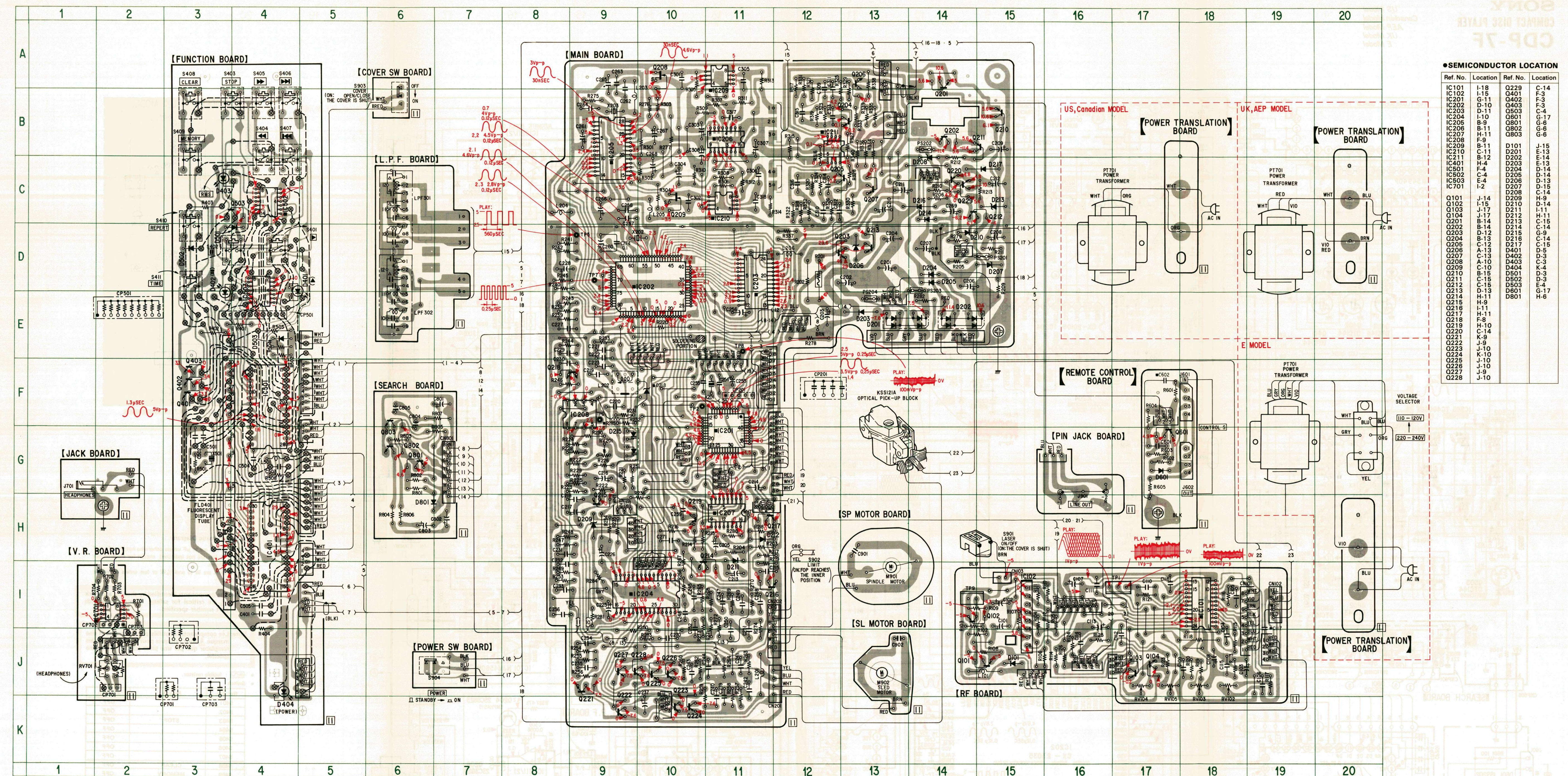
Note: Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- : fusible resistor.
- Switch

Ref. No.	Switch	Position
S401		OFF
S402		OFF
S403	STOP	OFF
S404		OFF
S405		OFF
S406		OFF
S407		OFF
S408	CLEAR	OFF
S409	MEMORY	OFF
S410	REPERT	OFF
S411	TIME	OFF
S901	LASER ON/OFF	OFF
S902	LIMIT	OFF
S903	COVER OPEN/CLOSE	OFF
S904	POWER	STANDBY

-  : B + bus.
-  : B - bus.
-  : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50 k Ω /V).
- Waveforms are taken to ground in PLAY mode by using oscilloscope.
- Voltage variations may be noted due to normal production tolerances.

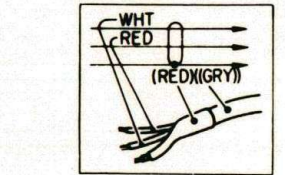




SEMICONDUCTOR LOCATION			
Ref. No.	Location	Ref. No.	Location
IC101	I-18	Q229	C-14
IC102	I-15	Q401	F-3
IC103	S-11	Q402	F-3
IC201	D-10	Q403	F-3
IC202	D-11	Q503	C-4
IC203	I-10	Q504	C-17
IC204	B-9	Q505	G-6
IC205	B-11	Q506	G-6
IC206	H-11	Q507	G-6
IC207	H-11	Q508	G-6
IC208	F-9	Q509	G-6
IC209	B-11	D101	J-15
IC210	C-11	D102	F-13
IC211	B-12	D103	F-13
IC401	H-4	D104	F-13
IC501	F-4	D105	D-14
IC502	C-4	D106	D-14
IC503	E-4	D107	D-13
IC701	I-2	D108	C-14
Q101	J-14	D109	I-9
Q102	I-15	D110	D-14
Q103	J-17	D111	I-11
Q104	I-17	D112	H-11
Q201	B-14	D113	C-15
Q202	B-14	D114	C-14
Q203	D-12	D115	C-14
Q204	B-13	D116	C-14
Q205	C-12	D117	C-15
Q206	A-13	D118	D-3
Q207	C-13	D119	D-3
Q208	A-10	D120	C-3
Q209	B-10	D121	C-3
Q210	B-15	D122	D-3
Q211	C-15	D123	D-3
Q212	B-15	D124	D-3
Q213	D-13	D125	E-4
Q214	H-11	D126	G-6
Q215	H-9	D127	H-6
Q216	I-11	D128	H-6
Q217	H-11	D129	H-6
Q218	F-8	D130	H-6
Q219	H-10	D131	H-6
Q220	C-14	D132	H-6
Q221	K-9	D133	H-6
Q222	J-9	D134	H-6
Q223	J-10	D135	H-6
Q224	K-10	D136	H-6
Q225	J-10	D137	H-6
Q226	J-10	D138	H-6
Q227	J-9	D139	H-6
Q228	J-10	D140	H-6

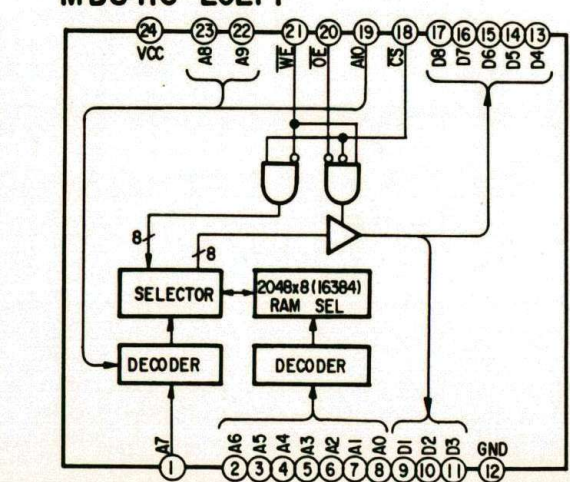
Note on Mounting Diagram

- Color code of sleeving over the end of the jack.

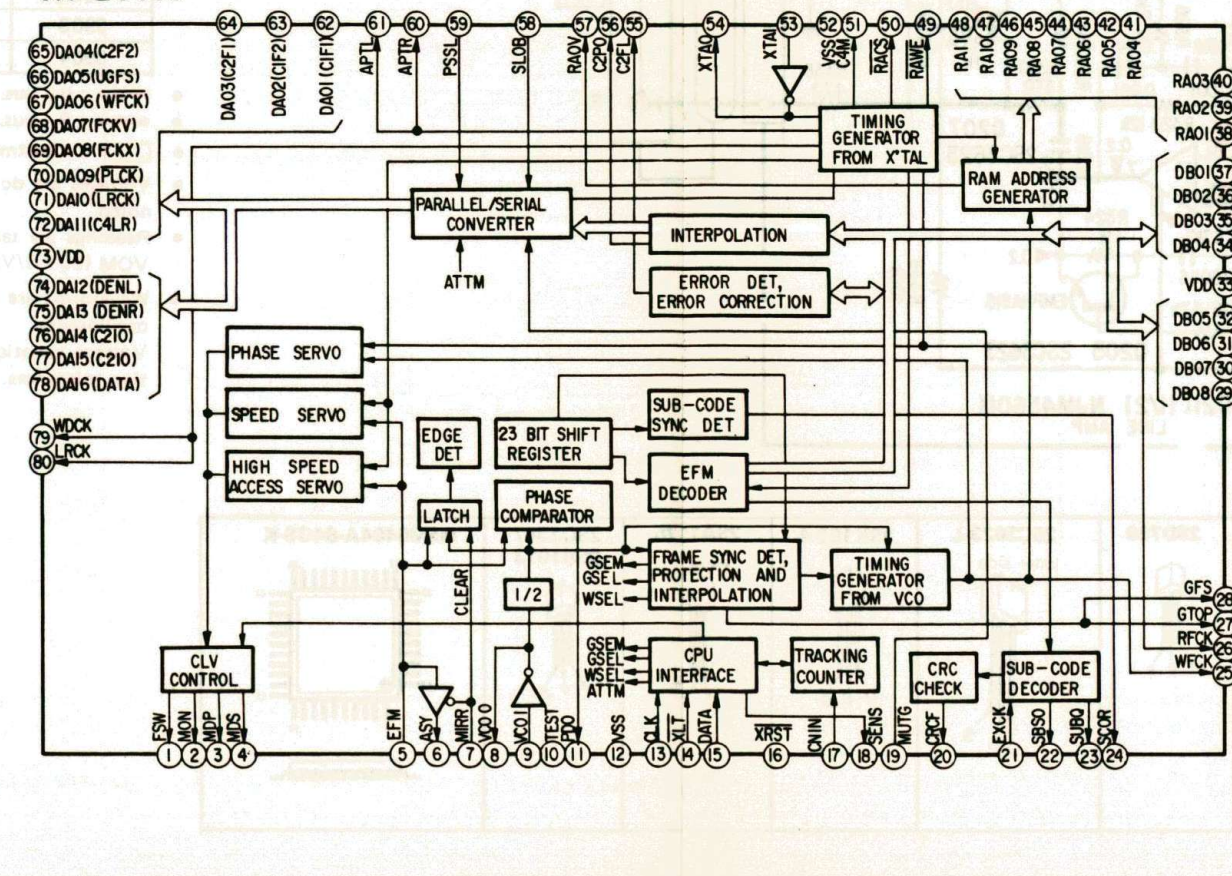


- parts extracted from the component side.
- parts extracted from the conductor side.
- part mounted on the conductor side.
- indicates side identified with part number.
- Through hole.

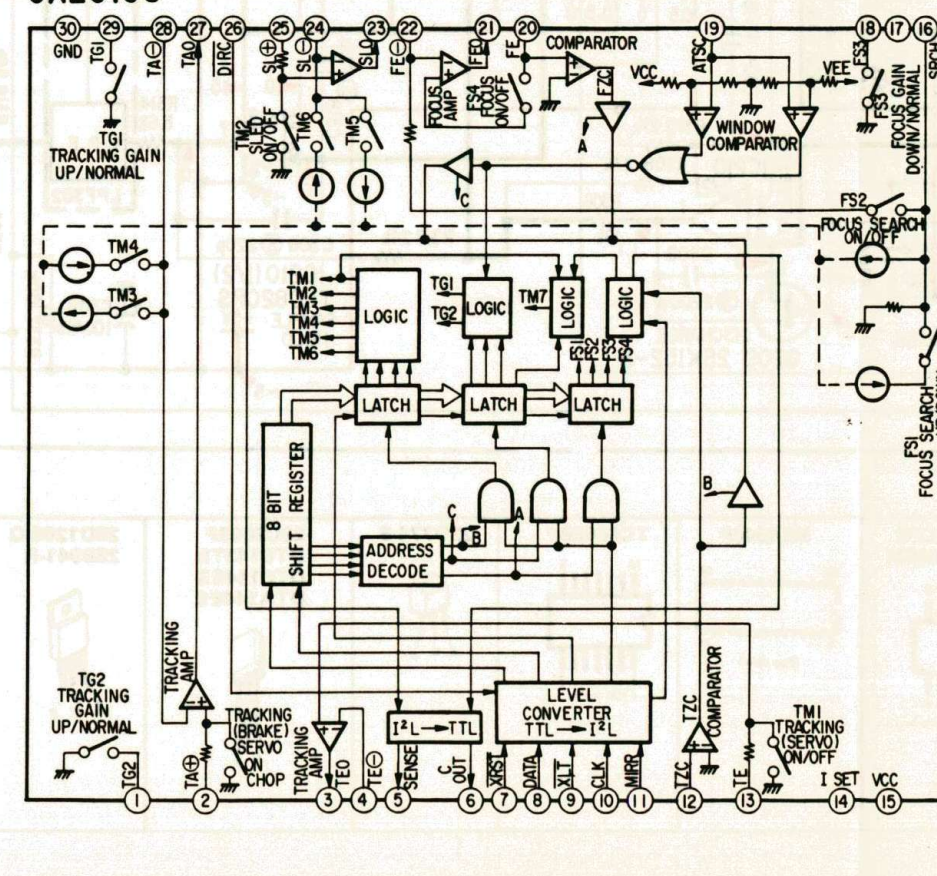
MB8416-20LPF



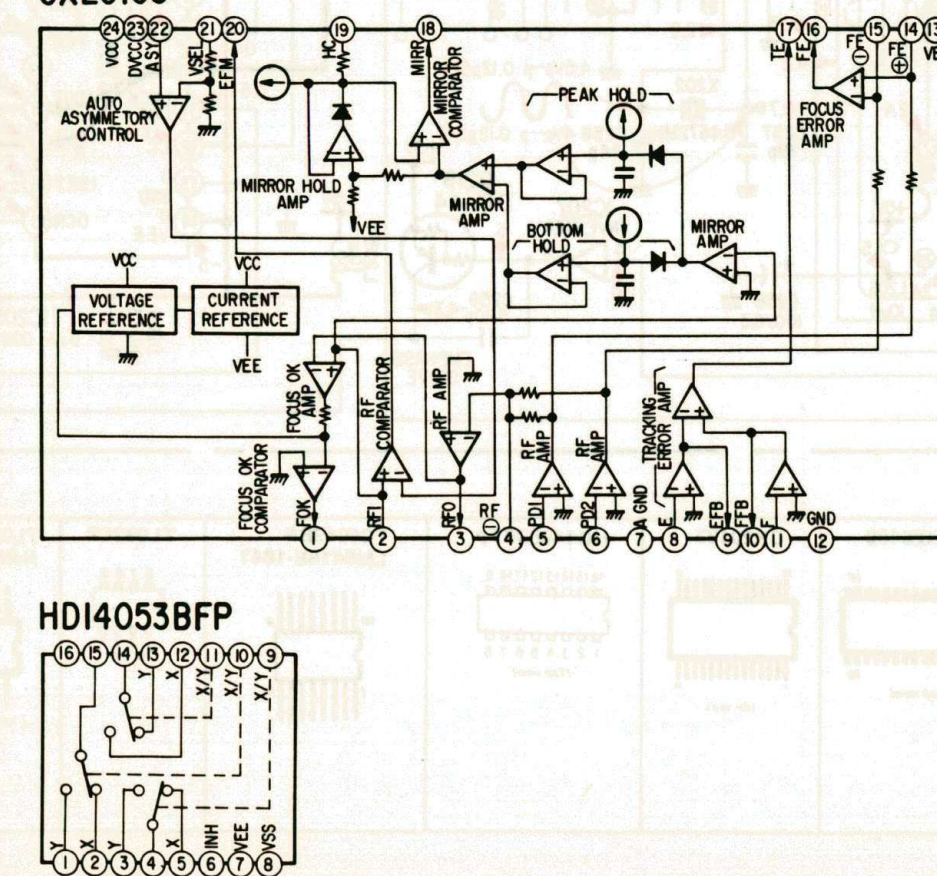
CX-23035



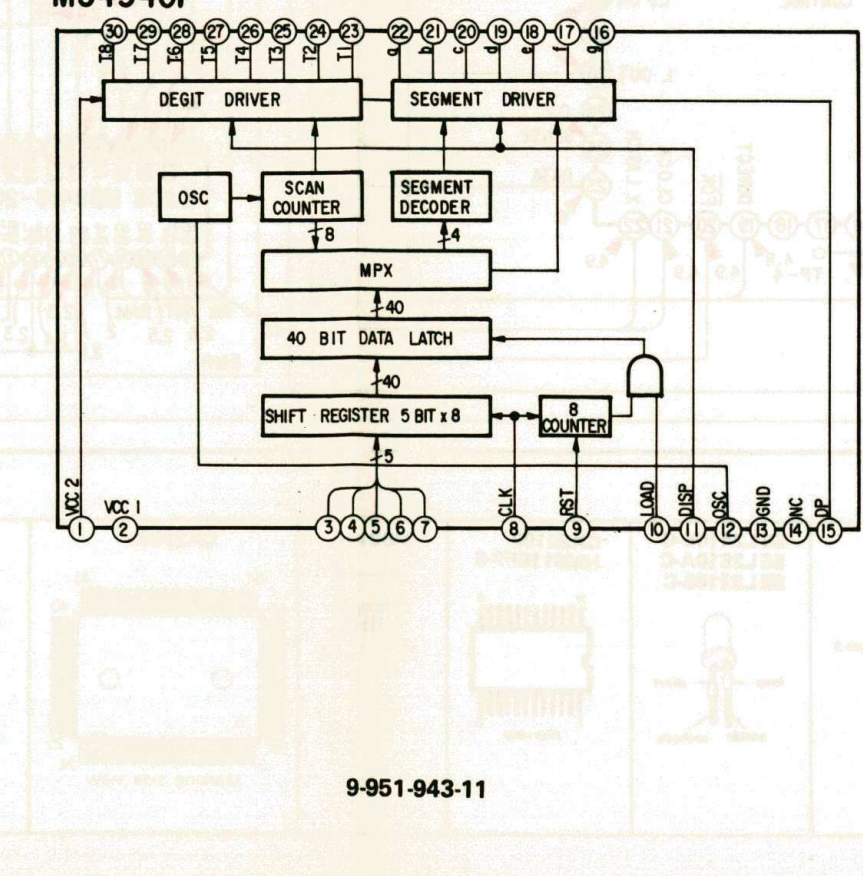
CX20108



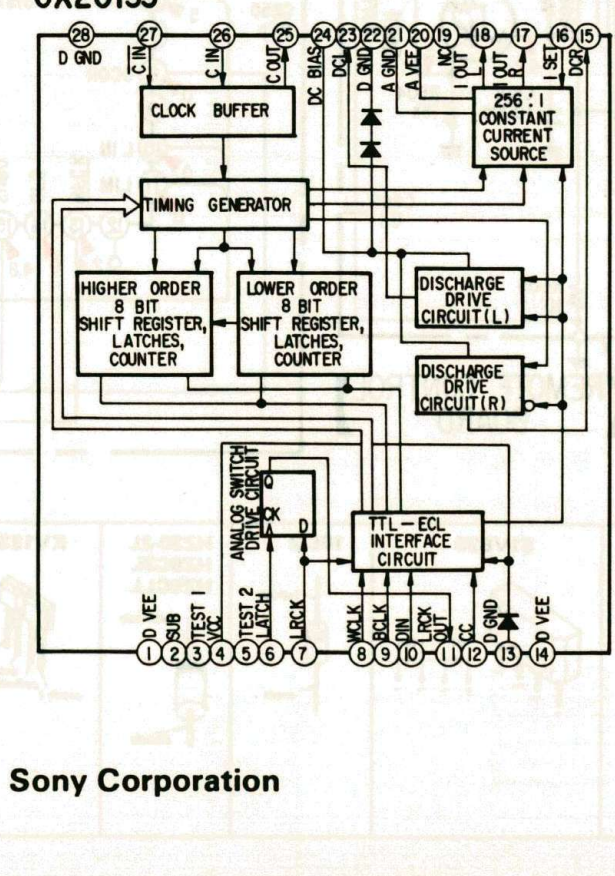
CX20109



M54940P



CX20133



Sony Corporation