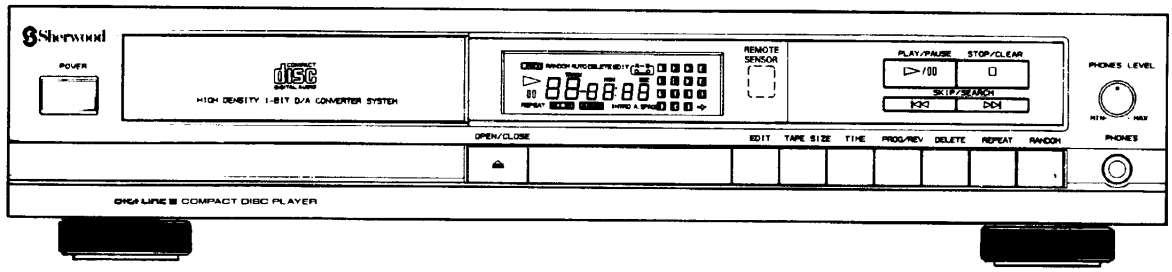
SERVICE MANUAL

CD - 2030C / 3030R

338885 338847



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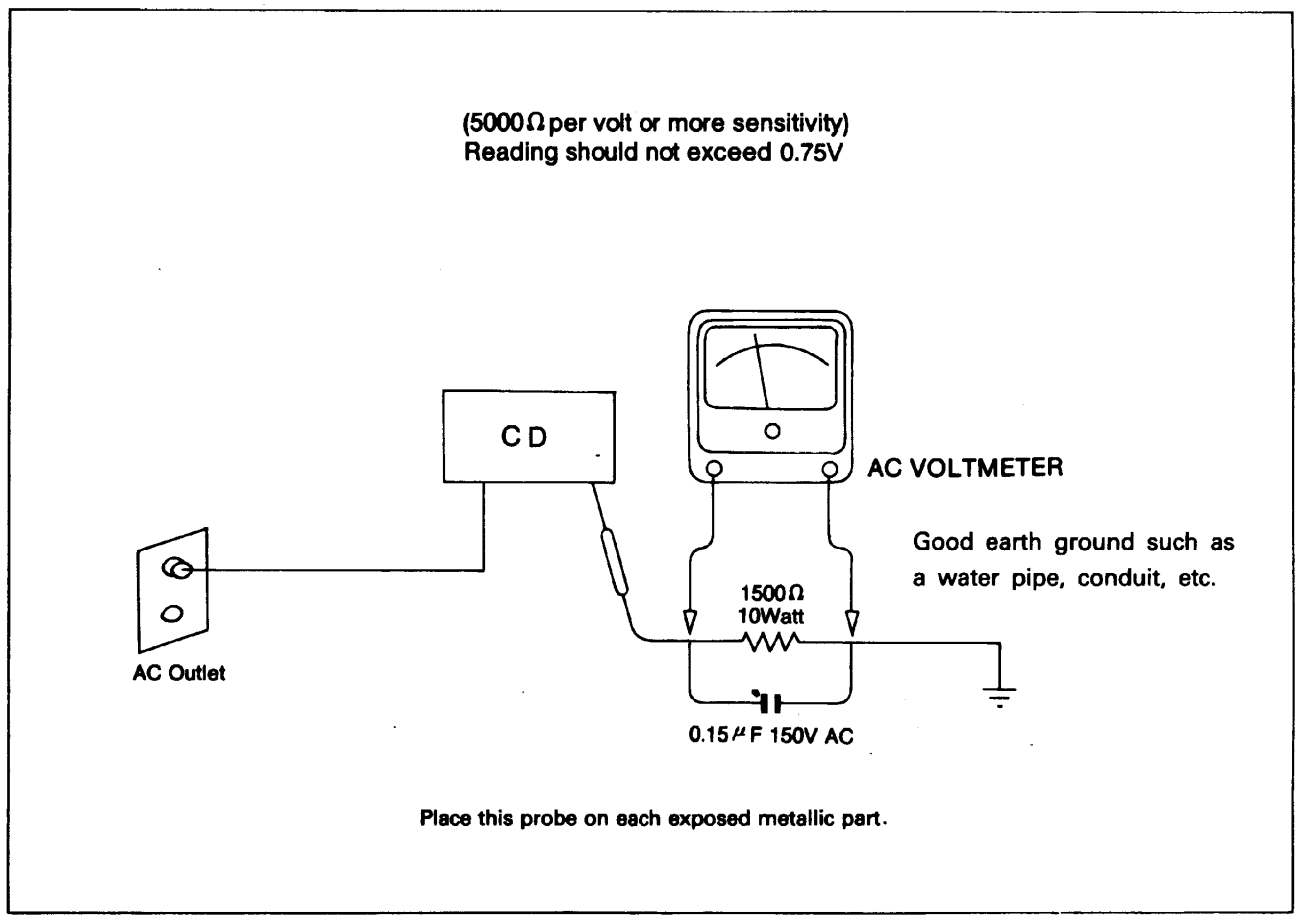
Sherwood

SAFETY PRECAUTIONS

WARNING

Service should not be attempted by anyone unfamiliar with the necessary precautions on this player. The following precautions are necessary during servicing.

1. Many electrical and mechanical parts in this player have special characteristics that 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 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 characterstics as specified in the parts list may create shock, fire, or other hazards.
2. Before returning the set to the customer, always do an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screw heads, metal overlays, etc., to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet **(120V Version only)**. (Do not use a line isolation transformer during this check.) Use an AC voltmeter, having 5000Ω per volt or more sensitivity, in the following manner: Connect a 1500Ω 10 watt resistor paralleled by a 0.15μF 150V AC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of a 1500Ω resistor and a 0.15μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



INSTRUCTIONS FOR HANDLING OPTICAL SYSTEM BLOCK PICKUP

Electrostatic breakdown of the laser diode in the optical system block may occur due to a potential difference caused by electrostatic charge accumulated on clothing, a human body, etc..
A ground must be provided as follows to prevent any electrostatic charge during unpacking or repair work.

1. Ground for Human Body
Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Work bench
Be sure to place a conductive sheet (1MΩ) or copper plate with proper grounding on the work bench or other surface on which the pickup is to be placed.

3. Because the static electricity charge on the clothing does not discharge through the body grounding band, do not let clothing contact the pickup unit.

Incorrect

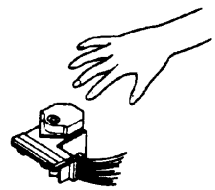


Figure 1

Correct

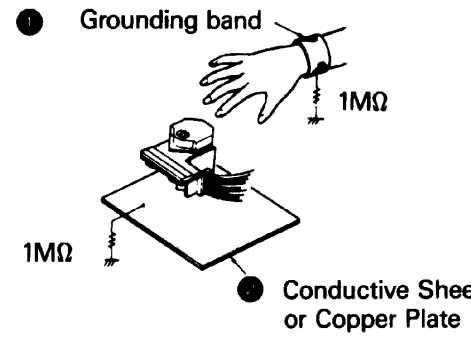


Figure 2

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.

PRECAUTIONS FOR CHECKING BEAM EMISSION OF LASER DIODE

The laser beam of this unit is focused on the reflecting surface of the objective lens in the optical system block. Therefore, keep your eyes at least 12 inches (30cm) away from the objective 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 objective lens and 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 laser beam can be seen when the power switch is turned ON.
(3) Vertical (up and down) movement of the objective lens (2 or 3 times) will take place.

PICKUP REPLACEMENT

Caution :

Laser diode is 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, a grounded soldering iron, and so on, to protect the laser diode from static damage.

1. Remove the CD mechanism assembly by referring to Disassembly Instructions.(See Figure 3.)

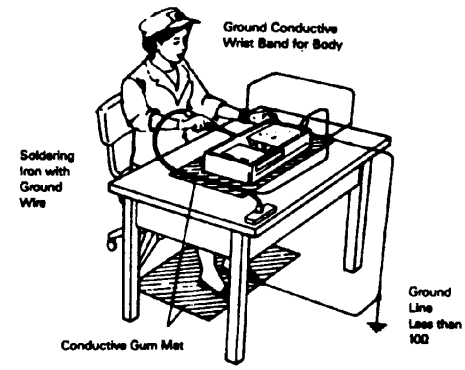


Figure 3

2. Remove two screws Ⓐ holding the clamper base and slide the tray as shown.(See Figure 4.)

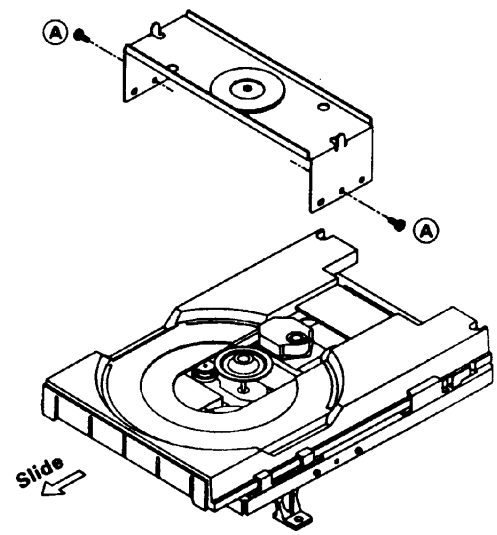


Figure 4

3. Remove two screws Ⓑ holding the CD mechanism. (See Figure 5.)

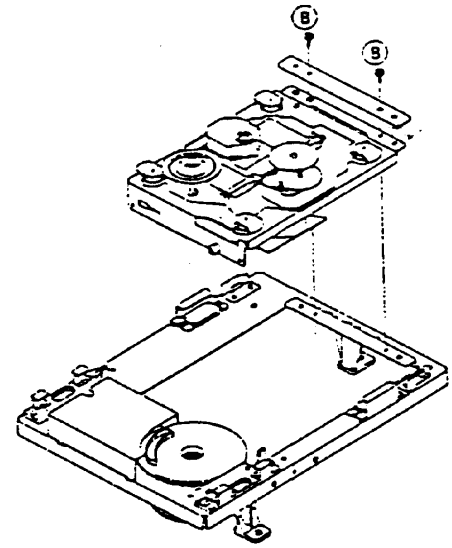


Figure 5

4. Remove three screws Ⓒ. (See Figure 6.)

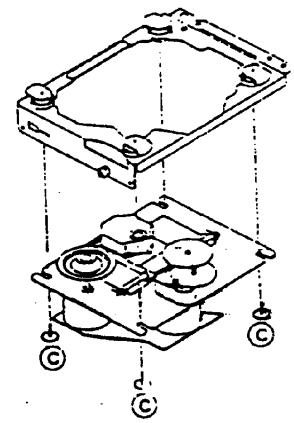


Figure 6

5. Remove the Gear Ⓒ. (See Figure 7.)
6. Pull out the bar Ⓑ to remove it. (See Figure 7.)

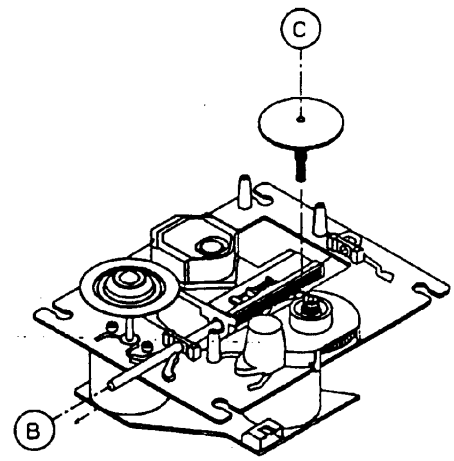


Figure 7

7. After you connect the wire connector, desolder and remove the shorting tab. (See Figure 8.)

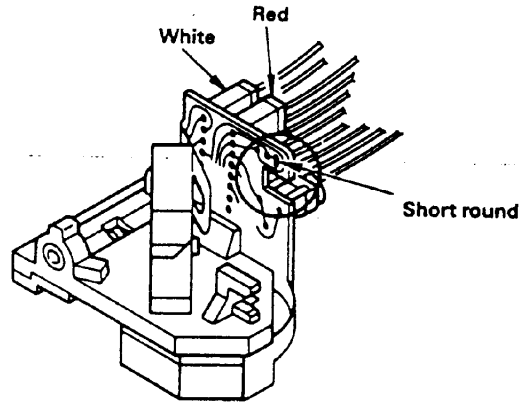


Figure 8

KSS-150A

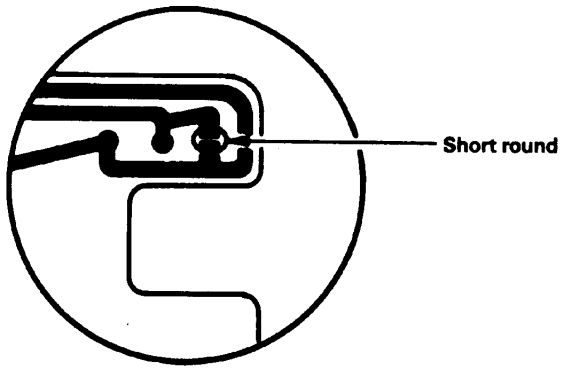


Figure 8-1

KSS-210A

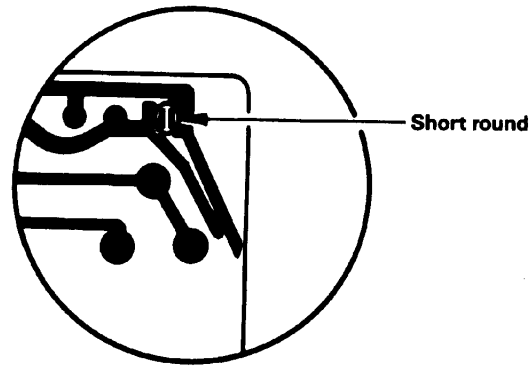


Figure 8-2

9. Refer to the drawings of the exploded view of the compact disc mechanism on page 39 for the detailed information.

SPECIFICATIONS

TYPICAL AUDIO PERFORMANCE

Number of channels	2
Frequency range	20~20,000Hz±1dB
Signal to Noise ratio	More than 100dB
Dynamic range	More than 92dB
Total harmonic distortion	Less than 0.005% a 1kHz
Wow and flutter	Quarz crystal precision
Audio output level	2 volts RMS

Optical readout system

Laser	Semiconductor AlGaAs
Wave length	760~800nm

Signal format

Sampling frequency	352.8KHz
D/A Conversion	1bit twin with digital filter

Disc

Diameter	120mm/80mm
Thickness	1.2mm
Rotation speed	500~200rpm
Playing time(theoretical)	74mim(stereo)
Track pitch	1.6μm
Material	plastic

General

Power supply voltage	See type plate at the rear of the player.
Power consumption	12W(approx)

Power requirements:

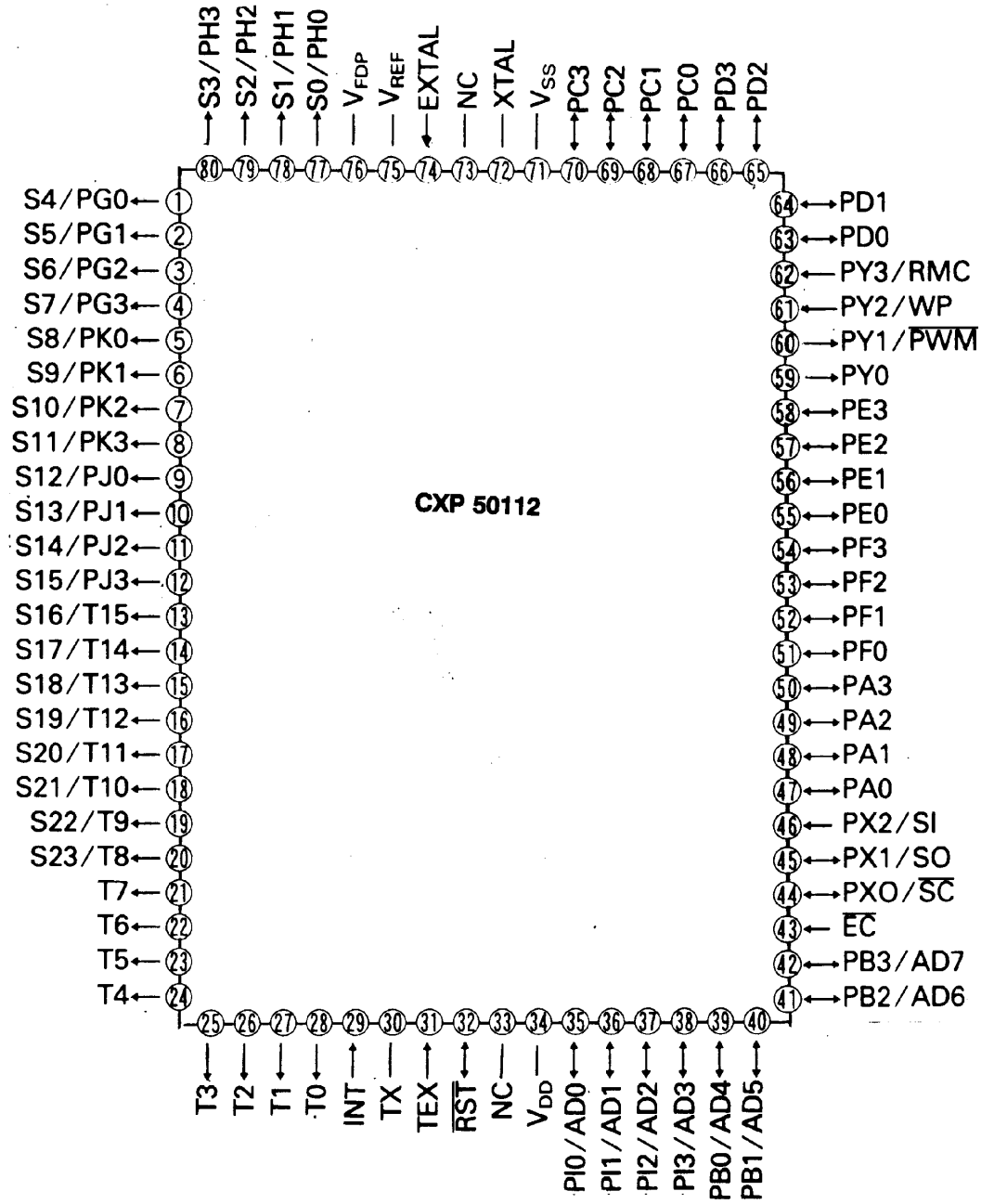
A : 120V 60/50Hz for U.S.A / Canadian version
B : 120/220V 60/50Hz for multi-voltage version(switchable)
C : 220V 50Hz for General Europian version
D : 220V 50Hz for Germanian.Italian version
E : 240V 50Hz for U.K / Austalian version
F : 220V 50Hz for Swiss/Scandinabian version

Dimensions (W×H×D)	440(W)×80(H)×245(D)mm 17.3(W)×3.6(H)×9.6(D)inch
Weight(Net)	3.65Kg(8.04lbs)

Note:Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the U.S.A standard, and provides information on region circuit modification through use of alternate schematic diagram or wiring diagram, and information on regional component variations though use of parts list. Design and Specifications subject to change without notice for improvement.

CIRCUIT DESCRIPTION

IC301 : CXP50112, CPU



Input and Output Terminal Functions

Pin No.	I/O	Description
P34(V_{DD})	Input	Positive power supply pin.
P71(V_{SS})	Input	GND pin.
P74(EXTAL)	Input	Clock generator circuit input pin. A crystal oscillator or ceramic resonator is to be connected between the EXTAL and XTAL pins. When using an external clock input, connect a clock generation source to the EXTAL pin and leave the XTAL pin open.
P72(XTAL)	Output	Clock generator circuit output.
P32($\overline{RST}$)	Input/ Output	This is the output of the built-in power-on reset circuit. When an external reset signal is to be received, this pin must be maintained at a low-level(0V) for a period of at least 2 instruction cycles.
P29 (INT)	Input	Interrupt input pin. Either the edge or level mode is selected according to the program.
P43 ($\overline{EC}$)	Input	Event counter input pin.
P46 (SI/PX2)	Input	Performs both the serial interface (8-bit) input pin and port X bit 2 (input) functions.
P45 (SO/PX1)	Input/ Output	Performs both the serial interface (8-bit) output pin and port X bit 1 (input) functions.
P44($\overline{SC}$/PX0)	Input/ Output	Performs both the serial interface clock I/O pin and Port X bit 0 (input) functions.
P62(RMC/PY3)	Input	Performs both the remote control input pin and port Y bit 3(input) functions.
P61(WP/PY2)	Input	Performs both the standby state clearing wake-up input and the port Y bit 2(input) functions.
P60($\overline{PWM}$/PY1)	Output	Performs both the PWM generator(14-bit) output and port Y bit 1(Output) functions.
P59(PY0)	Output	Port Y bit 0 output pin.
P47~P50 (PA0~PA3)	Input/ Output	4-bit I/O port. Each bit can be programmed to be either an input or output. The tristate output configuration is employed.
P39~P42 (PB0/AD4~ PB3/AD7)	Input/ output	4-bit I/O port which performs the same functions as port A and doubles as the A/D converter input pin.
P67~P70 (PC0~PC3)	Input/ output	4-bit I/O port. Each bit can be programmed to be either an input or output. The tristate output configuration is employed.
P63~P66 (PD0~PD3)	Input/ output	4-bit I/O port which performs the same functions as port C.
P55~P58 (PE0~PE3)	Input/ output	4-bit I/O port which performs the same functions as port C.

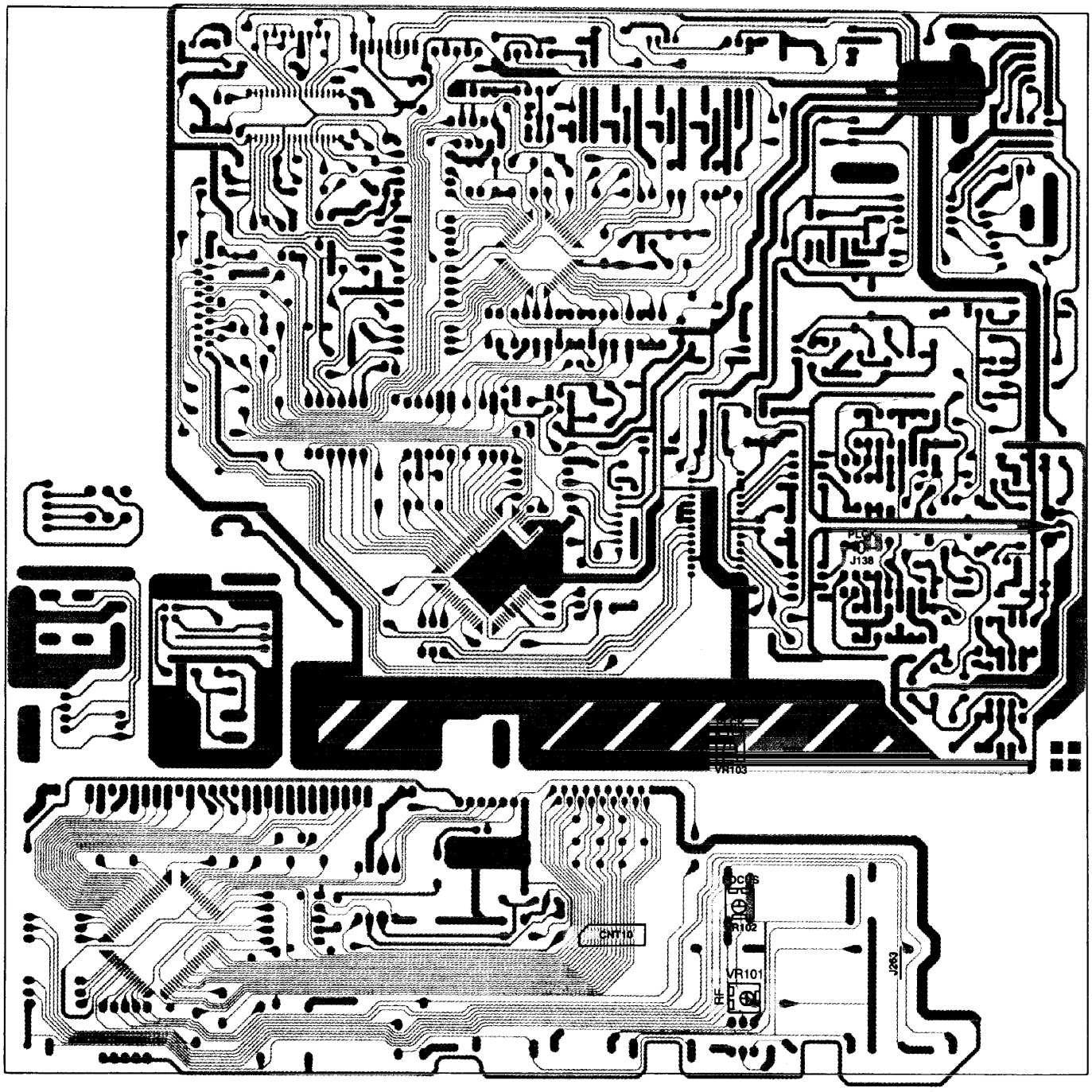
Pin No.	I/O	Description
P51~P54 (PF0~PF3)	Input/ output	4-bit I/O port which performs the same functions as port C.
P35~P38 (PI0/AD0~ PI3/AD3)	Input/ output	4-bit I/O port which performs the same functions as port C and doubles as the A.D converter input pin.
P76(V_{FDP})	Input	Load power supply pin which is required when the FDP (fluorescent display tube)output driver incorporates a load resistor.
P21~P28 (T0~T7)	Output	Output pin for the 8 low-order bits of the FDP timing signal.
P13~P20 (T8/S23~ T15/S16)	Output	Output pin for both the segment signal and the 8 high-order bits of the FDP timing signal.
P1~P4 (PG0/S4~ PG3/S7)	Output	Performs both the 4-bit output port and the FDP segment signal output pin functions.
P77~P80 (PH0/S0~ PH3/S3)	Output	Same as port G.
P9~P12 (PJ0/S12~ PJ3/S15)	Output	Same as port G.
P5~P8 (PK0/S8~ PK3/S11)	Output	Same as port G.
P31(TEX)	Input	32 kHz timer clock generator circuit input pin. A 32.768kHz crystal oscillator is to be connected between the TEX and TX pins. When using this pin as the event clock input pin, connect a clock generation source to the TEX pin and leave the TX pin open.
P30(TX)	Output	Clock generator circuit output.
P75(V_{REF})	Input	Reference voltage input for the supply voltage reset circuit. A zener diode should normally be connected to this pin.

TEST POINT LOCATIONS(PCB TOP VIEW)

Adjustment Point

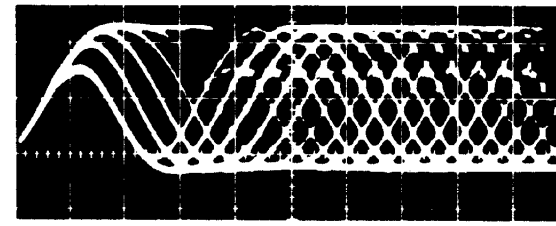
Equipment Required

Oscilloscope(over 50MHz)
Frequency Counter
Test Disk : Philips 5A
A Regular Compact Disk



CIRCUIT ADJUSTMENT

Focus Offset Adjustment(Figure 9)

Focus Offset Adjustment				
1	See Figure 1	Play the regulat disc	**VR101**	Obtain the maximum ampolitude and the biggest diamond windows of the eye pattern.  The above is on example of good eye pattern. The diamond windows in the center portion are lagre and clear.

Focus Offset Adjustment

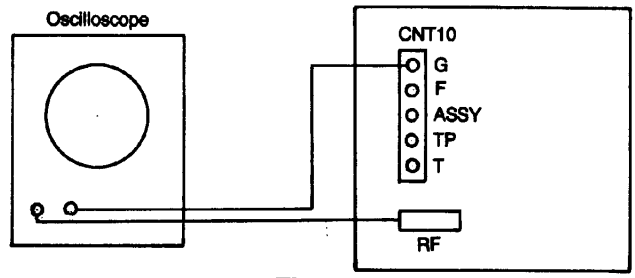
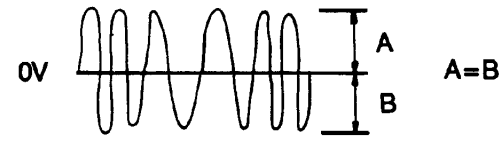


Figure 9

Tracking EF Balance and PLL Adjustment(Figure 10,11)

Step	Connect	Setting	Adjust	Remarks
Tracking EF Balance Adjustment				
1	See Figure 2	Play the regular disc		 VOLT/DIV: 1V TIME/DIV: 1ms Obtain symmetrical waveform.
2		Push the "▷▷" or "◁◁" key to set to FF or FB mode.	**VR102**	
3	The above adjustments must be made very carefully as the misadjustment may cause skipping.			
PLL(Phase Locked Loop) Adjustment				
1	See Figure 3	Push power switch on. And set the stop mode.	**VR103**	Counter reading to be 4.4 MHz
2	Disconnect between CNT10(GND) and CNT10(ASY)			
3	Inset the regular disc, and set to normal play mode.			
4	Check the counter reading to be 4.4±0.0025 MHz			

EF Balance Adjustment

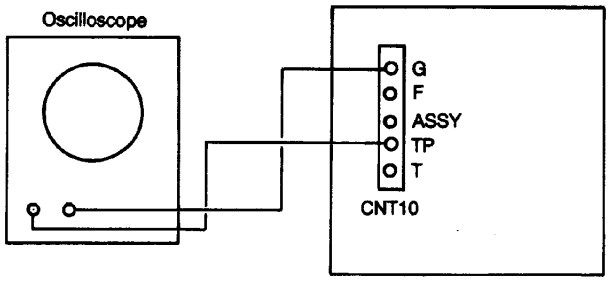


Figure 10

PLL Adjustment

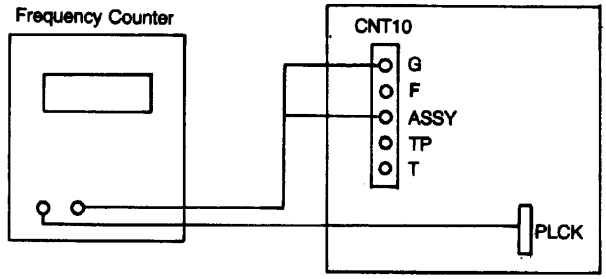
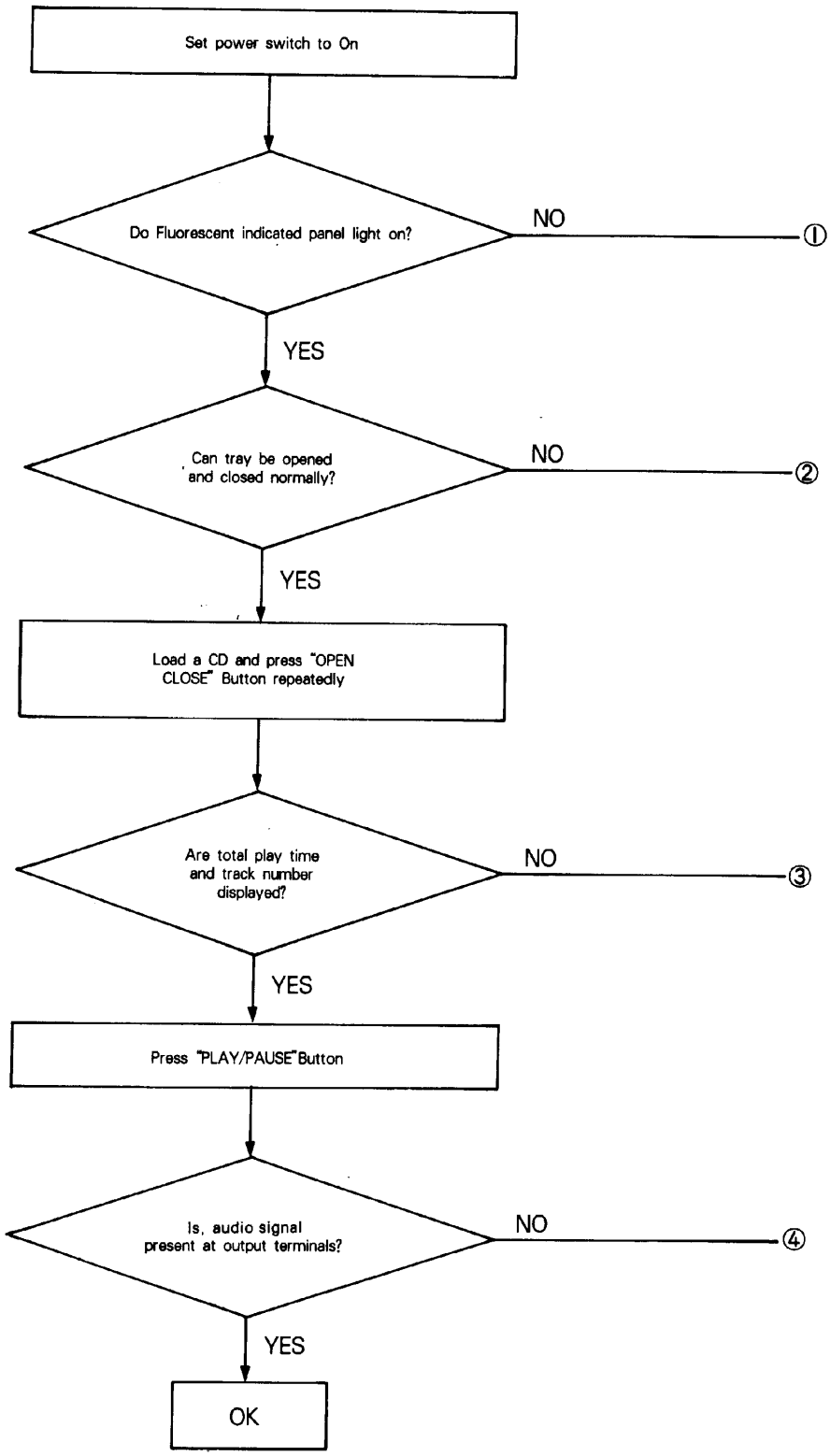
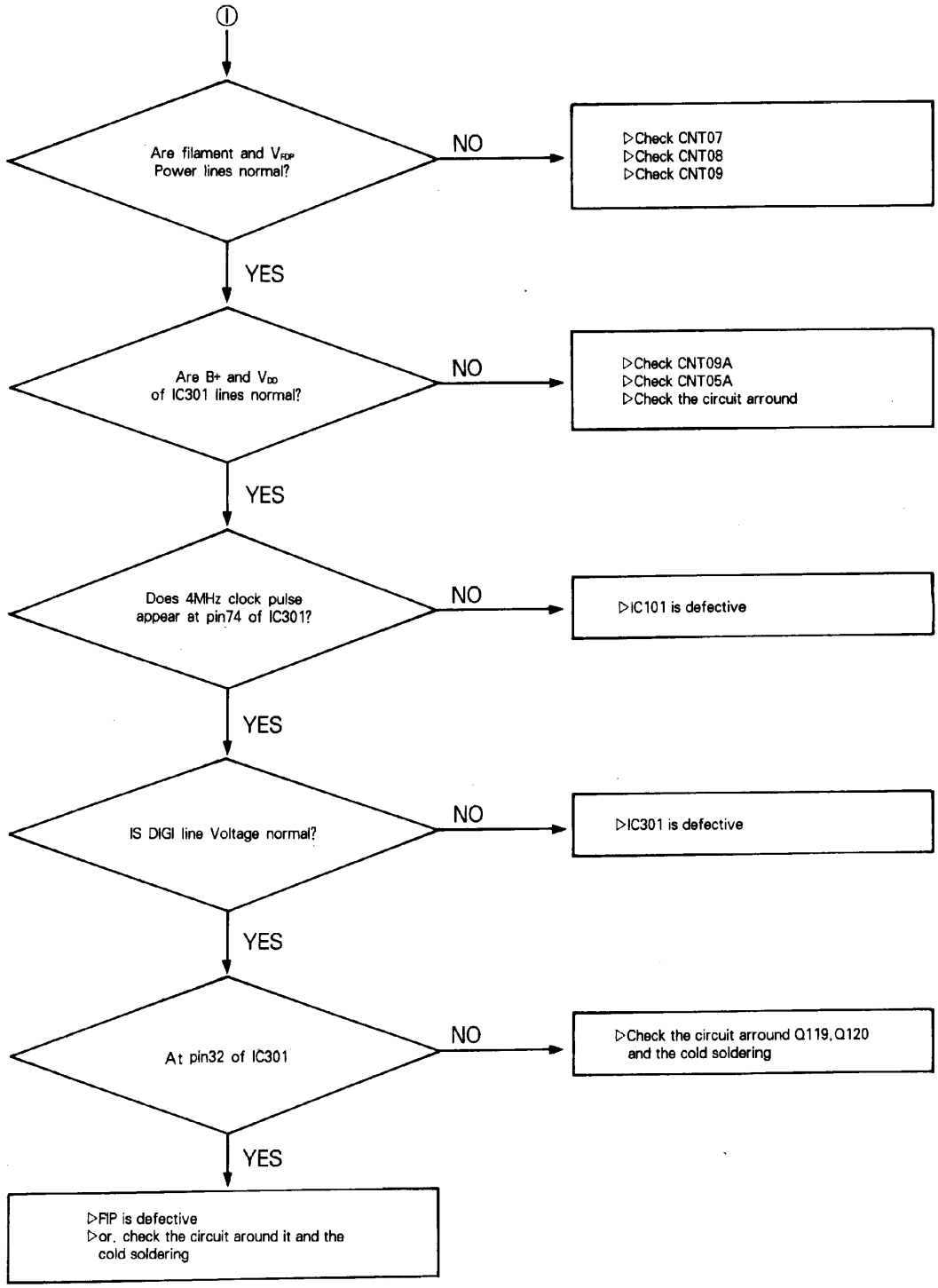


Figure 11

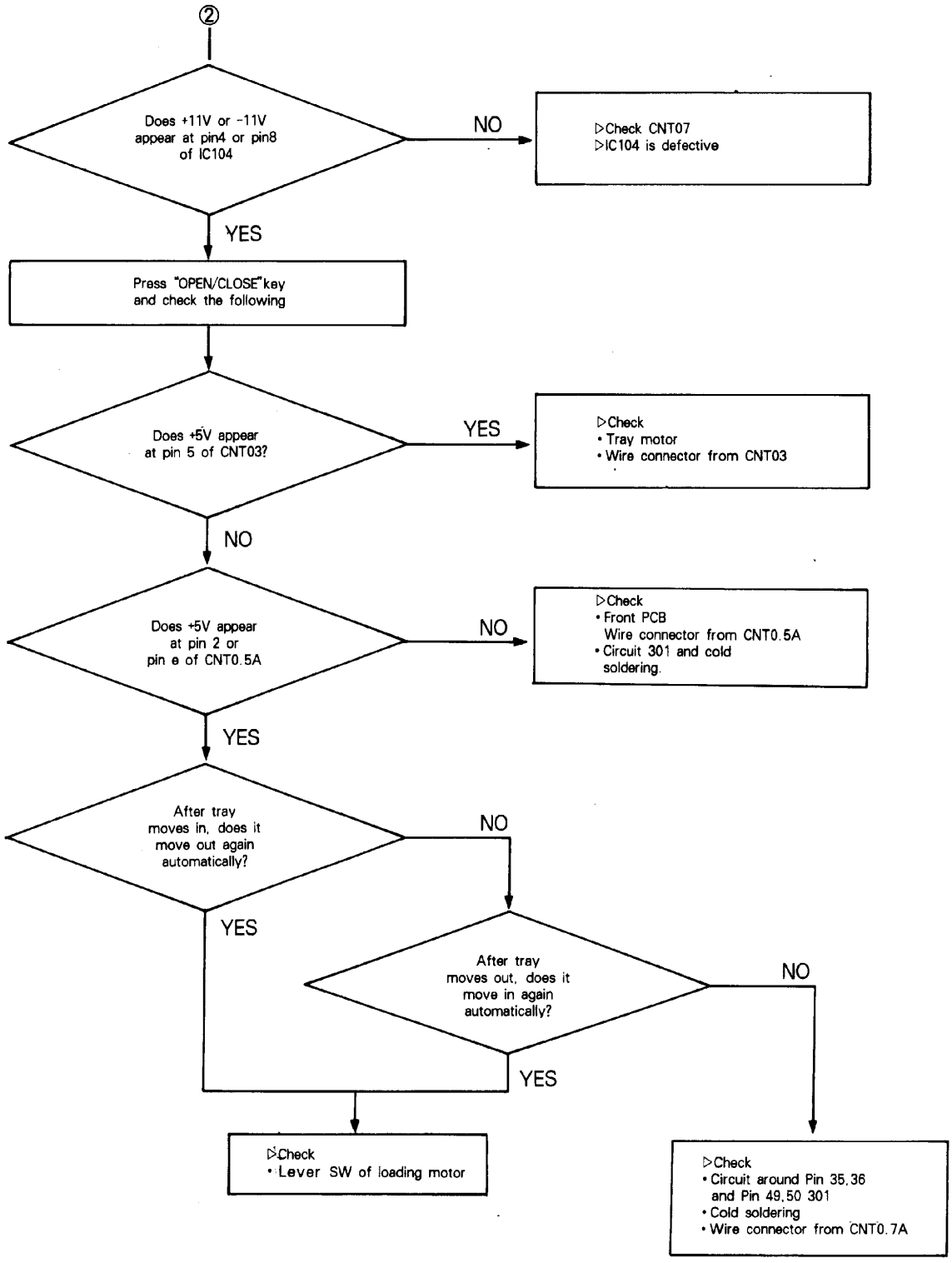
TROUBLE SHOOTING



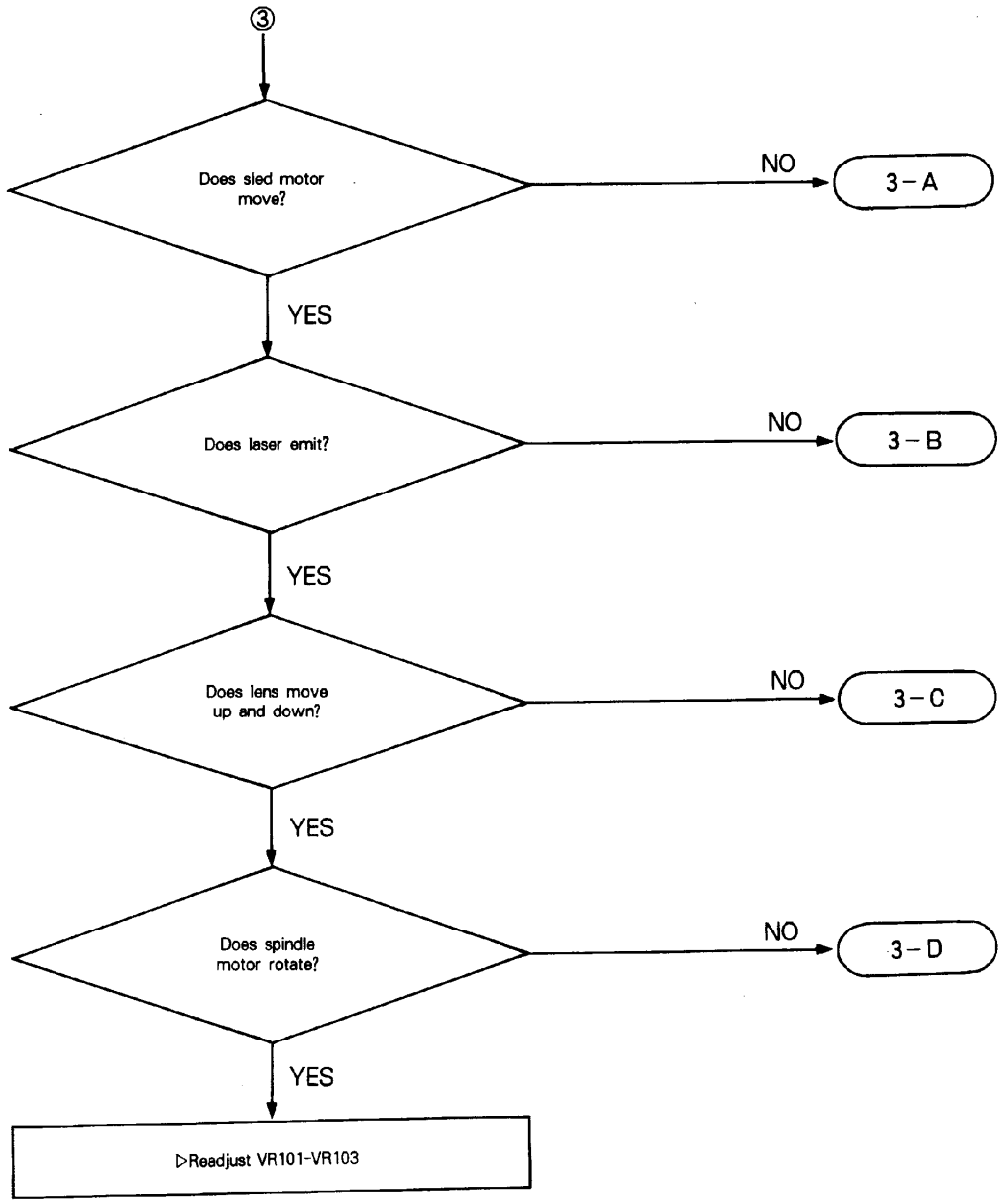
[**Repair item** 1] At power on, flourescent indicated panel don't light on.



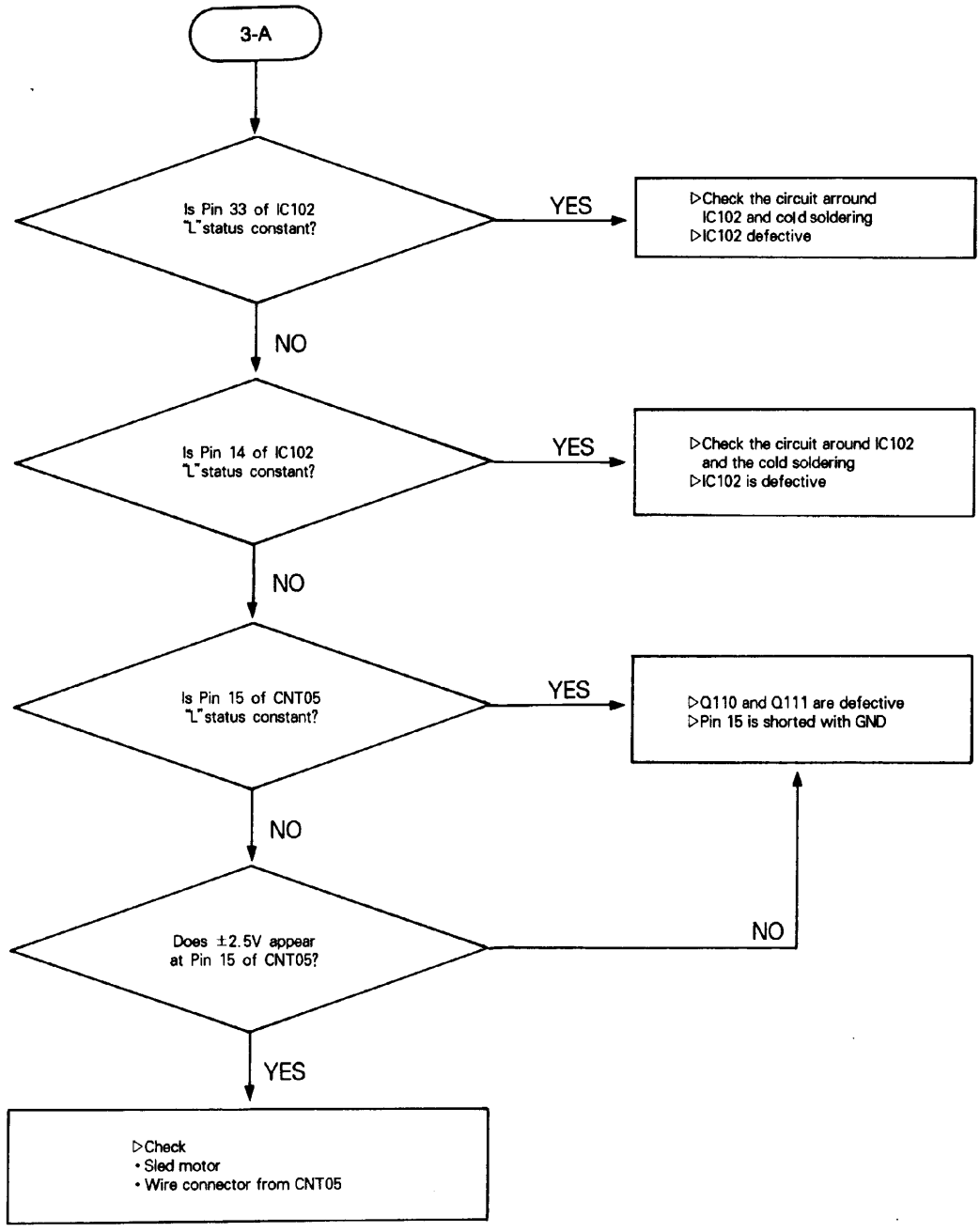
[**Repair item** 2] Tray cannot be opened and closed by pressing "Open/Close"key.



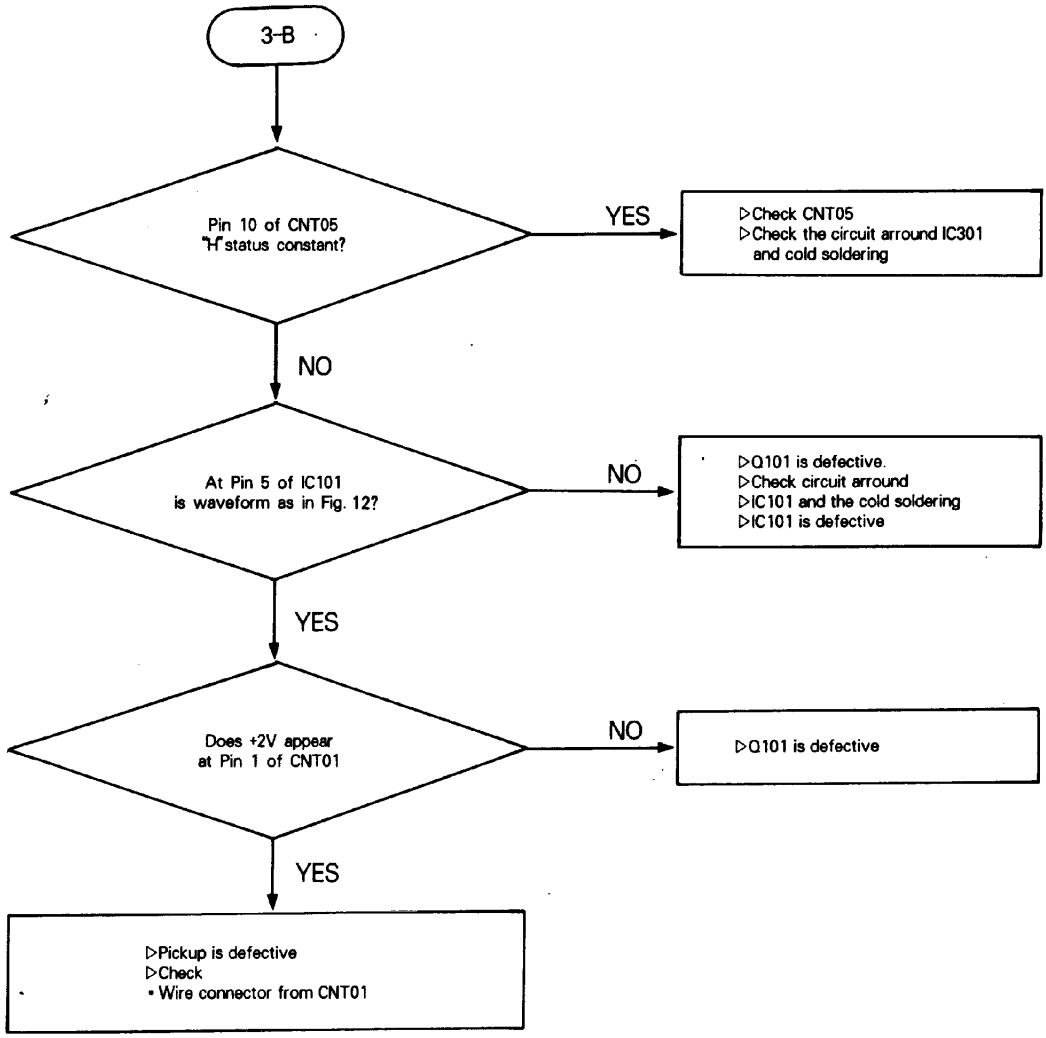
[Repair Item 3] "0" is displayed instead of total play time and track number.



[Repair Item 3-A] Sled motor does not move.



[Repair Item 3-B] Laser does not emit.



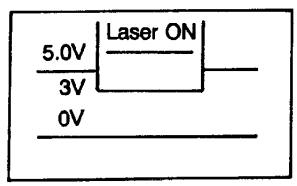


Figure 12

[**Repair Item** 3-C] Object lens of pcikup unit does not move up and down.

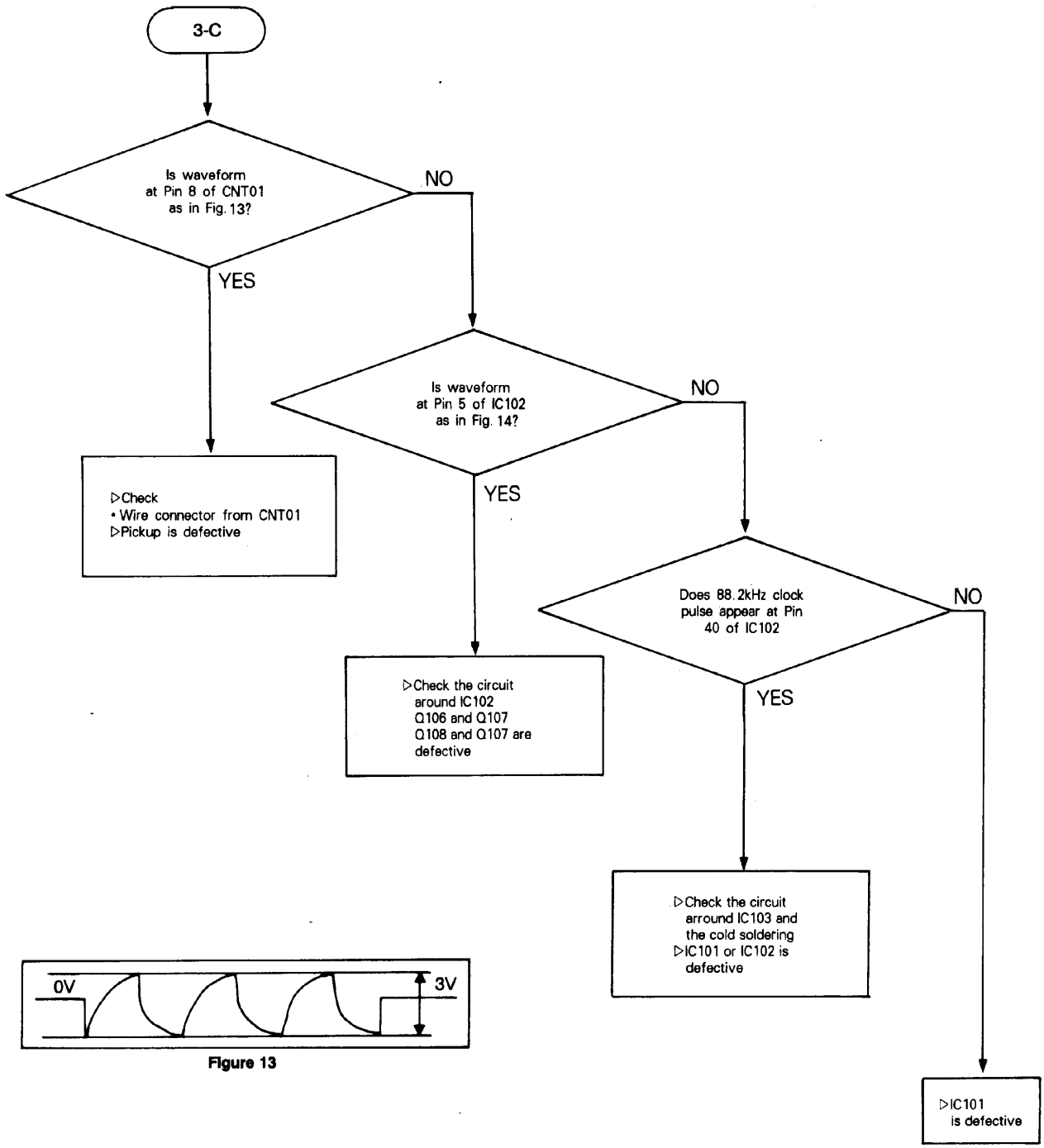
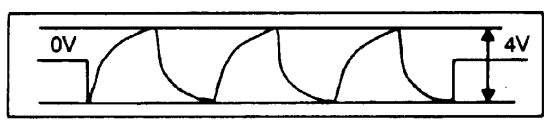
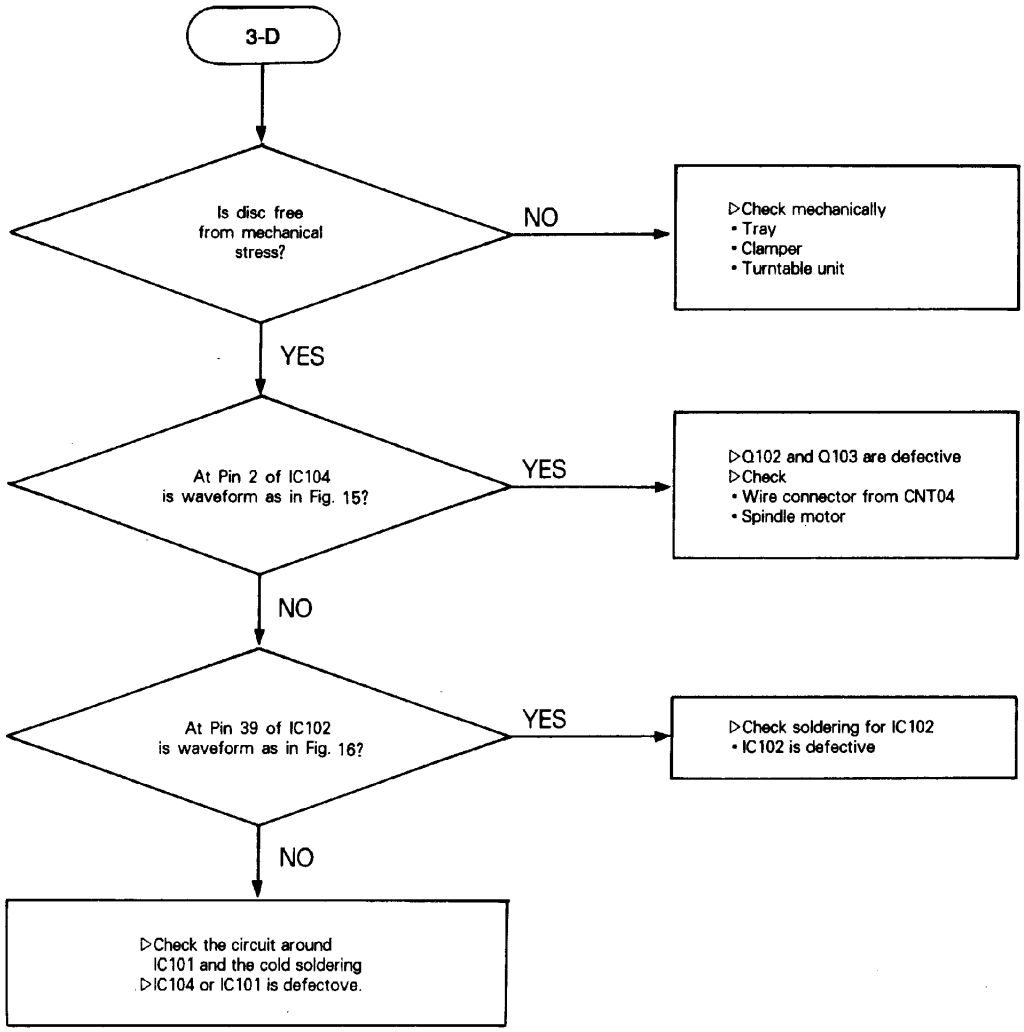


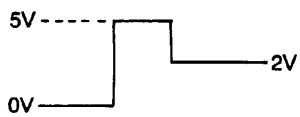
Figure 13



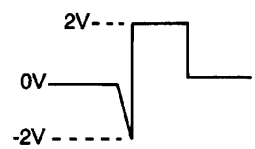
Figuer 14

[Repair Item 3-D] Spindle motor does not rotate.



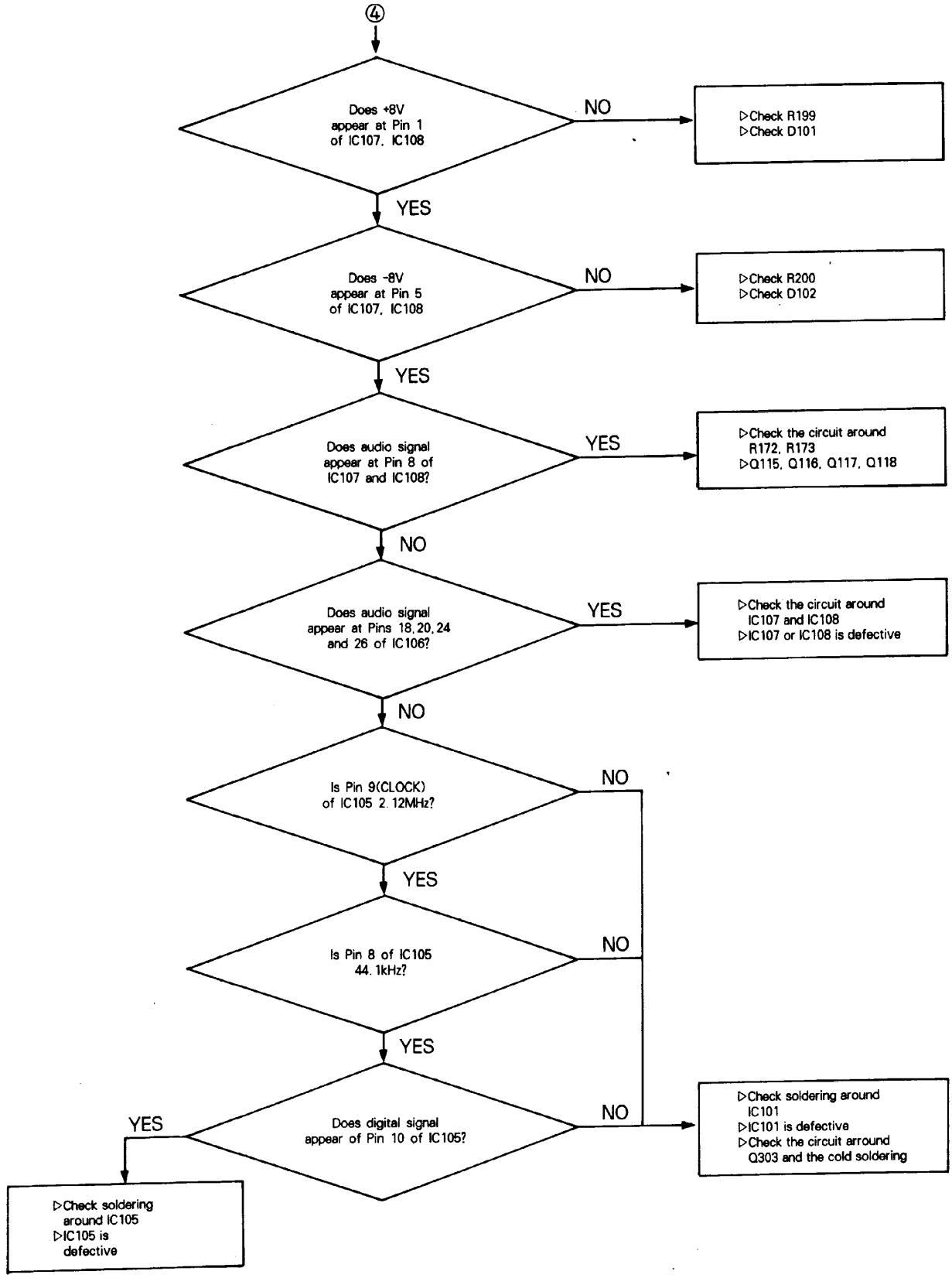


Figuer 15

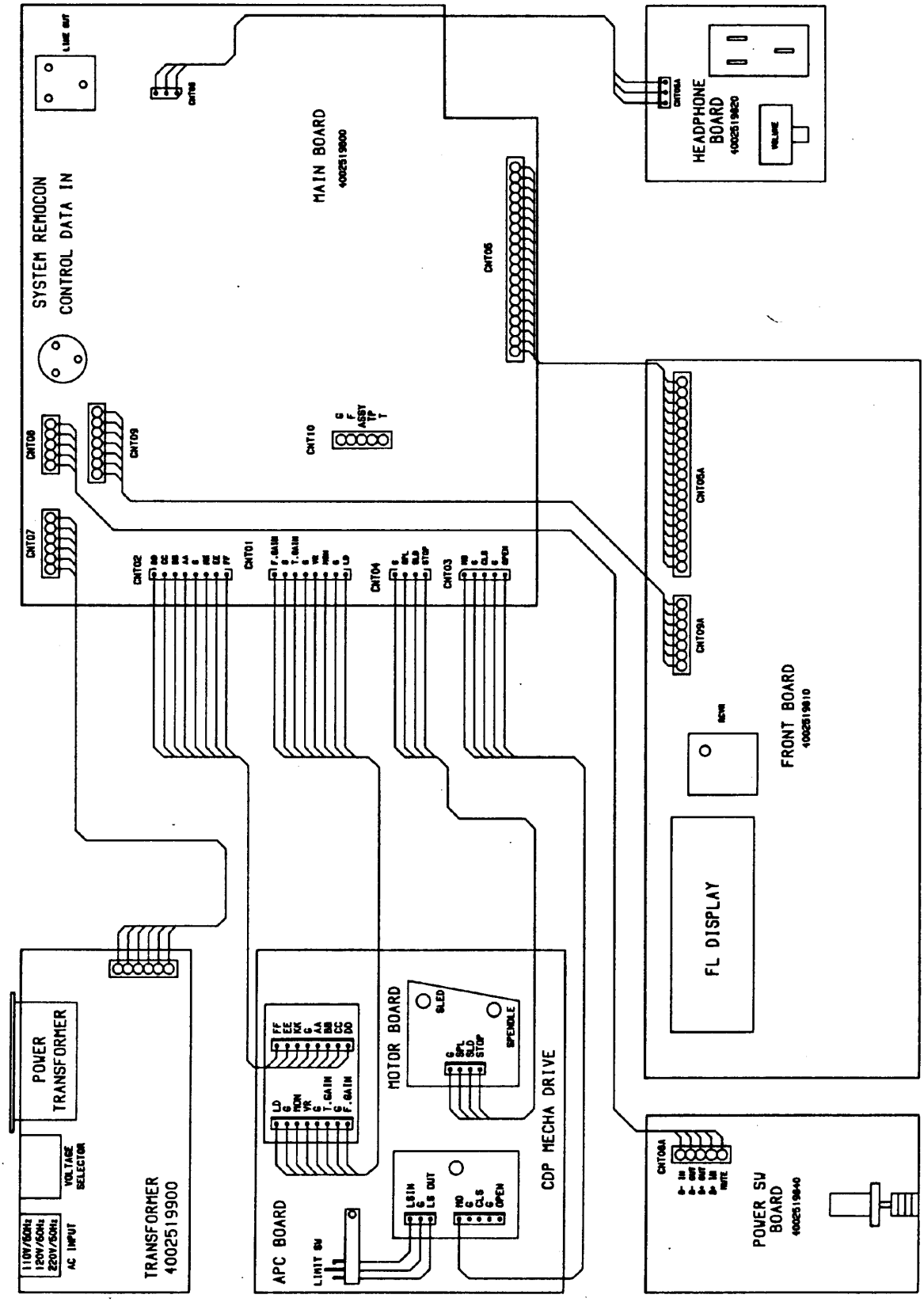


Figuer 16

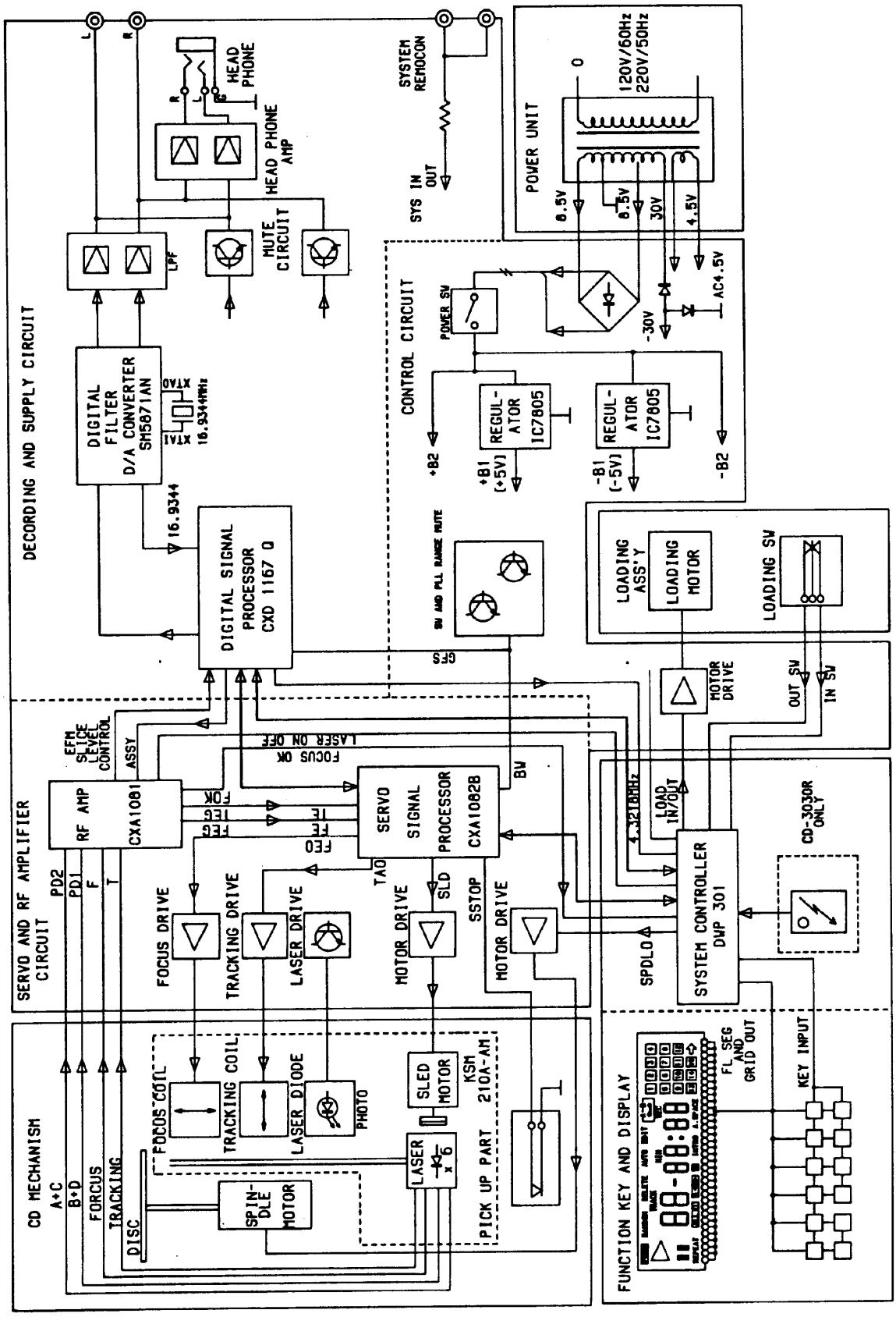
[Repair item 4] No sound signal.



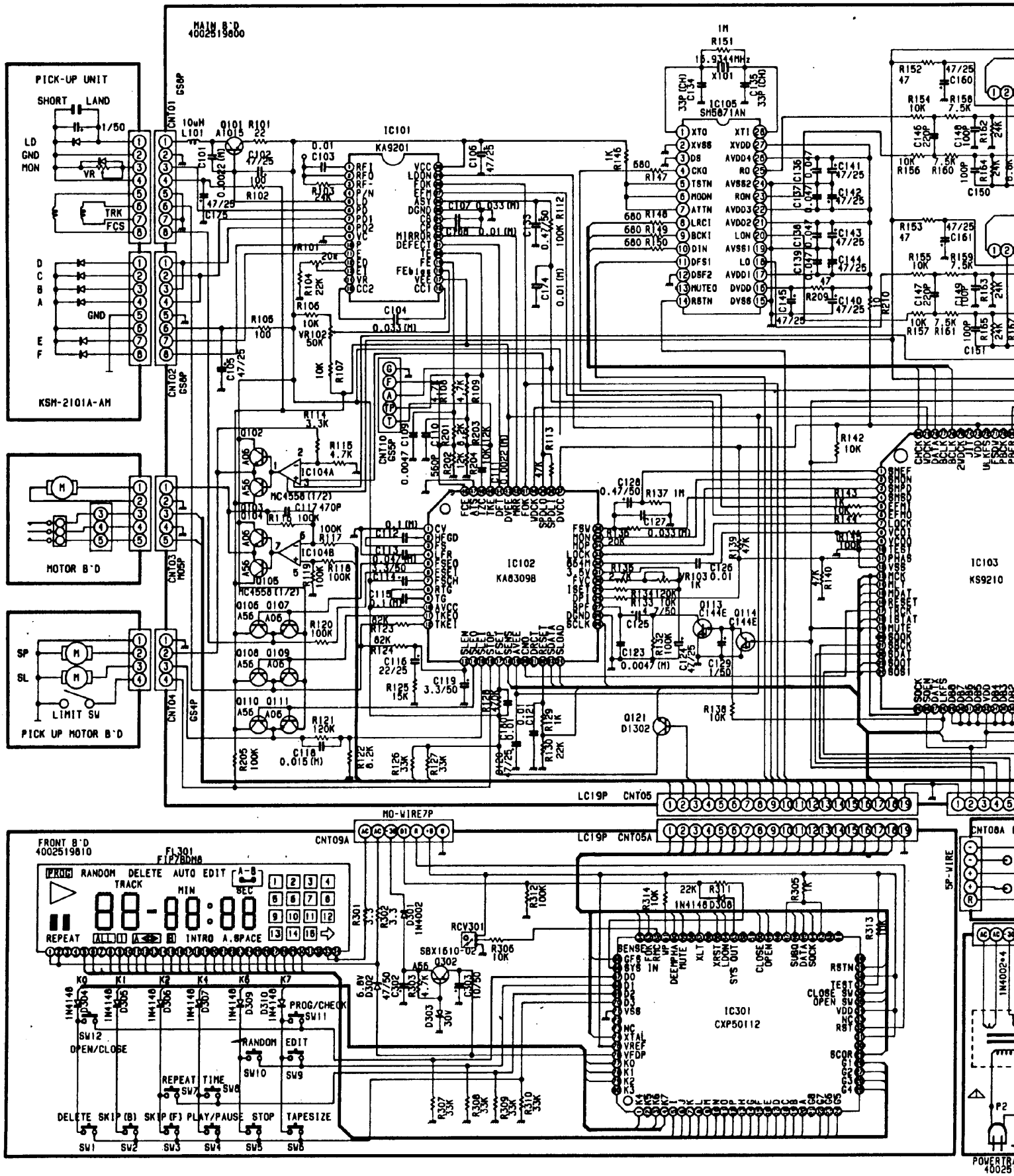
WIRING DIAGRAM



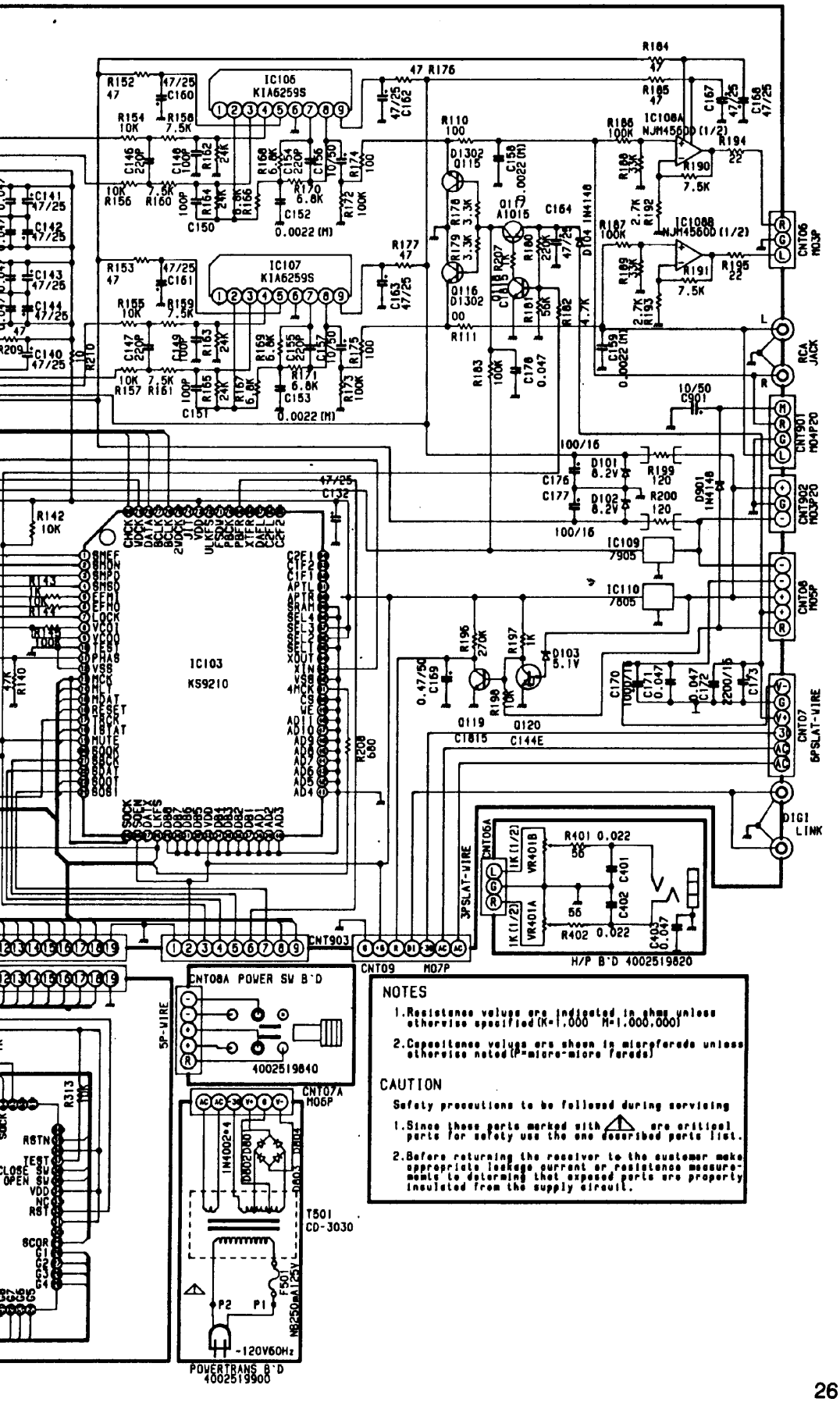
BLOCK DIAGRAM



SCHEMATIC DIA



HEMATIC DIAGRAM



NOTES

1. Resistance values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted (P=micro-micro farads)

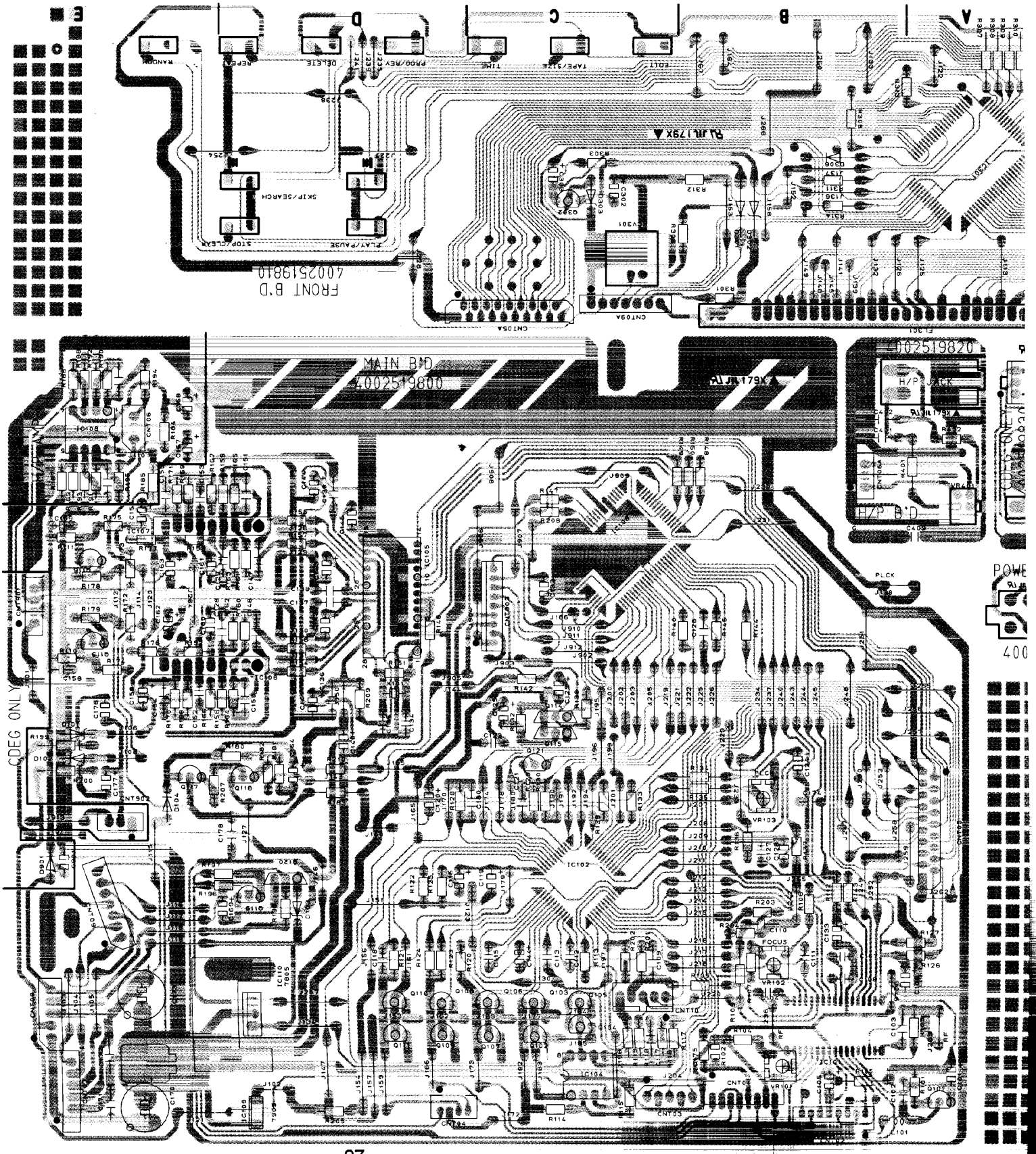
CAUTION

Safety precautions to be followed during servicing

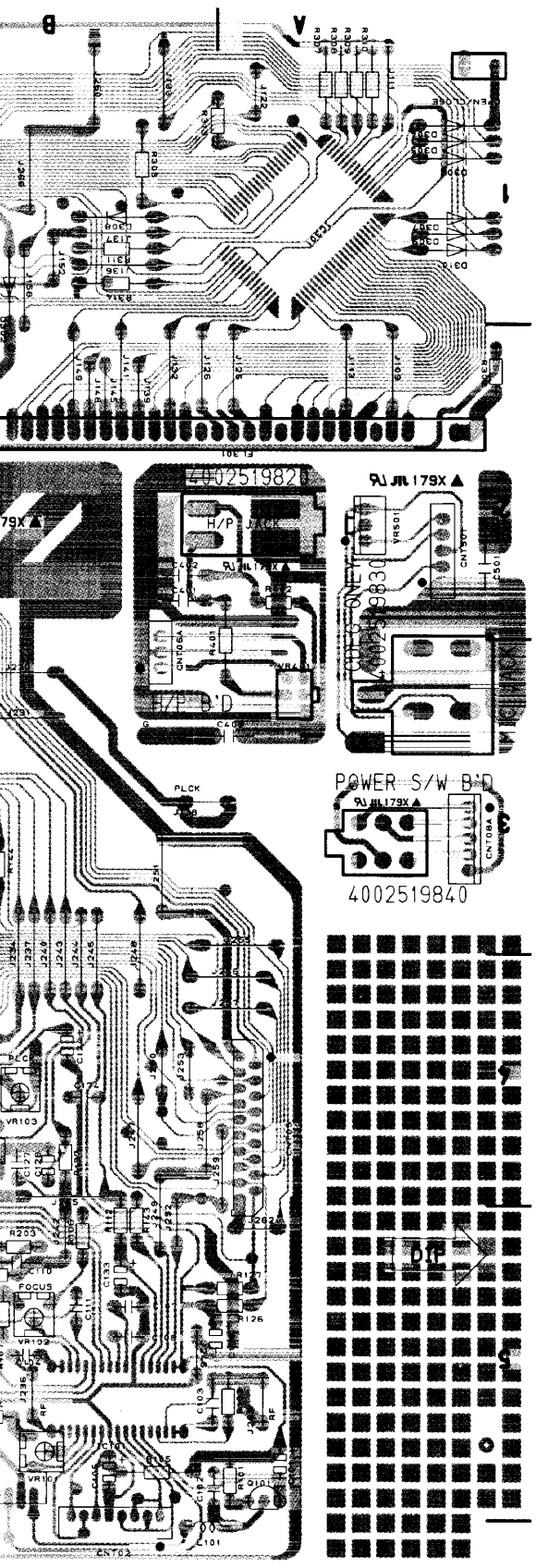
1. Since those parts marked with ⚠ are critical parts for safety use the one described parts list.
2. Before returning the receiver to the customer make appropriate leakage current or resistance measurements to determine that exposed parts are properly insulated from the supply circuit.

P.C.BOARD

MAIN (BOTTOM VIEW)



POWER (BOTTOM VIEW)



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE : Components marked with a ⚠ have special character important to safety. If you replace any of these components, read carefully the product safety notice in this manual. Don't degrade the safety of the product through improper servicing. Resistor/Capacitor Tolerance, D : (±0.5%), J : (±5%), K : (±10%), M : (±20%), Z : (+80, -20%)

Ref. No.	Dexcription				Mfr. Part No.	Remark
	PCB ASSEMBLY-MAIN				054002519800	
Connectors						
C101	Mylar	0.0022 µF	100V	J	3679222120	
C102	Electric SG	47 µF	25V	M	3479347041	
C103	Ceramic Tubular	0.01 µF	50V	Z	3519103935	
C104	Mylar	0.033 µF	100V	J	3679333120	
C105/106	Electric SG	47 µF	25V	M	3479347041	
C107	Mylar	0.033 µF	100V	J	3679333120	
C108	Mylar	0.01 µF	100V	J	3679103120	
C109	Ceramic Tubular	0.0047 µF	50V	Z	3519472935	
C110	Ceramic Tubular	560 pF	50V	Z	3519561935	
C111	Mylar	0.0022 µF	100V	J	3679222120	
C112	Mylar	0.1 µF	100V	J	3679104120	
C113	Mylar	0.047 µF	100V	J	3679473120	
C114	Electric SA	3.3 µF	50V	M	3479233971	
C115	Mylar	0.1 µF	100V	J	3679104120	
C116	Electric SG	22 µF	50V	M	3479222071	
C117	Ceramic Tubular	470 pF	50V	Z	3519471935	
C118	Mylar	0.015 µF	100V	J	3679153120	
C119	Electric SA	3.3 µF	50V	M	3479233971	
C120	Electric SG	47 µF	25V	M	3479347041	
C121	Ceramic Tubular	0.01 µF	50V	Z	3519103935	
C123	Mylar	0.0047 µF	100V	J	3679472120	
C124	Electric SG	47 µF	25V	M	3479347041	
C125	Electric SA	4.7 µF	50V	M	3479247971	
C126	Ceramic Tubular	0.01 µF	50V	Z	3519103935	
C127	Mylar	0.033 µF	100V	J	3679333120	
C128	Electric SA	0.47 µF	50V	M	3479247871	
C129	Electric SA	1 µF	50V	M	3479210971	
C132	Electric SG	47 µF	25V	M	3479347041	
C133	Electric SA	0.47 µF	50V	M	3479247871	
C134/135	Ceramic Disc (CH)	33 pF	50V	J	3529330210	
C136-139	Ceramic Tubular	0.047 µF	50V	Z	3519473935	
C140-145	Electric SG	47 µF	25V	M	3479347041	
C146/147	Ceramic Tubular	220 pF	50V	Z	3519221935	
C148-151	Ceramic Tubular	100 pF	50V	Z	3519101935	
C152/153	Mylar	0.0022 µF	100V	J	3679222120	
C154/155	Ceramic Tubular	220 pF	50V	Z	3519221935	
C156/157	Electric SA	10 µF	50V	M	3479210071	
C158/159	Mylar	0.0022 µF	100V	J	3679222120	
C160-168	Electric SG	47 µF	25V	M	3479347041	
C169	Electric SA	0.47 µF	50V	M	3479247871	
C170	Electric SG	1000 µF	16V	M	3409310239	
C171/172	Ceramic Tubular	0.047 µF	50V	Z	3519473935	
C173	Electric SG	2200 µF	16V	M	3409322239	
C174	Mylar	0.01 µF	100V	J	3679103120	
C175	Electric SG	47 µF	25V	M	3479347041	
C176/177	Electric SG	100 µF	16V	M	3479310121	
C178/179	Ceramic Tubular	0.047 µF	50V	Z	3519473935	
C180	Ceramic Tubular	0.01 µF	50V	Z	3519103935	
Coil						
L101	Inductor, 10uH				2648001450	

Ref. No.	Description	Mfr. Part No.	Remark
Connectors			
CNT01	Wafer 8P	4428516710	
CNT02	Wafer 8P	4428516710	
CNT03	Wafer 5P	4428506910	
CNT04	Wafer 4P	4428516310	
CNT05	Wafer 19P	4428526310	
CNT06	Wafer 3P	4428505710	
CNT07	Assembly 6P Slat - Wire 80mm to Trans Board	4119106083	
CNT08	Wafer 5P	4428506910	
CNT09	Wafer 7P	4428505410	
CNT10	Wafer 5P	4428517810	
CNT11	Assembly 19P Flat Cable 100mm to F-Main Board	4118619100	
Diodes			
D101/102	Zener, 8.2V	2258599123	
D103	Zener, 5.1V	2258599103	
D104	1N4148, Switching	2058306101	
ICs			
IC101	KA9201, RF-AMP	2138002112	
IC102	KA8309B, SSP	2138002114	
IC103	KS9210, DSP	2138002113	
IC104A	MC4558(1/2), OP-AMP Motor-Sub	2168000114	
IC104B	MC4558(1/2), OP-AMP Motor-Sub	2168000114	
IC105	SM5871AN, DF-D/A Convertor	2138099120	
IC106	KIA6259S, OP-AMP Filter	2168206106	
IC107	KIA6259S, OP-AMP Filter	2168206106	
IC108A	NJM4560D(1/2), OP-AMP H/P-AMP	2168220103	
IC108B	NJM4560D(1/2), OP-AMP H/P-AMP	2168220103	
IC109	7905, -5V Regulator	2168600105	
IC110	7805, -5V Regulator	2168601101	
Resistors			
R101	22 ohm	3069220970	
R102	100 ohm	3069101970	
R103	24k ohm	3069243970	
R104	22k ohm	3069222970	
R105	100 ohm	3069101970	
R106/107	10k ohm	3069103970	
R108/109	4.7k ohm	3069472970	
R110/111	100 ohm	3069101970	
R112	100k ohm	3069104970	
R113	47k ohm	3069473970	
R114	3.3k ohm	3069332970	
R115	4.7k ohm	3069472970	
R116-120	100k ohm	3069104970	
R121	120k ohm	3069124970	
R122	8.2k ohm	3069822970	
R123/124	82k ohm	3069823970	
R125	15k ohm	3069153970	
R126/127	33k ohm	3069333970	

*Mylar is a registered trademark of E.I.Du Pont de Nemeurs and Company.

Ref. No.	Description	Mfr. Part No.	Remark
R128	470k ohm	3069474970	
R129	1k ohm	3069102970	
R130	22k ohm	3069223970	
R132	100k ohm	3069104970	
R133	10k ohm	3069103970	
R134	120k ohm	3069124970	
R135	2.7k ohm	3069272970	
R136	20k ohm	3069203970	
R137	1M ohm	3069105970	
R138	10k ohm	3069103970	
R139/140	47k ohm	3069473970	
R142	10k ohm	3069103970	
R143	1k ohm	3069102970	
R144	10k ohm	3069103970	
R145	100k ohm	3069104970	
R146	1k ohm	3069102970	
R147-150	680 ohm	3069681970	
R151	1M ohm	3069105970	
R152/153	47 ohm	3069470970	
R154-157	10k ohm	3069103970	
R158-161	7.5k ohm	3069752970	
R162-165	24k ohm	3069243970	
R166-171	6.8k ohm	3069682970	
R172/173	100k ohm	3069104970	
R174/175	100 ohm	3069101970	
R176/177	47 ohm	3069470970	
R178/179	3.3k ohm	3069332970	
R180	220k ohm	3069224970	
R181	56k ohm	3069563970	
R182	4.7k ohm	3069472970	
R183	100k ohm	3069104970	
R184/185	47 ohm	3069470970	
R186/187	100k ohm	3069104970	
R188/189	33k ohm	3069333970	
R190/191	7.5k ohm	3069752970	
R192/193	2.7k ohm	3069272970	
R194/195	22 ohm	3069220970	
R196	270k ohm	3069274970	
R197	1k ohm	3069102970	
R198	10k ohm	3069103970	
R199/200	100 ohm 1/4W	3069101270	
R201	8.2k ohm	3069822970	
R202/203	12k ohm	3069123970	
R204	10k ohm	3069103970	
R205	100k ohm	3069104970	
R207	1k ohm	3069102970	
R208	680 ohm	3069681970	
R209	47 ohm	3069470970	
R210	10 ohm	3069100970	
R211/212	1.2k ohm	3069122970	
ICs			
VR101	Semi 20K, RF VR	3248020343	
VR102	Semi 50K, Focus VR	3248050343	
VR103	Semi 1K, PLL VR	3248010243	
Q101	KTA1015Y, Amplifier, Silicon, PNP	2208206105	
Q102	MPSA06, Amplifier, Silicon, NPN	2208606114	
Q103	MPSA56, Amplifier, Silicon, PNP	2208206113	
Q104	MPSA06, Amplifier, Silicon, NPN	2208606114	

Ref. No.	Description	Mfr. Part No.	Remark
Q105	MPSA56, Amplifier, Silicon, PNP	2208206113	
Q106	MPSA56, Amplifier, Silicon, PNP	2208206113	
Q107	MPSA06, Amplifier, Silicon, NPN	2208606114	
Q108	MPSA56, Amplifier, Silicon, PNP	2208206113	
Q109	MPSA06, Amplifier, Silicon, NPN	2208606114	
Q110	MPSA56, Amplifier, Silicon, PNP	2208206113	
Q111	MPSA06, Amplifier, Silicon, NPN	2208606114	
Q113/114	DTC144E, Switching, Silicon, NPN	2208622109	
Q115/116	KTD1302, Switching, Silicon, NPN	2208606112	
Q117	KTA1015Y, Switching, Silicon, PNP	2208206105	
Q118/119	KTC1815Y, Switching, Silicon, NPN	2208606104	
Q120	DTC144E, Switching, Silicon, NPN	2208622109	
Others			
X101	X-Tal, 16.9344MHz	3338101500	
Z3	Heatsink Regulator TR	7505206110	
Z4	Jack RCA (2P)	4438103010	
Z5	Jack RCA (Digi-Link), Green	4438105010	A,B,C,D,E,F
	PCB Main	4002519800	

	PCB ASSEMBLY-FRONT	054002519810	
Capacitors			
C302	Electric SG 47 µF 50V M	3479347071	
C303	Electric SG 10 µF 50V M	3479210071	
Connectors			
CNT05A	Wafer 19P	4428526310	
CNT09A	Assembly 7P Slat-Wire 240mm to Main Board	4119107243	
Diodes			
D301	1N4002, Regulator	2258100135	
D302	Zener, 6.8V	2258522113	
D303	Zener, 30V	2258599128	
D304-310	1N4148, Switching	2058306101	
IC			
IC301	CXP50112, CPU	2138322157	
Resistors			
R301/302	3.3 ohm	3069339970	
R303	4.7k ohm	3069472970	
R305	1k ohm	3069102970	
R306	10k ohm	3069103970	
R307-310	33k ohm	3069333970	
R311	22k ohm	3069223970	
R312	100k ohm	3069104970	
R313/314	10k ohm	3069103970	
Transistor			
Q302	MPSA56, Regulator, Silicon, PNP	2208206113	
Others			
RCV301	SBX1610-02, Sensor	2328130307	

Ref. No.	Description	Mfr. Part No.	Remark
FL301	FIP7BDM8, FL Tube	4658003710	
15	Switch Tact	4002519810	
	PCB Front		

	PCB ASSEMBLY-H/P	05400251920	
Capacitors			
C401-403	Ceramic Tubular 0.022 uF 50V Z	3579223530	
Connector			
CNT06A	Assembly 3P Slot - Wire 300mm to Main Board	4119103303	
CNT401	Ground Wire to Ground	152624022043	
Resistors			
R401/402	56 ohm	3069560970	
Other			
11	Bracket Phone	6505105010	
12	Jack Phone, Gold	4438005010	
13	VR TP96G00, 1KG×2	3228015910	
	PCB H/P	4002519920	

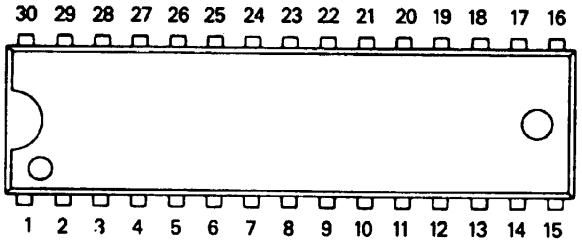
	PCB ASSEMBLY-TRANS	05400251900	
Connector			
CNT07A	Wafer 6P	4428505810	
Diodes			
D801-804	1N4002, Regulator	2258100135	
Fuse			
F501	NB 250mA 125V	5508201231	A
F501	T 150mA 250V	5508300934	D,G
Others			
P1	Pin Solder	4225001410	
P2	Pin Solder	4225001410	
	Fuse Clip	4255001010	
T501	Transformer 120V 60Hz	2828000217	A
T501	Transformer 230V 50Hz	2828000187	D
T501	Transformer 220V 50Hz	2828000237	G
	PCB Trans	4002519900	

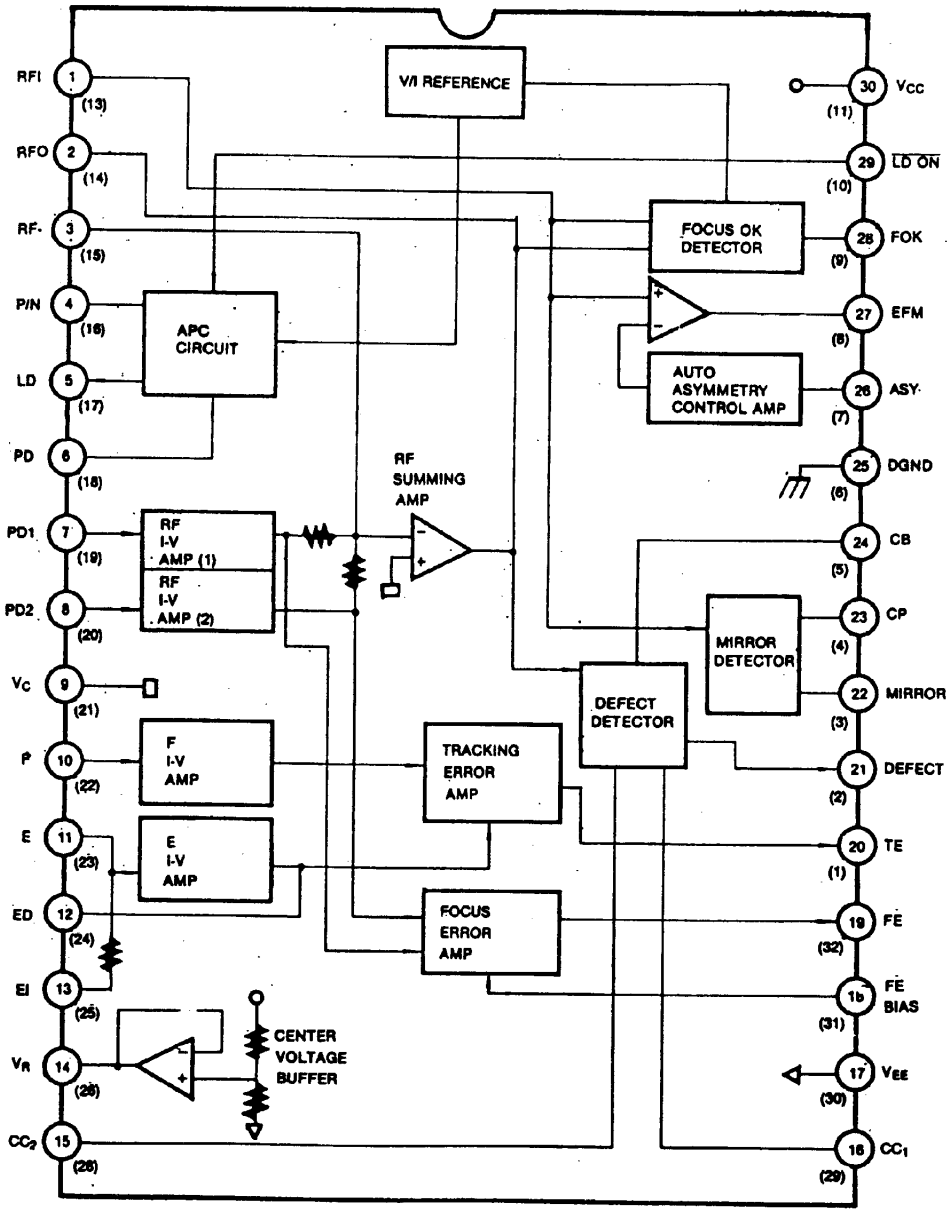
	PCB ASSEMBLY-POWER SW	05400251940	
Connector			
CNT08A	Assembly 5P Wire 550mm to Main Board	4358105500	
Other			
9	Switch Power	4628055410	
	PCB Power S/W	4002519940	

Ref. No.	Description	Mfr. Part No.	Remark
	PCB ASSEMBLY-COMMENDER	05400252900	
Connectors			
CNT ASSY	Assembly 8P 200mm to Laser-Main	4358508201	
CNT ASSY	Assembly 8P 200mm to Photo-Main	4358508202	
CNT ASSY	Assembly 4P 200mm to Motor-Main	4358204160	
Diodes			
D701	EL5HR	2408001139	
D702	1N4148, Switching	2058306101	
IC			
IC701	UPD6121G-002, Remote Control	2138013116	
Resistors			
R701-706	220k ohm	3069224970	
Transistor			
Q701	KTD1302, Switching, Silicon, PNP	2208606112	
Others			
GND1	Plate Ground	4235007310	
GND2	Plate Ground	4235007310	
	CDP Mecha, KSM-2101A-AM	5708012910	
X701	Resonator, CCB455	3938101890	
	PCB Commander	4002520900	

SEMICONDUCTOR LEAD IDENTIFICATION & INTERNAL DIAGRAM

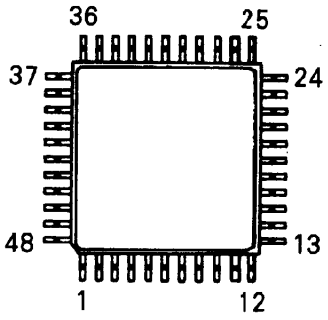
IC101 : KA9201, RF-AMP.

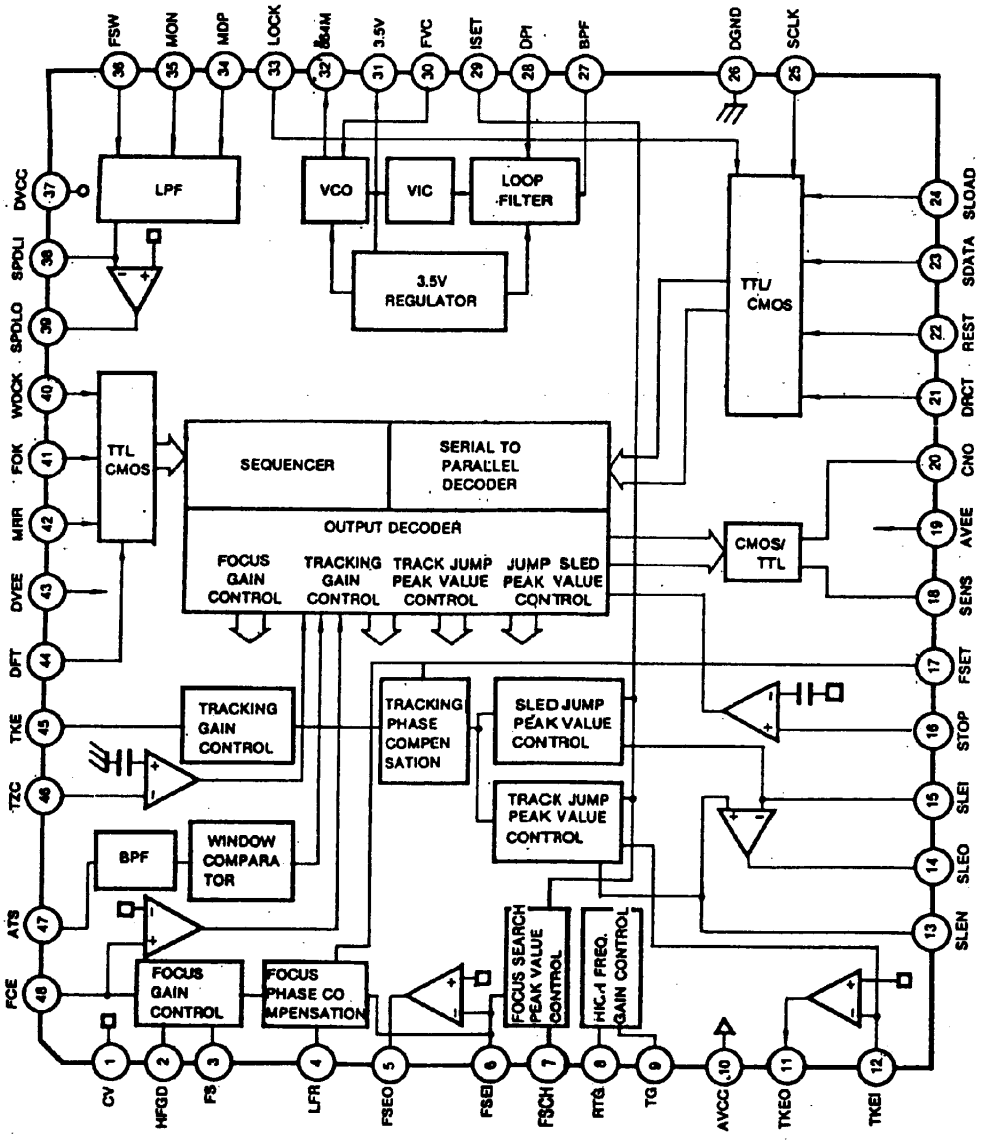




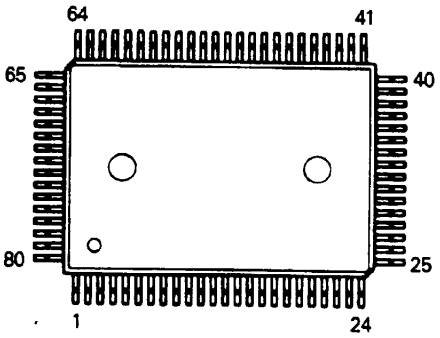
· PIN12, 27 of 32 QFP is NC
· The number of ( )is the TYPE of 32 QFP

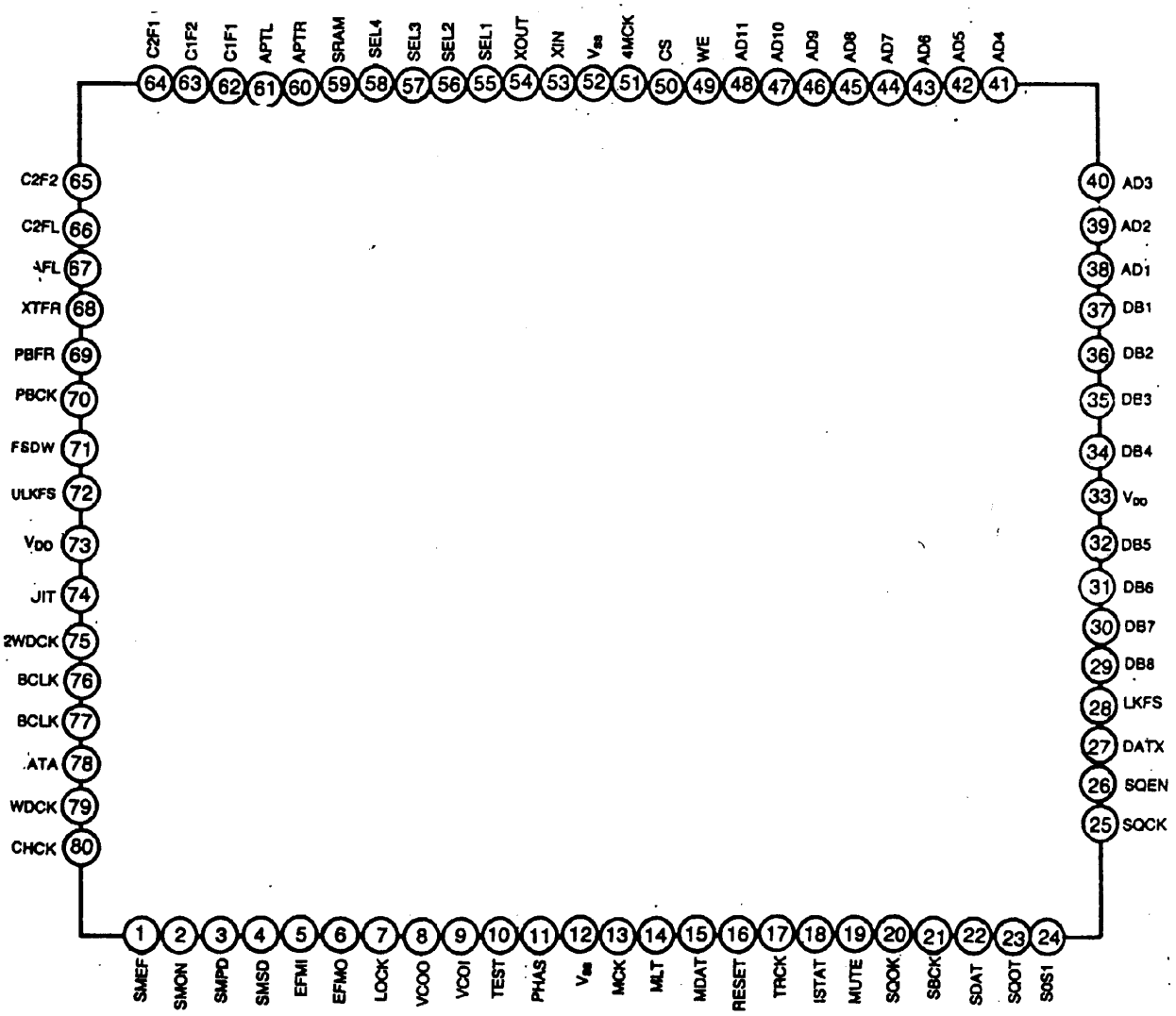
IC102 : KA8309B, SSP



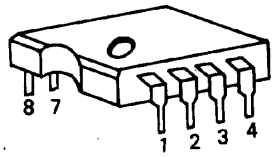


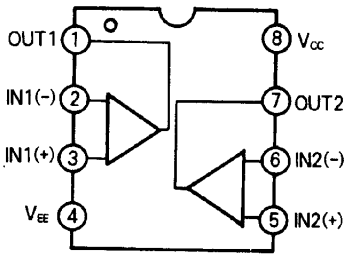
IC103 : KS9210, DSP





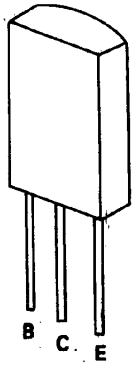
IC104 : MC4558
IC108 : NJM4560D



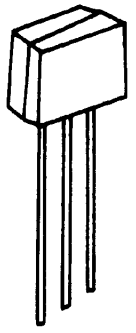


MPS A06 : Q102 Q109 Q104
Q111 Q107

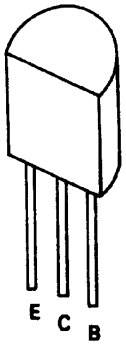
MPS A56 : Q103, Q105, Q106
Q108, Q110, Q302



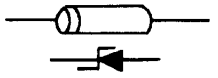
DTC 144E : Q113, Q114,
Q120



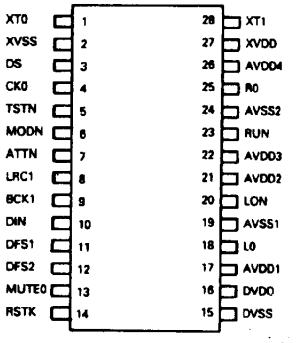
KTA1015Y : Q101, Q117
KTC1815Y : Q118, Q119
2SD1302S : Q115, Q116



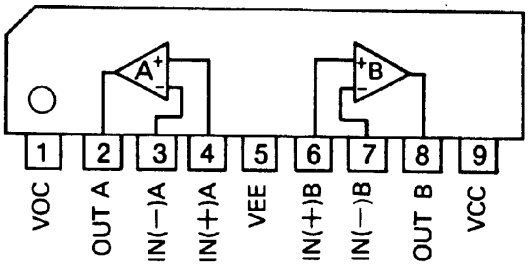
1N4002 : D104, D304, D305
D306, D307, D309
D310, D308
1N4148 : D801, D802 D803
D804, D301



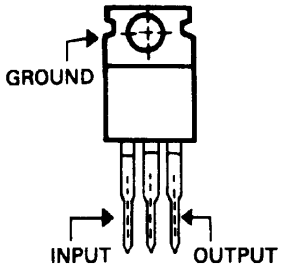
IC105 : SM5871AS



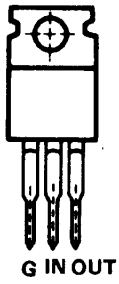
KIA6259S : IC107, CI108



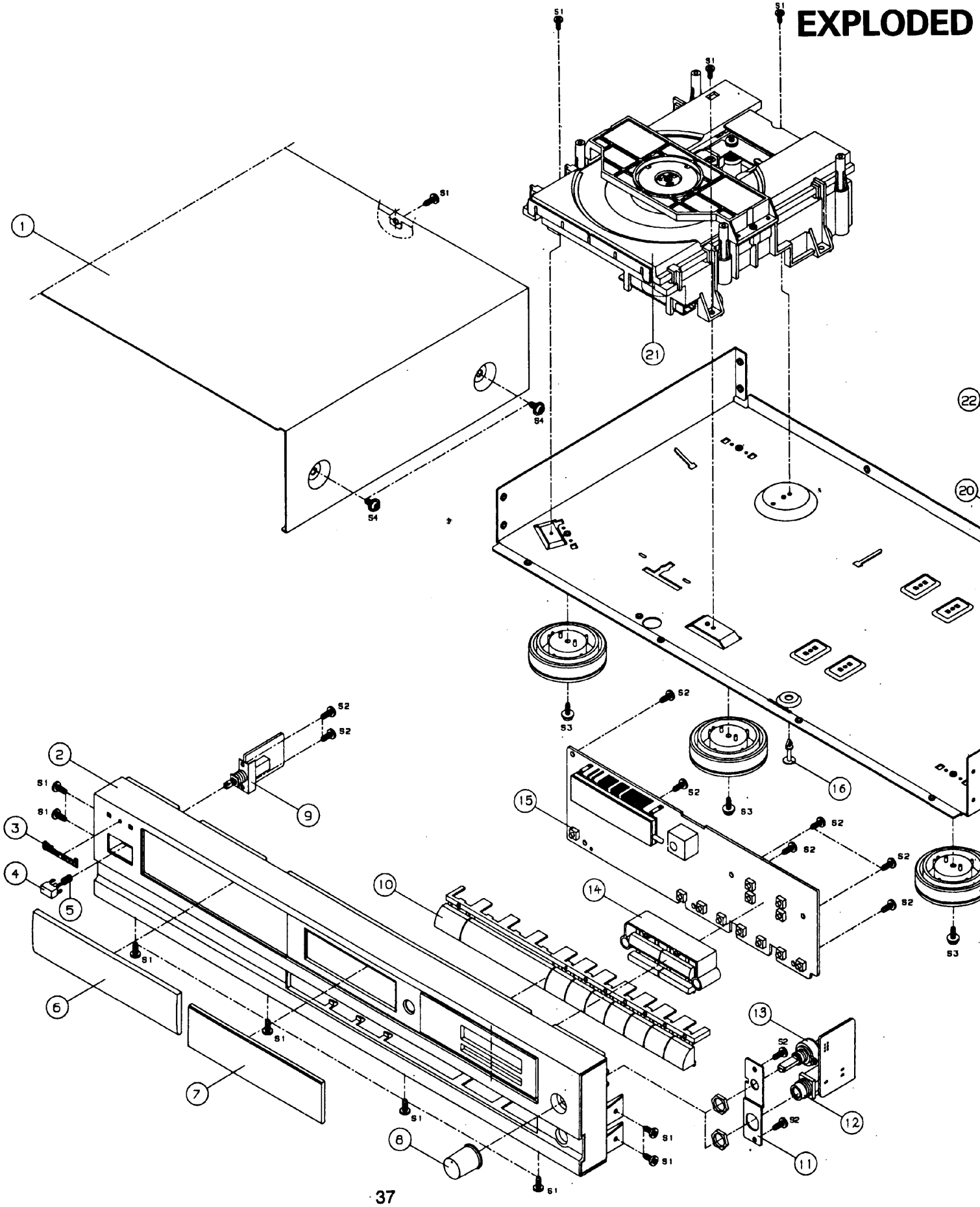
IC110 : GD7805



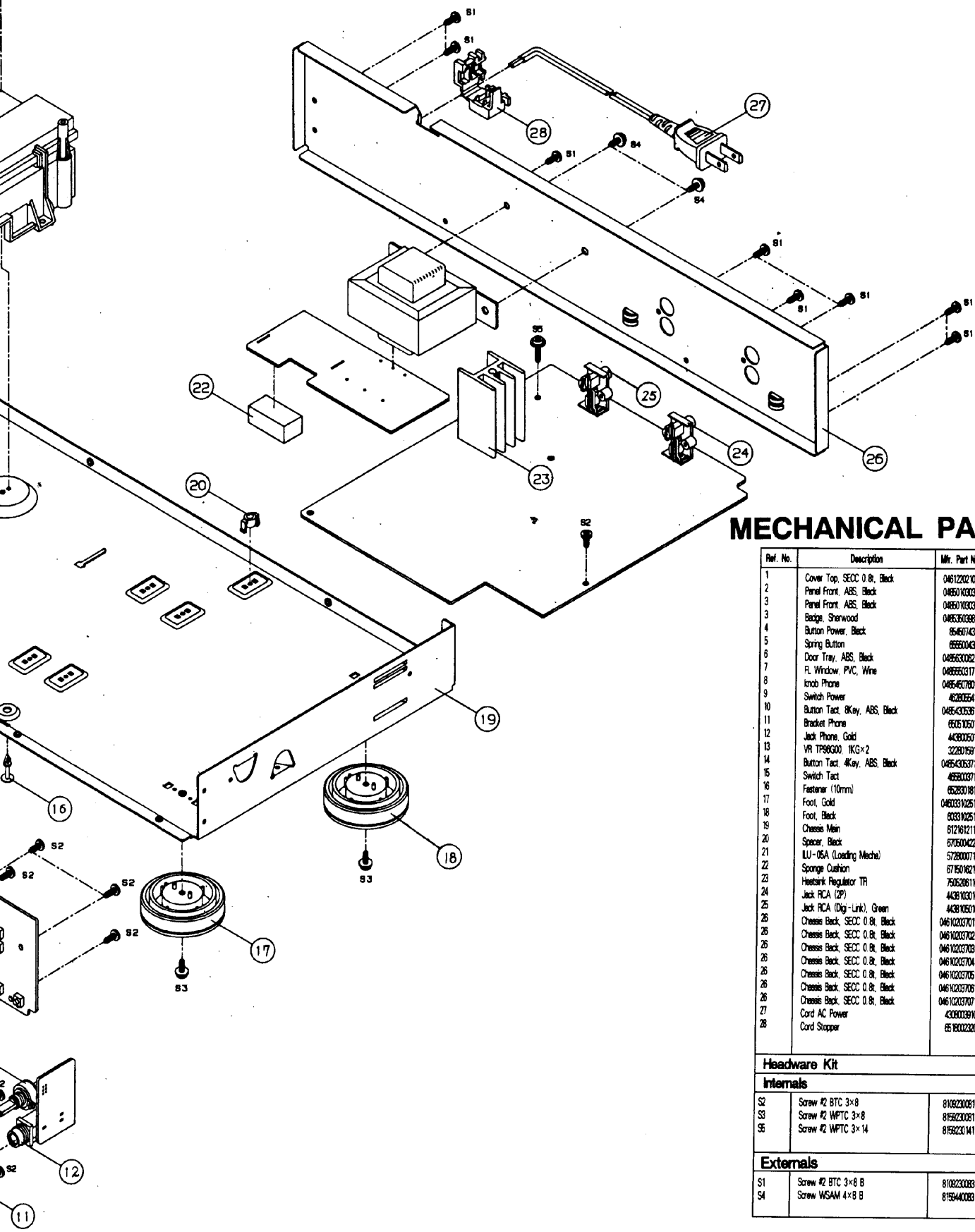
IC109 : GD7905



EXPLODED



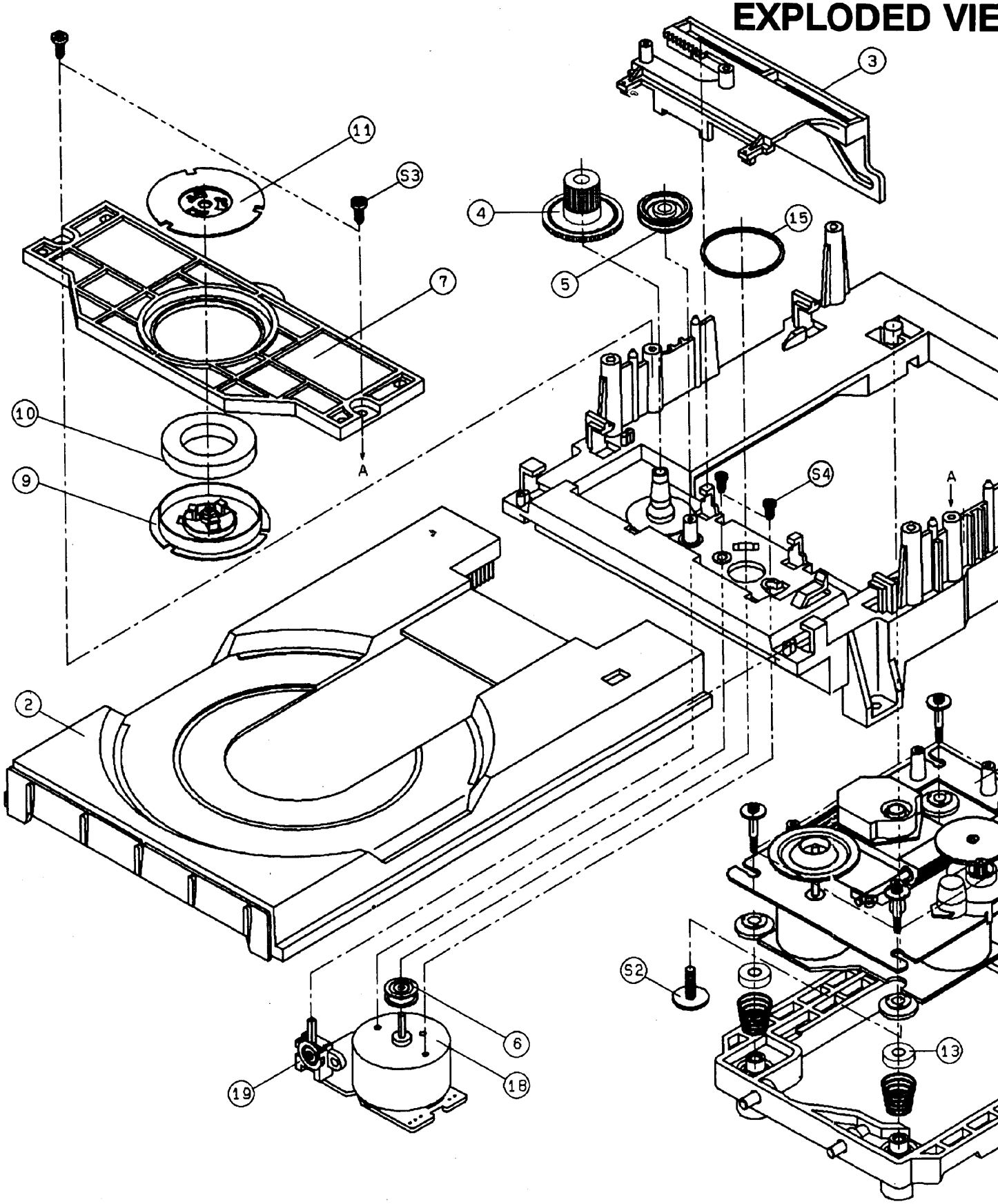
EXPLODED VIEW



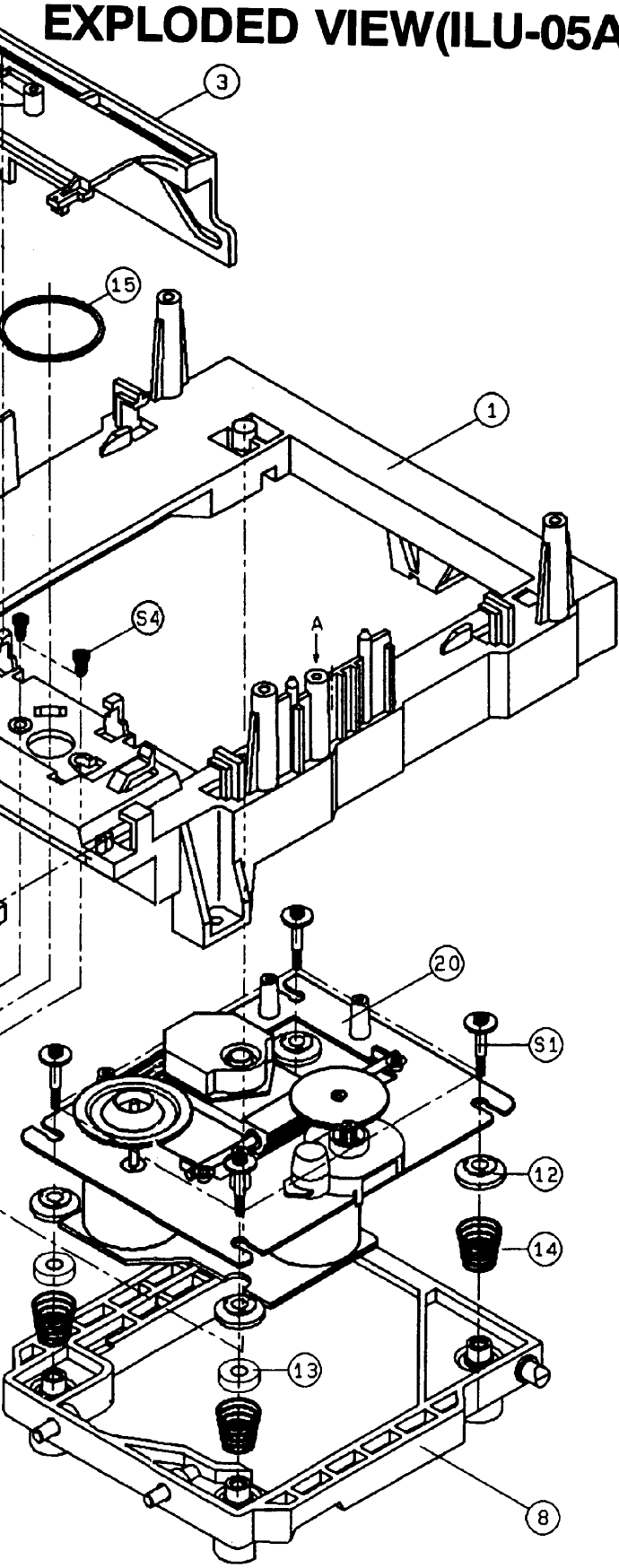
MECHANICAL PART LIST

Ref. No.	Description	Mfr. Part No.	Q'ty	Remark
1	Cover Top, SECC 0.8t, Black	4612202101 1		
2	Panel Front, ABS, Black	4656010303 11		A,B,C,D,E,F
3	Panel Front, ABS, Black	4656010303 12		Dom.
3	Badge, Sherwood	4656103911		A,B,C,D,E,F
4	Button Power, Black	6545074330		
5	Spring Button	6656004380		
6	Door Tray, ABS, Black	4656300621 1		
7	FL Window, PVC, Wine	4656603171 3		
8	Knob Phone	4654567801 1		
9	Switch Power	4620655410		
10	Button Tact, 8Key, ABS, Black	4654305361 1		
11	Bracket Phone	6505105010		
12	Jack Phone, Gold	4439005010		
13	VR TP98G00 1KG×2	3228015910		
14	Button Tact, 4Key, ABS, Black	4654305371 1		
15	Switch Tact	4656003710	12	
16	Fastener (10mm)	6526301810		
17	Foot, Gold	4403310251 1	2	
18	Foot, Black	9331025102	2	
19	Chassis Main	5121612110		
20	Spacer, Black	5705004220		
21	ILU-05A (Loading Mechs)	5728000710		
22	Sponge Cushion	6715016210		
23	Heatsink Regulator TR	7505206110		
24	Jack RCA (2P)	4438103010		
25	Jack RCA (Dig-Link), Green	4438105010		A,B,C,D,E,F
26	Chassis Back, SECC 0.8t, Black	4461203701 1		Dom.
26	Chassis Back, SECC 0.8t, Black	4461203702 1		A
26	Chassis Back, SECC 0.8t, Black	4461203703 1		B
26	Chassis Back, SECC 0.8t, Black	4461203704 1		C
26	Chassis Back, SECC 0.8t, Black	4461203705 1		D
26	Chassis Back, SECC 0.8t, Black	4461203706 1		E
26	Chassis Back, SECC 0.8t, Black	4461203707 1		F
27	Cord AC Power	4309003910		A,B
28	Cord Stopper	6618002320		A,B,C,D,E,F
Headware Kit				
Internals				
S2	Screw #2 BTC 3×8	8109230081	11	
S3	Screw #2 WPTC 3×8	8159230081	4	
S5	Screw #2 WPTC 3×14	8159230141	1	
Externals				
S1	Screw #2 BTC 3×8 B	8109230083	20	
S4	Screw WSAM 4×8 B	8159440083	6	

EXPLODED VIE



EXPLODED VIEW(ILU-05A)



PARTS LIST OF DISK MECHANISM UNIT				
No.	Part No.	Description	Q'ty	Remark
1	6021601220	BODY MECHA	1	
2	6021800330	TRAY DISC	1	
3	7142000420	CAM SLIDE	1	
4	7103001620	GEAR LOADING	1	
5	7103001810	GEAR PULLEY	1	
6	7113001310	PULLEY MOTOR	1	
7	6023601220	CHUCK FRAME	1	
8	6062000320	BASE DRIVE UNIT	1	A'ssy SHAFT
9	6063103010	BASE MAGNET	1	
10	5125000910	MAGNET	1	
11	6023408610	COVER MAGNET	1	
12	6715018420	RUBBER DAMPING	4	
13	6705021910	SPONGE DAMPING	2	FRONT (2EA)
14	6555009220	SPRING DAMPING	4	
15	7165002620	BELT (φ24X1.2X1.2)	1	
16				
17				
18	5558001810	MOTOR RF 500TB-12560	1	
19	4638003210	S/W LEVER (SSCF-21)	1	
20	5708012910	CD DRIVE UNIT	1	KSM-2101AAM
Screws				
S1	8155001120	SCREW DAMPING	4	
S2	8155001210	SCREW MECHA	1	
S3	8159626081	SCREW #2WPT 2.6XBY	2	
S4	8009126051	SCREW BM 2.6X5	2	

SEMICONDUCTOR VOLTAGE CHART

Ref.No	Nomal Mode	
IC101	1-3	0V
	4	4.8V
	5	4.68V
	6	-5.05V
	7-13	0V
	14	184mV
	15	-1.0V
	16	1.2V
	17	-5.05V
	18	95.6mV
	19	-
	20	0
	21	-4.2V
	22-25	0
	26	2.593V
	27	2.531V
	28	0
	29	5.12V
	30	5.12V
IC102	1-4	0V
	5	-0.6V
	6	0
	7	0.492V
	8-9	0V
	10	5.13V
	11	0.6V
	12-13	0
	14	-145mV
	15-16	0
	17	-4.12V
	18	5V
	19	-5V
	20-21	0
	22	5V
	23	0
	24	5V
	25	5V
	26	0
	27	2.9V
	28	2.9V
	29	2.1V
	30	2.1C
	31	3.4V
	32	1.9V
	33-36	0
	37	5V
	38-39	0
	40	2.57V
	41-42	0
	43	-5V
	44	-4.2V
	45-48	0
IC103	1-4	0
	5	2.5V
	6	2.59V

Ref.No	Nomal	
IC104	7	0
	8	2.49V
	9	2.41V
	10	0
	11	2.68V
	12	0
	13-14	5V
	15	0
	16	5V
	17	0
	18	5V
	19	4.9V
	20	0
	21	AC 0.37V
	22	4.5V
	23-24	0
	25	5V
	26	5V
	27	2.57V
	28-32	0
	33	5V
	34-40	0
	41-50	0
	51	2.53V
	52	0
	53	2.189V
	54	3.193V
	55	0
	56-57	5V
	58-59	0
	60	1.287V
	61	1.287V
	62-63	3.75V
	64-66	1.917V
	67	5V
	68-69	2.573V
	70	2.573V
	71-73	5V
	74	5V
	75-77	2.57V
	78-79	0
	80	2.57V
IC104	1-3	0
	4	-8V
	5-6	0
	7	0.5V
	8	+8V
IC105	1	2.732V
	2-3	0
	4	2.25V
	5-7	5V
	8-9	2.5V
	10	0
	11	5V
	12	0

Ref.No	Nomal Mode	
	13	4.62V
	14-15	0
	16	4.62V
	17	5V
	18	2.5V
	19	0
	20	2.5V
	21-22	5V
	23	2.5V
	24	0
	25	2.5V
	26-27	5V
	28	2.5V
	1	+7V
	2	0
	3-4	1.46V
	5	-7V
IC106 ~107	6-7	0
	8	-30mV
	9	+7V
	1-3	0
IC108	4	-6.8V
	5-7	0
	8	+6.8V
	1	0
	2	AC 0.95
	3	AC 0.98
	4	AC 0.98
	5	-9.5
	6	-8.4
	7	-11.5
	8	-12.6
IC301	9	-6.6
	10	-4.3
	11	-4.6
	12	-2.8
	13	-21.3
	14	-12.4
	15	-12.4
	16	-21.3
	17	-16.8
	18	-3.6
	19	-3.7
	20	-12.4
	21	-26.1
	22	-24
	23	-24
	24	-24
	25-28	-23.7
	29-30	0
	31-32	5V
	33	3.26V
	34-35	5V
	36	0
	37-38	5V
	39-42	0
	43-44	5V
	45-46	0

Ref.No	Nomal Mode	
	47	5V
	48-56	0
	57	5V
	58	0
	59	4.9V
	60-62	5V
	63	0
	64	5V
	65-71	0
	72	2.5V
	73	5V
	74	2.5
	75	5V
	76	-26V
	77-80	AC0.85
	E	5.14V
Q101	B	4.86V
	C	0.3V
Q102 Q104 Q107 Q109 Q111	E	0
	B	0
	C	5V
Q103 Q105 Q108 Q110 Q106	E	0
	B	0
	C	-5V
	E	0
Q114	B	4.9V
	C	0
Q115 Q116	E	0
	B	0.7
	C	0
	E	7V
Q117	B	6.2V
	C	0
	E	0V
Q118	B	0.7V
	C	0
	E	0
Q119	B	0
	C	5V
	E	0
Q120	B	3.7V
	C	0
	E	-26.2
Q302	B	-26.9
	C	-27V