

# ONKYO SERVICE MANUAL

## COMPACT DISC PLAYER

### MODEL DX-C730



#### Black model only

MD	120V AC, 60Hz
MP	230V AC, 50Hz
MW	120/220V AC, 50/60Hz

#### **SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK  $\Delta$  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

#### **SPECIFICATIONS**

Compact Disc Automatic Changer Model DX-C730

Signal readout system:	Optical non-contact
Reading rotation:	About 500 -200 r.p.m. (constant linear velocity)
Linear velocity:	1.2 - 1.4 m/s
Error correction system:	Cross Interleave Reed-Solomon code
D/A converter:	1 bit PWM ACCUPULSE
Sampling frequency:	400kHz (8 times oversampling)
Number of channels:	2 (stereo)
Frequency response:	2Hz - 20kHz
Total harmonic distortion:	0.004%
Dynamic range:	96dB
Signal to noise ratio:	98dB
Channel separation:	92dB (at 1kHz)
Wow and Flutter:	Below threshold of measurability
Output level:	2 volts r.m.s.
Power consumption:	15 watts
Power supply:	U.S.A. and Canadian models: AC 120V, 60Hz European models: AC 230V, 50Hz Worldwide models: AC 220 - 230V and 120V switchable, 50/60Hz
Dimensions (W×H×D):	435×131×429 mm (17-1/8"×5-3/16"×16-7/8")
Weight:	8.2kg (18.1 lbs.)

**ONKYO**<sup>®</sup>  
**AUDIO COMPONENTS**

Specifications and external appearance are subject to change without notice because of product improvements.

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## SERVICE PROCEDURES

### 1. Safety-check out

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

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

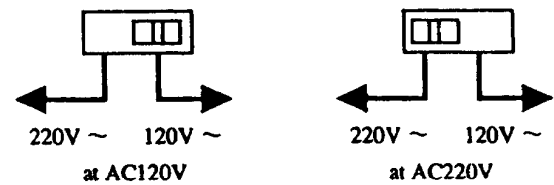
Specifications: More than 10M $\Omega$  at 500V.

### 2. Voltage Selector (Back panel)

Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in user's area before turning the power switch on.

Voltage is changed by sliding the groove in the switch with a screw driver to the right or left.

Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



## CAUTION ON REPLACEMENT OF OPTICAL PICK UP

The laser diode in the optical pickup block is so sensitive to static electricity, surge current and etc, that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair, carefully take the following precautions. (The following precautions are included in the service parts.)

### PRECAUTIONS

#### 1. Ground for the work-desk.

Place a conductive sheet such as a sheet of copper (with impedance lower than 10M $\Omega$ ) on the work-desk and place the set on the conductive sheet so that the chassis.

#### 2. Grounding for the test equipment and tools.

Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

#### 3. Grounding for the human body.

Be sure to put on a wrist-strap for grounding whose other end is grounded.

Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.

#### 4. Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

#### 5. Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

### WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

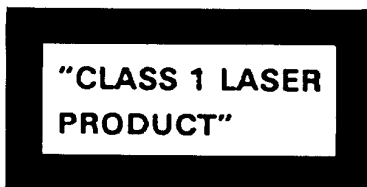
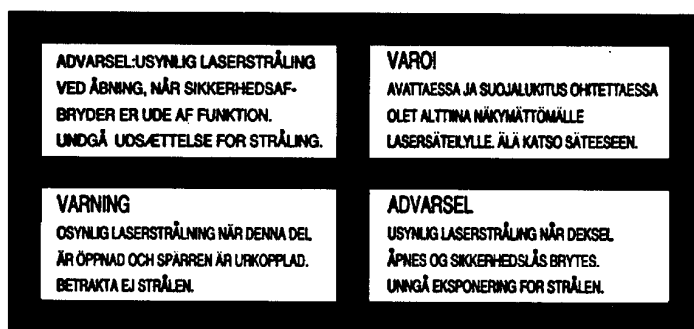
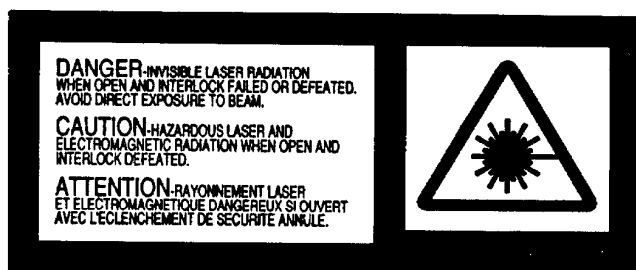
### Laser Diode Properties

- Material: GaAlAs
- Wavelength: 760~800nm
- Emission Duration: continuous
- Laser output: max. 0.5mW\*

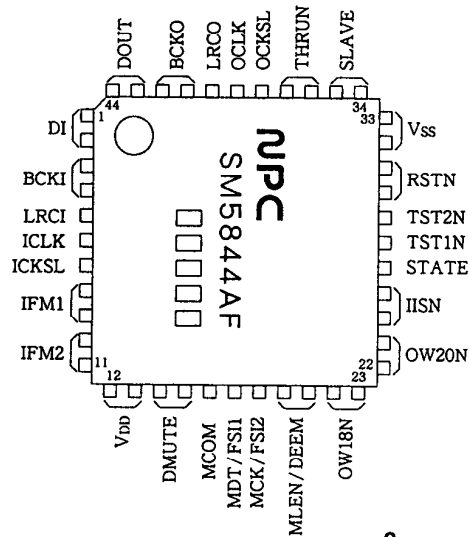
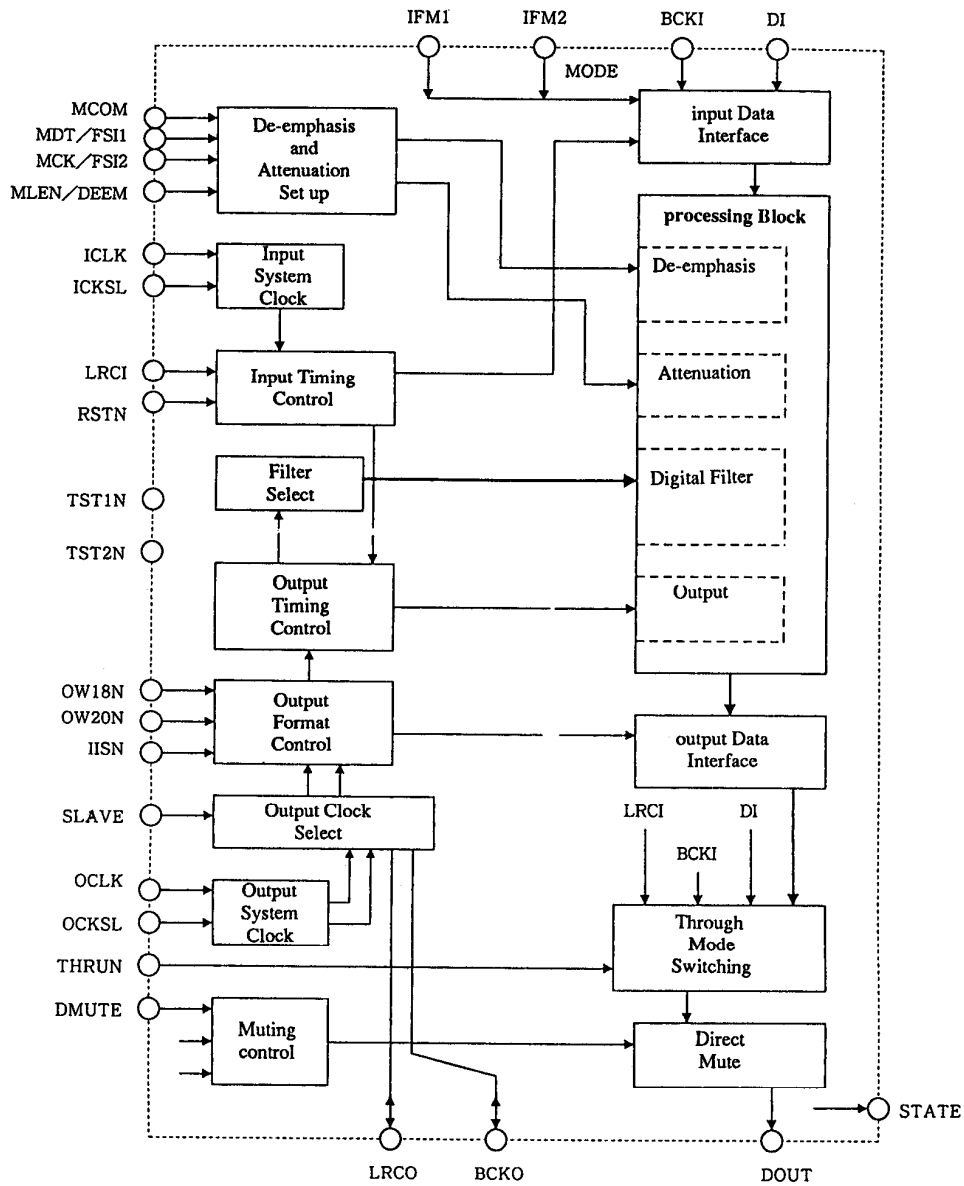
\*This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

## LASER WARNING LABEL

These labels are located on the mechanism.



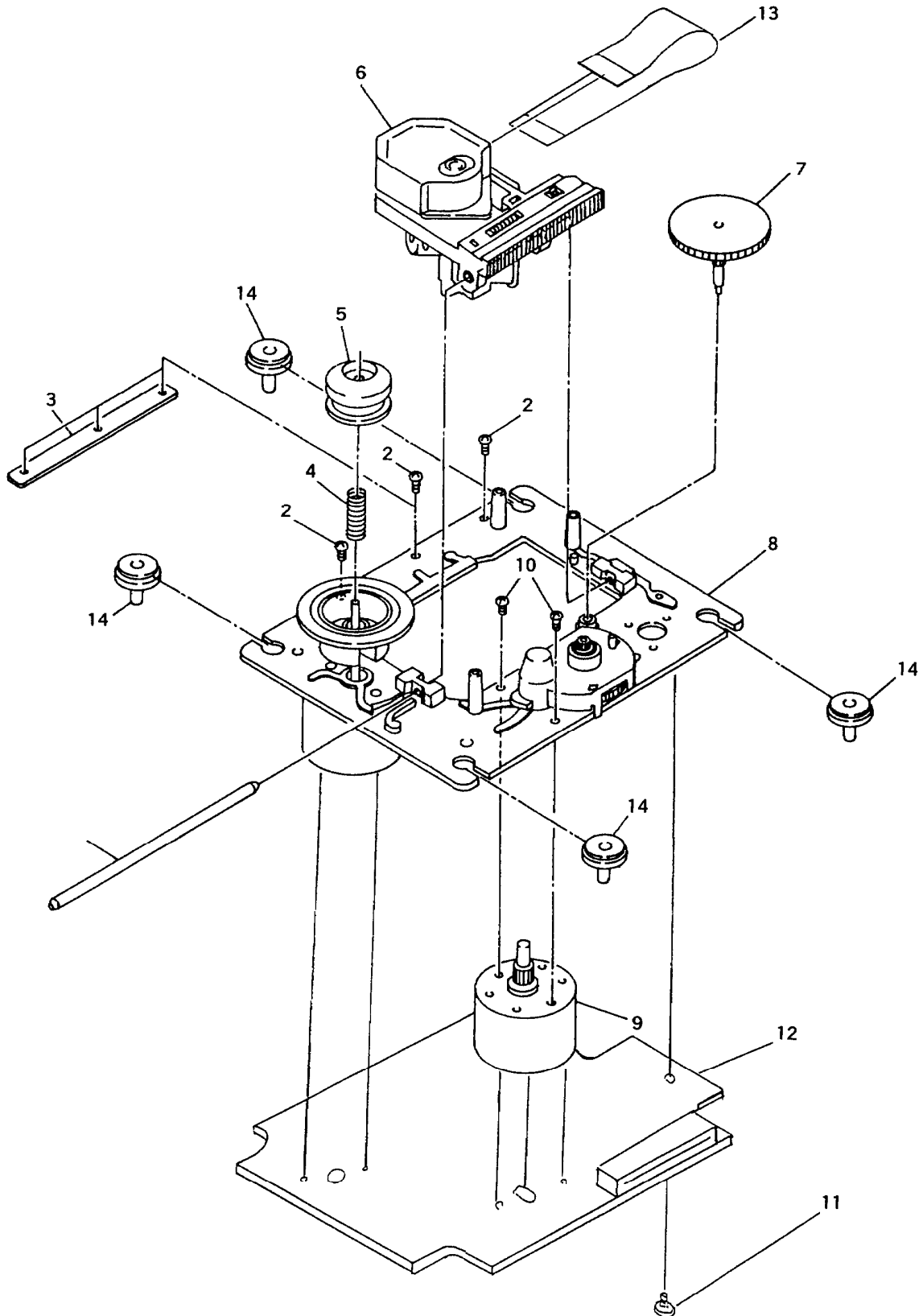
# SM5844AF (SAMPLING RATE CONVERTOR)

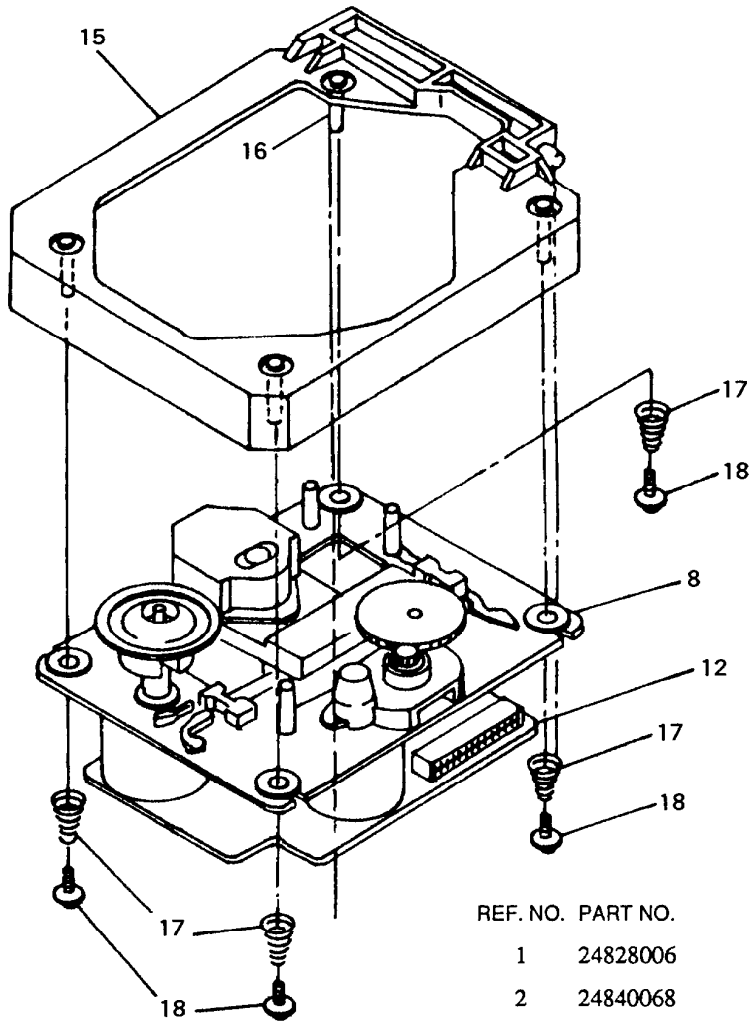


## MICROPROCESSOR TERMINAL DESCRIPTION

PIN NO.	SYMBOL	I/O	DESCRIPTON	PIN NO.	SYMBOL	I/O	DESCRIPTON
1	7G	O	FL tube grid signal	41	D2	I/O	Expander data for customer file RAM
2	6G			42	D1		
3	5G			43	D0		
4	4G			44	RE.PHS	I	Jog phase signal
5	3G			45	RE.CLK	I	Jog clock signal
6	2G			46	SCOR	I	Sub code block detection signal from signal process IC
7	1G			47	RMCON	I	Remote control signal
8	Vdd	I	Power supply pin (+5V)	48	IC	I	Micro processor internally connect pin (Grand)
9	CLK	O	Command forward clock for signal process IC	49	RI.OUT	O	System signal
10	DATA	O	Command data for signal process IC	50	ROT.ST	I	Roulet stop position detection signal
11	XLT	O	Command latch for signal process IC	51	ROT.POS	I	Roulet position detection signal
12	DMUT	O	Digital mute signal for audio output	52	Vdd	I	Power supply pin (+5v)
13	AMUT	O	Analog mute signal for audio output	53	NC		Not used
14	SQCK	O	Sub code forward clock for signal process IC	54	NC		Not used
15	EX.OE	O	Enable signal for port expander	55	P1		
16	SQSO	I	Sub code input pin from signal process IC	56	P2		
17	XRST	I	Reset signal input pin	57	P3		
18	RAM.CE	O	Chip enable signal for customer file RAM	58	P4		
19	RAM.WR	O	Write enable signal for customer file RAM	59	P5		
20	AVss	I	A/D converter grand pin	60	P6		
21	EXPE1	O	Enable signal for port expander	61	P7		
22	EXPE2	O		62	P8		
23	EXPE3	O		63	P9		
24	EXPE4	O		64	P10		
25	AD3	I	Shuttle input pin	65	P11		
26	AD2	I	Key input pin	66	P12		
27	AD1	I		67	P13		
28	AD0	I		68	P14		
29	AVdd	I	A/D converter power supply pin (+5v)	69	P15		
30	AVref	I	A/D converter reference voltage input pin (+5V)	70	P16		
31	RI.IN	I	System signal	71	-Vp	I	Negative power supply pin for FL tube
32	NC		Not used	72	8G	O	FL tube grid signal
33	Vss	I	Power supply grand pin	73	9G		
34	X1	I	Clock circuit input pin	74	10G		
35	X2	O	Clock circuit output pin	75	11G		
36	D7	I/O	Expander data for customer file RAM	76	12G		
37	D6			77	13G		
38	D5			78	14G		
39	D4			79	15G		
40	D3			80	16G		

# **MECHANISM-EXPLODED VIEW PICK-UP DRIVE UNIT KSK-1320A**





REF. NO.	PART NO.	DESCRIPTION
1	24828006	Sled shaft
2	24840068	2 x 5, Self-tapping screw
3	24822015A	Reinforcement plate
4	24820024	Spring
5	24824003	Centering
6	24110011	Pick-up
7	24810023	Wheel
8	24802014	Chassis ass'y
9	24804012	Sled motor ass'y
10	82112003	2P+3FN, Pan head screw
11	24840099	2 x 6, Self-tapping screw
12	24840075A	AR-AS-1A, RF/Servo pc board ass'y
13	24840074	Flexible cable
14	24818012	Insulator (FLT)
15	24802016	Chassis (SUB)
16	24828012	Shaft (FLT)
17	24820026	Spring (FLT)
18	24609072Y	Screw (FLT)

# PRINTED CIRCUIT BOARD - PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
<b>MAIN CIRCUIT PC BOARD (NAAR-5763-1)</b>					
	<b>ICS</b>		R147	453530184	RNU1/2WCJ, 1.8, METAL R
Q101	22241007Y	MPD78043AGF-052		<b>OTHERS</b>	
Q104-Q107	222745735HIT	HD74HC573P	P101A	25050895 or	NSCT-31P690, FFC SOCKET or
Q108	22240991	LH5168-10L		25050937	NSCT-31P724, FFC SOCKET
Q109	22240239	TA7291S	P102	25045330	NPJ-2PDBL184, JACK
Q110	22240771	BA6191	P103	25065425	SCREW M3 TERMINAL
Q112	22240487A	CXD2500BQ	P401	25045422	NPJ-2PDBL247, JACK
Q116	22240018	M51943A	P701A	25050980	NSCT-40P767, FFC SOCKET
Q301	22240913R3	SM5844AF	P751A	25051088	NSCT-4P875, WIRE HOLDER
Q302	22240726	SM5872CN	P751B	25055625	NPLG-4P587, WIRE TRAP
Q401	222956	NJM2068D-D	P901B	25050273	NSCT-9P101, WIRE TRAP
Q403,Q404	22240191	NJM4565D-D	P902B	25050272	NSCT-8P100, WIRE TRAP
Q901	222780055MIT	M5F78M05L	E102	27160145-1 or	RAD51, HEAT SINK or
Q902	222780075MIT	M5F78M07L		27160145	RAD51, HEAT SINK
Q908,Q909	222780053	78L05	E105	27190751	HOLDER (X301)
	<b>TRANSISTORS</b>		E110	27190540-1	UAMS-03-0, HOLDER
Q102	2211164	2SC2120-Y	<b>DISPLAY CIRCUIT PC BOARD (NADIS-5764-1)</b>		
Q103	2212600	DTA124ES		<b>FL TUBE</b>	
Q111	2211255	2SC1815-GR	Q701	212150Y	16-BT-42GK
Q114,Q303	2213290	DTC114ES		<b>OTHERS</b>	
Q115	2211455	2SA1015-GR	P701B	25050946	NSCT-40P733, FFC SOCKET
Q405-Q408	2211706	2SD655-F	S701-S716	25035652	NPS-111-S604, PUSH SW
Q903	2211504 or	2SA950-Y or	S717	25065514	SRGPHJ-1-2-1, JOG SHUTTLE
	2211503	2SA950-O	E104	27190979AY	HOLDER(FL)
Q904,Q905	2212524	2SK363-GR	<b>POWER SUPPLY CIRCUIT PC BOARD (NAPS-5765-1)</b>		
Q906	2201285	2SD882-Q	<b>DIODE</b>		
Q907	2201275	2SB772-Q	D901-D908	△ 22380035 or	GP104003E or
	<b>OPTICAL MODULE</b>			△ 22380032	1SR139-100
Q113	24120038	GP1F32T	L901	<b>CHOKO COIL</b>	
	<b>DIODES</b>			△ 231222	NCH-3454
D101,D104,D106,D107,	223205 or	1SS270A or	C962-C965	<b>CAPACITORS</b>	
D108,D110	223163	1SS133	C901,C902	374721044	ECQ-V50V, 104J, TF C
D102,D105	224470562	MTZJ5.6B, Zener	C905-C907	393343327	CE04W16V, 3300M, VX C
D103	223191	SD101	C960,C961	354761019	CE04W35V, 100M, ELECT C
D909-D912	22380035 or	GP104003E or		374722244	ECQ-V50V, 224J, TF C
	22380032	1SR139-100		<b>OTHERS</b>	
D913	224473004	MTZJ30D, Zener	P901A	25051113	NSCT-9P900, WIRE HOLDER
D914	224470563	MTZJ5.6C, Zener	P902A	25051112	NSCT-8P899, WIRE HOLDER
D915,D916	224470913	MTZJ9.1C, Zener	P903A	△ 25055676	NPLG-2P632, POWER PLUG
	<b>CRRA LOCK,CRYSTAL</b>		P906	25065425	SCREW M3 TERMINAL
X101	3010229	EFOEC4004A4, CERA LOCK	S901	25065437	NSS-22157P, SLIDE SW <W>
X102	3010112	KD6586FFB, CRYSTAL	<b>REMOTE SENSOR CIRCUIT PC BOARD (NAETC-5766-1)</b>		
X301	3010272	AT-38-192, CRYSTAL	<b>REMOTE SENSOR</b>		
	<b>CAPACITORS</b>		Q751	241302	PIC-12043TH2
C103,C109,C113,C115,	354721019	CE04W6.3V, 100M, ELECT C		<b>LED</b>	
C130,C135,C307			D751	225324D or	SEL6910A-D, LED or
C104	374724734	ECQ-V50V, 473J, TF C		225324C	SEL6910A-C, LED
C105	374721524	ECQ-B50V, 152J, TF C	C751	355721019	CE04W6.3V, 100M, ELECT C
C106,C107	374721034	ECQ-B50V, 103J, TF C		<b>OTHERS</b>	
C116,C301,C913,C914	374721044	ECQ-V50V, 104J, TF C	P751A	25051088	NSCT-4P875, WIRE HOLDER
C117	354741019	CE04W16V, 100M, ELECT C	S751-S756	25035652	NPS-111-S604, PUSH SW
C118-C121,C923	354744709	CE04W16V, 47M, ELECT C	<b>POWER SWITCH CIRCUIT PC BOARD (NAPS-5767-1)</b>		
C122	3000064	EECF5R5U474, FYD C	<b>CAPACITOR</b>		
C126,C140	374722224	ECQ-B50V, 222J, TF C	C951	△ 3500191	DE7150F 103M, AC400V/125V, IS
C127	354780479	CE04W50V, 4.7M, ELECT C		<b>POWER SWITCH</b>	
C128	354721029	CE04W6.3V, 1000M, ELECT C	S951	△ 25035636	NPS-111 -L590P
C129	354782299	CE04W50V, 0.22M, ELECT C			
C133,C413,C414,C908	354784709	CE04W50V, 47M, ELECT C			
C141,142	374722234	ECQ-B50V, 223J, TF C			
C302,C309,C310,C921	354722219	CE04W6.3V, 220M, ELECT C			
C312,C927	354724719	CE04W6.3V, 470M, ELECT C			
C407,C408	374721824	ECQ-B50V, 182J, TF C			
C409,C410	374724724	ECQ-B50V, 472J, TF C			
C423-C426,C917-C920	354742219	CE04W16V, 220M, ELECT C			
C429	354782209	CE04W50V, 22M, ELECT C			
C915,C916	393343327	CE04W16V, 3300M, VX C			
C909,C911	354764709	CE04W35V, 47M, ELECT C			
C931,C932	374722244	ECQ-V50V, 224J, TF C			

&lt;W&gt;: Worldwide model only



# CHASSIS PARTS LIST

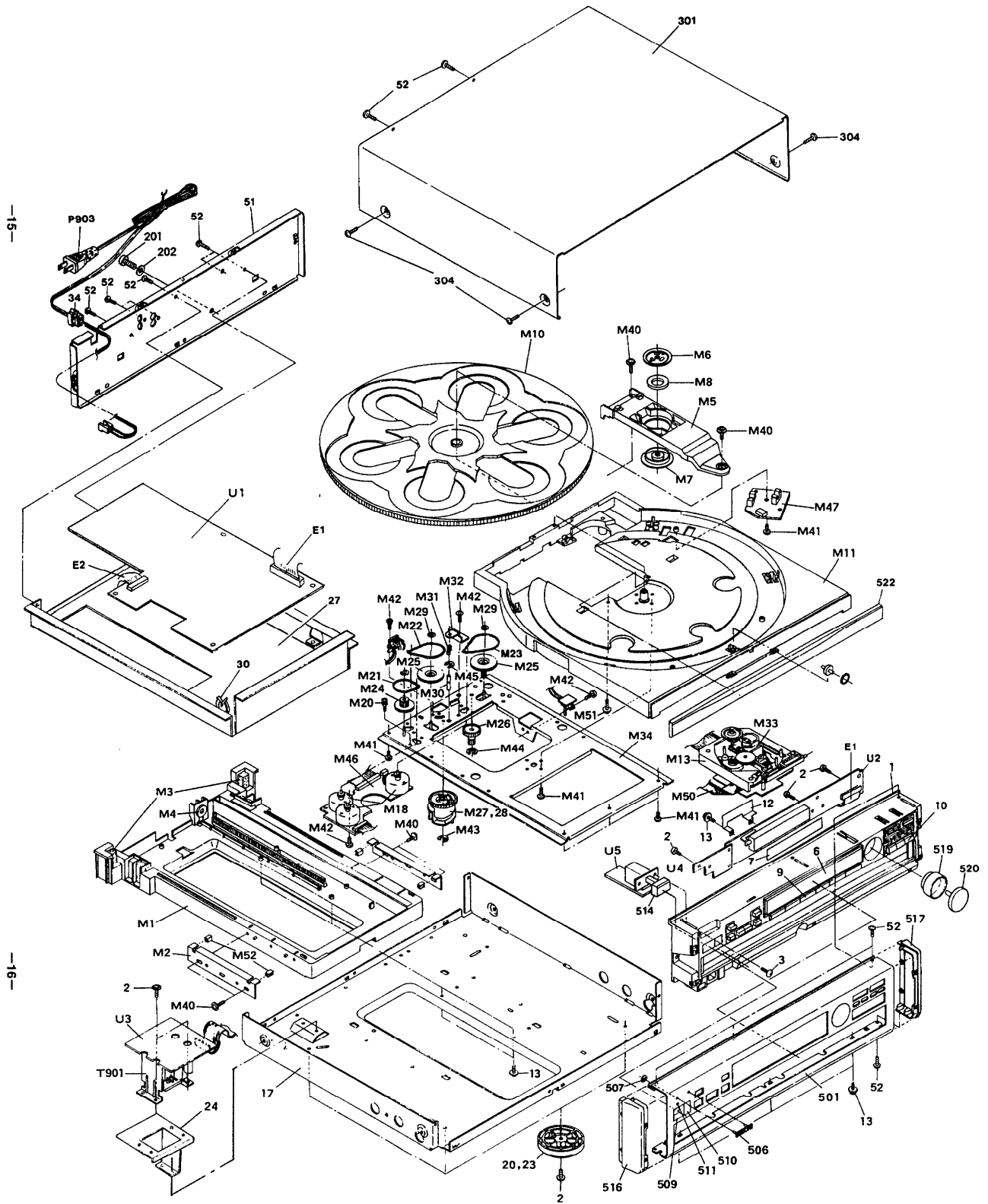
REF. NO.	PART NO.	DESCRIPTION
1	27110932AY	FRONT BRACKET
2	838130088	3TTB+8B, SCREW
3	838430107	3TTB+10S(BC), SCREW
6	28191737Y	CLEAR PLATE
7	28133354Y	BACK PLATE
9	28325348Y	KNOB(DISC)
10	28325349	KNOB(PLAY) AS
12	27141662Y	RETAINER(F)
13	831430100	3TTW+10P(BC), SCREW
17	27100312Y	CHASSIS
23	27175316Y	LEG
24	27130772Y	BRACKET(PT)
27	27130773Y	BRACKET(PC)
29	29361957Y	LABEL(ALL2)
30	27301778Y	HL-18-0, CLAMP
31	27190428-1Y	LSR-10R, HOLDER
34	△ 27300750	NIFCO #2271, CORD BUSHNG
51	27122215Y	REAR PANEL <D>
	27122216Y	REAR PANEL <P>
	27122217Y	REAR PANEL <W>
52	838430088	3TTB+8B(BC), SCREW
301	28184654Y	TOP COVER
304	838440089	4TTB+8C(BC), SCREW
501	27211824AY	FRONT PANEL
506	28135243	BADGE
507	8910301	CS RING
509	27267942Y	GUIDE(POW)
510	28191738Y	CLEAR PLATE (RE)
511	28198846Y	FACET(3)
514	28325264	KNOB(POW)
516	28125333Y	END CAP(L)
517	28125334Y	END CAP(R)
519	28325352AY	KNOB(S)
520	28325353AY	KNOB(J)
522	28148346Y	DOOR
E1	2047402012Y	NCFC7-402012, FFC
E2	2046312022Y	NCFC6-312022, FFC
P903	△ 253192HIT	AS-UC-6#18, AC CORD <D>
	△ 253193HIT	AS-CEE, AC CORD <P,W>
T901	△ 2301185Y	NPT-1268D, POWER TRANSFORMER <D>
	△ 2301186Y	NPT-1268P, POWER TRANSFORMER <P>
	△ 2301187Y	NPT-1268DG, POWER TRANSFORMER <W>
U1	1H336563-1AY	NAAR-5763-1A,MAIN PC BOARD AS <D>
	1H336563-1BY	NAAR-5763-1B,MAIN PC BOARD AS <P>
	1H336563-1CY	NAAR-5763-1C,MAIN PC BOARD AS <W>
U2	1H336564-1AY	NADIS-5764-1A,DISPLAY PC BOARD AS <D>
	1H336564-1BY	NADIS-5764-1B,DISPLAY PC BOARD AS <P>
	1H336564-1CY	NADIS-5764-1C,DISPLAY PC BOARD AS <W>
U3	1H336565-1AY	NAPS-5765-1A,POWER SUPPLY PC BOARD AS <D>
	1H336565-1BY	NAPS-5765-1B,POWER SUPPLY PC BOARD AS <P>
	1H336565-1CY	NAPS-5765-1C,POWER SUPPLY PC BOARD AS <W>
U4	1H336566-1AY	NAETC-5766-1A,REMOTE SENSOR PC BOARD AS <D>
	1H336566-1BY	NAETC-5766-1B,REMOTE SENSOR PC BOARD AS <P>
	1H336566-1CY	NAETC-5766-1C,REMOTE SENSOR PC BOARD AS <W>
U5	1H336567-1AY	NAPS-5767-1A,POWER SWITCH PC BOARD AS <D>
	1H336567-1BY	NAPS-5767-1B,POWER SWITCH PC BOARD AS <P>
	1H336567-1CY	NAPS-5767-1C,POWER SWITCH PC BOARD AS <W>

<D> : 120V model only  
 <P> : 230V model only  
 <W> : Worldwide model only

## CHANGER MECHANISM PARTS LIST (NCD-57S-C)

CIRCUIT NO.	PART NO.	DESCRIPTION
M1	24840095AY	RAIL
M2	24826006Y	HOLDER (GUIDE)
M3	24836006AY	CUSHION (TRAY)
M4	24836016Y	CUSHION (LOCK)
M5	24814003Y	ARM (B)
M6	24830004Y	YOKE (CHB)
M7	24824004	CAP (CHB)
M8	24832006Y	MAGNET (CHB)
M9	24836007Y	CUSHION (A2)
M10	24840096Y	ROULETTE
M11	24840097AY	RG-208086, TRAY
M12	24840098Y	ROLLER
M13	24802016Y	CHASSIS (SUB)
M18	24804015Y	RF-500TB-14415, MOTOR
M19	24810028Y	PULLEY
M33	24609071AY	SCREW
M21	24816009Y	RBR BELT (A)
M22	24816010AY	RBR BELT (B)
M23	24816011Y	RBR BELT (D)
M24	24810029Y	GEAR (A)
M25	24810030Y	GEAR (B)
M26	24810031Y	GEAR (D)
M27	24810026Y	CAM GEAR (A)
M28	24810027Y	CAM GEAR (B)
M29	24834014Y	WASHER
M30	24828007Y	SHAFT
M31	24820025Y	SPRING
M32	24822017Y	BRACKET (PI)
M33	24800011BY	KSK-1320A, CDP MECHA
M34	24802017AY	CHASSIS AS
M40	831430100Y	3TTW+10P(BC), SCREW
M41	833430080Y	3TTP+8P(BC), SCREW
M42	82112606Y	2.6P+6FN, SCREW
M43	8930401Y or 8930401SY	ES-4S, RING(E) or ES-4S, RING(E)
M44	8930201Y or 8930201SY	ES-2S, RING(E) or ES-2S, RING(E)
M45	8930301Y or 8930301SY	ES-3S, RING(E) or ES-3S, RING(E)
M46	1H242542-1Y	ETC-AS
M47	1H242543-1Y	ETC-AS
M48	1H242544-1Y	SW-AS
M49	1H242545-1Y	SW-AS
M50	2046220822Y	NCFC6-220822, FFC
M51	24609073Y	SCREW
M53	260208Y	WIRE TIE

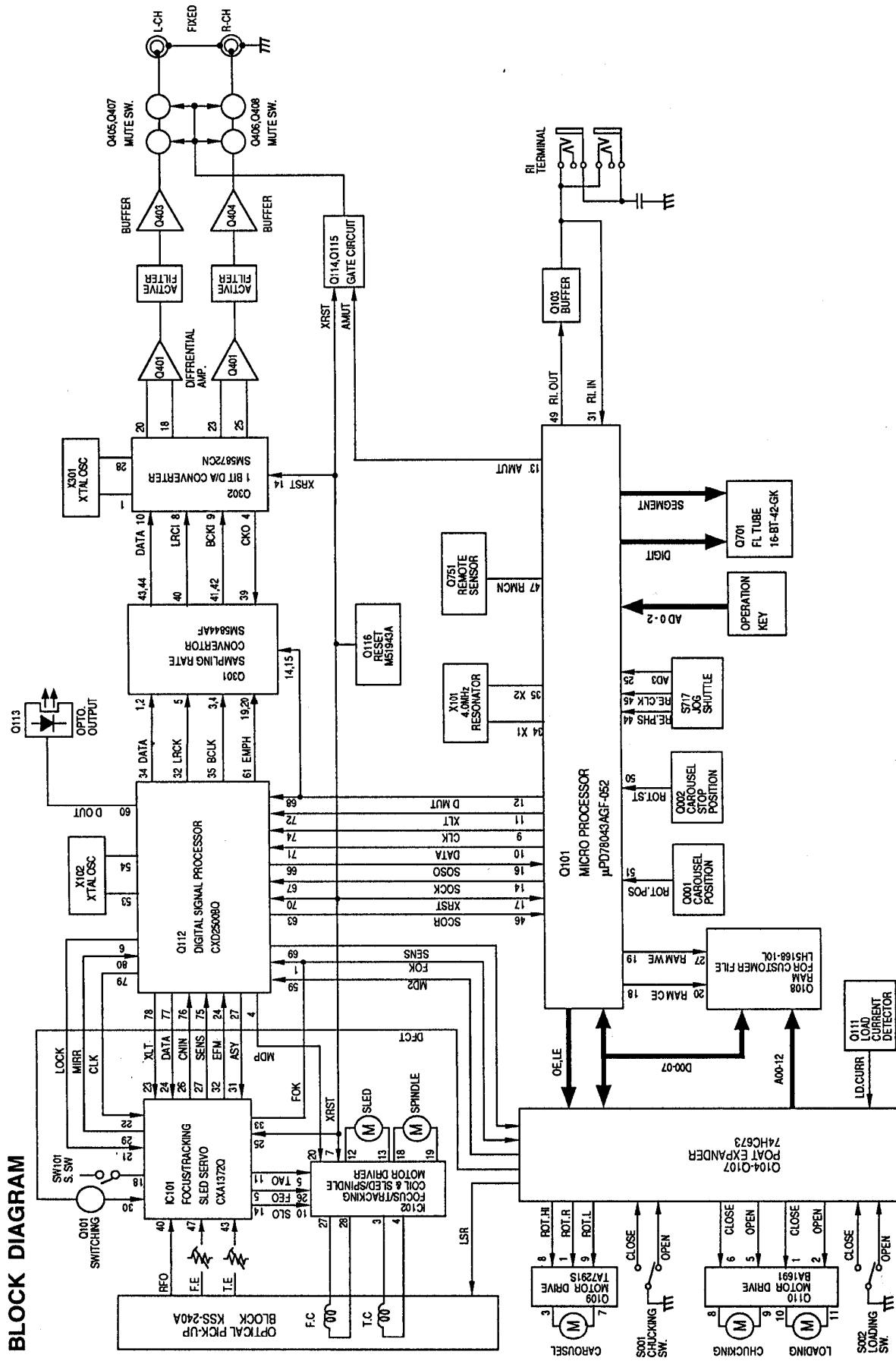
# CHASSIS EXPLODED VIEW



-15-

-16-

BLOCK DIAGRAM

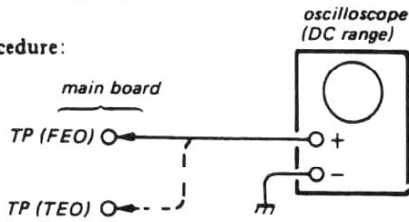


The following is a simple adjustment method.

- 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:**

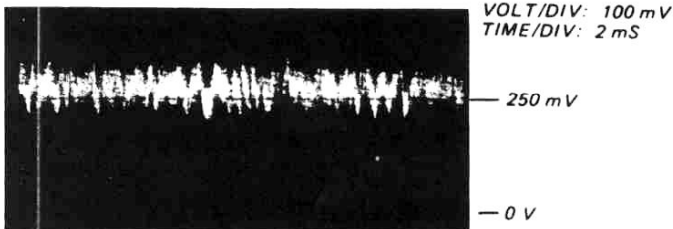


1. Keep the set horizontal.  
(If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS-18) and press ▷PLAY button.
3. Connect oscilloscope to RF/ Servo board TP (FE).
4. Adjust RV102 so that the waveform is as shown in the figure below. (focus gain adjustment)

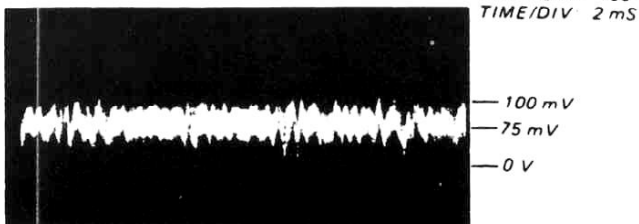


• Inccorrent Examples (DC level changes more than on adjusted waveform)

*low focus gain*

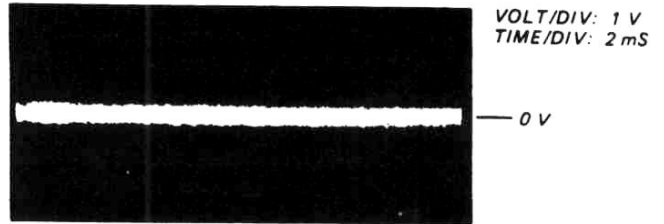


*high focus gain*



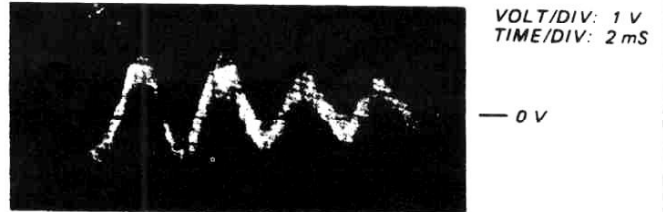
5. Connect oscilloscope to RF/ Servo board TP (TE).

6. Adjust RV101 so that the waveform is as shown in the figure below. (tracking gain adjustment)

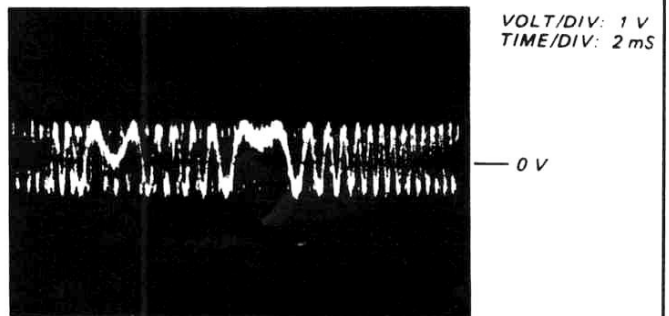


• Incorrect Examples (fundamental wave appears)

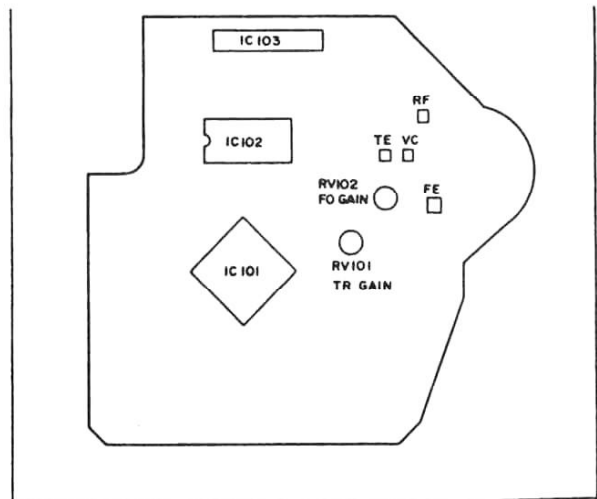
*low tracking gain*



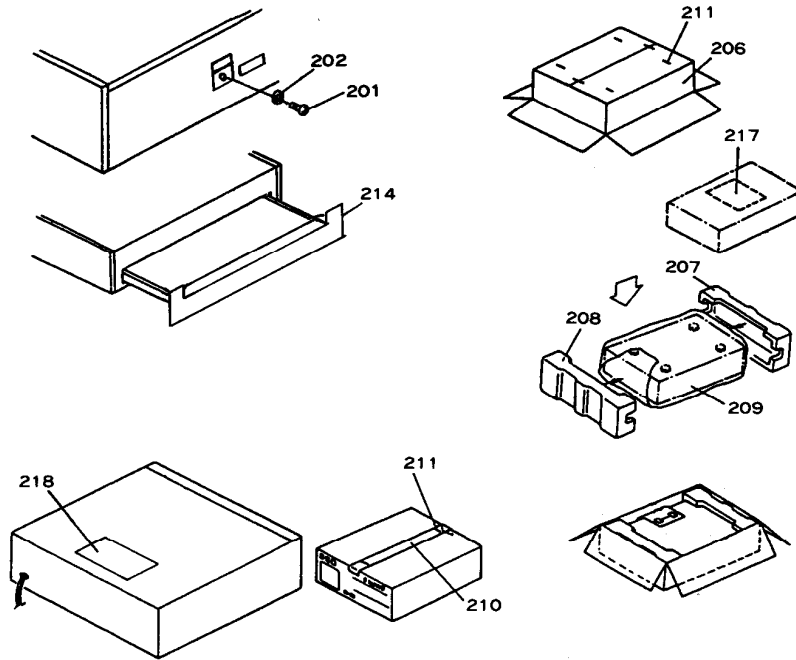
*high tracking gain  
(higher fundamental wave than for low gain)*



Adjustment Location: RF/ Servo board



## PACKING VIEW



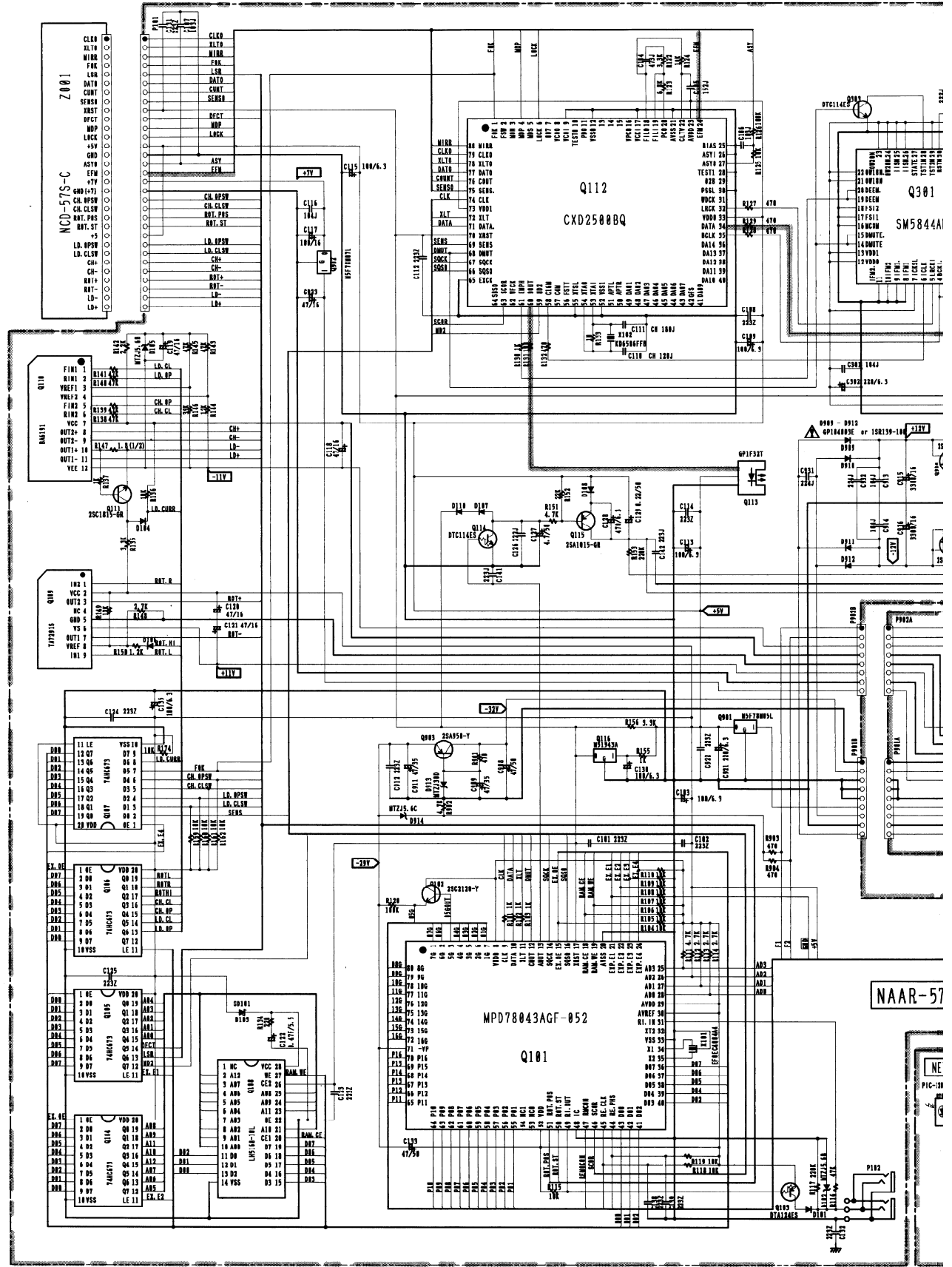
REF. NO	PART NO.	DESCRIPTION	
201	82115018	5P+18FN, SCREW	Accessory bag ass'y
202	27270382Y	t0.5x15x5.2, SPACER	29100097-1AY 350x250, POLY BAG
206	29053007AY	CARTON	2010244Y or PIN CORD AS
207	29091726Y	PAD (L)	2010326Y
208	29091727Y	PAD (R)	2010200 3.5MINI PLUG, CORD AS
209	29100141AY	700x600, POLY BAG	24140322Y RC-322C, REMOTE CONTROLLER
210	29110071	W50, PP TAPE	3010165Y or UM-3, BATTERY
211	282301	STAPLE	3010194Y
214	29095721Y	SHEET (DOOR)	29342309Y INSTRUCTION MANUAL (E)
217	29355207Y	INSTRUCTION SHEET	29342310Y INSTRUCTION MANUAL (U6) <P>
218	29360687	LABEL (CLASS 1) <P,W>	29342311Y INSTRUCTION MANUAL (U3) <W>
	29361958Y	UPC LABEL <D>	25055040 CV-K-2, CV PLUG <W>
	29360840	LABEL (SHEET) <D>	29365019B WARRANTY CARD <D>
	29361786Y	LABEL <W>	29358002K SERVICE STATION LIST <D>
	29360404	SN SHEET	

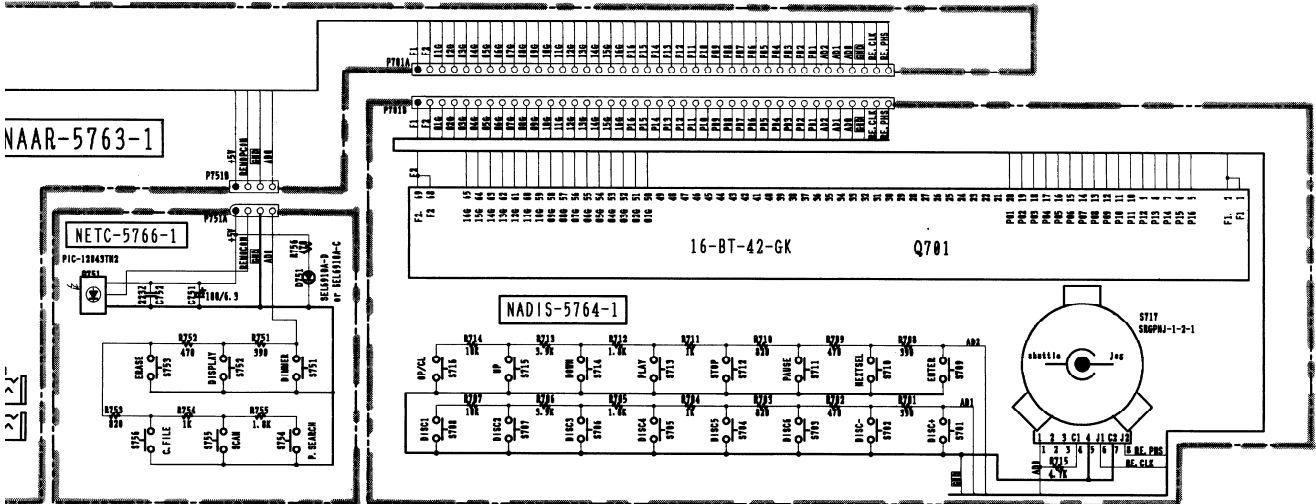
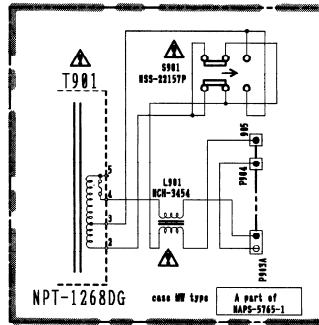
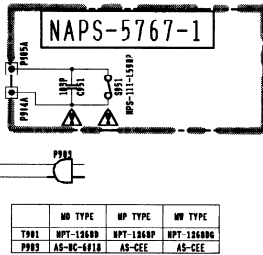
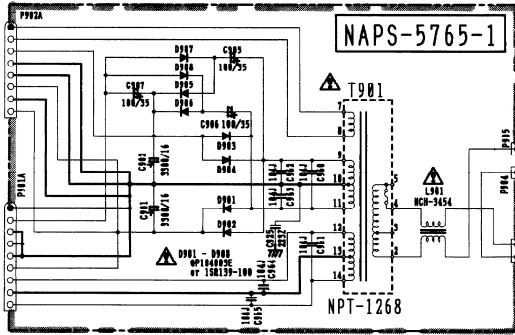
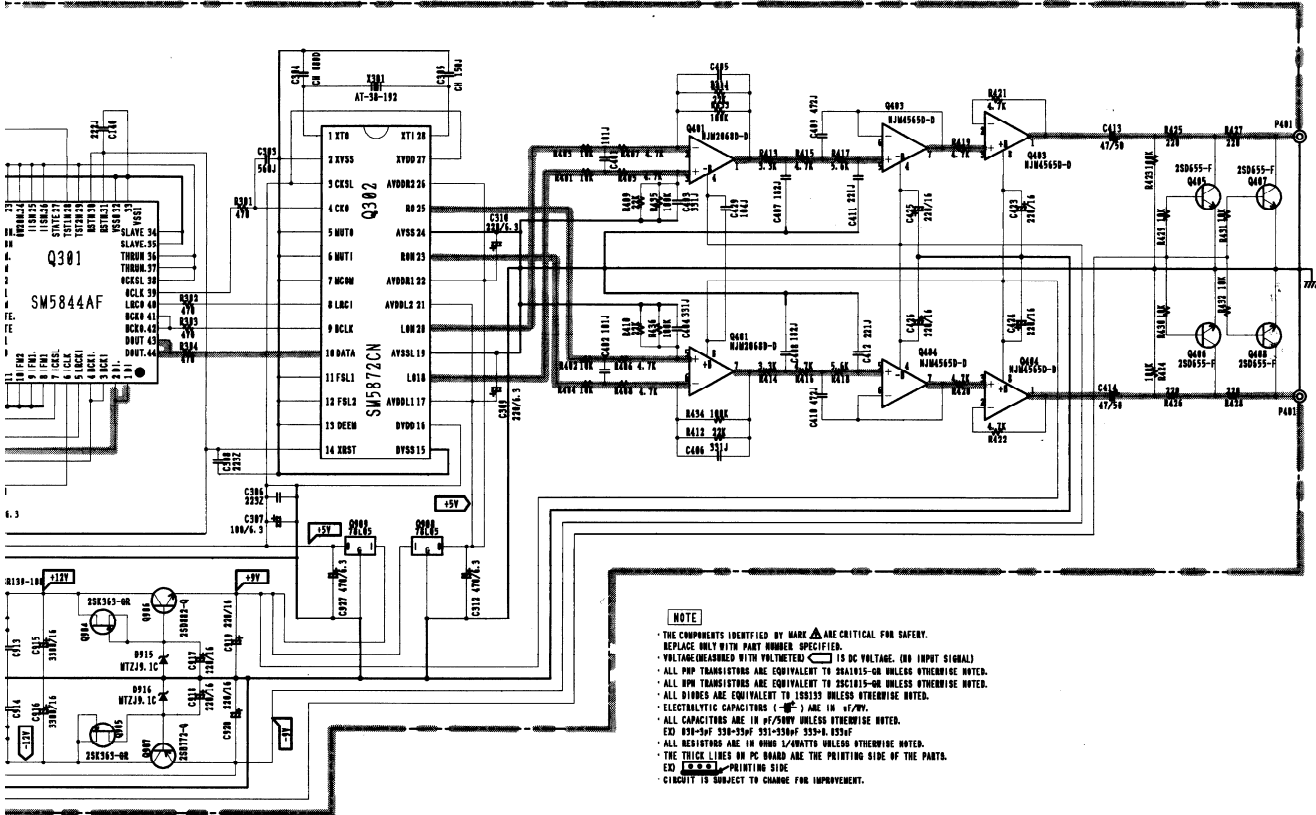
&lt;D&gt; : 120V model only

&lt;P&gt; : 230V model only

&lt;W&gt; : Worldwide model only

SCHMATIC DIAGRAM (1/2)







A

B

C

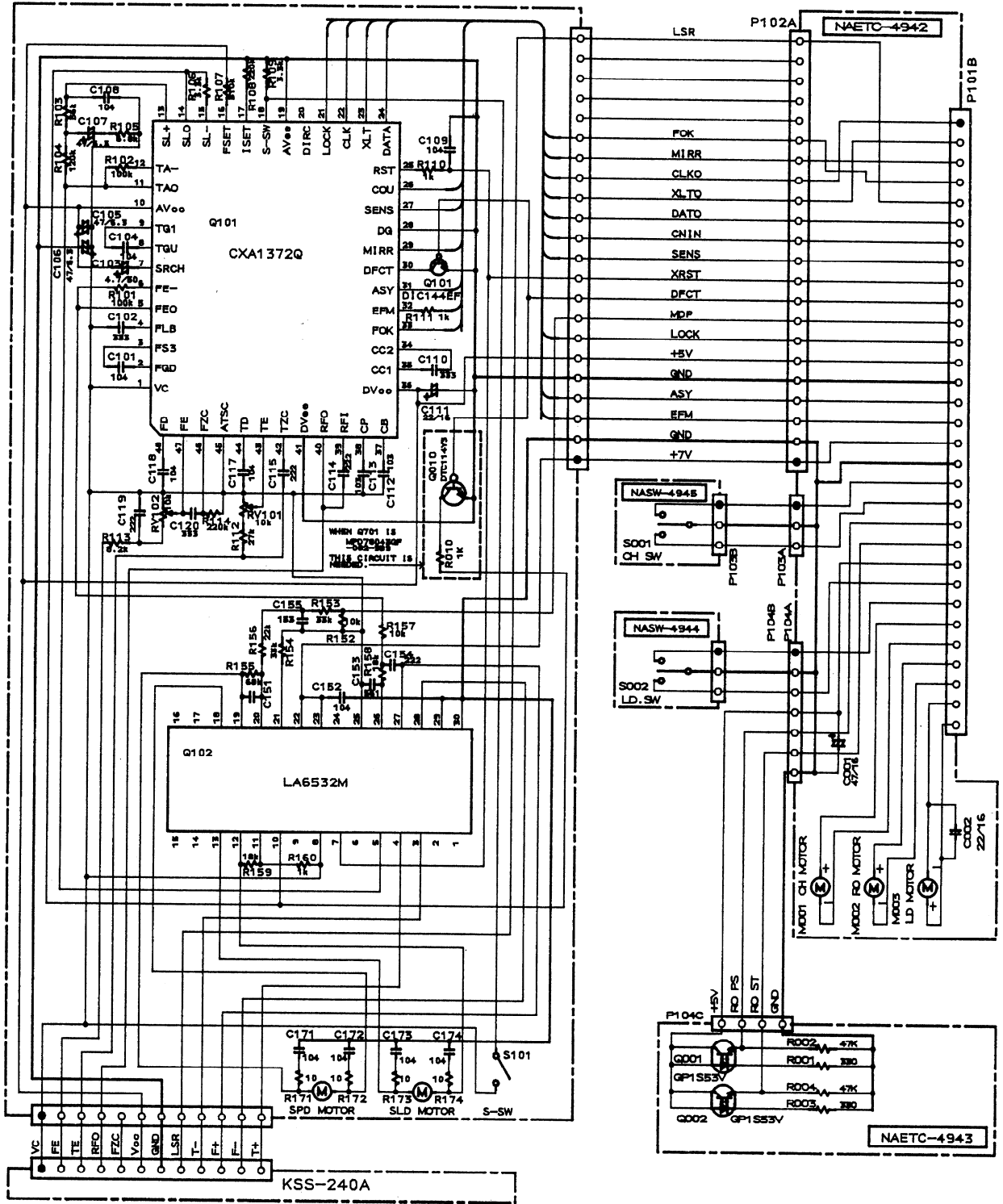
# SCHEMATIC DIAGRAM (2/2)

1

2

3

4





## **TEST MODE**

### **1. Mechanical Servo System Measurement Mode**

When turning on the power, continue to push the [UP] key at the same time.

This mode continues to operate while the set is turned on the power.

#### **1) Focus S-Curve Measuring Function**

When the set reads the disc for the first time (Lead-In), pushing the [PAUSE] key, the focus servo is turned off. The pick-up lens only moves up and down.

#### **2) Tracking Balance Tuning Function**

When the set plays, pushing the [PAUSE] key, the Tracking servo is turned off.

#### **3) CLV-S Motion Measurement Function**

While the Tracking servo is turned off, pushing the [FF] key, the time display in FL-tube displays the frame number.

### **2. File (CUSTOM FILE & CUSTOM PROGRAM) All Erase Mode**

When turning on the power, continue to push the [ERASE] key at the same time.

The [ERASE] character is displayed. And then all of CUSTOM FILE and CUSTOM PROGRAM are erased.

### **3. Disc Chacking Position For Shipment**

When turning on the power, continue to push the [ERASE] key at the same time, the roulette stops at the DISC1 position.

The chacking motion finishes when the [POWER OFF] character is displayed.

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