SERVICE MANUAL

NAD

SERVICE SAFETY PRECAUTIONS (UL)

1. Use exact replacement parts for critical locations marked "⚠"
2. Return lead dress to original position and re-install protective covers.
3. Before returning to customer, test for shock hazard; use either mothod A or B:

A. Leakage test "cold":
   1. Unplug the AC cord; turn power switch ON.
   2. Connect one lead of High Voltage Insulation Tester to both prongs of the AC plug.
   3. Touch other lead to all exposed metal parts.
   4. Impedance measurement must be 0.3-5.0 Megohms.

B. Leakage test, "live" :
   1. Plug unit directly into the AC outlet: do not use isolation transformer.
   2. Connect one lead of the Leakage Current Tester to earth ground.
   3. Touch other lead to all exposed metal parts.
   4. Leakage measurement must be less than 0.5 milliamps.

613 CASSETTE TAPE DECK

613

CASSETTE TAPE DECK

CONTENTS

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2. Return lead dress to original position, and re-install protective covers.

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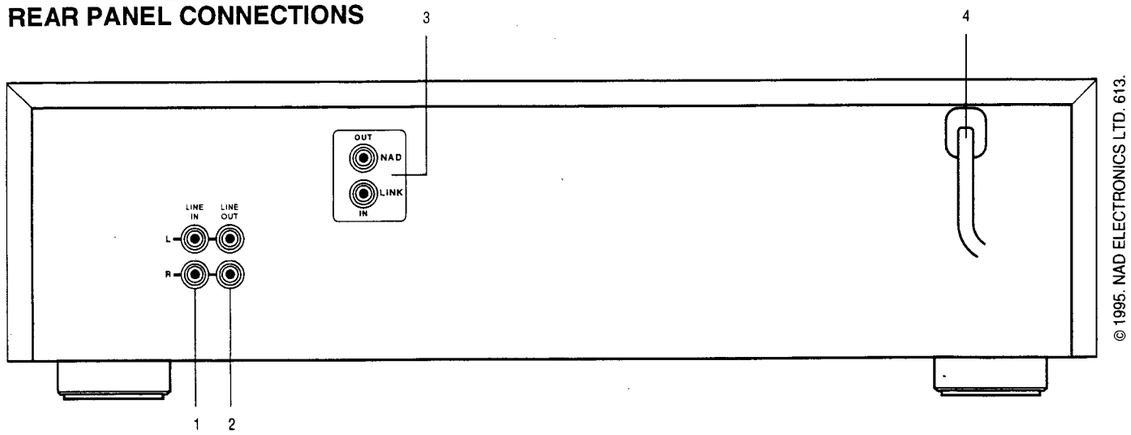
2. Connect one lead of High Voltage Insulation Tester to both prongs of AC plug.
3. Touch other lead to all exposed metal parts.
4. Impedance measurement must be 0.3 - 5.0 Megohms.

B. Leakage test, "live":

1. Plug unit directly into AC outlet; do not use isolation transformer.
2. Connect one lead of Leakage Current Tester to earth ground.
3. Touch other lead to all exposed metal parts.
4. Leakage measurement must be less than 0.5 milliamps.

WARNING:TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE

REAR PANEL CONNECTIONS

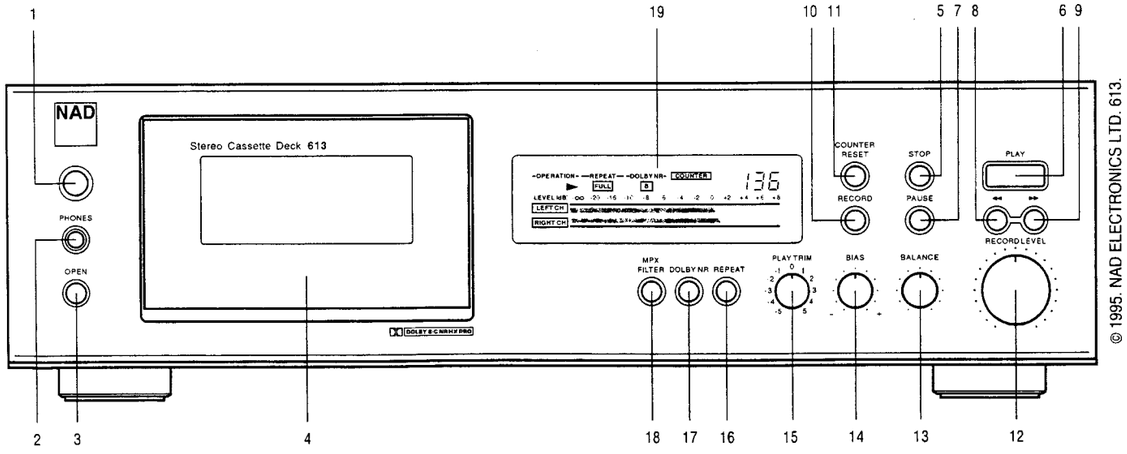


1. INPUT.
2. OUTPUT.
3. NAD LINK.
4. POWER.

The lightning flash with arrowhead, within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

FRONT PANEL CONTROLS



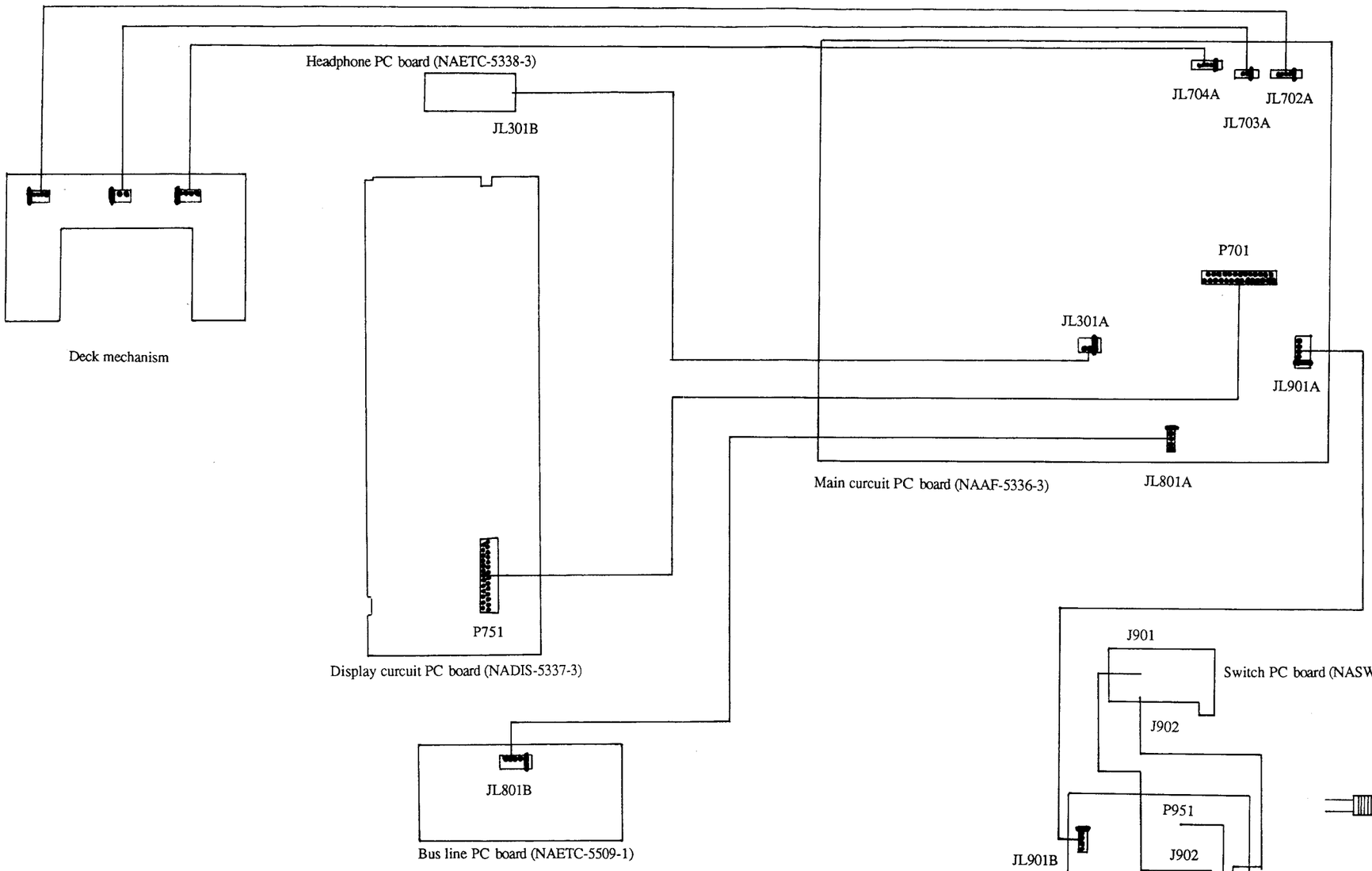
1. POWER.
2. PHONES.
3. OPEN
4. CASSETTE COMPARTMENT
5. STOP.
6. PLAY.
7. PAUSE.
8. REWIND.
9. FAST FOWARD
10. RECORD.
11. RESET.
12. RECORD LEVEL.
13. BALANCE.
14. BIAS.
15. PLAY TRIM.
16. REPEAT.
17. DOLBY NR.
18. MPX FILTER.
19. DISPLAY

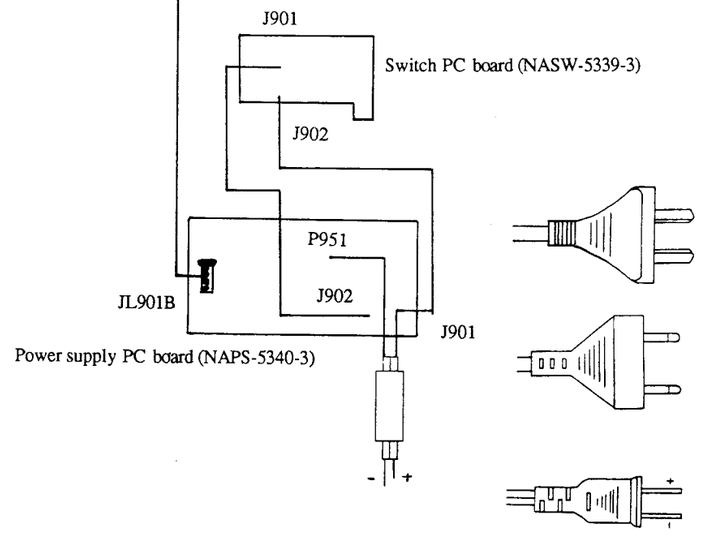
SPECIFICATIONS

Track Format:	4-tracks, 2-channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.)
Wow and Flutter:	0.07% (WRMS) 0.09% (DIN)
Frequency Response:	20—17,000Hz (normal) (30—16,000Hz ± 3dB) 20—18,000Hz (high) (30—17,000Hz ± 3dB) 20—19,000Hz (metal) (30—18,000Hz ± 3dB)
S/N Ratio:	58dB (metal tape, Dolby NR off) A noise reduction of 10dB above 5kHz and 5dB at 1kHz is possible with Dolby B NR. A noise reduction of 20dB at 5kHz is possible with Dolby C NR.
Input Jacks:	LINE IN: 2 Input sensitivity: 80 mV Input impedance: 50 kohms
Output Jacks:	LINE OUT: 2 Standard output level: 500 mV (0dB) Optimum load impedance: over 50 kohms Headphone jack:1 Optimum load impedance:8 to 200 ohms
Motors:	DC servo motor: 1 DC motor: 1
Heads:	REC/PB: Special Hard Permalloy × 1 Erase head: Ferrite × 1
Power Supply Rating:	European models: AC 230 V, 50Hz USA and Cadadian models: AC 120V, 60Hz
Power Consumption:	230V/0.12A 120V/0.24A
Dimensions:	435(W) × 125(H) × 290(D)mm
Weight:	5.0 kg. (11.0 lbs.)

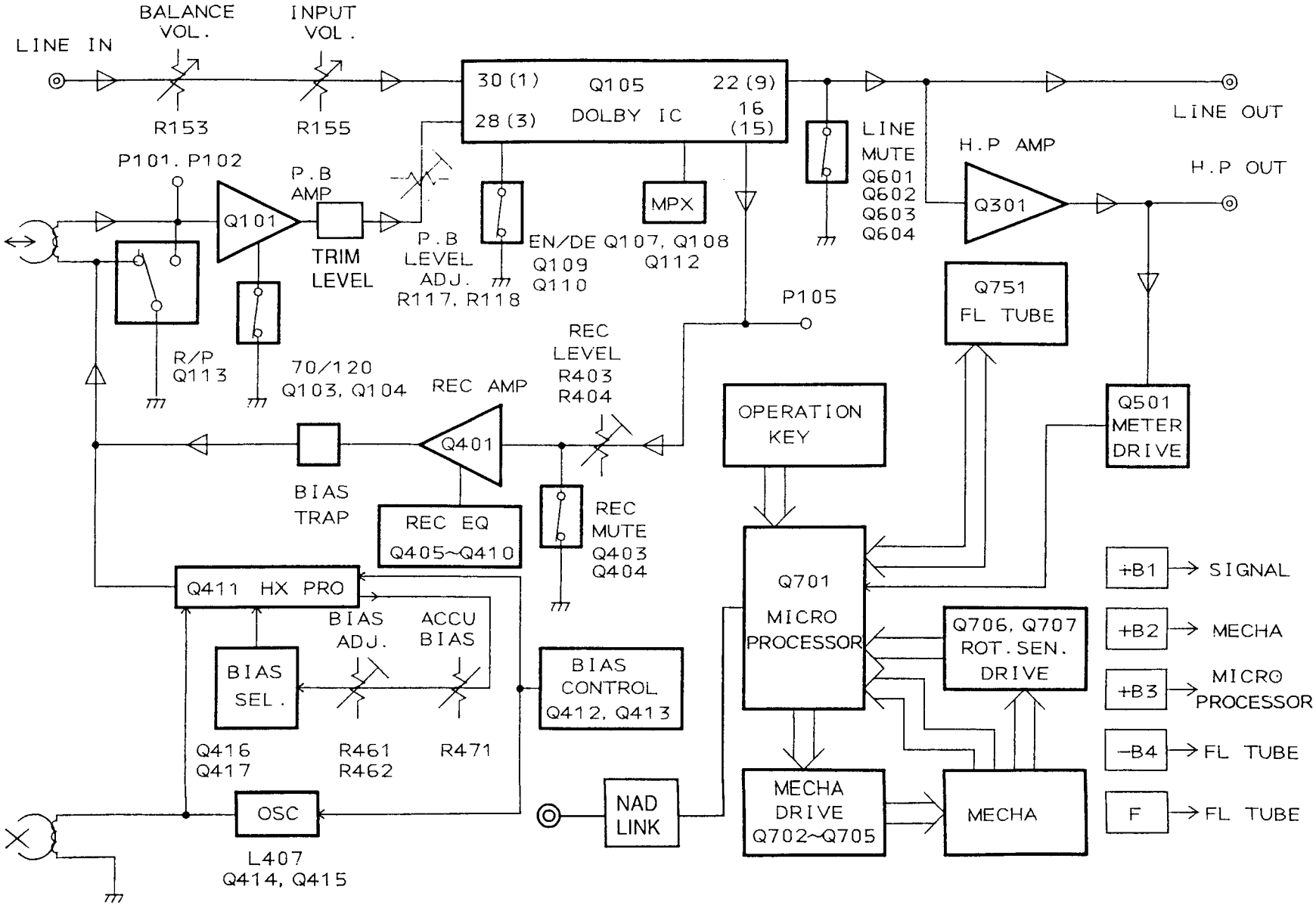
Specifications and external appearance are subject to change without notice because of product improvements.

WIRING DIAGRAM





BLOCK DIAGRAM



ADJUSTMENT PROCEDURES

PRECAUTION

1. Before adjustment, clean the following parts with an alchol moistend swab.
   *record/playback head *erase head
   *pinch roller *capstan
2. Do not use magnetized screwdriver for adjustment.
3. Demagnetized record/playback head with a head demagnetizer.

TEST EQUIPMENT/TOOL REQUIRED

Audio oscillator
Digital frequency counter
Oscilloscope
Attenuater
AC voltmeter
Non-magnetic screwdriver
Test tapes
TCC-153 : 10kHz, -15dB
MTT-111N : 3kHz, -10dB
MTT-150 : Dolby level calibration 400Hz, tone 200nWb/m

	Item	Connection of instrument	Line output freq/level	Test tape	Mode	Output indicator	Adjustment point	Adjustment	Remarks
1	Tape speed	Frequency counter to LINE output terminals		MTT-111N	PB	Frequency counter	Screw on back side of Capstan motor	3,000Hz+10Hz	
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminals		TCC-153	PB	AC voltmenter Fig.2	Fig.1	Maximunm level & Minimun phase error at channels L and R	Fig.3
3	Playback level	AC voltmeter to terminals TP-1 P105		MTT-150	PB	AC voltmeter	R117 (L.ch) R118 (R.ch)	300mV	
4	OSC Block	Frequency counter to P401 lead-Wire loose coupling		NONE or METAL TAPE	STOP	Frequency counter	L407	107kHz±1kHz	FT mode will be active when J147 is connected to GND.
5	Bias current	Fig.4	1kHz & 10kHz -23dB 35mV	NORMAL TAPE	REC/ PB	AC voltmeter	R461 (L.ch) R462 (R.ch)	0~+1.0dB at 1kHz and 10kHz	FT mode will be active when J147 is connected to GND.
6	Recording level	Fig.4	1kHz 350mV	NORMAL TAPE	REC/ PB	AC voltmeter	R403 (L.ch) R404 (R.ch)	Same level at REC/PB	FT mode will be active when J147 is connected to GND.

Blank tapes

NORMAL•••UD-1 C-90
HIGH••••••XL-II C-90
METAL••••XS C-90

PLAY torque••••••30~70g/cm
FF.REW torque••••80~180g/cm
Back tension••••••6~12g/cm

Head azimuth screw

Don't touch these screws.

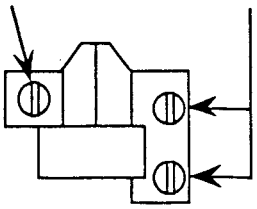
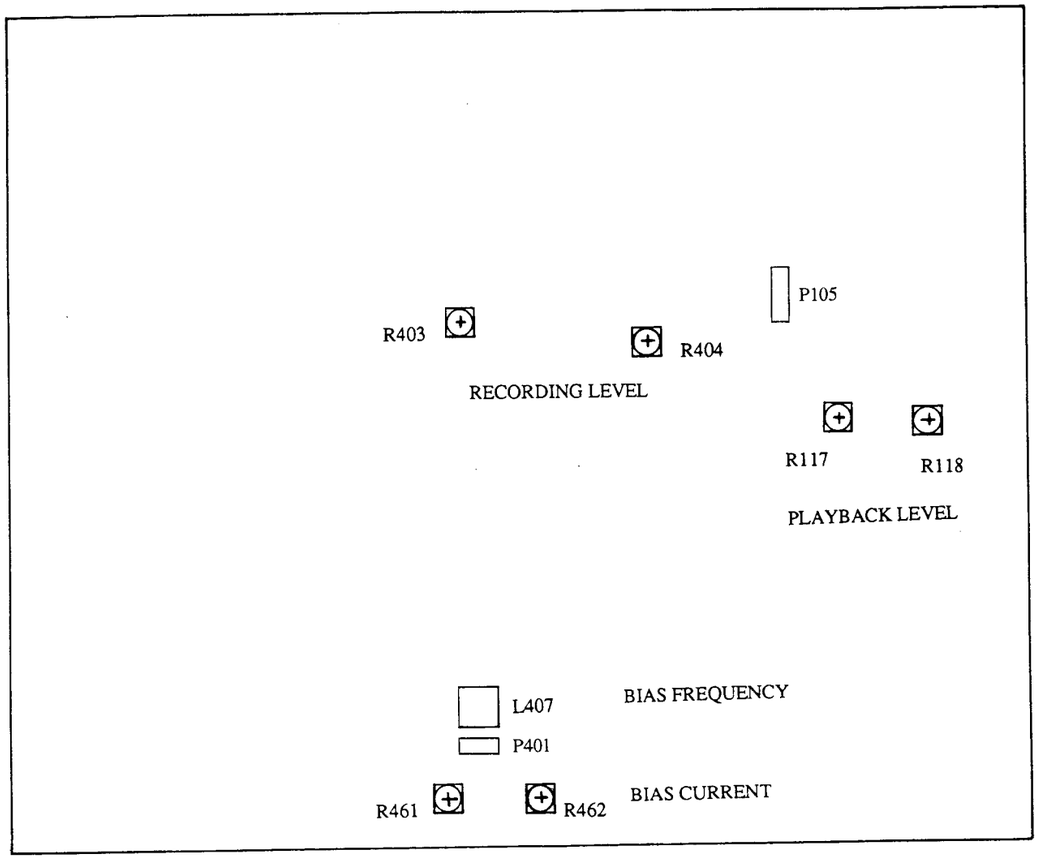


Fig.1 R/P Head

ADJUSTMENT POINT



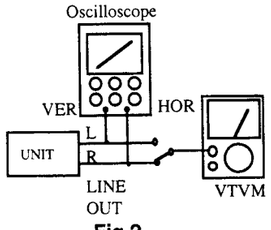


Fig.2

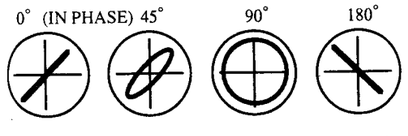


Fig.3 Confirming phase relationship

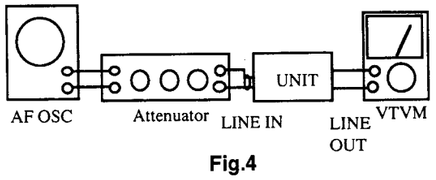
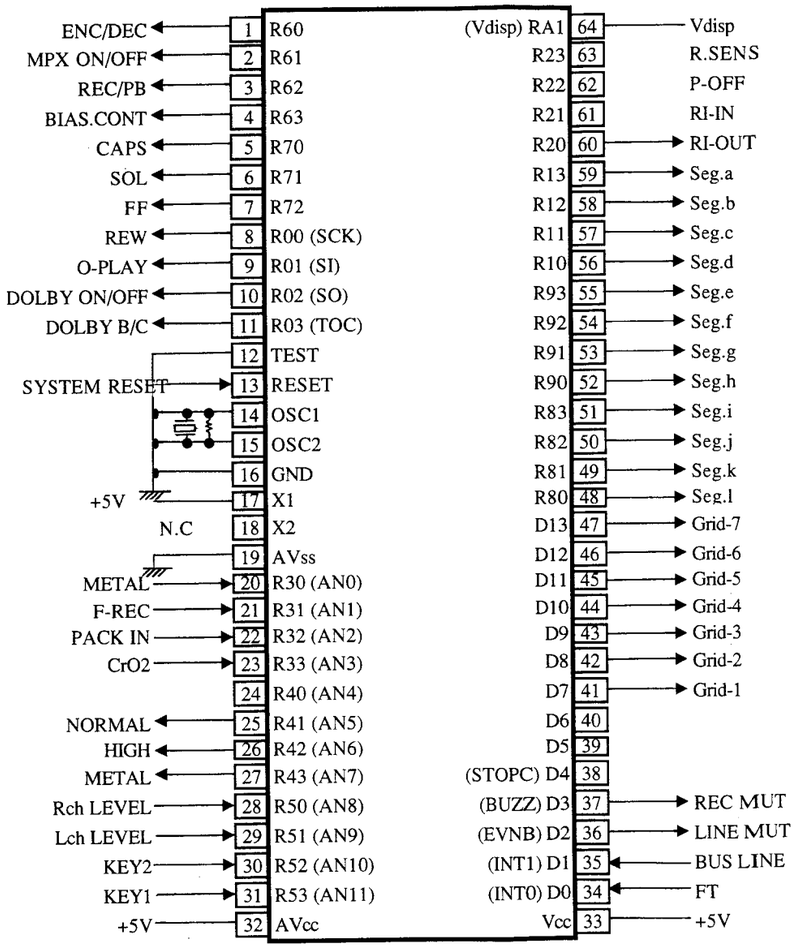


Fig.4

MICROPROCESSOR CONNECTION DIAGRAM

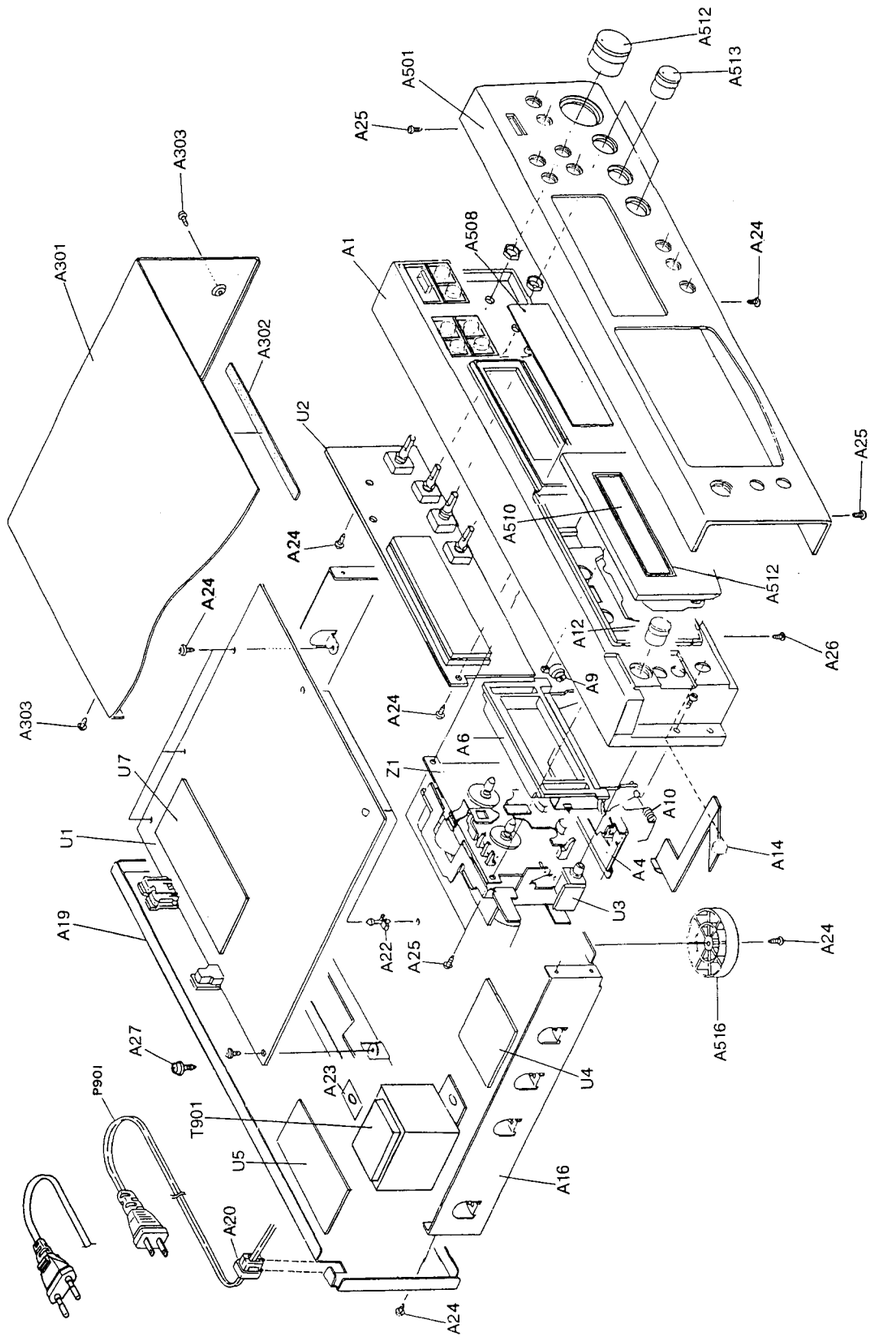
HD404336A33S



MICROPROCDSSOR TERMINAL DESCRIPTION

PIN NO.	TERMINAL	I/O	DESCRIPTION
1	ENC/DEC	O	Decorder/Encorder change-over output
2	MPX ON/OFF	O	Multiplex filter change-over output
3	REC/PB	O	Recording/Playback change-over output
4	BIAS.CONT	O	Bias current change-over output
5	CAPS	O	Capstan motor control output
6	SOL	O	Solenoid control output
7	FF	O	Reel motor control output
8	REW	O	Reel motor control output
9	O-PLAY	O	Torque control output of reel motor
10	DOLBY ON/OFF	O	Dolby control output
11	DOLBY B/C	O	Dolby control output
12	TEST		Test terminal
13	SYSTEM RESET	I	System reset input
14	OSC1		Connect the 4MHz ceramic resonator.
15	OSC2		
16	GND		Ground terminal
19	GND		Ground terminal for A/D converter
20	METAL	I	Metal position tape detection input
21	F-REC	I	Foward recording prevention detection input
22	PACK IN	I	Cassette tape detection input
23	CrO2	I	High position tape detection input
25	NORMAL	O	Recording/Playback equalizer control outputs
26	HIGH	O	On at the high level
27	METAL	O	
28	Rch LEVEL	I	Rch level input
29	Lch LEVEL	I	Lch level input
30	KEY2	I	Operation key input terminal
31	KEY1	I	Operation key input terminal
32	+5V		Power supply for A/D converter
33	+5V		Power supply
34	FT		Adjustment mode setting
35	BUS LINE	I	Initializing input for Bus line
36	LINE MUT	O	Line muting output
37	REC MUT	O	Recording muting output
41-47	Grid	O	Grid outputs
48-59	Seg.	O	Segment outputs
60	RI-OUT	O	RI code output
61	RI-IN	I	RI code input
62	P-OFF	I	Detection input when the power source is turned on.
63	R.SENS	I	Stand rotation pulse input
64	Vdisp		Vdisp

CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW PARTS LIST

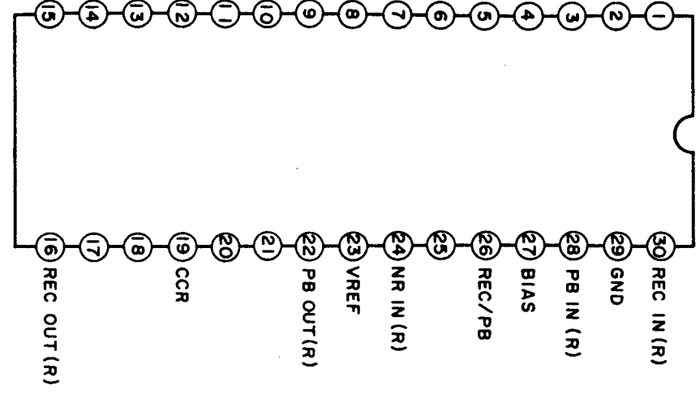
REF. NO.	PART NO.	DESCRIPTION
A1	27110881Y	Front bracket AS
A4	27130741Y	Bracket F
A6	27301792AY	Cassette frame AS
A7	27180435	Spring
A9	28400282	Damper
A10	27180476A	Spring
A12	28325125Y	Knob(PW)
A14	28325127AY	knob(EJ)
A16	27100295AY	Chassis
A17	27130747Y	Bracket
A19	27122075AY	Rear panel <AH>
	27122076Y	Rear panel <B,B1,C>
A20	27300750	⚠ Cord bushing
A22	27190480-1Y	Holder
A23	870065	PT Washer
A24	838130088Y	3TTB+8B,Screw
A25	833430080Y	3TTP+8P(BC),Screw
A26	835430068Y	3TTF+6B(BC),Screw
A27	830440089Y	4TTC+8C(BC),Screw
A28	82143006Y	3P+6FN(BC),Screw
A301	28184587AY	Top cover
A302	28140837Y	Cushion
A303	838430088Y	3TTB+8B(BC),Screw
A501	27211713AY	Front panel
A503	27267859Y	Guide
A504	27267860Y	Guide
A507	27301866Y	Cassette lid
A508	28191715Y	Clear plate
A510	28191713Y	Clear plate
A512	28325111Y	Knob(LEV)
A513	28325113Y	Knob(BAL)
A516	27175305Y	Leg AS
A518	838130088Y	3TTB+8B, Screw
A519	833430080Y	3TTP+8P(BC), Screw
A520	838430088Y	3TTB+8B(BC), Screw
P101A	2009990356ULY	NSAS-6P0493, Socket AS
P401A	2009990359ULY	NSAS-6P0496, Socket AS
P901	253192HIT	⚠ AS-UC-6#18, Power supply cord <AH>
	253198HIT	⚠ AS-BS, Power supply cord <B>
	253197HIT	⚠ AS-SAA, Power supply cord <B1>
	253193HIT	⚠ AS-CEE Power, supply cord <C>
T901	2301008Y	⚠ NPT-1206D, Power transformer <AH>
	2301009Y	⚠ NPT-1206P, Power transformer <B,B1,C>
U1	1N218536-3Y	NAAF-5336-3, Main circuit PC board ass'y
U2	1N218537-3Y	NADIS-5337-3, Display circuit PC board ass'y
U3	1N218538-3Y	NAETC-5338-3, Headphone PC board ass'y
U4	1N218539-3Y	NASW-5339-3, Switch PC board ass'y
U5	1N218540-3Y	NAPS-5340-3, Power supply PC board ass'y
U6	1N218542-3Y	NAETC-5342-3, PC board ass'y
U7	1N218509-3Y	NAETC-5509-1, Switch PC board ass'y
W701	2047272512Y	NCFC7-272512, Flexible flat cable
Z1	244194Y	Cassette deck mechanism, NDM-185
Z2	24603419Y	Lever(EJ)

NOTE: <AH> : U.S.A., Canadian model only
<B> : U.K. model only
<B1> : Australian model only
<C> : European model only

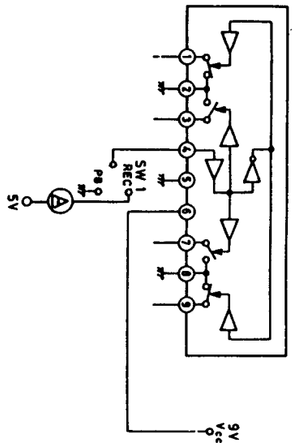
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK REPLACE ONLY WITH PART NUMBER SPECIFIED.

IC BLOCK DIAGRAM

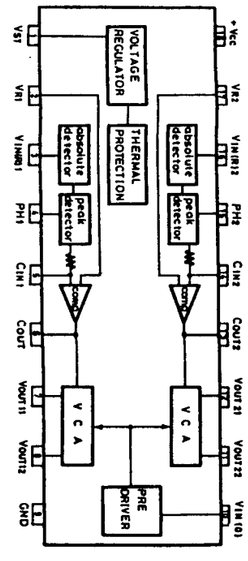
HA12142NT (DOLBY NR)



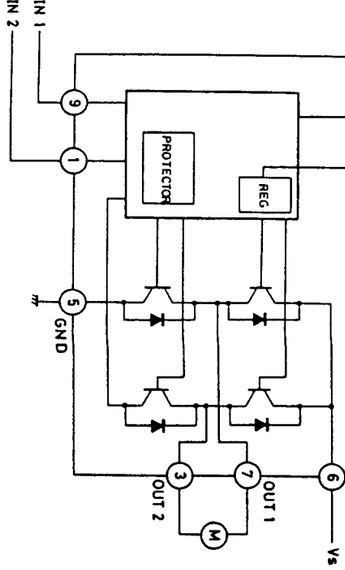
μPC1330HA (REC/PB)



μPC1297CA (HX PRO)

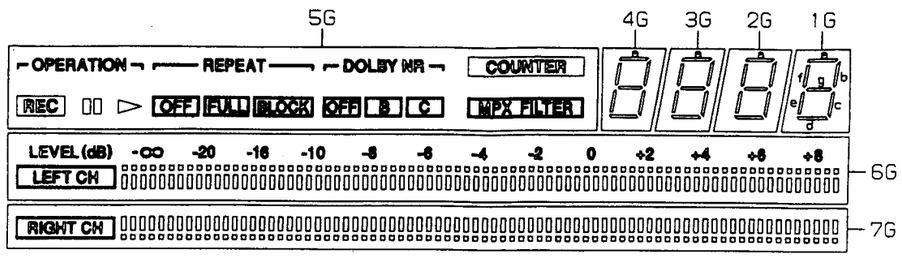


TA7291S (MOTOR DRIVE)



INPUT		OUTPUT		MODE
IN 1	IN 2	OUT 1	OUT 2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

FLUORESCENT INDICATOR TUBE
BJ337GK
GRID ASSIGNMENT



PIN CONNECTION

PIN NO.	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F1	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NP	P15	P14	P13	P12	P11	P10	P9	P8	NC	NC	F2	F1

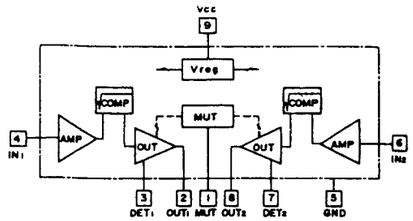
NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) DL ------ Datum Line
5) 1G~7G --- Grid

ANODE CONNECTION

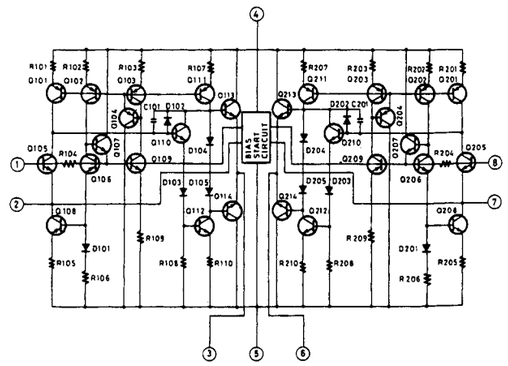
	7G	6G	5G	4G	3G	2G	1G
P1	B1	B1	REC	a	a	a	a
P2	B2	B2	▯▯	b	b	b	b
P3	B3	B3	▷	c	c	c	c
P4	B4	B4	OFF	d	d	d	d
P5	B5	B5	FULL	e	e	e	e
P6	B6	B6	BLOCK	f	f	f	f
P7	B7	B7	OFF	g	g	g	g
P8	B8	B8	B	-	-	-	-
P9	B9	B9	C	-	-	-	-
P10	B10	B10	-	-	-	-	-
P11	B11	B11	-	-	-	-	-
P12	B12	B12	MPX FILTER	-	-	-	-
P13	-	-	S1	-	-	-	-
P14	-	S2	-	-	-	-	-
P15	S3	-	-	-	-	-	-

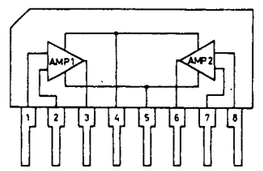
IC BLOCK DIAGRAM

BA6138 (METER DRIVER)



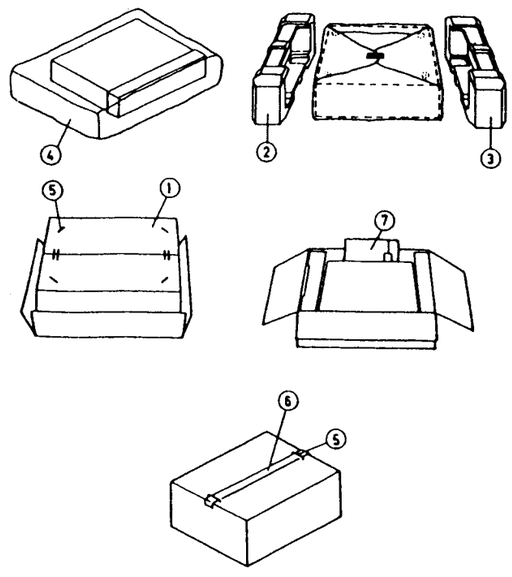
μPC1228HA





NO.	
1	INPUT 1
2	N.F. B. 1
3	OUTPUT 1
4	+Vcc
5	GND
6	OUTPUT 2
7	N.F. B. 2
8	INPUT 2

PACKING VIEW

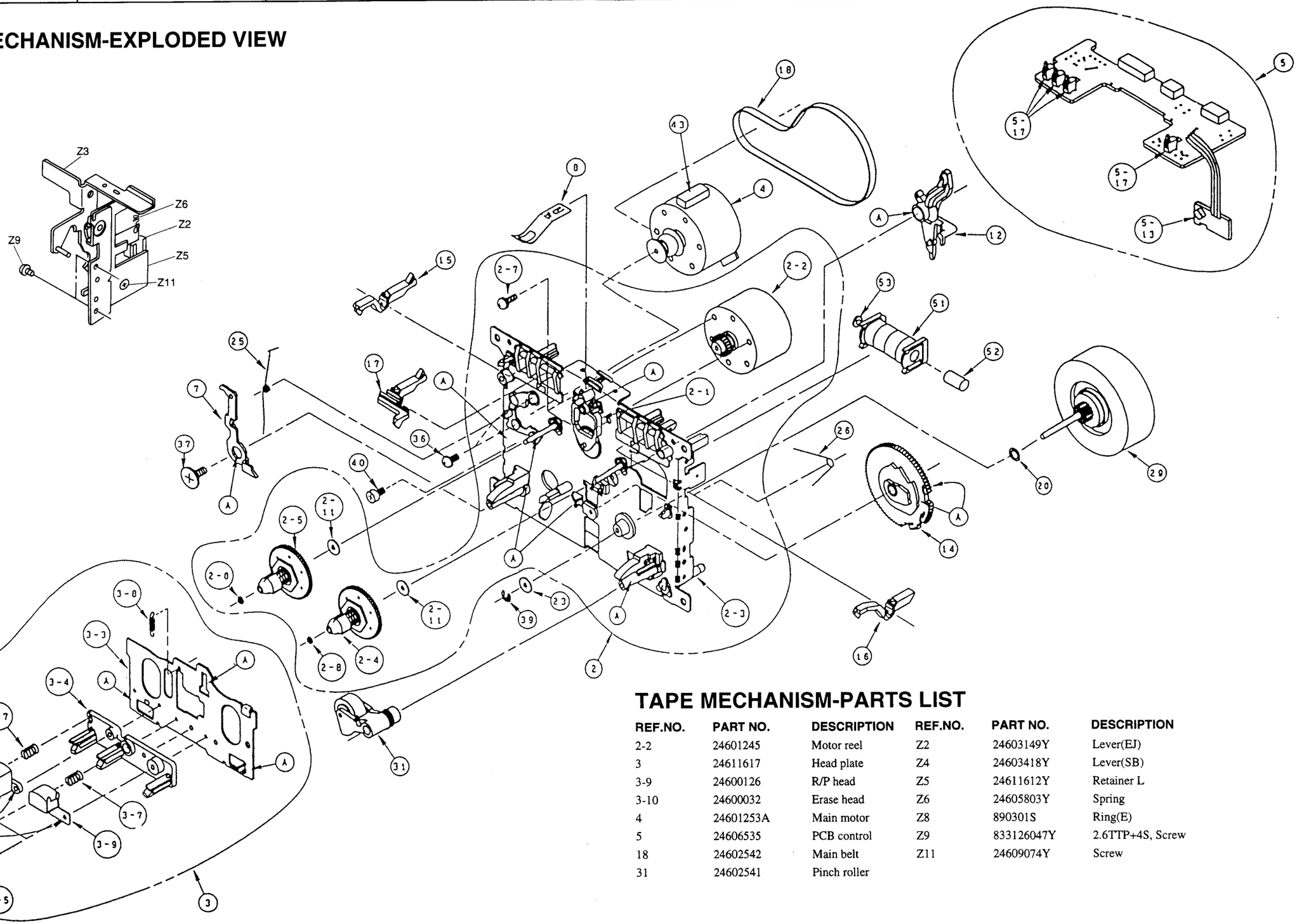


PARTS LIST

REF NO.	PART NO.	DESCRIPTION
1	29052883A	Carton
2	29091636-1BY	Pad (L)
3	29091637-1BY	Pad (R)
4	29100034-1Y	Poly bag,650 × 850
5	282301Y	Staple
6	29110098Y or	PP Tape or
	29110071Y	PP Tape
	29361759Y	UPC Label
7	Accessary bag ass'y	
	29342140Y	Instruction manual (U7)
	261504	Paper tape
	29100097-1Y	Poly bag,320 × 250
	2010244	Pin cord
	29365043Y	Warranty card <B1>

NOTE: <AH> : U.S.A., Canadian model only
<B> : U.K. model only
<B1> : Australian model only
<C> : European model only

TAPE MECHANISM-EXPLODED VIEW



TAPE MECHANISM-PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
2-2	24601245	Motor reel	Z2	24603149Y	Lever(EJ)
3	24611617	Head plate	Z4	24603418Y	Lever(SB)
3-9	24600126	R/P head	Z5	24611612Y	Retainer L
3-10	24600032	Erase head	Z6	24605803Y	Spring
4	24601253A	Main motor	Z8	890301S	Ring(E)
5	24606535	PCB control	Z9	833126047Y	2.6TTP+4S, Screw
18	24602542	Main belt	Z11	24609074Y	Screw
31	24602541	Pinch roller			

PRINTED CIRCUIT BOARD-PARTS LIST

Main circuit PC board ass'y (NAAF-5336-3)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q101	222905	µPC1228HA
Q105	22240388	HA12142NT
Q113	22240147	µPC1330HA
Q201	222811	NJM4558D-D
Q301,Q401	22240369	M5218AP
Q411	222959	µPC1297CA
Q501	22240313	BA6138
Q701	22240866	HD404336A33S
Q702	22240239	TA7291S
Q904	222780055NEC	MPC78M05AHF
	Transistors	
Q103,Q104	221281	DTC114YS
Q107-Q112	221281	DTC114YS
Q403,Q404	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q405-Q410	221281	DTC114YS
Q412	2211504	2SA950-Y
Q413	221281	DTC114YS
Q414,Q415	2201883	2SC1213-C
Q416,Q417	221281Y	DTC114YS
Q601	2213355 or	2SA933S-S or
	2213354	2SA933S-R
Q602	221281	DTC114YS
Q603,Q604	2211705 or	2SD655-E or
	2211706	2SD655-F
Q703	221281	DTC114YS
Q704,Q705	2211705 or	2SD655-E or
	2211706	2SD655-F
Q706	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q707	221281	DTC114YS
Q708-Q902	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q903	2202724 or	2SB1569A-D or
	2202725	2SB1569A-E
Q905,Q906	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
Q907	2202724	2SB1569A-D
	2202725	2SB1569A-E
Q908	2213355 or	2SA933S-S or
	2213354	2SA933S-R
Q909	2213090	DTA114YS
Q910	221281	DTC114YS
	Diodes	
D601-D606	223163	1SS133
D701	224450752	MTZ7.5B, Zener
D702	224450472	MTZ4.7B, Zener
D703	223163	1SS133
D901,D902	22380046	AM01Z
D904,D906	22380046	AM01Z
D907,D908	223163 or	1SS133 or
	223205Y	1SS270A
D909,D910	224451303	MTZ13C, Zener
D911	224450562	MTZ5.6B, Zener
D912-D914	223163	1SS133
D915	224452204	MTZJ22D, Zener
D916	224450562	MTZ5.6B, Zener
D917	224450433	MTZ4.3C, Zener
	Coils	
L101,L102	233436	NMC-6081, MPX COIL
L401,L402	231084	NCH-2132, CHOKE COIL
L403,L404	231085	NCH-2133, CHOKE COIL
L405,L406	231218	NCH-4453, CHOKE COIL
L407	231223	NLO-2064, OSC COIL
X701	3010150T	CST4.00MGW, CERA ROCK
	Capacitors	
C101,C102	374726814	ECQ-B50V, 681J, TF C
C103,C104	354780229	CE04W50V, 2.2M, ELECT C
C109,C110	374721034	ECQ-B50V, 103J, TF C
C111,C112	354744709	CE04W16V, 47M, ELECT C
C113,C114	354761009	CE04W35V, 10M, ELECT C
C115,C116	374721834	ECQ-B50V, 183J, TF C
C117	354744719	CE04W16V, 470M, ELECT C
C121-C124	354780229	CE04W50V, 2.2M, ELECT C
C125	354780109	CE04W50V, 1M, ELECT C
C127,C128	374722224	ECQ-B50V, 222J, TF C
C129,C130	354761009	CE04W35V, 10M, ELECT C
C131-C136	374722224	ECQ-B50V, 222J, TF C
C137-C140	374721044	ECQ-V50V, 104J, TF C
C141,C142	354741019	CE04W16V, 100M, ELECT C
C145,C146	354761009	CE04W35V, 10M, ELECT C
C149	354741019	CE04W16V, 100M, ELECT C
C151,C152	354761009	CE04W35V, 10M, ELECT C
C201,C202	354780479	CE04W50V, 4.7M, ELECT C
C203,C204	374721015	ECQ-B50V, 101K, TF C
C205,C206	374721024	ECQ-B50V, 102J, TF C
C207-C209	354761009	CE04W35V, 10M, ELECT C
C210	354742219	CE04W16V, 220M, ELECT C
C301,C302	354761009	CE04W35V, 10M, ELECT C
C305,C306	354741019	CE04W16V, 100M, ELECT C
C307,C308	354761009	CE04W35V, 10M, ELECT C
C403,C404	374722224	ECQ-B50V, 222J, TF C
C405,C406	354761009	CE04W35V, 10M, ELECT C
C407,C408	354744709	CE04W16V, 47M, ELECT C
C409,C410	353781099	CE04W50V, 0.1M, ELECT C
C411,C412	354761009	CE04W35V, 10M, ELECT C
C413,C414	374721015	ECQ-B50V, 101K, TF C
C415,C416	374724714	ECQ-B50V, 471J, TF C
C417,C418	374721834	ECQ-B50V, 183J, TF C
C419,C420	374724724	ECQ-B50V, 472J, TF C
C421-C424	374724734	ECQ-V50V, 473J, TF C
C425	354742219	CE04W16V, 220M, ELECT C
C427,C428	374721034	ECQ-B50V, 103J, TF C
C429,C430	374724714	ECQ-B50V, 471J, TF C
C431-C434	374722734	ECQ-V50V, 273J, TF C
C435,C436	370131014	APS100V, 101J, APS C
C437,C438	370131514	APS100V, 151J, APS C
C439	374722734	ECQ-V50V, 273J, TF C
C440,C443	354780479	CE04W50V, 4.7M, ELECT C
C444	354722219	CE04W6.3V, 220M, ELECT C
C445,C446	374723324	ECQ-B50V, 332J, TF C
C447	374721034	ECQ-B50V, 103J, TF C
C448	370138224	APS100V, 822J, APS C
C450,C451	354761009	CE04W35V, 10M, ELECT C
C452	354741019	CE04W16V, 100M, ELECT C
C501,C502	354780479	CE04W50V, 4.7M, ELECT C
C503,C504	354780109	CE04W50V, 1M, ELECT C
C505	354741019	CE04W16V, 100M, ELECT C
C601	354780479	CE04W50V, 4.7M, ELECT
C602	374721044	ECQ-V50V, 104J, TF C
C606,C607	354780109	CE04W50V, 1M, ELECT C
C608	354780109	CE04W50V, 1M, ELECT C
C701,C709	354761009	CE04W35V, 10M, ELECT C
C705,C903	354741019	CE04W16V, 100M, ELECT C
C901	374721044	ECQ-V50V, 104J, TF C
C902	393156827	CE04W25V, 6800M, FM C
C904	354761009	CE04W35V, 10M, ELECT C
C905	354742219	CE04W16V, 220M, ELECT C
C907	354780229	CE04W50V, 2.2M, ELECT C
C909	393354727	CE04W25V, 4700M, VX C
C908,C910	354741019	CE04W16V, 100M, ELECT C
C911	354741029	CE04W16V, 1000M, ELECT C
C913	354780229	CE04W35V, 22M, ELECT C
C916	354780229	CE04W50V, 2.2M, ELECT C
C918	354761019	CE04W35V, 100M, ELECT C
C919	354780479	CE04W50V, 47M, ELECT C
C920,C921	354780479	CE04W50V, 4.7M, ELECT C
C922	354780229	CE04W50V, 2.2M, ELECT C
C925	354744709	CE04W16V, 47M, ELECT C
C926	354761009	CE04W35V, 10M, ELECT C
C927	374722734	ECQ-V50V, 273J, TF C
C928,C929	374721044	ECQ-V50V, 104J, TF C
	Resistors	
R117,R118	5210265Y	N06HR, 50KBC, TRIM R
R403,R404	5210262	N06HR, 10KBC, TRIM R
R447,R465	453530824	RNU1/2WCJ, 8.2, METAL R
R461,R462	5210262	N06HR, 10KBC, TRIM R
R702	49163392405	RM1/10IJ, 3.9K*5, R NET
R712	443524704	RS1/2WBJ, 47, METAL O
R903	453534794	RNU1/2WCJ, 0.47, METAL R
R907	453530224	RNU1/2WCJ, 2.2, METAL R
R908	443521004	RS1/2WBJ, 10, METAL O R
R911	443524714	RS1/2WBJ, 470, METAL O R
R915	443521004	RS1/2WBJ, 10, METAL O
R923	453530104	RNU1/2WCJ, 1, METAL
	Switches,Plugs	
P101	25055136	NPLG-6P120,Pin plug
P102	25045329	NPJ-4PDBL183,Pin jack
P105	25055038	NPLG-2P29,Pin plug
P201,P202	25055135	NPLG-5P119,Pin Plug
P401	25055132	NPLG-2P116,Pin plug
P701	25050967 or	NSCT-27P654,Socket or
	25050859	NSCT-27P754,Socket"
	838430107	3TTB+10S(BC),Screw
	27190713	UAMS-11-0,Holder

Display circuit PC board ass'y (NADIS-5337-3)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistor	
Q751	212139	"BJ337GK, FL Tube
	Resistors	
R153	5104289	N14RGLC250K, MN17Z, TRIM R
R155	5104251	N14RGL50K, A17Z, TRIM R
R217	5104354	N14RLC100K, B17Z, TRIM R
R471	5104290	N14RGLC5K, B17Z, TRIM R
	Sockets,Switches,Holder	
P751	25050891 or	NSCT-27P686, Socket or
	25050933	NSCT-27P720, Socket
S771-S782	25035652	NPS-111-S604, Power switch
S784	25035652	NPS-111-S604, Power switch
	27190838A	HOLDER

Headphone PC board ass'y (NAETC-5338-3)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Pin jack	
P301	25045255Y	YKB21-5009, JACK

Switch PC board ass'y (NASW-5339-3)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Swihch	
P901	⚠ 25035636	NPS-111-L590P, Power switch

Power supply PC board ass'y (NAPS-5340-3)

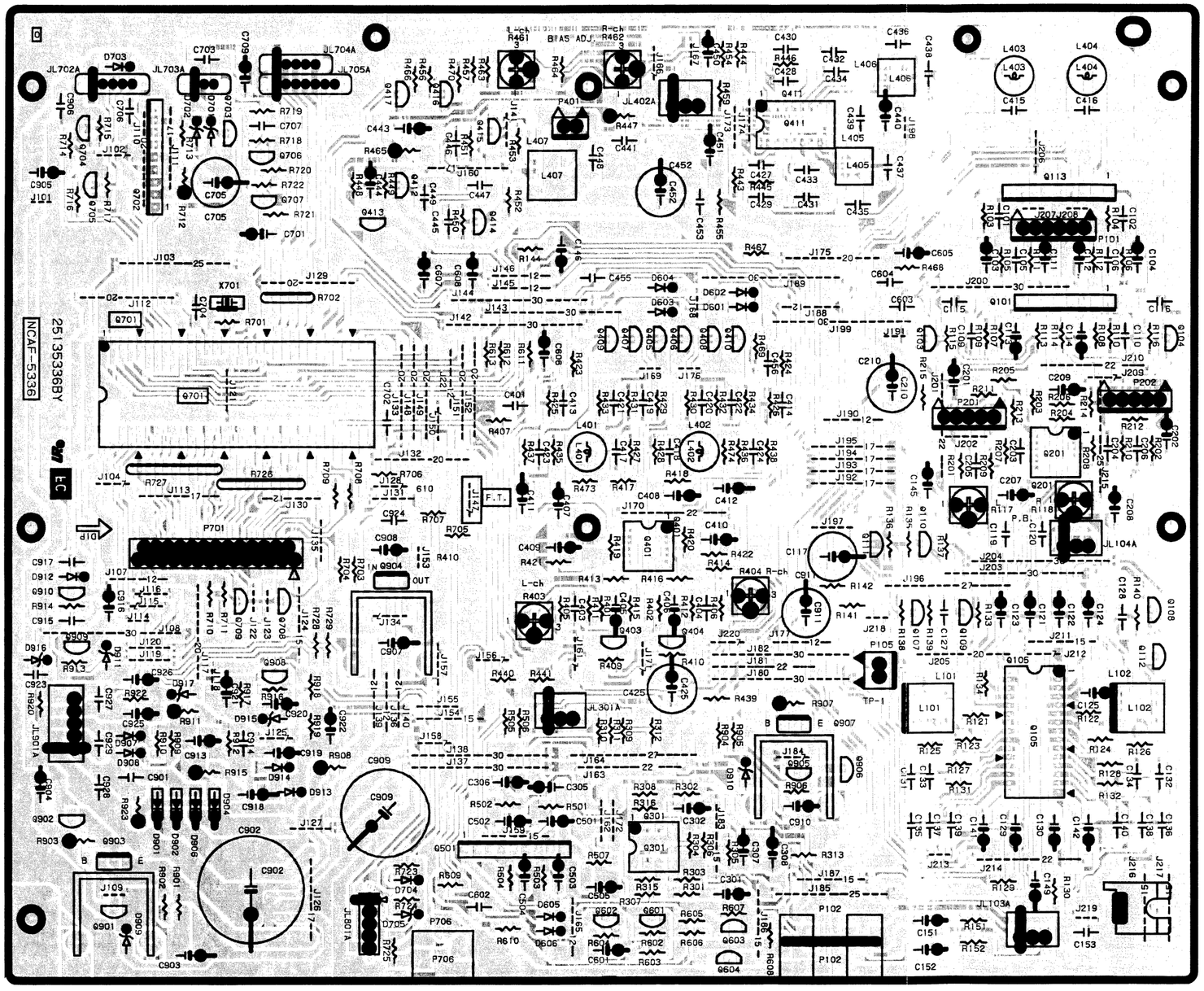
CIRCUIT NO.	PART NO.	DESCRIPTION
	Plug	
P951	25055676	"NPLG-2P632,Pin plug

Bus line PC board ass'y (NAETC-5509-1)

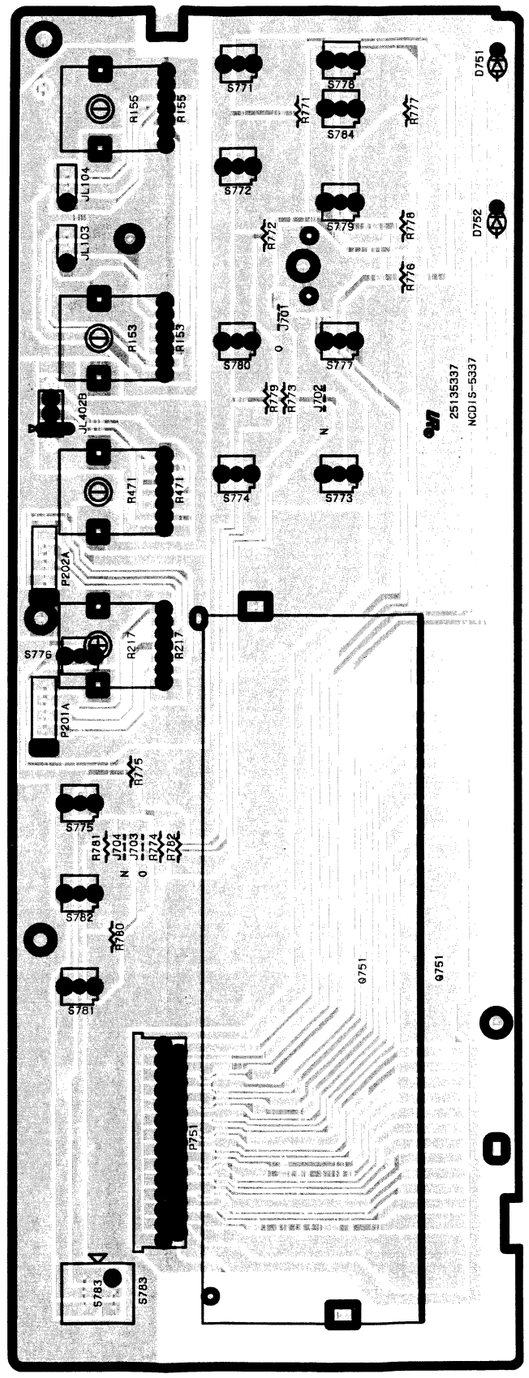
	ICs	
Q801	22240844	HD404222C81S
Q802	22240906	Z86E0812PSC
	Transistors	
"Q803,Q804	2213355 or	2SA933S-S or
	2213354	2SA933S-R
Q805	2213285 or	2SC1740S-S or
	2213284	2SC1740S-R
	Diodes	
D801-D803	223163	1S133
	Coils	
X801	3010163	CST4.19MGW, CERA LOCK
X802	3010252	CST12.0MTW, CERA LOCK
	Capacitors	
"C801,C802	354761009	"CE04W35V, 10M ELECT
	Pin jack	
P801	25045395Y	NPJ-2PDYE221

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

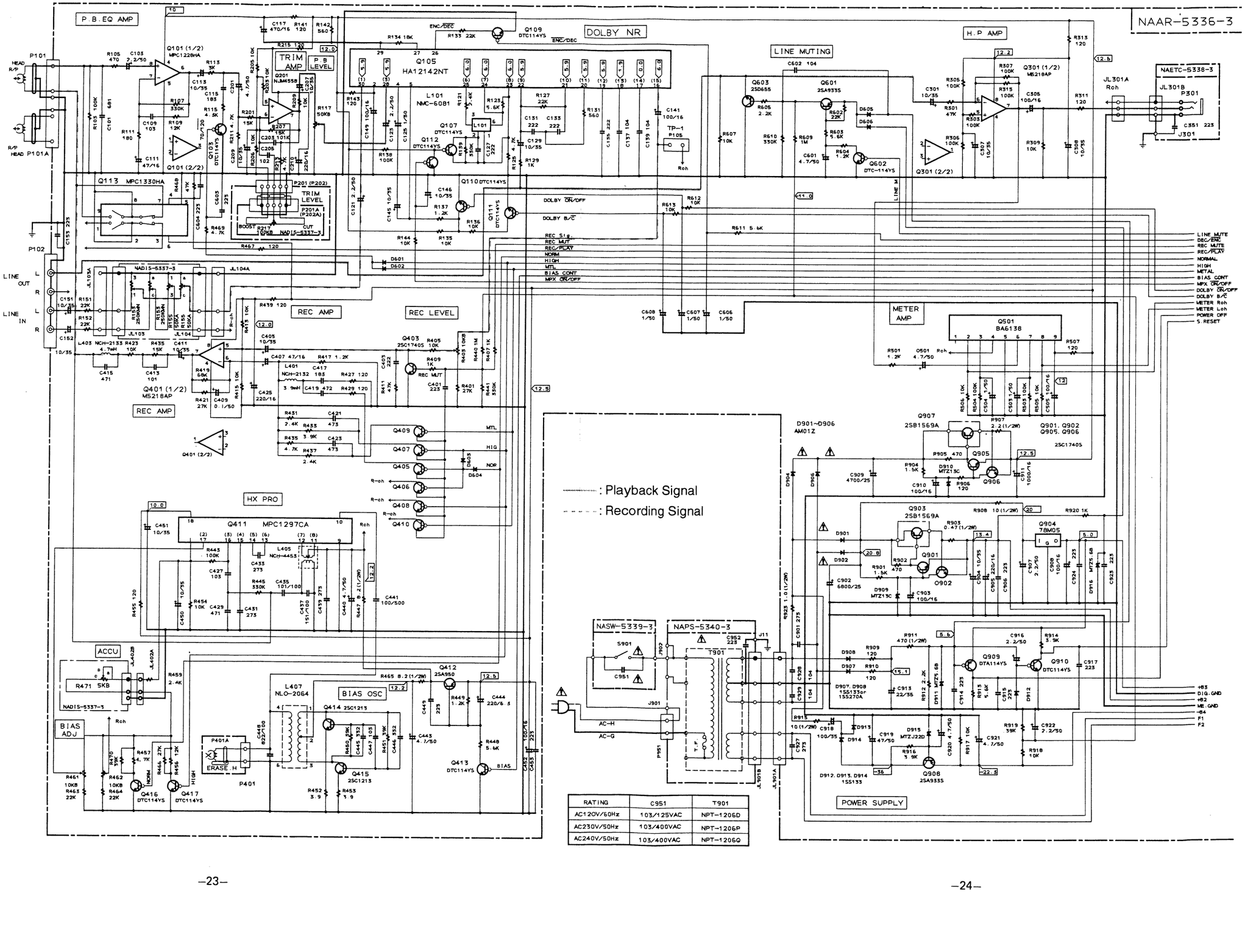


MAIN CIRCUIT PC BOARD (NANF-5336-3)



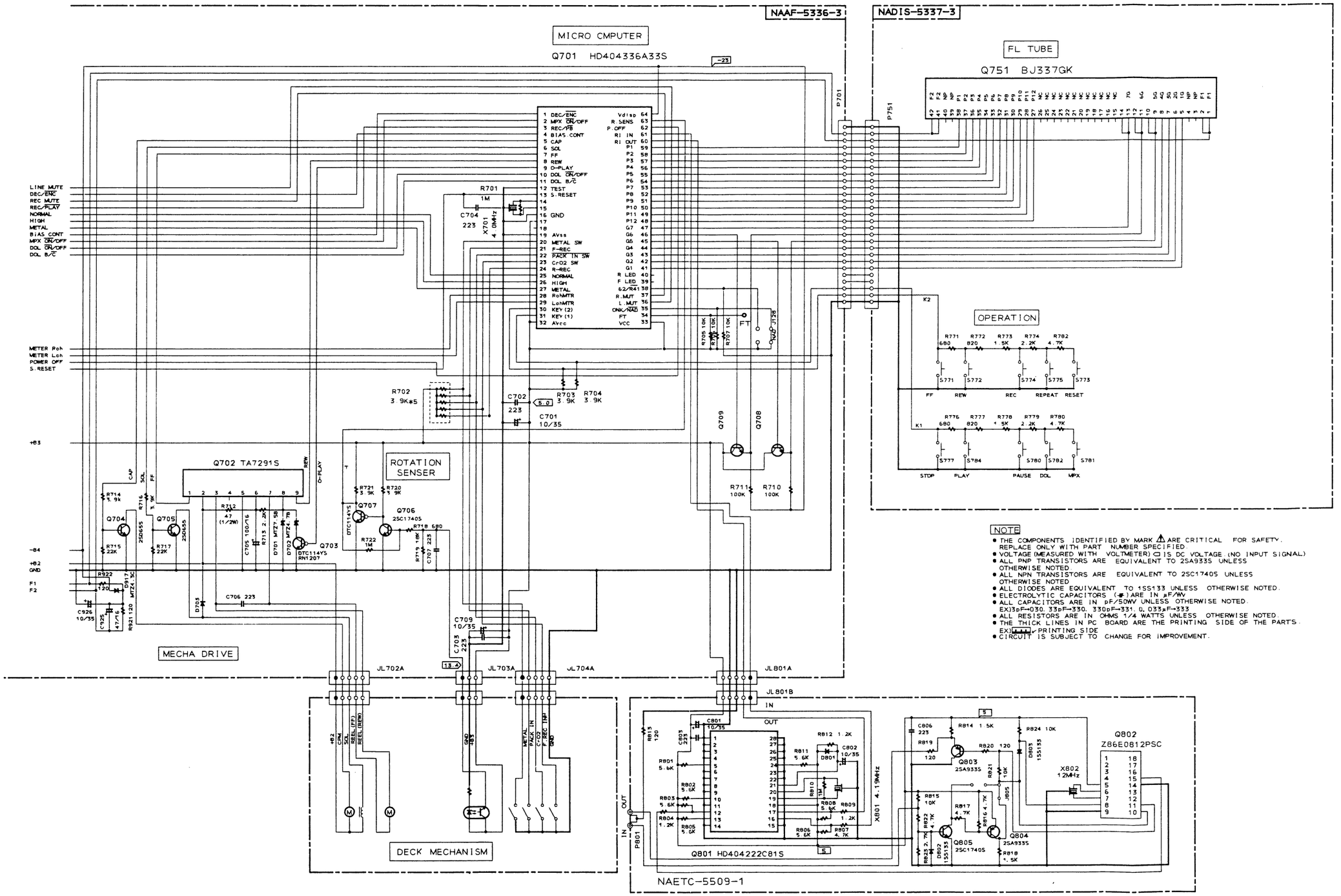
DISPLAY CIRCUIT PC BOARD
(NADIS-5337-3)

SCHEMATIC DIAGRAM 1/2



RATING	C951	T901
AC120V/60Hz	103/125VAC	NPT-1206D
AC230V/50Hz	103/400VAC	NPT-1206P
AC240V/50Hz	103/400VAC	NPT-1206Q

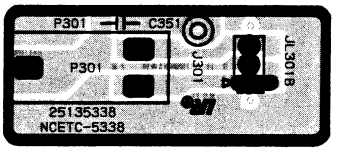
SCHEMATIC DIAGRAM 2/2



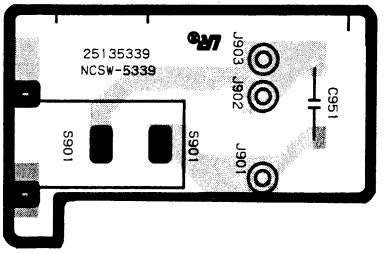
NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) GIS DC VOLTAGE (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA933S UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1740S UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (-#) ARE IN μF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX)3pF=030, 33pF=330, 330pF=331, 0.033μF=333
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▬▬ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

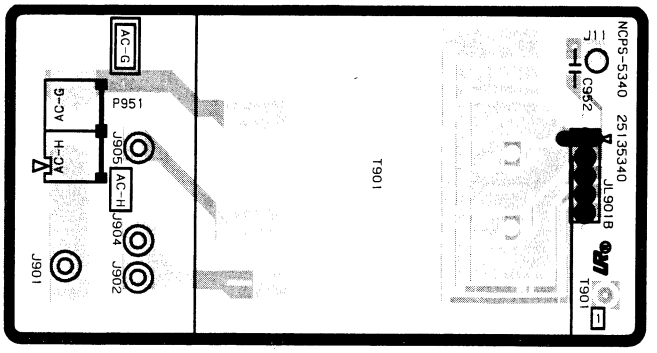
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



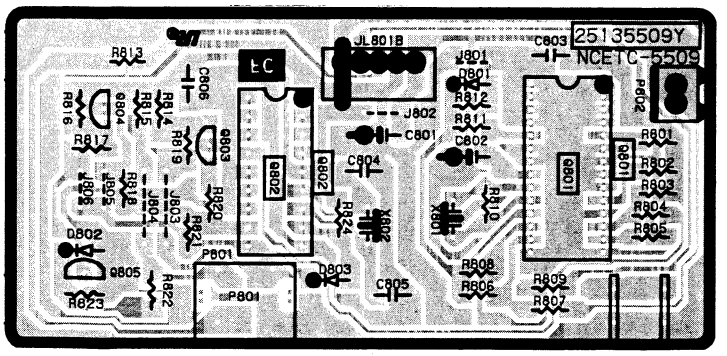
HEADPHONE PC BOARD
(NAETC-5338-3)



SWITCH PC BOARD
(NASW-5339-3)



POWER SUPPLY PC BOARD
(NAPS-5340-3)



BUS LINE PC BOARD
(NAETC-5509-1)