

ONKYO® SERVICE MANUAL

CASSETTE TAPE DECK


MODEL TA-6210



Black model, silver model

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

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  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

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 \pm 3dB) 20—18,000Hz (high) (30—17,000Hz \pm 3dB) 20—19,000Hz (metal) (30—18,000Hz \pm 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 \times 1 Erase head: Ferrite \times 1
Power Supply Rating:	European models: AC 230 V, 50Hz USA and Canadian models: AC 120V, 60Hz Worldwide models: AC 120 and 220 V, Switchable 60/50 Hz
Power Consumption:	20 watts
Dimensions:	455(W) \times 120(H) \times 311(D)mm 17 1/16" \times 4 1/4" \times 12 1/4"
Weight:	5.0 kg. (11.0 lbs.)

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

ONKYO
AUDIO COMPONENTS

ADJUSTMENT PROCEDURES

PRECAUTION

1. Before adjustment, clean the following parts with an alcohol 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 lead 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 voltmeter	Fig.1	Maximum level & same phase at channels L and R	
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 alive when J147 is connected to GND.
5	Bias current	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 alive when J147 is connected to GND.
6	Recording level	1kHz 350mV	NORMAL TAPE	REC/ PB	AC voltmeter	R403 (L.ch) R404 (R.ch)	Same level at REC/PB	FT mode will be alive 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.

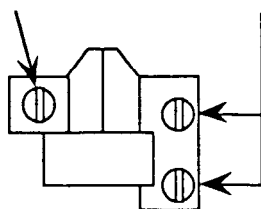


Fig.1 R/P Head

ADJUSTMENT POINT

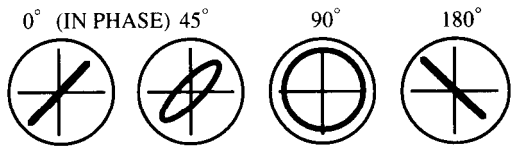
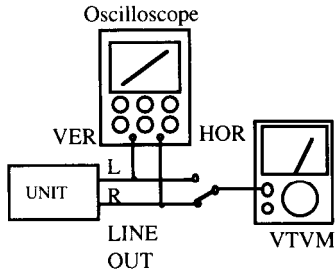
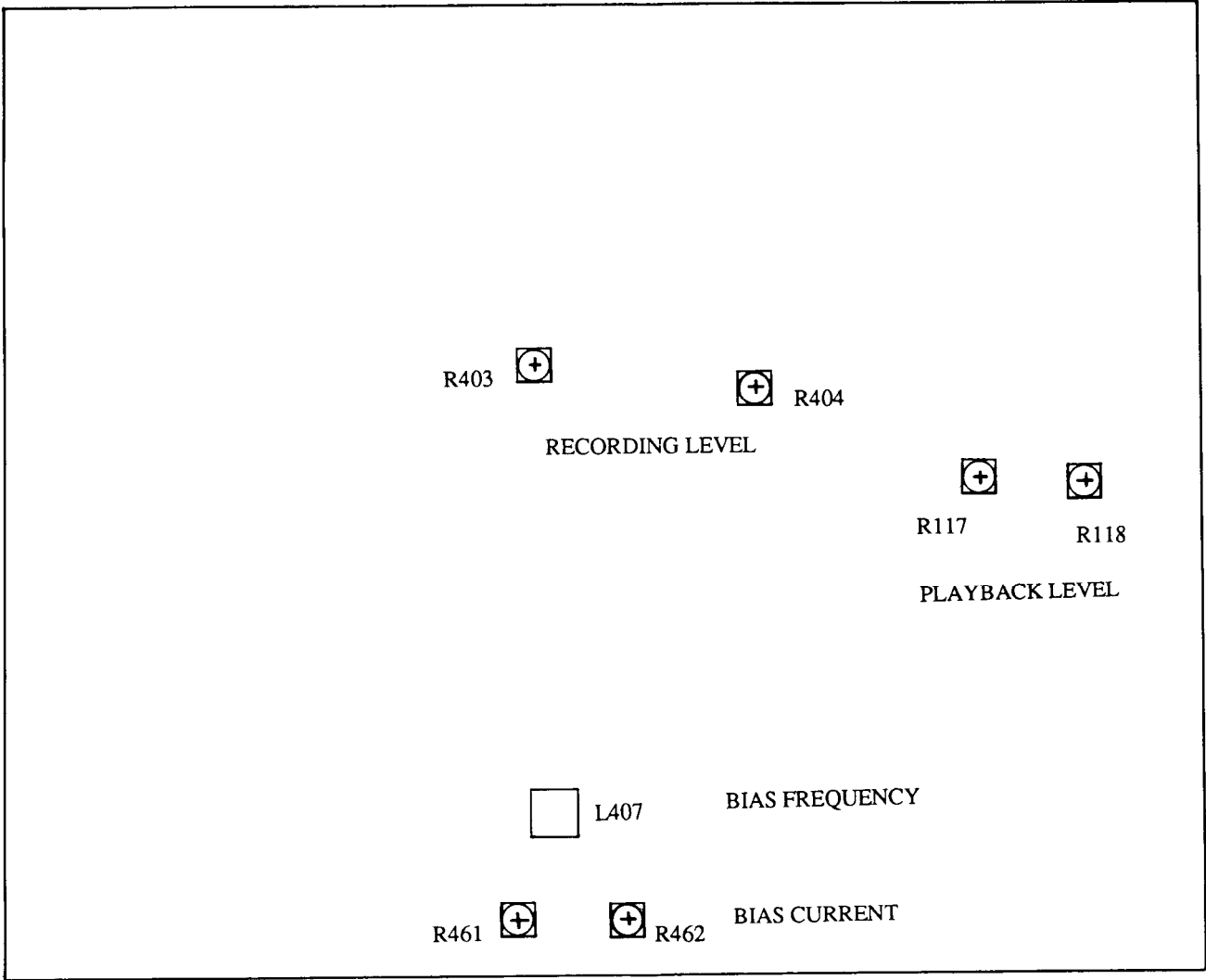


Fig. 1 Confirming phase relationship

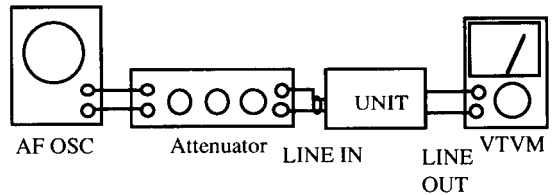
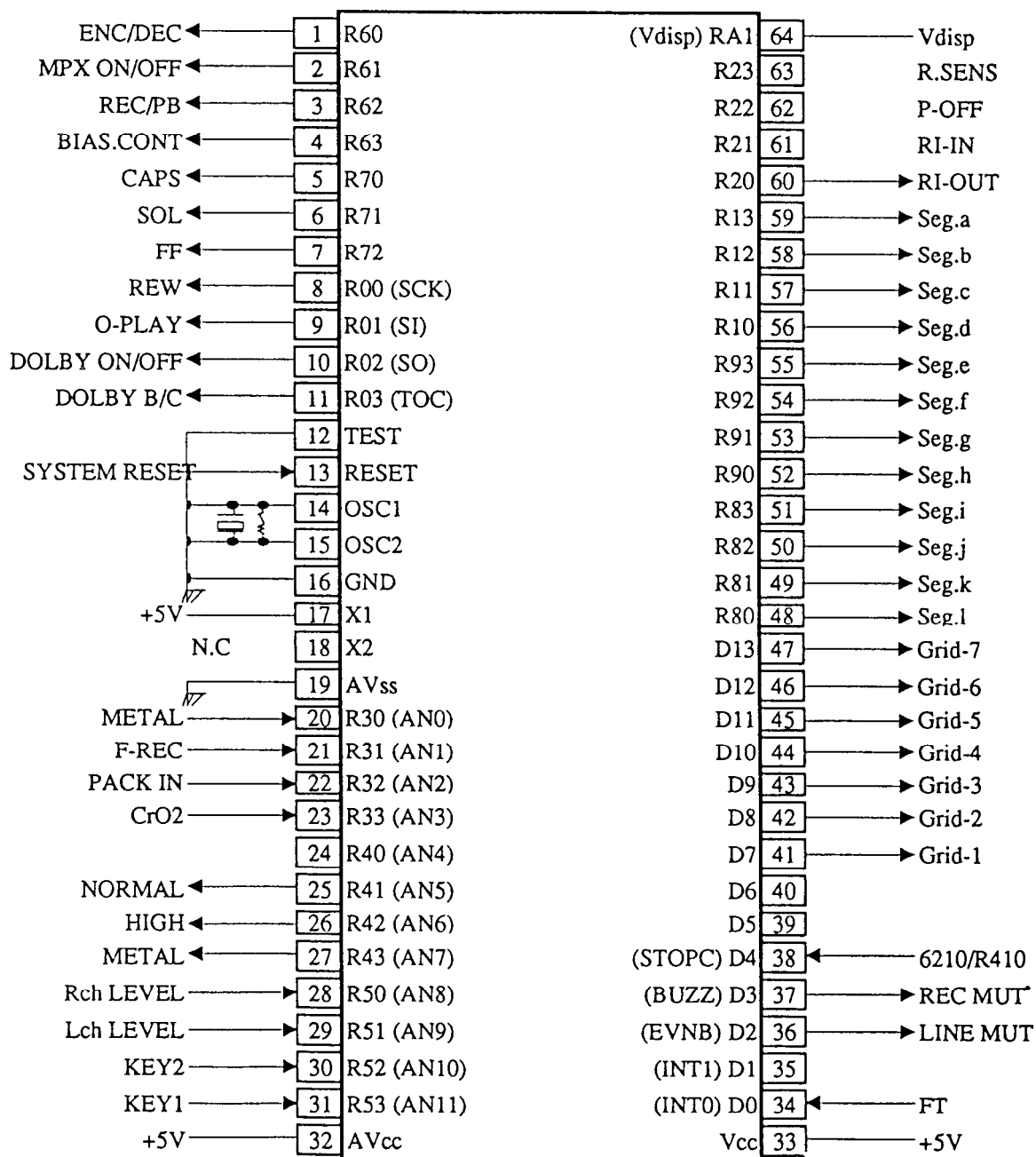


Fig. 2

MICROPROCESSOR CONNECTION DIAGRAM

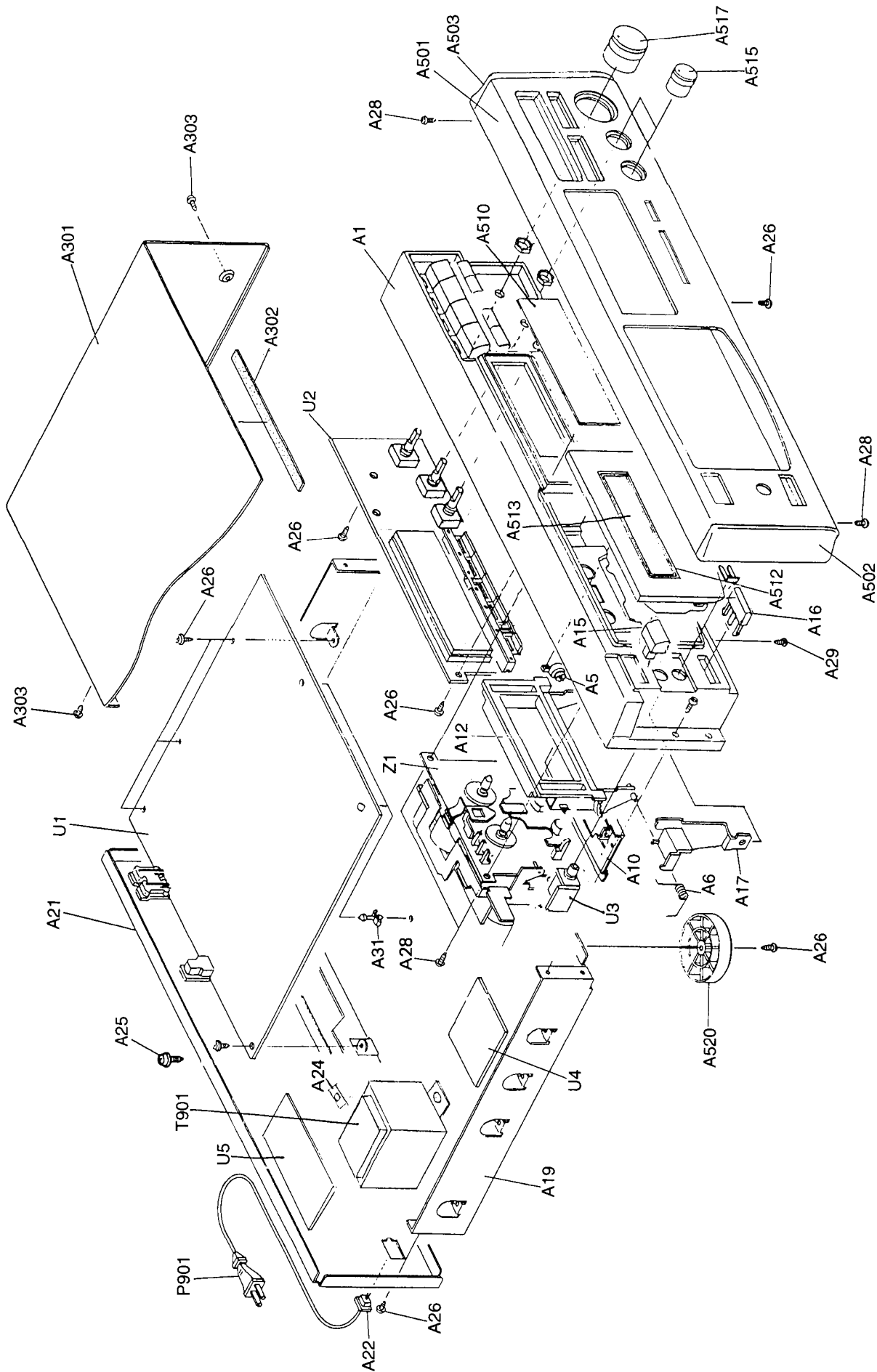
HD404336A33S



MICROPROC DSSOR TERMINAL DESCRIPTION

PIN NO.	TERMINAL	I/O	DESCRIPTION
1	ENC/DEC	O	Decorder/Encoder 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 On at the high level
26	HIGH	O	
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
36	LINE MUT	O	Line muting output
37	REC MUT	O	Recording muting output
38	6210/R410	I	6210/R410 Change-over input
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

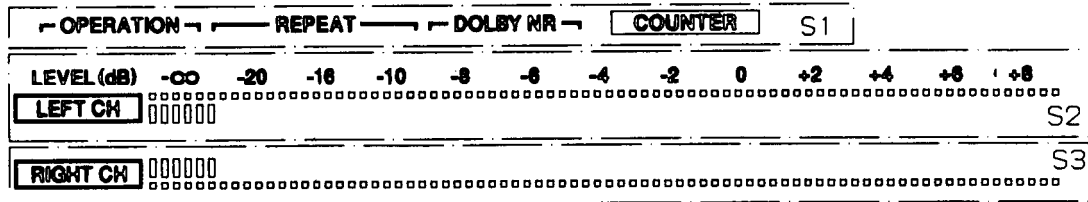
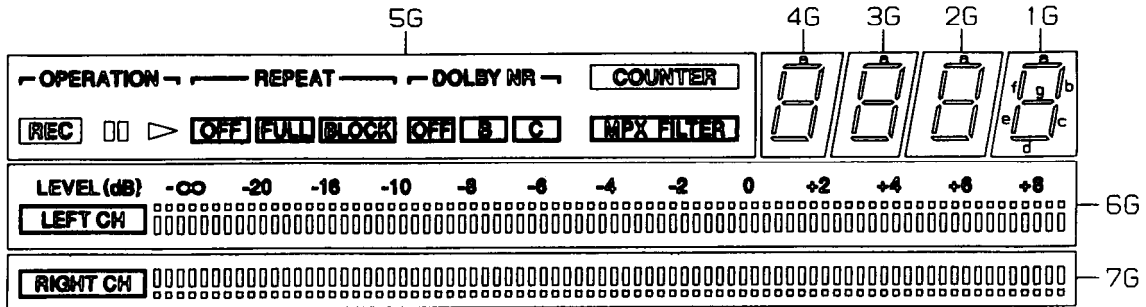
CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27110885Y	Front bracket AS 	A513	27301860AY	Cassette lid <S>
A5	27110886Y	Front bracket AS <S>	A515	28191704Y	Clear plate
A6	28400282	Damper	A517	28191706Y	Clear plate <S>
A10	27180476A	Spring	A520	28325111Y	Knob(LEV)
A12	27130741Y	Bracket F	A522	28325112Y	Knob(LEV) <S>
A13	27301792AY	Cassette frame AS	A523	28325113Y	Knob(BAL)
A15	27180435	Spring	P901	28325114Y	Knob(BAL) <S>
A16	28324140	Knob(PW) 	T901	27175292Y	Leg
A17	28324974	Knob(PW) <S>	U1	3TTB+8B,Screw	
A19	28323985	knob(EJ) 	U2	3TTP+8P(BC),Screw	
A21	28325117	knob(EJ) <S>	U3	NSAS-6P0493,Socket AS	
A22	27273157AY	Joint(EJ)	U4	NSAS-6P0496,Socket AS	
A24	27100280AY	Chassis	U5	AS-UC-6#18,Power supply cord <D>	
A25	27122052Y	Rear panel <D>	U6	AS-CEE,Power supply cord <P>	
A26	27122053Y	Rear panel <P>	U7	AS-BS,Power supply cord <U>	
A28	27122054Y	Rear panel <W>	W701	NPT-1206D,Power transformer <D>	
A29	27122055Y	Rear panel <T>	Z1	NPT-1206P,Power transformer <P>	
A30	27300750	Cord bushing	Z2	NPT-1206DG,Power transformer <W>	
A31	870065	PT Washer		IN214536-1Y,Main circuit PC board ass'y	
A32	830440089Y	"4TTC+8C(BC),Screw"		IN214537-1Y,Disply circuit PC board ass'y	
A33	838130088Y	"3TTB+8B,Screw"		IN214538-1Y,Headphone PC board ass'y	
A34	833430080Y	"3TTP+8P(BC),Screw"		IN214539-1Y,Switch PC board ass'y <D,P,T>	
A35	835430068Y	"3TTF+6B(BC),Screw"		IN214539-1AY,Switch PC board ass'y <W>	
A36	82143006Y	"3P+6FN(BC),Screw"		IN214540-1Y,Power supply PC board ass'y	
A37	27190480-1Y	Holder		IN214542-1Y,PC board ass'y	
A38	28184479AY	Top cover 		IN214541-1Y,Switch PC board ass'y <W>	
A39	28184601Y	Top cover <S>		NCFC7-272512,Flexible flat cable	
A40	28140837Y	Cushion		Cassette deck mechanism, NDM-185	
A41	838430088Y	"3TTB+8B(BC),Screw"		Lever(EJ)	
A42	27211696Y	Front panel 		<P> : 230V model only	
A43	27211697Y	Front panel <S>		<U> : U.K. model only	
A44	28125248-6Y	End cap(L) 		<W> : Worldwide model only	
A45	28125283Y	End cap(L) <S>		<D> : 120V model only	
A46	28125249-6Y	End cap(R) 		<T> : Taiwanese model only	
A47	28125284Y	End cap(R) <S>		 : Black model only	
A48	29110069Y	TAPE		<S> : Silver model only	
A49	28135199	Badge		NOTE:	
A50	28191705Y	Clear plate		THE COMPONENTS IDENTIFIED BY MARK Δ	
A51	27301859AY	Cassette lid 		ARE CRITICAL FOR RISK OF FIRE AND	
				ELECTRIC SHOCK. REPLACE ONLY WITH PART	
				NUMBER SPECIFIED.	

**FLUORESCENT INDICATOR TUBE
BJ337GK
GRID ASSIGNMENT**



(6G, 7G)



PIN CONNECTION

PIN NO.	4	4	3	3	3	3	3	3	3	2	1	0	9	8	7	6	5	4	3	2	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1								
CONNECTION	F	F	N	N	P	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	P	P	1	7	1	6	1	5	4	3	2	1	N	N	F	F

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

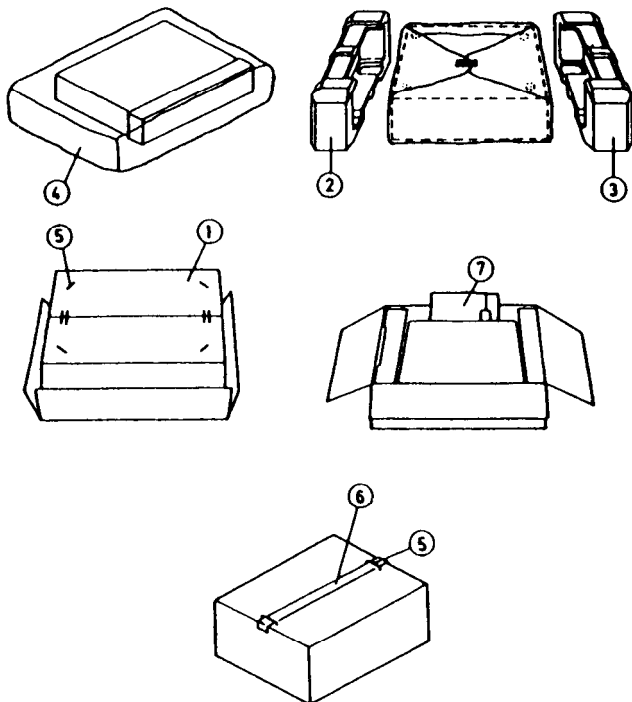
ANODE CONNECTION

	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	-	-	-	-	-	-

TAPE MECHANISM-PARTS LIST

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

PACKING VIEW



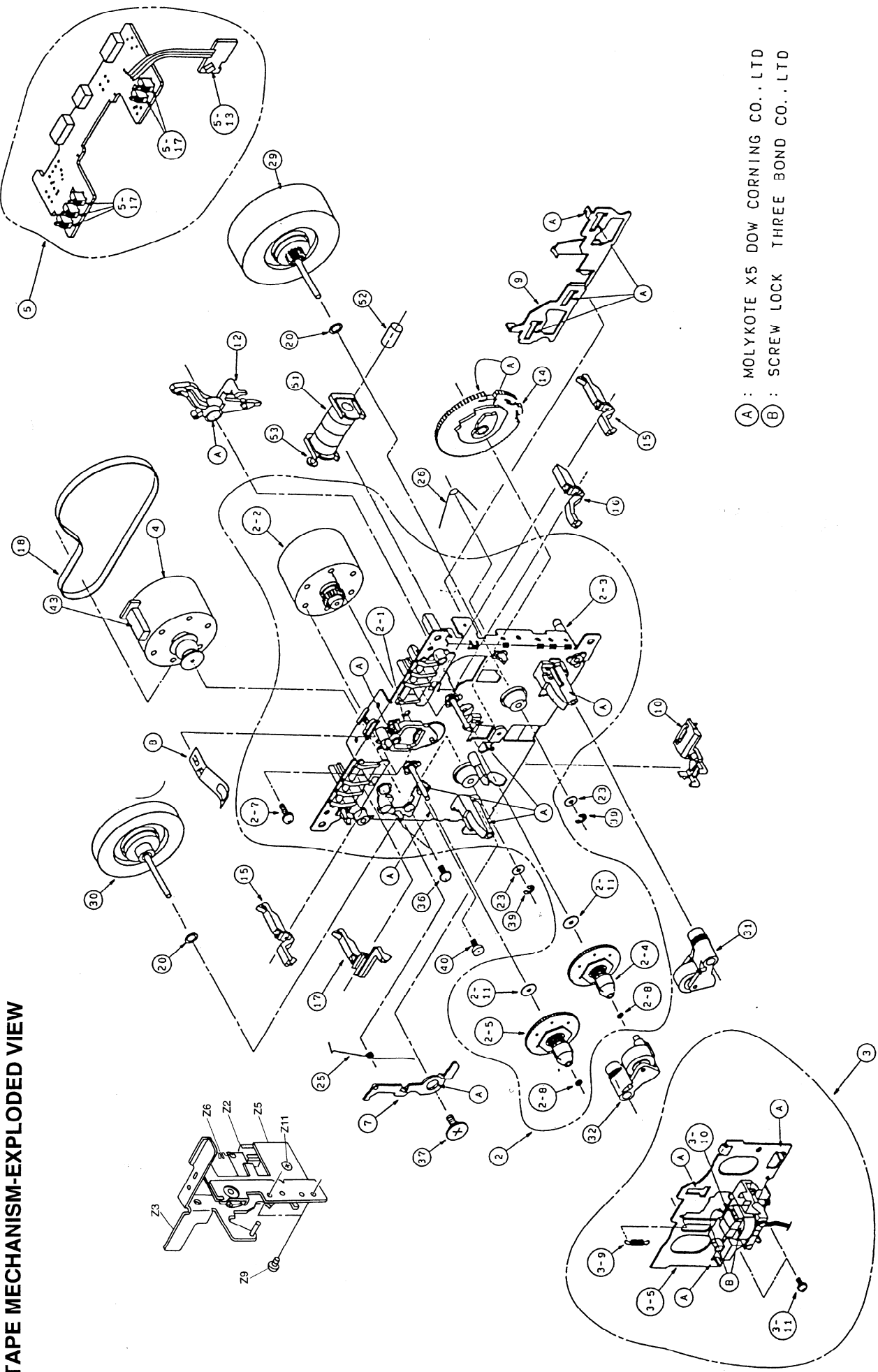
PARTS LIST

REF NO.	PART NO.	DESCRIPTION
1	29052867	Carton
	29052868	Carton <S>
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
	29365019B	Warranty card <N>
	29365020K	Warranty card <V>
	29361801Y	UPC Label <N>
	7	Accessory bag ass'y
	29342118	Instruction manual (E) <D,P,B,W>
	29342119	Instruction manual (V) <V>
	29342120	Instruction manual (U3) <C,T,W>
	29342121	Instruction manual (U6) <P>
	261504	Paper tape
	29100097-1	Poly bag,320×250
	2010244	Pin cord

NOTE: <P> : 230V model only
 <W> : Worldwide model only
 <D> : 120V model only
 <C> : Canadian model only
 <T> : Taiwanese model only
 <V> : German model only
 <N> : U.S.A. model only

A B C D E F G

TAPE MECHANISM-EXPLODED VIEW



1 2 3 4 5

CIRCUIT NO.	PART NO.	DESCRIPTION
C435,C436	370131014T	APS100V, 101J, APS C
C437,C438	370131514T	APS100V, 151J, APS C
C439	374722734T	ECQ-V50V, 273J, TF C
C440,C443	354780479T	CE04W50V, 4.7M, ELECT C
C444	354722219T	CE04W6.3V, 220M, ELECT C
C445,C446	374723324T	ECQ-B50V, 332J, TF C
C447	374721034T	ECQ-B50V, 103J, TF C
C448	370138224T	APS100V, 822J, APS C
C450,C451	354761009T	CE04W35V, 10M, ELECT C
C452	354741019T	CE04W16V, 100M, ELECT C
C501,C502	354780479T	CE04W50V, 4.7M, ELECT C
C503,C504	354780109T	CE04W50V, 1M, ELECT C
C505	354741019T	CE04W16V, 100M, ELECT C
C601	354780479T	CE04W50V, 4.7M, ELECT C
C602	374721044T	ECQ-V50V, 104J, TF C
C606,C607	354780109T	CE04W50V, 1M, ELECT C
C608	354780109T	CE04W50V, 1M, ELECT C
C701,C709	354761009T	CE04W35V, 10M, ELECT C
C705,C903	354741019T	CE04W16V, 100M, ELECT C
C901	374721044T	ECQ-V50V, 104J, TF C
C902	393156827S	CE04W25V, 6800M, FM C
C904	354761009T	CE04W35V, 10M, ELECT C
C905	354742219T	CE04W16V, 220M, ELECT C
C907	354780229T	CE04W50V, 2.2M, ELECT C
C909	393354727S	CE04W25V, 4700M, VX C
C908,C910	354741019T	CE04W16V, 100M, ELECT C
C911	374722734T	CE04W16V, 1000M, ELECT C
C912	354762209T	ECQ-V50V, 273J, TF C
C913	354780229T	CE04W35V, 22M, ELECT C
C916	354761019T	CE04W50V, 2.2M, ELECT C
C918	354784709T	CE04W35V, 100M, ELECT C
C919	354780479T	CE04W50V, 47M, ELECT C
C920,C921	354780229T	CE04W50V, 4.7M, ELECT C
C922	354744709T	CE04W50V, 2.2M, ELECT C
C925	354761009T	CE04W16V, 47M, ELECT C
C926	374722734T	CE04W35V, 10M, ELECT C
C927	374721044T	ECQ-V50V, 273J, TF C
C928,C929	374721044T	ECQ-V50V, 104J, TF C

Resistors

R117,R118	5210265TY	N06HR, 50KBC, TRIM R
R403,R404	5210262T	N06HR, 10KBC, TRIM R
R447,R465	453530824T	RNU1/2WCJ, 8.2, METAL R
R461,R462	5210262T	N06HR, 10KBC, TRIM R
R702	443524704T	RM1/10IJ, 3.9K*5, R NET
R712	49163104409	RS1/2WBJ, 47, METAL O R
R726	49163104410	RM1/10IJ, 100K*9, R NET
R727	453534794T	RM1/10IJ, 100K*10, R NET
R903	453530224T	RNU1/2WCJ, 0.47, METAL R
R907	443521004T	RNU1/2WCJ, 2.2, METAL R
R908	443524714T	RS1/2WBJ, 10, METAL O R
R911,R915	443521004T	RS1/2WBJ, 470, METAL O R
R923	453530104T	RNU1/2WCJ, 1, METAL R

Switches,Plugs

P101	25045329	NPLG-6P120,Pin plug
P102	25050267	NPJ-4PDBL183,Pin jack
P105	25055038	NPLG-2P29,Pin plug
P401	25050267	NPLG-2P116,Pin plug

CIRCUIT NO.	PART NO.	DESCRIPTION
P701	25050967 or 25051099	NSCT-27P654,Socket or NSCT-27P754,Socket
P706	25051101 27190713	NPJ-2PDBL184,Jack 3TTB+10S(BC),Screw UAMS-11-0,Holder

Display circuit PC board ass'y (NADIS-5337-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Transistors		
Q751	212139	BJ337GK, FL Tube
D751	225292DT	SEL4310G-D, LED
D752	225292DT	SEL4310G-D, LED
Resistors		
R153	5104289	N14RGLC250K, MN17Z, Variable resistor
R155	5104251	N14RGL50K, A17Z, Variable resistor
R471	5104290	N14RGLC5K, B17Z, Variable resistor
Sockets,Switches,Holder		
P751	25050891 or 25050933	NSCT-27P686, Socket or NSCT-27P720, Socket
S771-S782	25035652T	NPS-111-S604, Power switch
S783	25035514	NPS-122-L476, Power switch
S784	25035652T 27190838A	NPS-111-S604, Power switch HOLDER

Headphone PC board ass'y (NAETC-5338-1)

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

Switch PC board ass'y (NASW-5339-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Swiuch		
P901	25035636	NSP-111-L590P,Power switch

Power supply PC board ass'y (NAPS-5340-1)

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

Switch PC board ass'y (NAETC-5341-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Switch		
S902	△ 25065437	NSS-22157P,Slide switch

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

SCHMATIC DIAGRAM 1/2

A

B

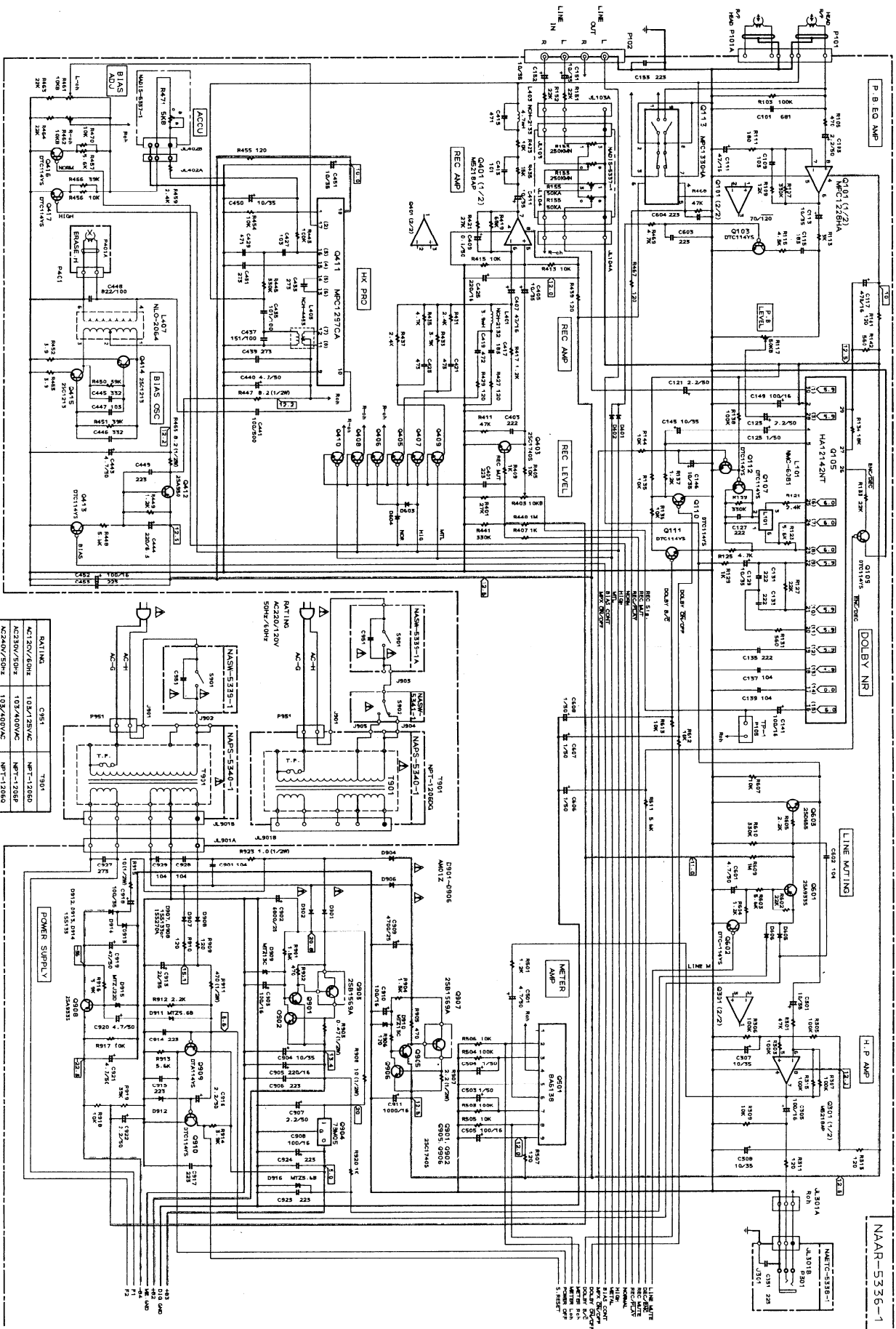
C

D

E

F

G

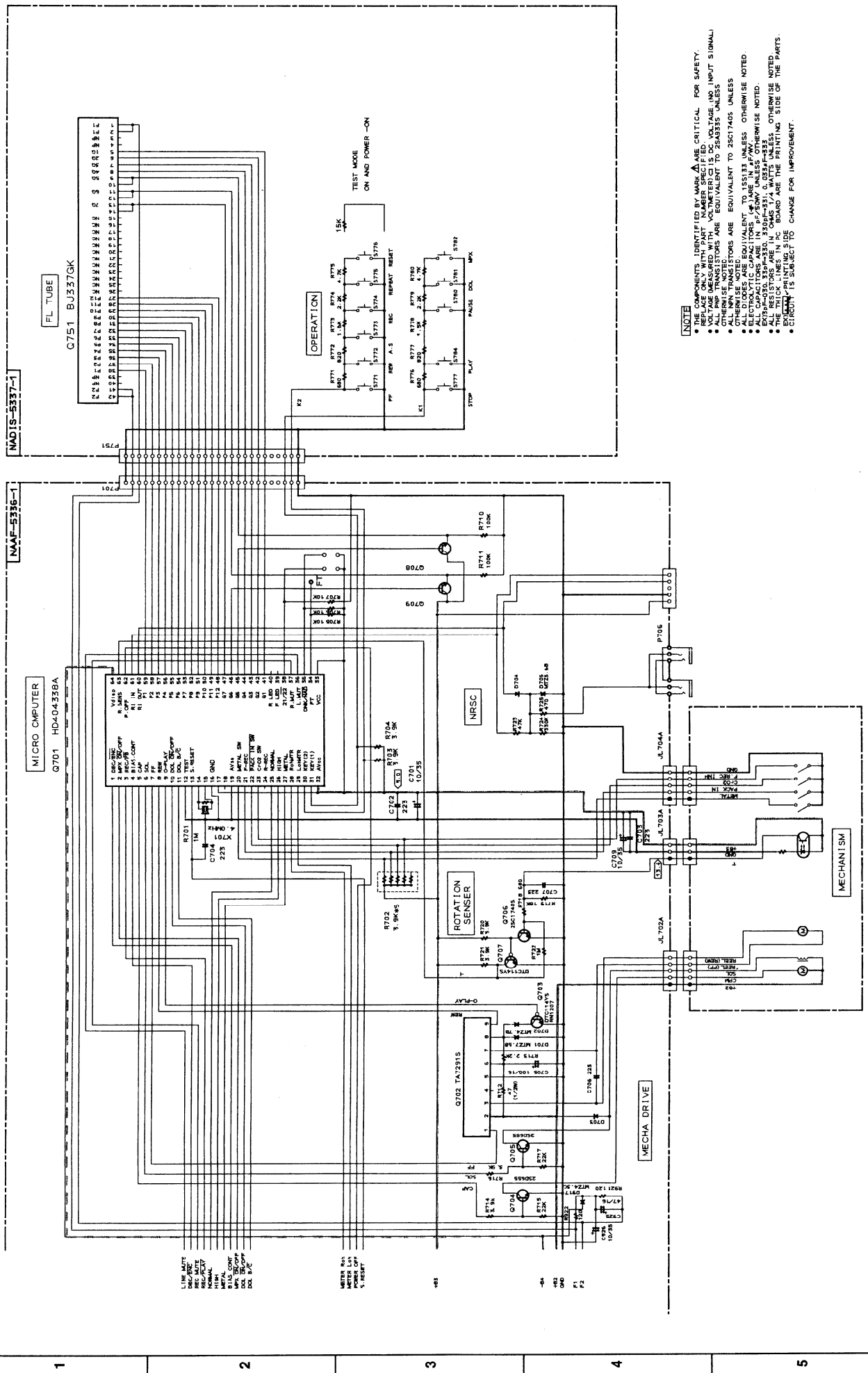


TA-6210 TA-6210

NAAR-5336-1

SCHEMATIC DIAGRAM 2/2

A B C D E F G



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