

# ONKYO® SERVICE MANUAL

## STEREO CASSETTE TAPE DECK

### MODEL TA-RW411



Black model

BMD, BMDN	120V AC, 60Hz
BMP	230V AC, 50Hz
BMW	120V/220V AC, 50/60Hz

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  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.

# ONKYO

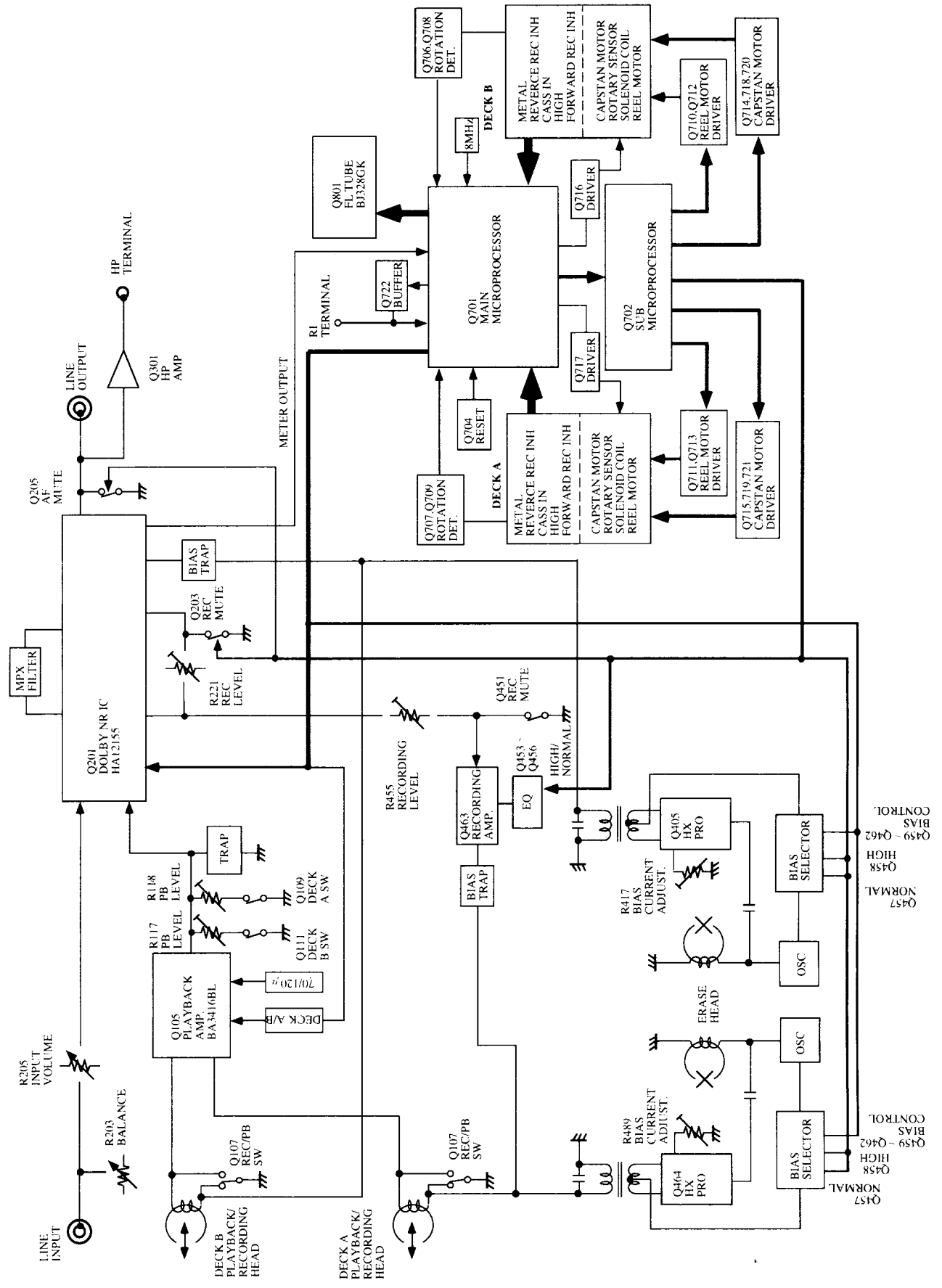
## AUDIO COMPONENTS

## SPECIFICATIONS

Track Format:	4-track, 2-channels
Erasure System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.) 9.6 cm/sec. (3-3/4 i.p.s.) (high-speed dubbing)
Wow and Flutter:	0.07 % (WRMS)
Frequency Response:	20 — 15,000 Hz (Normal) (30 — 14,000 Hz $\pm$ 3 dB) 20 — 16,000 Hz (High) (30 — 15,000 Hz $\pm$ 3 dB) 20 — 17,000 Hz (Metal) (30 — 16,000 Hz $\pm$ 3 dB)
S/N Ratio:	Dolby NR off: 58 dB (metal position tape) A noise reduction of 10 dB above 5 kHz and 5 dB at 1 kHz is possible with Dolby B NR. A noise reduction of 20 dB at 5 kHz is possible with Dolby C NR.
Input Jacks:	Line IN: 2 Input sensitivity: 80 mV Input impedance: 50 kohms
Outputs:	Line OUT: 2 Standard output level: 500 mV (0 dB) Optimum load impedance: over 50 kohms
Headphone jack:	1 Optimum load impedance: 8 to 200 ohms
Motors:	DC servo motor $\times$ 2, DC motor $\times$ 2
Heads:	REC/PB: 1 PB: 1 ERASE: 1
Power Supply:	European and Australian models: AC 230V, 50 Hz U.S.A. and Canadian models: AC 120V, 60 Hz Worldwide model: AC 120V and AC 220V, Switchable 50/60 Hz
Power Consumption:	31 watts
Dimensions:	455(W) $\times$ 120(H) $\times$ 305(D) mm (17-15/16" $\times$ 4-3/4" $\times$ 12")
Weight:	5.9 kg. (13.0 lbs.)

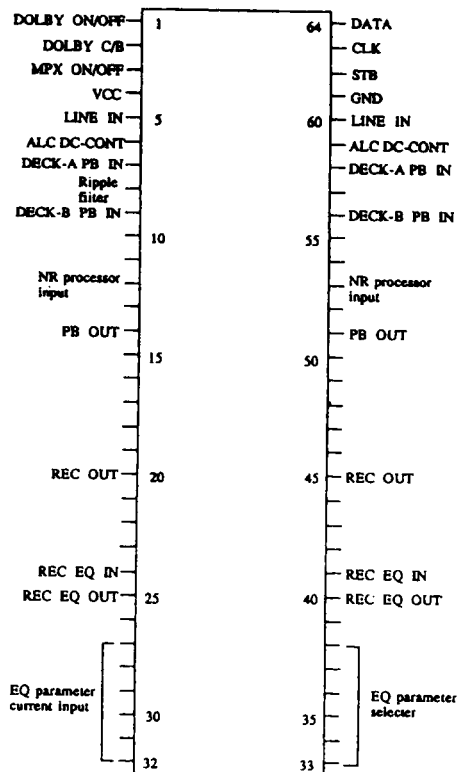
Specifications and external appearance are subject to change without notice because of product improvements.

**BLOCK DIAGRAM**

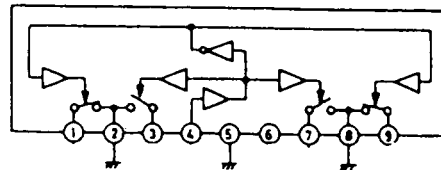


# IC BLOCK DIAGRAM

## HA12155NT (DOLBY NR)



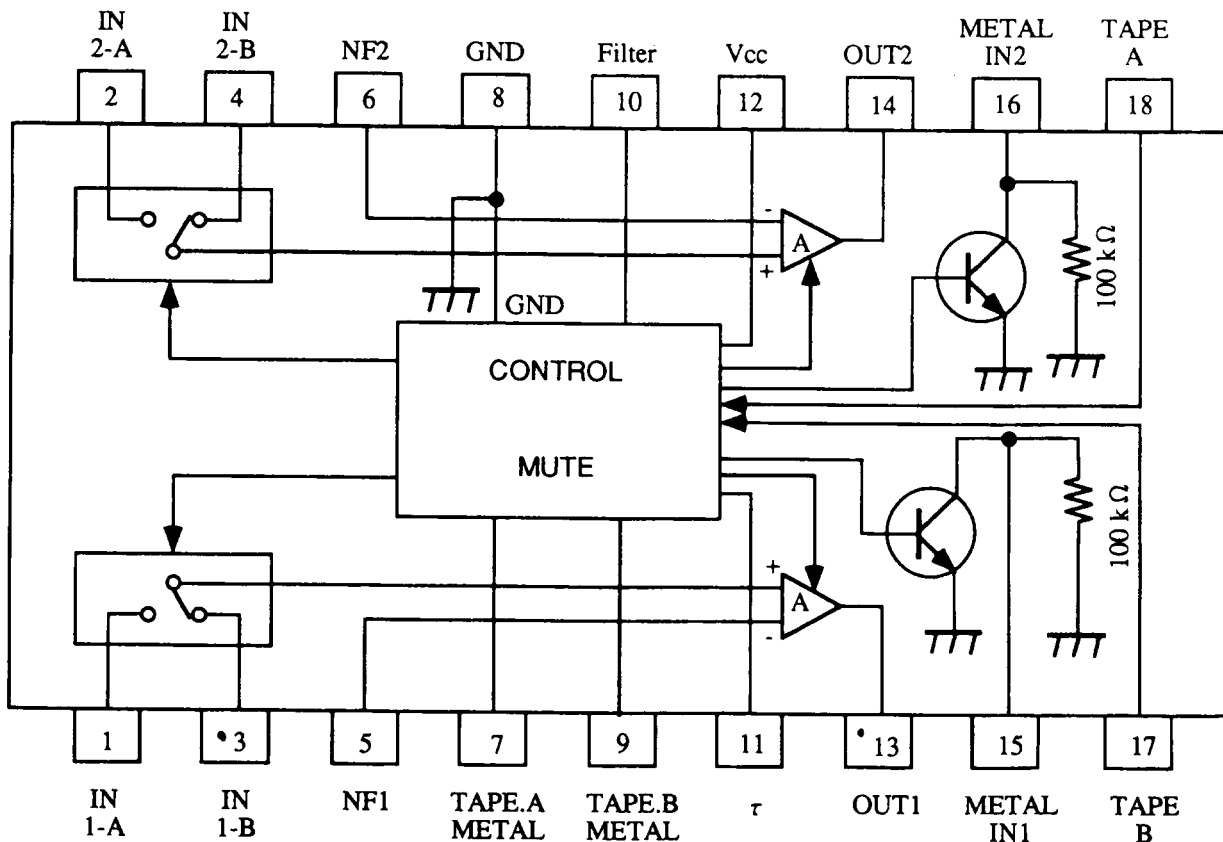
## μPC1330HA (REC/PB SW)



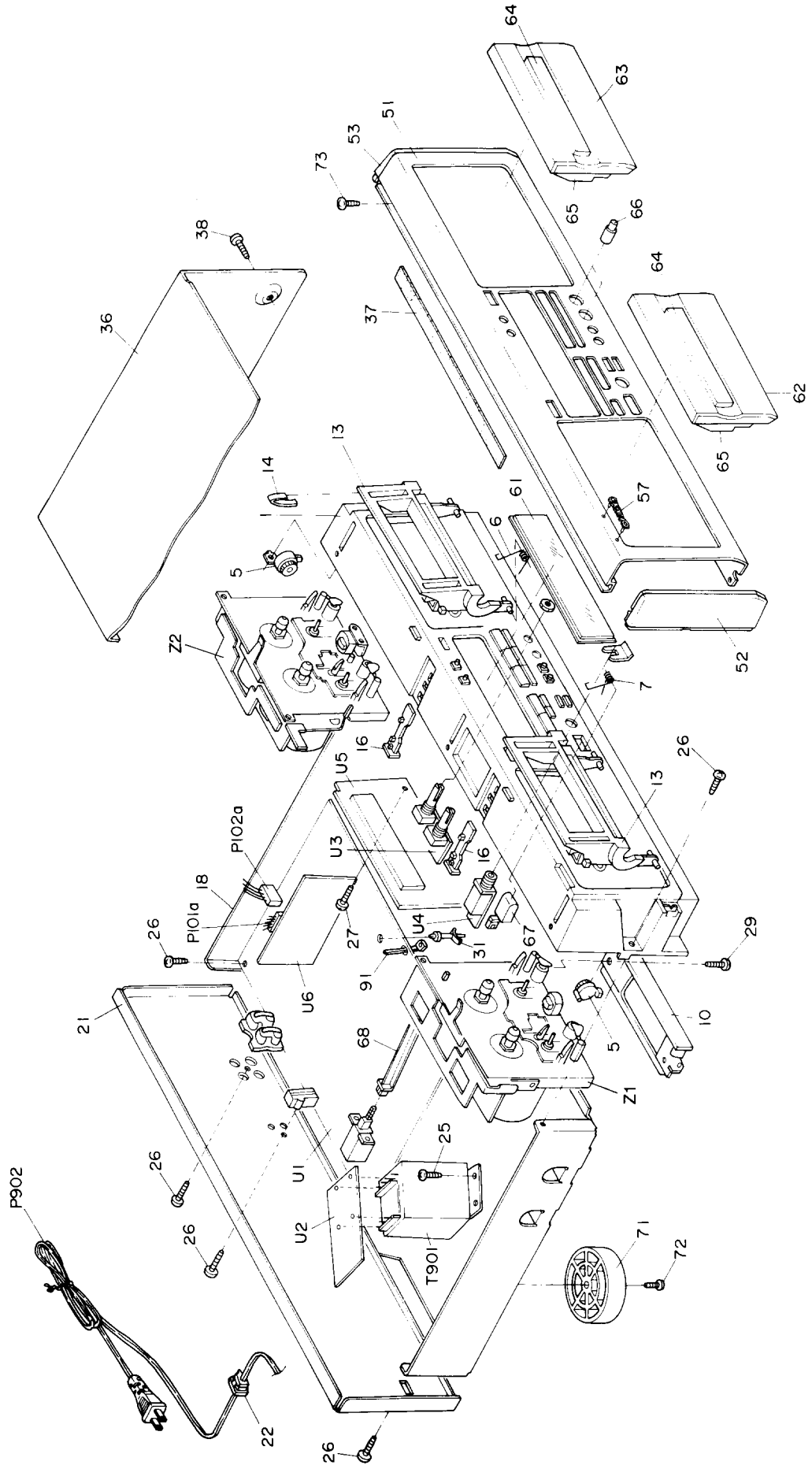
## μPC1330HA

Pin No.	Function
1, 9	PB. signal
2	GND
3, 7	REC signal
4	REC/PB SW control
5	GND
6	+B
8	GND

## BA3416BL (Dual Playback Preampfier)



CHASSIS-EXPLODED VIEW



## PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	27110879Y	Front bracket	P101a	2009990349ULY	NSAS-14P0486,Socket
5	28400282	Damper	P102a	2009990315ULY	NSAS-14P0449,Socket
6	27180476A	Spring B	P902	253192HIT	AS-UC-6#18,Power supply cord <D>
7	27180477A	Spring A		253193HIT	AS-CEE,Power supply cord <P>
10	27130741Y	Bracket F	T901	253198HIT	AS-BS,Power supply cord <B>
13	28400463B	Cassette frame		2301049Y	NPT-1223D,Power transformer <D>
14	27180435	Spring		2301050Y	NPT-1223P,Power transformer <P>
16	28324943Y	Knob,eject		2301051Y	NPT-1223DG,Power transformer <W>
18	27100280AY	Chassis	U1	IN207586-1Y	NAAR-5086-1,Main circuit pc board ass'y
21	27121979Y	Rear panel <D>	U2	IN207587-1Y	NAPS-5087-1,Power supply pc board ass'y <D/P>
	27121980Y	Rear panel <P>		IN207587-1AY	NAPS-5087-1A,Power supply pc board ass'y <W>
	27121981Y	Rear panel <W>	U3	IN207588-1Y	NAETC-5088-1,Input level volume pc board ass'y
	27122023Y	Rear panel <T>	U4	IN207589-1Y	NAETC-5089-1,Headphone terminal pc board ass'y
22	27300750	∧ Cord bushing	U5	IN207593-1Y	NADIS-5093-1,Display circuit pc board ass'y
25	830440089	4TTC+8C(BC),Self-tapping screw	U6	IN207594-1Y	NAAF-5094-1,Recording amplifier pc board ass'y
26	838130088	3TTB+8B,Self-tapping screw	U7	IN207590-1Y	NASW-5090-1,Voltage selector switch pc board ass'y <W>
27	833430080	3TTP+8P(BC),Self-tapping screw	W701	2047291512Y	NCFC-291512,Flat cable
29	838130088	3TTB+8B,Self-tapping screw	Z1	244192Y	NDM-183,Deck mechanism ass'y
31	27190480-1Y	PCB-8L,Holder	Z2	244191Y	NDM-182,Deck mechanism ass'y
36	28184479AY	Top cover			
37	28141308Y	Cushion			
38	838430088	3TTB+8B(BC),Self-tapping screw			
51	IN207121Y	Front panel ass'y			
52	28125248-6Y	End cap L			
53	28125249-6Y	End cap R			
57	28135199	Badge			
61	28191696Y	Clear plate			
62	27301849Y	Cassette lid A			
63	27301849-1Y	Cassette lid B			
64	28191695Y	Clear plate			
65	27301850Y	Cassette lid,base			
66	28323671A	Knob, Volume			
67	28325053Y	Knob, Power			
68	27273135BY	Joint			
71	27175292	Leg			
72	838130088	3TTB+8B,Self-tapping screw			
73	833430080	3TTP+8P(BC),Self-tapping screw			
91	260208	Wire tie			

NOTE: <D>: 120V model only  
 <P>: 230V model only  
 <W>: Worldwide model only  
 <B>: U.K. model only  
 <T>: Taiwanese model only

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

# ADJUSTMENT PROCEDURES

## PRECAUTIONS

1. Before adjustment, clean the following parts with an alcohol moistened swab.

- \* record/playback head
- \* erase head
- \* pinch roller
- \* capstan

2. Do not use magnetized screwdriver for adjustments.

3. Demagnetize record/playback head with a lead demagnetizer.

## TEST EQUIPMENT/TOOLS REQUIRED:

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

### Tape speed adjustment

Connect the digital frequency counter to the line output terminal.

Load the test tape MTT-111 into the cassette holder.

Connect the test point J285 to the ground to be unit to the adjustment mode.

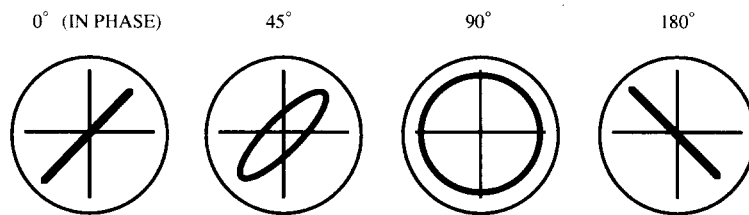
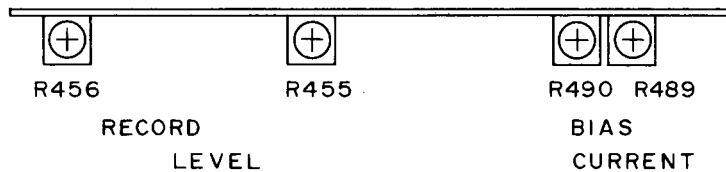
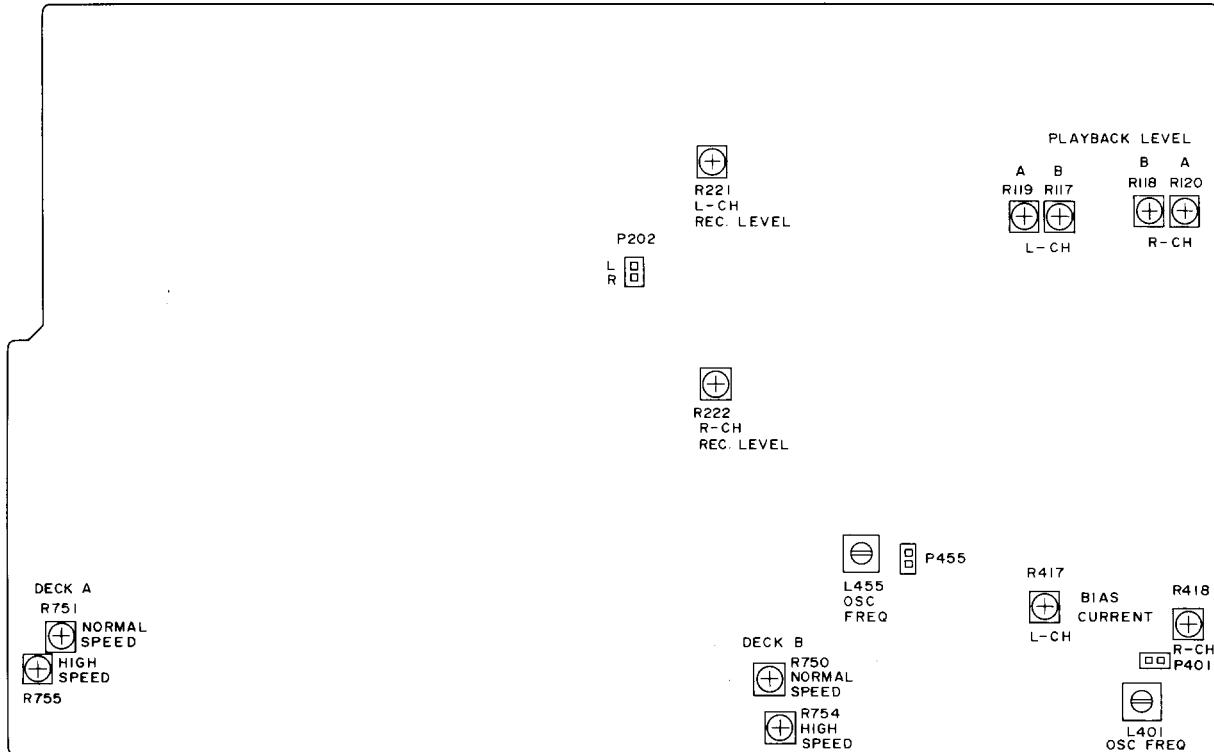
Press the forward play button twice to be unit to the high speed.

Adjust the trim resistors R755(Deck A) and R754(Deck B) so that the frequency counter reading becomes 6000Hz to 6020Hz.

Press the forward play button to be unit to the normal speed.

Adjust the trim resistors R751(Deck A) and R750(Deck B) so that the frequency counter reading becomes 3000Hz to 3010Hz.

Item	Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust for	Remarks
Head azimuth	AC voltmeter and oscilloscope to output terminal		TCC-153	Playback	AC voltmeter and Oscilloscope	Head azimuth screw Forward:Left side Reverse:Right side	Maximum and same separation at left and right channels.	Figure 1
Playback level	AC voltmeter to test point P202		MTT-150	Playback	AC voltmeter	Deck A R119(Left channel) R120(Right channel) Deck B R117(Left channel) R118(Right channel)	300mV	
Oscillator block	Frequency counter to test point P455		Metal tape XS-C90	Stop	Frequency counter	L455	107 ± 2kHz	Test mode When you press the stop key, deck becomes recording mode of metal position. Test mode
	Frequency counter to test point P401			Stop	Frequency counter	L401	107 ± 2kHz	
Bias current	Figure 2	1kHz. -23dB and 12kHz. -23dB	UD-1 C-90	Recording/playback	AC voltmeter	R489(Left channel) R490(Right channel)	Difference of 1kHz and 12kHz become less than 1dB.	When you press the AUTO SPACE key, recording of deck starts. Next when you press the AUTO SPACE key, rewind to recording start point and starts to playback.
				Recording/playback	AC voltmeter	R417(Left channel) R418(Right channel)		
Recording level	Figure 2	1kHz 350mV	UD-1 C-90	Recording	AC voltmeter	Attenuator	350mV	When you press the AUTO SPACE key, recording of deck starts. Next when you press the AUTO SPACE key, rewind to recording start point and starts to playback.
				Recording/playback	AC voltmeter	R455(Left channel) R456(Right channel)	Signals of recording and playback become same level	
				Recording/playback	AC voltmeter	R221(Left channel) R222(Right channel)		



Confirming phase relationship  
Fig.1

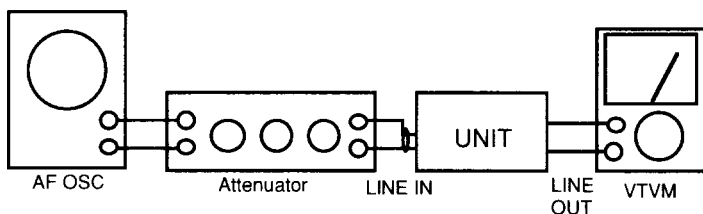


Fig. 2

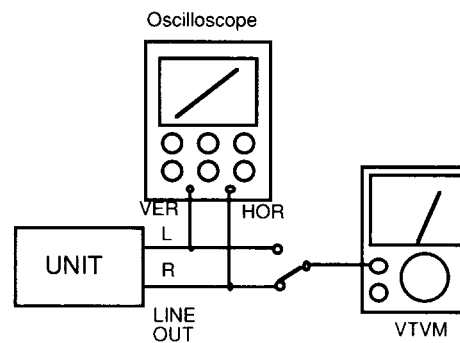
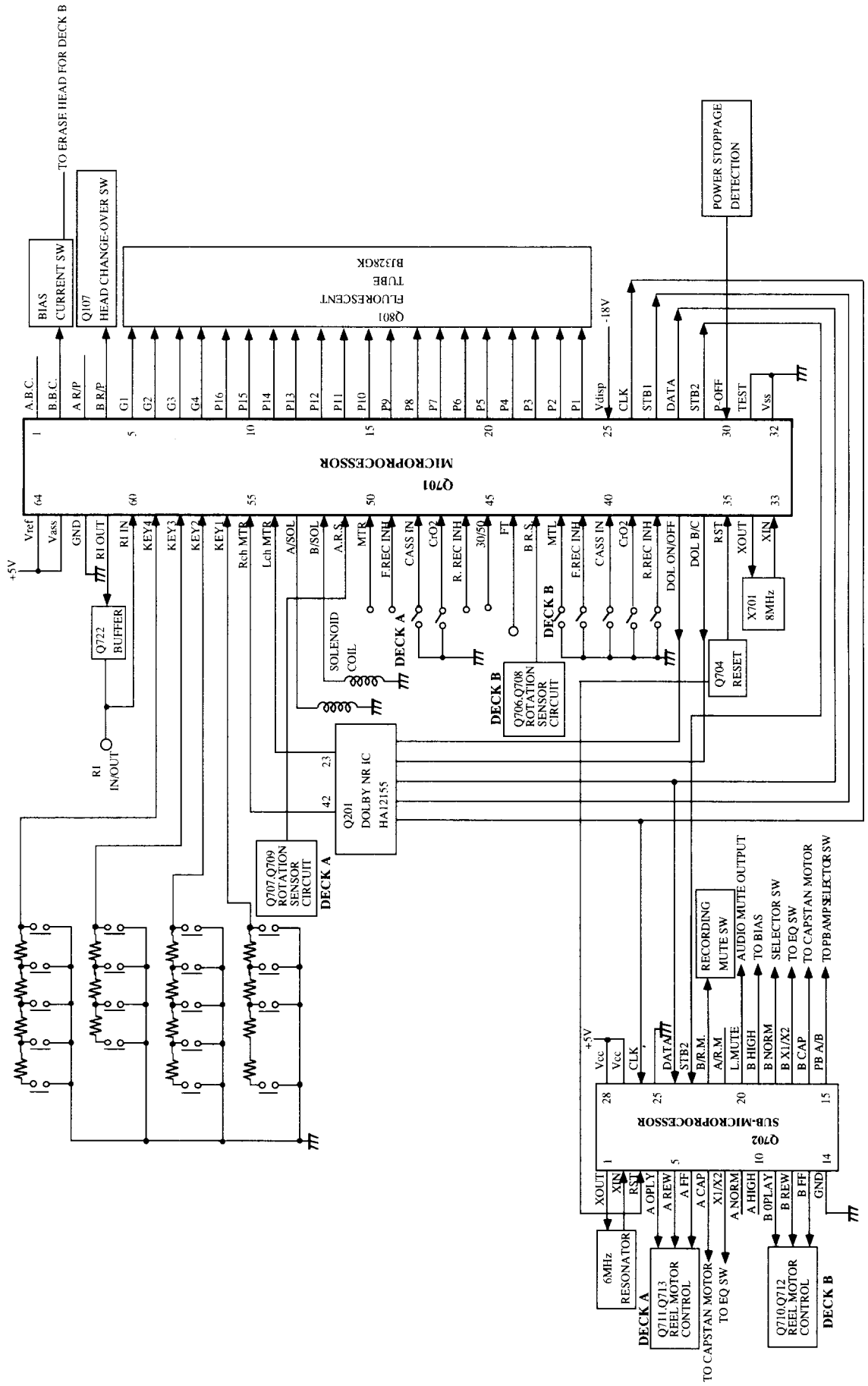


Fig.3

# MICROPROCESSOR-CONNECTION DIAGRAM





# MICROPROCESSOR-TERMINAL DESCRIPTIONS

## MAIN MICROPROCESSOR

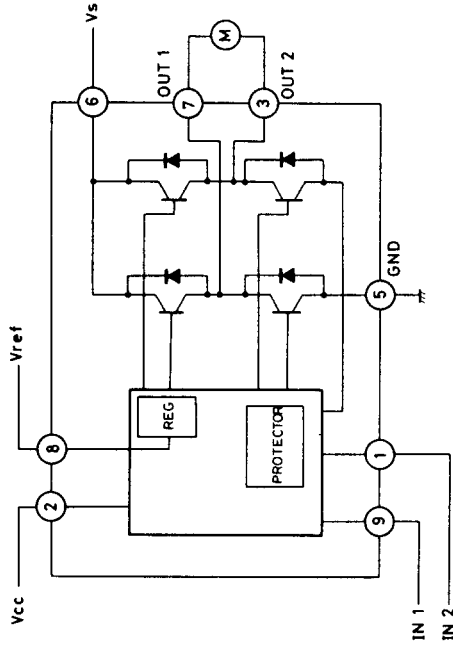
Pin No.	Terminal	Description
1	A B.C.	Bias current change-over control output pin for Deck A.
2	B B.C.	Bias current change-over control output pin for Deck B.
3	A R/P	Recording/playback head change-over output pin for Deck A.
4	B R/P	Recording/playback head change-over output pin for Deck B.
5	G1	Grid output pin
6	G2	Grid output pin
7	G3	Grid output pin
8	G4	Grid output pin
9	P16	Segment output pin
10	P15	Segment output pin
11	P14	Segment output pin
12	P13	Segment output pin
13	P12	Segment output pin
14	P11	Segment output pin
15	P10	Segment output pin
16	P9	Segment output pin
17	P8	Segment output pin
18	P7	Segment output pin
19	P6	Segment output pin
20	P5	Segment output pin
21	P4	Segment output pin
22	P3	Segment output pin
23	P2	Segment output pin
24	P1	Segment output pin
25	Vdisp	
26	CLK	Clock output pin
27	STB1	Strobe output pin
28	DATA	Data output pin
29	STB2	Strobe output pin.
30	P-OFF	Detection input pin for stoppage of electric current
31	TEST	Test pin
32	V <sub>ss</sub>	Power supply terminal

Pin No.	Terminal	Description
33	XIN	Ceramic resonator connection pin
34	XOUT	Ceramic resonator connection pin
35	RST	Reset input
36	DOL B/C	Dolby B/C change-over output pin
37	DOL ON/OFF	Dolby change-over output pin
38	R-REC INH	Recording inhibiting detection input pin for reverse side of Deck B.
39	CrO2	High position detection input pin for reverse side of Deck B.
40	CASS IN	Cassette tape detection input pin for reverse side of Deck B.
41	F-REC INH	Recording inhibiting detection input pin for forward side of Deck B.
42	MIL	Metal position detection input pin for reverse side of Deck B.
43	B R.S.	Rotation detection input pin for reel stand of Deck B.
44	FT	Adjustment mode input pin
45	30/50	Initializing input
46	R-REC INH	Recording inhibiting detection input pin for reverse side of Deck A.
47	CrO2	High position detection input pin for reverse side of Deck A.
48	CASS IN	Cassette tape detection input pin for reverse side of Deck A.
49	F-REC INH	Recording inhibiting detection input pin for forward side of Deck A.
50	MIL	Metal position detection input pin for reverse side of Deck A.
51	A R.S.	Rotation detection input pin for reel stand of Deck A.
52	B/SOL	Solenoid coil drive output pin of Deck B.
53	A/SOL	Solenoid coil drive output pin of Deck A.
54	Lch mot	Input pin for level meter of left channel
55	Rch mot	Input pin for level meter of right channel
56	KEY1	Operation key connection pin
57	KEY2	Operation key connection pin
58	KEY3	Operation key connection pin
59	KEY4	Operation key connection pin
60	RI IN	Bus signal input pin
61	RI OUT	Bus signal output pin
62	GND	Ground terminal
63	V <sub>ass</sub>	Power supply pin
64	Vref	Power supply pin

**SUB-MICROPROCESSOR**

Pin No.	Function	Description
1	XOUT	Ceramic resonator connection pins
2	XIN	Connect the 6.0MHz ceramic resonator.
3	RST	System reset input pin
4	A OPLY	Reel motor control output pin for Deck A
5	A REW	Rewind control output pin for Deck A
6	A FF	Fast forward control output pin for Deck A
7	A CAP	Capstan motor control output pin for Deck A
8	A X1/X2	Capstan motor rotation speed control output for deck A
9	A NORM	Recording equalizer and bias current selector output pin for deck A
10	A HIGH	Recording equalizer and bias current selector output pin for deck A
11	B OPLY	Reel motor control output pin for Deck B
12	B REW	Rewind control output pin for Deck B
13	B FF	Fast forward control output pin for Deck B
14	GND	Ground pin
15	PB A/B	Playback amplifier selector pin
16	B CAP	Capstan motor control output pin for Deck B
17	B X1/X2	Capstan motor rotation speed control output for deck B
18	B NORM	Recording equalizer and bias current selector output pin for deck B
19	B HIGH	Recording equalizer and bias current selector output pin for deck B
20	L.MUTE	Audio muting control output pin
21	A/R.M.A.	Recording muting control pin for deck A
22	B/R.M.	Recording muting control pin for deck B
23	STB2	Strobe input pin
24	DATA	Data input pin
25		
26	CLK	Clock input pin
27	V <sub>cc</sub>	Power supply pin
28	V <sub>cc</sub>	Power supply pin

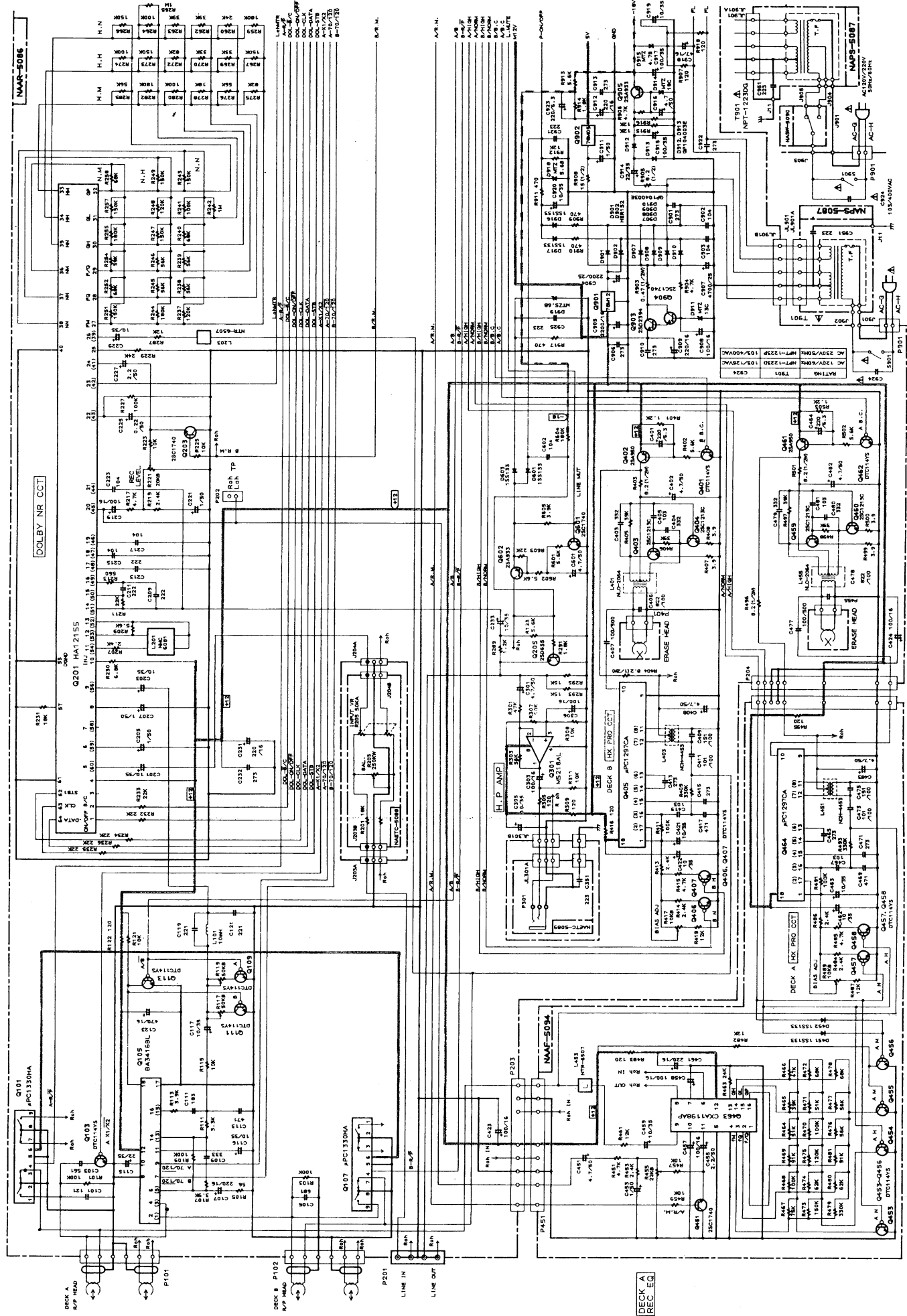
**TA-7291S (MOTOR DRIVE)**



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

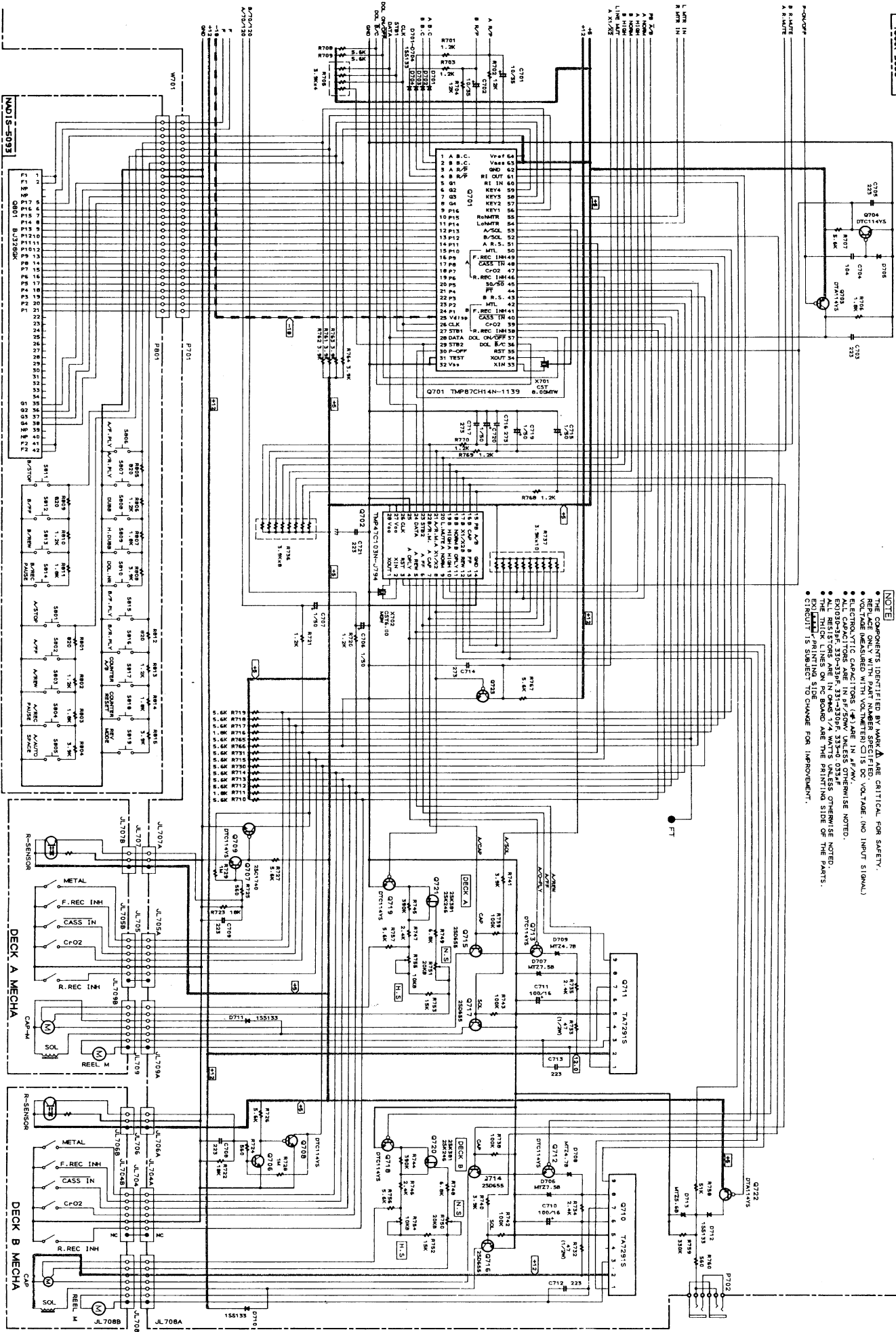
A B C D E F G

CHEMATIC DIAGRAM



# SCHEMATIC DIAGRAM

NAAR-5085



- NOTE**
- THE COMPONENTS IDENTIFIED BY MARK **▲** ARE CRITICAL FOR SAFETY.
  - REPLACE ONLY WITH PART NUMBER SPECIFIED. VOLTAGE AND INPUT SIGNAL.
  - ELECTRICAL CHARACTERISTICS (IF ANY) ARE IN P.F.W.M.
  - ALL CAPACITORS ARE IN P.F./50V UNLESS OTHERWISE NOTED.
  - EXCEPT FOR 330-250P, 331-250P, 332-250P, 333-250P, 334-250P, 335-250P, 336-250P, 337-250P, 338-250P, 339-250P, 340-250P, 341-250P, 342-250P, 343-250P, 344-250P, 345-250P, 346-250P, 347-250P, 348-250P, 349-250P, 350-250P, 351-250P, 352-250P, 353-250P, 354-250P, 355-250P, 356-250P, 357-250P, 358-250P, 359-250P, 360-250P, 361-250P, 362-250P, 363-250P, 364-250P, 365-250P, 366-250P, 367-250P, 368-250P, 369-250P, 370-250P, 371-250P, 372-250P, 373-250P, 374-250P, 375-250P, 376-250P, 377-250P, 378-250P, 379-250P, 380-250P, 381-250P, 382-250P, 383-250P, 384-250P, 385-250P, 386-250P, 387-250P, 388-250P, 389-250P, 390-250P, 391-250P, 392-250P, 393-250P, 394-250P, 395-250P, 396-250P, 397-250P, 398-250P, 399-250P, 400-250P, 401-250P, 402-250P, 403-250P, 404-250P, 405-250P, 406-250P, 407-250P, 408-250P, 409-250P, 410-250P, 411-250P, 412-250P, 413-250P, 414-250P, 415-250P, 416-250P, 417-250P, 418-250P, 419-250P, 420-250P, 421-250P, 422-250P, 423-250P, 424-250P, 425-250P, 426-250P, 427-250P, 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TA-RW411

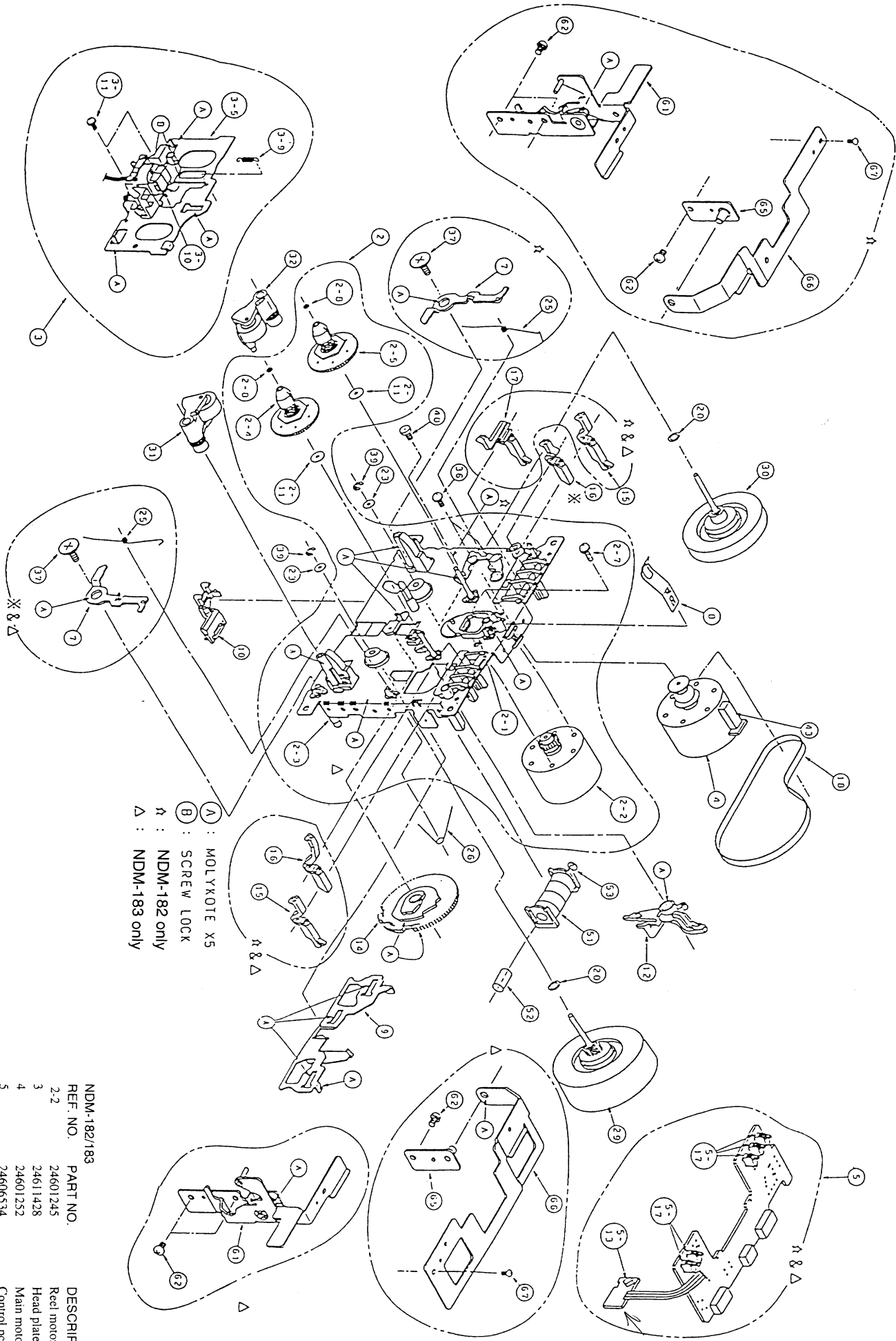
# PRINTED CIRCUIT BOARD-PARTS LIST

## MAIN CIRCUIT PC BOARD (NAAR-5086-1)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
					Diodes
			D914	224451803	MTZ18C, Zener
			D915	224470683	MTZJ6.8C, Zener
Q101,Q107	22240147	μ PC1330HA	D916,D917	223163	1SS133
Q105	22240767	BA3416BL	D918,D919	224450562	MTZ5.6B, Zener
Q201	22240544	HA12155NT			Coils
Q301	22240369	M5218AP	L101,L102	231089	NCH-2137, CHOKE
Q405	222959	μ PC1297CA	L201,L202	233436	NMC-6081, MPX
Q701	22240822	TMP87CH14N-1139	L203,L204	231221	NTR-6507, TRAP
Q702	22240823	TMP47C103N-J794	L401	231223Y	NLO-2064, OSC
Q710,Q711	22240239	TA7291S	L403,L404	231218	NCH-4453, CHOKE
Q901	222780125MIT	78M12	L455	231223Y	NLO-2064, OSC
Q902	222780055NEC	78M05HF			Resonators
		Transistors	X701	3010190	CST8.00MTW, Ceramic
Q103,Q104	221281	DTC114YS	X702	3010149	CST6.00MGW, Ceramic
Q109-Q113	221281	DTC114YS			Capacitors
Q203,Q204	2213284 or	2SC1740S-R or	C103,C104	374725614	560pF±5%,50V,Plastic
	2213285	2SC1740S-S	C105,C106	374726814	680pF±5%,50V,Plastic
Q205,Q206	2211705 or	2SD655-E or	C107,C108	354742219	220μ F,16V,Elect.
	2211706	2SD655-F	C109,C110	374723334	0.033μ F±5%,50V,Plastic
Q401	221281	DTC114YS	C111,C112	374721834	0.018μ F±5%,50V,Plastic
Q402,Q461	2211504	2SA950-Y	C115	354762209	22μ F,35V,Elect.
Q403,Q404	2201883	2SC1213-C	C116-C118	354761009	10μ F,35V,Elect.
Q406,Q407	221281	DTC114YS	C123	354744719	470μ F,16V,Elect.
Q459,Q460	2201883	2SC1213-C	C201-C204	354761009	10μ F,35V,Elect.
Q462	221281	DTC114YS	C205-C207	354780109	1μ F,50V,Elect.
Q601	2213284 or	2SC1740S-R or	C209-C214	374722224	2200pF±5%,50V,Plastic
Q706,Q707	2213285	2SC1740S-S	C215-C218	374721044	0.1μ F±5%,50V,Plastic
Q602,Q905	2213354 or	2SA933S-R or	C219,C220	354741019	100μ F,16V,Elect.
	2213355	2SA933S-S	C221,C222	354780109	1É F,50V,Elect.
Q703,Q722	2213090	DTA114YS	C223,C224	374721044	0.1μ F±5%,50V,Plastic
Q704	221281	DTC114YS	C225,C226	354782299	0.22μ F,50V,Elect.
Q708,Q709	221281	DTC114YS	C227,C228	354780229	2.2μ F,50V,Elect.
Q712,Q713	221281	DTC114YS	C229,C230	354761009	10μ F,35V,Elect.
Q714-Q717	2211705 or	2SD655-E or	C231	354742219	220μ F,16V,Elect.
	2211706	2SD655-F	C232	374722734	0.027μ F±5%,50V,Plastic
Q718,Q719	221281	DTC114YS	C233,C234	354761009	10μ F,35V,Elect.
Q720,Q721	2211945 or	2SK246-GR or	C301,C302	354780479	4.7μ F,50V,Elect.
	2212304	2SK381-D	C303,C304	354741019	100μ F,16V,Elect.
Q723	221281	DTC114YS	C305	354761009	10μ F,35V,Elect.
Q903	2202705 or	2SD2394-E	C306	354741019	100μ F,16V,Elect.
	2202706	2SD2394-F	C401	354722219	220μ F,6.3V,Elect.
Q904	2213285 or	2SC1740S-S or	C402	354780479	4.7μ F,50V,Elect.
	2213284	2SC1740S-R	C403,C404	374723324	3300pF±5%,50V,Plastic
		Diodes	C405	374721034	0.01É F±5%,50V,Plastic
D601,D603	223163	1SS133	C406,C478	370138224	8200pF±5%,100V,Plastic
D701-D705	223163	1SS133	C408	354780479	4.7μ F,50V,Elect.
D706,D707	224450752	MTZ7.5B, Zener	C409,C410	370131514	150pF±5%,100V,Plastic
D708,D709	224450472	MTZ4.7B, Zener	C411,C412	370131014	100pF±5%,100V,Plastic
D710-D712	223163	1SS133	C413-C416	374722734	0.027μ F±5%,50V,Plastic
D713	224450562	MTZ5.6B, Zener	C417,C418	374724714	470pF±5%,50V,Plastic
D901,D902	22380031	HER152	C419,C420	374721034	0.01μ F±5%,50V,Plastic
D907-D910	22380035	GP104003E	C421,C422	354761009	10μ F,35V,Elect.
D911	224451303	MTZ13C, Zener	C423,C424	354741019	100μ F,16V,Elect.
D912,D913	22380035	GP104003E			

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C464	354722219	220 $\mu$ F,6.3V,Elect.
C479,C480	374723324	3300pF $\pm$ 5%,50V,Plastic
C481	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic
C482,C601	354780479	4.7 $\mu$ F,50V,Elect.
C701,C702	354761009	10 $\mu$ F,35V,Elect.
C704	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
C706,C707	354780109	1 $\mu$ F,50V,Elect.
C710,C711	354741019	100 $\mu$ F,16V,Elect.
C715	354780109	1 $\mu$ F,50V,Elect.
C719,C720	354780109	1 $\mu$ F,50V,Elect.
C901,C906	374722734	0.027 $\mu$ F $\pm$ 5%,50V,Plastic
C902,C903	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
C904	393352227	2200 $\mu$ F,25V,Elect.
C905	393342227	2200 $\mu$ F,16V,Elect.
C907	393354727	4700 $\mu$ F,25V,Elect.
C908,C912	354741019	100 $\mu$ F,16V,Elect.
C909	354742219	220 $\mu$ F,16V,Elect.
C910,C913	374722734	0.027 $\mu$ F $\pm$ 5%,50V,Plastic
C911	354780109	1 $\mu$ F,50V,Elect.
C914	354762209	22 $\mu$ F,35V,Elect.
C915,C917	354761019	100 $\mu$ F,35V,Elect.
C916	354780479	4.7 $\mu$ F,50V,Elect.
C918,C923	354744709	47 $\mu$ F,16V,Elect.
C919,C920	354761009	10 $\mu$ F,35V,Elect.
C922	374722734	0.027 $\mu$ F $\pm$ 5%,50V,Plastic
C924	3500065A	DE7150FZ103P, AC400V/125V, IS

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



(A) : MOLLYKOTE X5  
 (B) : SCREW LOCK  
 † : NDM-182 only  
 Δ : NDM-183 only

REF. NO.	PART NO.	DESCRIPTION
NDM-182/183		
2-2	24601245	Reel motor
3	24611428	Head plate
4	24601252	Main motor
5	24606534	Control pcb
18	24602551	Main belt
31	24602541	Pinch roller R
32	24602589	Pinch roller L

# PRINTED CIRCUIT BOARD-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistors</b>		
R117-R120	5210265	N06HR50KBC, Trimming
R221,R222	5210263	N06HR20KBC, Trimming
R403,R404	453530824	8.2Ω±5%,1/2W,Metal
R417,R418	5210262	N06HR10KBC, Trimming
R496,R501	453530824	8.2Ω±5%,1/2W,Metal
R705	49163392404	RM1/10IJ, 3.9K×4, Array
R732,R733	443524704	47Ω±5%,1/2W,Metal oxide
R736	49163392408	RM1/10IJ, 3.9K×8, Array
R737	49163392410	RM1/10IJ, 3.9K×10, Array
R750,R751	5210263	N06HR20KBC, Trimming
R754,R755	5210262	N06HR10KBC, Trimming
R905	453530824	8.2Ω±5%,1/2W,Metal
R908	443521504	15Ω±5%,1/2W,Metal oxide
<b>Plugs</b>		
P101,P102	25055136	NPLG-6P120
P202	25055038	NPLG-2P29
P203,P204	25055678	NPLG-8P634
P401,P455	25055132	NPLG-2P116
P901	25055675	NPLG-2P631
<b>Socket</b>		
P701	25050861	NSCT-29P656
<b>Wire traps</b>		
JL203a,JL204a	25050267	NSCT-3P95
JL301b	25055624	NPLG-3P586
JL901b	25050269	NSCT-5P97
<b>Wire holders</b>		
JL704a,JL705a	25051101	NSCT-7P888
JL706a,JL707a	25051097	NSCT-3P884
JL708a,JL709a	25051101	NSCT-7P888
<b>Terminals</b>		
P201	25045329	NPJ-4PDBL183
P702	25045330	NPJ-2PDBL184, RI
<b>Switch</b>		
S901	25035636	NPS-111-L590P

**POWER SUPPLY CIRCUIT PC BOARD (NAPS-5087-1/1A)**

CIRCUIT NO.	PART NO.	DESCRIPTION
JL901a	25051109	NSCT-5P896, Wire holder

**INPUT LEVEL VOLUME PC BOARD (NAETC-5088-1)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistors</b>		
R203	5104345Y	N09RLC250KW15F, Variable
R205,R206	5104346Y	N09RGL50KA15F, Variable

**HEADPHONE TERMINAL PC BOARD (NAETC-5089-1)**

CIRCUIT NO.	PART NO.	DESCRIPTION
P301	25045255	YKB21-5009, Jack
JL301a	25051087	NSCT-3P874, Wire holder

**VOLTAGE SELECTOR SWITCH PC BOARD(NASW-5090-1)**

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

**DISPLAY CIRCUIT PC BOARD (NADIS-5093-1)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>FL tube</b>		
Q801	212137	BJ328GK
<b>Switches</b>		
S801-S819	25035652	NPS-111-S604, P SW
<b>Socket</b>		
P801	25050893	NSCT-29P688
<b>Holder</b>		
	27190939Y	FL

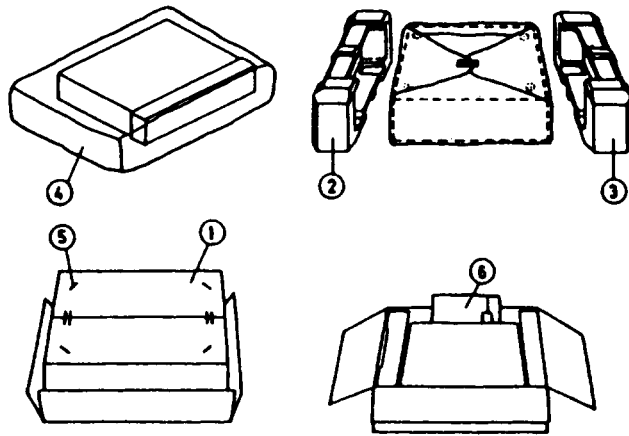
**RECORDING AMPLIFIER PC BOARD (NAAF-5094-1)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q451,Q452	2213285 or 2213284	2SC1740S-S or 2SC1740S-R
Q453-Q458	221281	DTC114YS
<b>ICs</b>		
Q463	22240267	CXA1198A
Q464	222959	MPC1297CA
<b>Diodes</b>		
D451,D452	223163	1SS133
<b>Coils</b>		
L451,L452	231218	NCH-4453, Choke
L453,L454	231221	NTR-6507, Trap
<b>Capacitors</b>		
C451,C452	354780479	4.7μ F,50V,Elect.
C453,C454	354780109	1μ F,50V,Elect.
C455,C456	354780229	2.2μ F,50V,Elect.
C457,C458	354741019	100μ F,16V,Elect.
C459,C460	354761009	10μ F,35V,Elect.
C461	354742219	220μ F,16V,Elect.
C462,C463	354761009	10μ F,35V,Elect.
C465,C466	374722734	0.027μ F±5%,50V,Plastic
C467,C468	374721034	0.01μ F±5%,50V,Plastic
C469,C470	374724714	470pF±5%,50V,Plastic
C471,C472	374722734	0.027μ F±5%,50V,Plastic
C473,C474	370131014	100pF±5%,100V,Plastic
C475,C476	370131514	150pF±5%,100V,Plastic
C483	354780479	4.7μ F,50V,Elect.

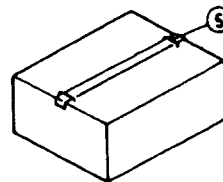
<b>Resistors</b>		
R455,R456	5210294	N06HR22KBE, Trimming
R489,R490	5210292	N06HR10KBE, Trimming
<b>Sockets</b>		
P451,P452	25051127	NSCT-8P914, Socket



# PACKING VIEW



REF.NO.	PART NO.	DESCRIPTION
1	29052817Y	Carton box
2	29091636-1BY	Pad L
3	29091637-1BY	Pad R
4	29100034-1Y	650×850mm, Styren bag
5	282301	Staples
6	Accessory bag ass'y	
	29342026Y	Instruction manual, English
	29342027Y	Instruction manual U6 <P>
	29342029Y	Instruction manual U3 <W/C/T>
	2010244Y	Connection cord
	29100097-1Y	350×250mm, Styren bag
	29365019B	Warranty card <N>
	29358002K	Service station list <N>
	29361772Y	Label UPC <N>
	29361759Y	Label CUL <N/C>
	29361880Y	Label CE <P>
	29095745Y	Sheet U7 <P>
	29361786Y	Label <P/T>
	25055040	CV-K-2, Conversion plug <W>



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

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