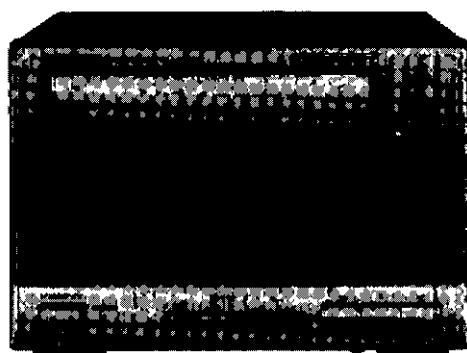


ONKYO® SERVICE MANUAL

CASSETTE TAPE DECK

MODEL K-185X



Black model

UP, UPT	230V AC, 50Hz
UDT	120V AC, 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.

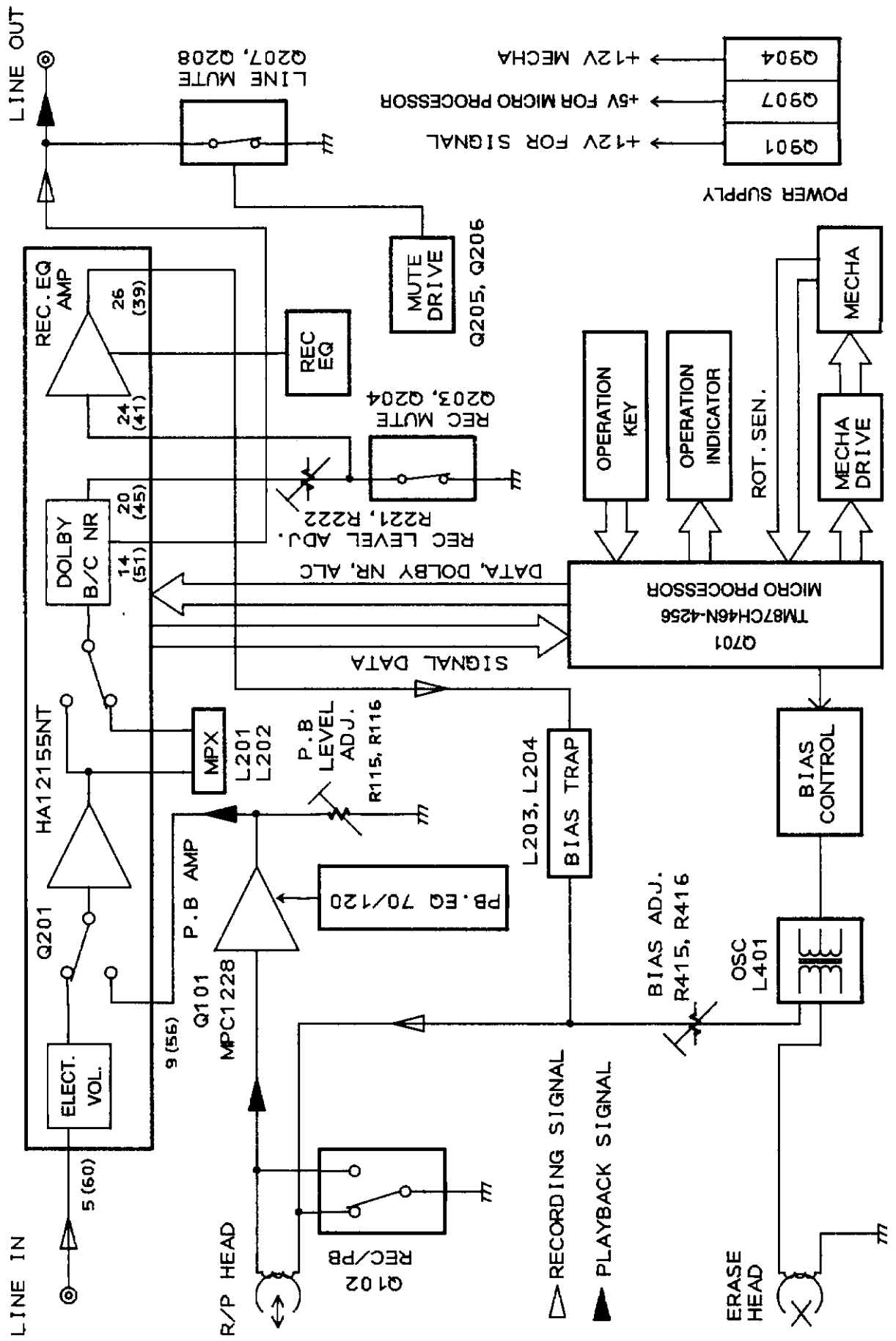
SPECIFICATIONS

Track Format:	4-track, 2-channels
Erase System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.)
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: 600 mV Input impedance: 50 kohms
Outputs:	Line OUT: 2 Standard output level: 500 mV (0 dB) Optimum load impedance: over 50 kohms
Motors:	DC servo motor $\times$ 1
Heads:	REC/PB: 1 ERASE: 1
Power Consumption:	11 watts
Dimensions:	185(W) $\times$ 131(H) $\times$ 294(D) mm (7-5/16" $\times$ 5-1/8" $\times$ 11-9/16")
Weight:	2.9 kg. (6.4 lbs.)

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

ONKYO®
AUDIO COMPONENTS

BLOCK DIAGRAM



ADJUSTMENT PROCEDURES

PRECAUTIONS

- Before adjustment, clean the following parts with an alcohol moistened swab.
*recording/playback head *erase head
*pinch roller *capstan
- Do not use magnetized screwdriver for adjustment.
- Demagnetize recording/playback head with a head demagnetizer.

TEST EQUIPMENT/TOOL REQUIRED

Audio Oscillator
Frequency counter
Oscilloscope
Attenuator
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 level/freq.	Test tape	Mode	Output indicator	Adjustment point	Adjustment	Remarks
1	Tape speed	Frequency counter to P201 or LINE OUT terminal.		MTT-111N	PB	Frequency counter	R723	3010Hz	
2	Head azimuth	AC voltmeter & oscilloscope to P201		TCC-153	PB	AC voltmeter	Fig.1	Maximum level & same phase at channels L & R	Refer to Fig.2.
3	Playback level	AC voltmeter to P201		MTT-150	PB	AC voltmeter	R115 (L ch.) R116 (R ch.)	300mV	
4	Bias current	Fig.3	1kHz,35mV & 12.5kHz, 35mV	Normal tape	REC/PB	AC voltmeter	R415 (L ch.) R416 (R ch.)	Playback level of 1kHz and 12.5kHz becomes same	Repeat the recording and playback until no further adjustment is necessary.
5	Recording level	Fig.3	1kHz,350mV	Normal tape	REC/PB	AC voltmeter	R221 (L ch.) R222 (R ch.)	The levels of recording and playback become same.	Repeat the recording and playback until no further adjustment is necessary.
6	Bias frequency	Frequency counter to lead wire of erase head		Normal tape	REC	Frequency counter	L401	107kHz	

Blank tapes

Normal UD- I C-90
High UD- II C-90
Metal XS C-60

PLAY torque 30~70g/cm (Use the test tape TW-2231.)
FF/REW torque 80~180g/cm (Use the test tape TW-2111.)
Back tension 2~6g/cm (Use the test tape TW-2111.)

Head azimuth screw(REV) Head azimuth screw(FWD)

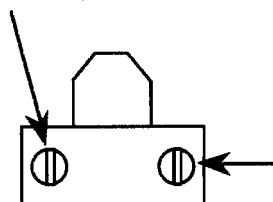


Fig.1 R/P Head

ADJUSTMENT POINT

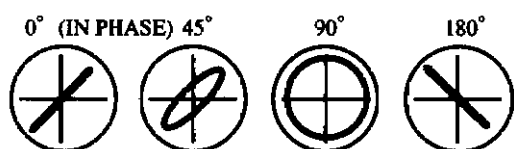
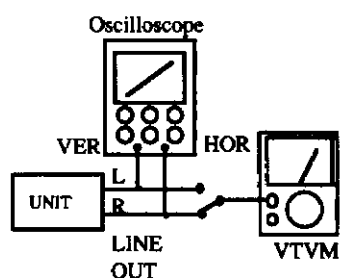
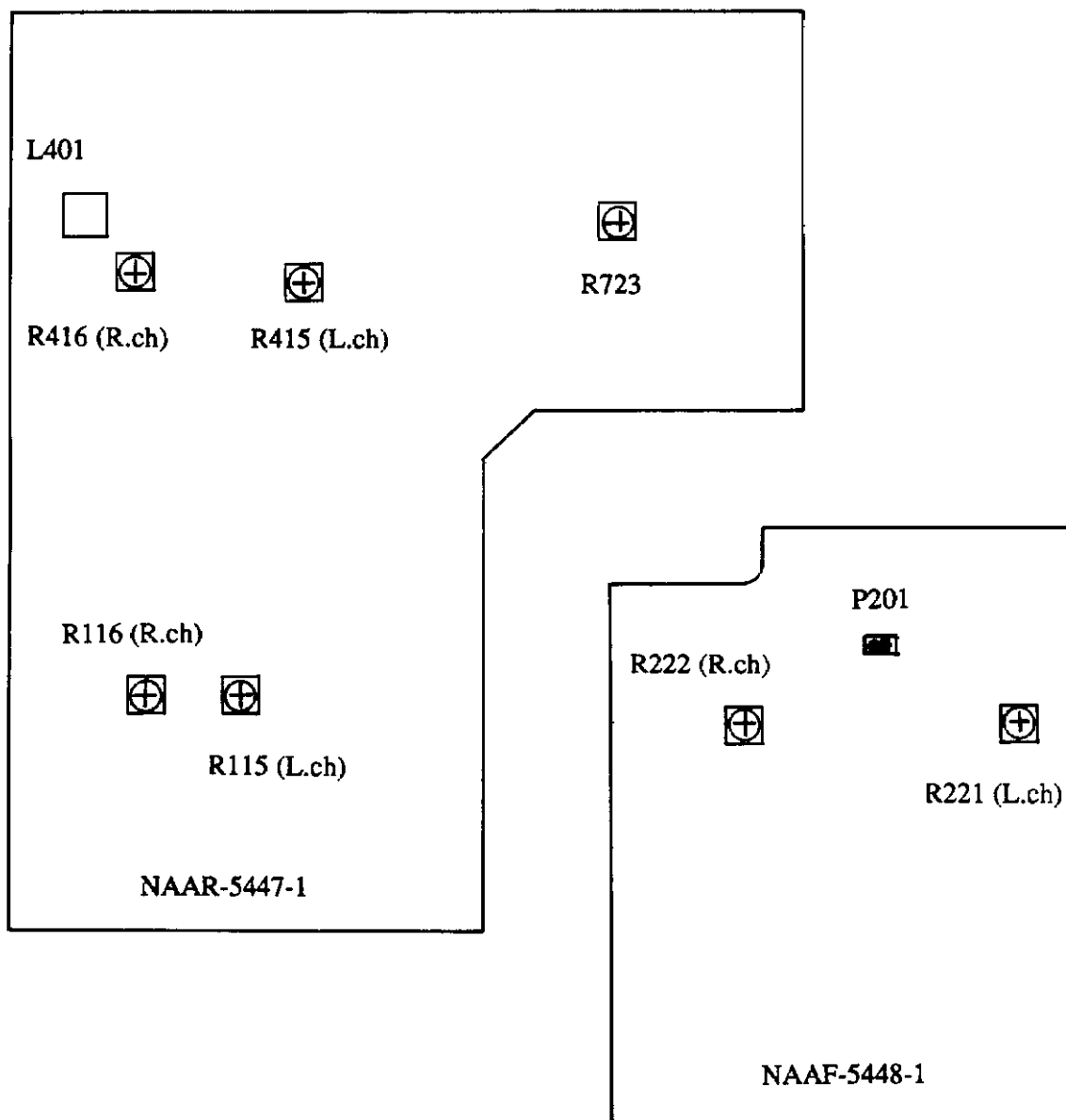


Fig.2 Confirming phase relationship

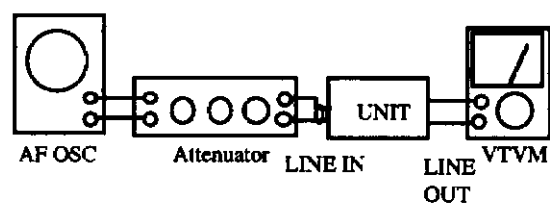
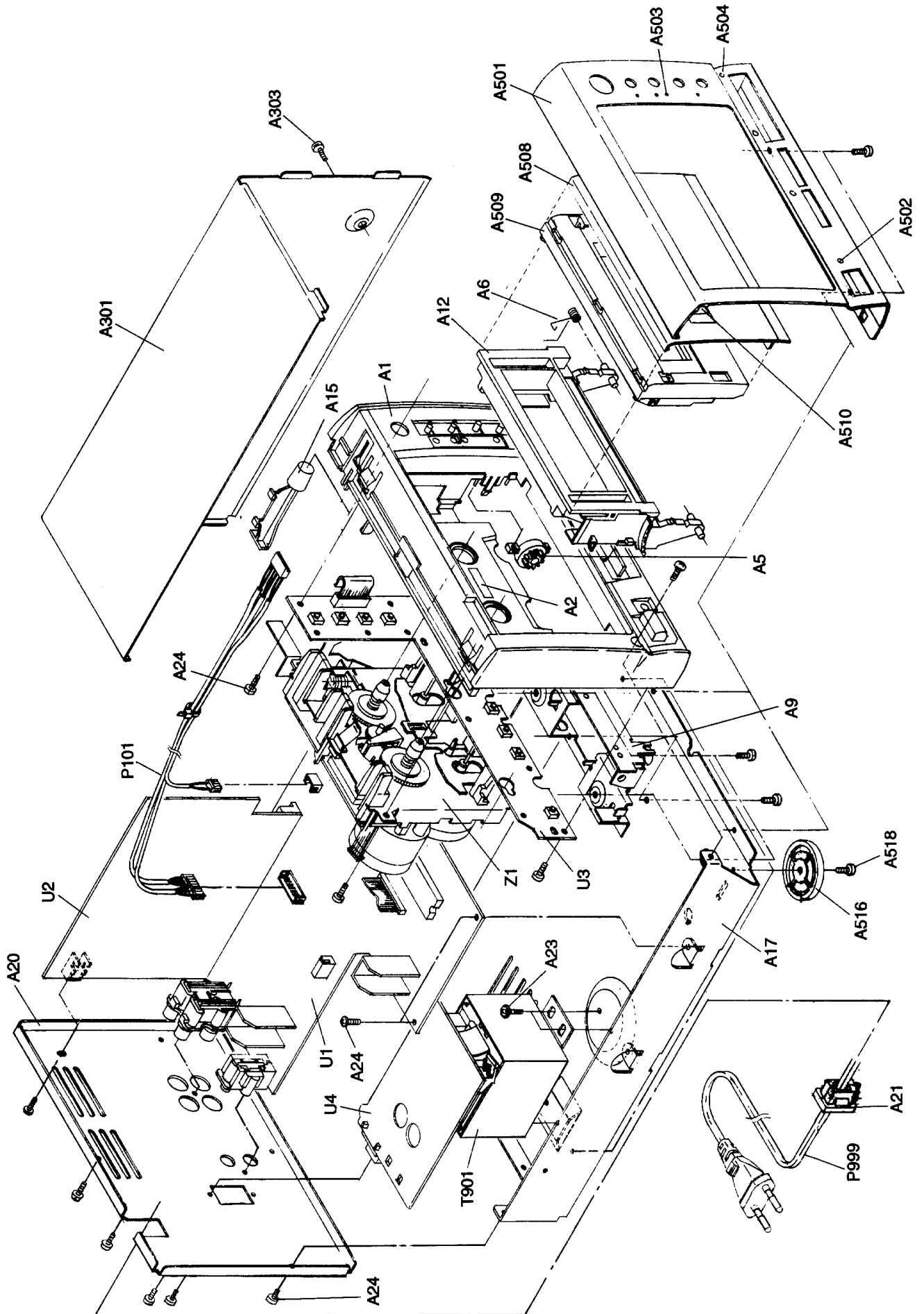


Fig. 3

CHASSIS-EXPLODED VIEW

CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27110979B	Front bracket	F901A	252075	△ 2.5A-SE-EAK,Fuse <P/T>
A2	27262519	Plate T-1	P101A	2009990315	NSAS-14P0449,Socket
A5	28400282	Damper	P101B	260208	Wire tie
A6	27180477A	Spring	P901A	253193HIT	△ AS-CEE, Power supply cord <P/T>
A9	27130748A	Bracket F		253192HIT	△ AS-UC-6#18(SPT-2),Power supply cord <D>
A12	27301792A	Cassette frame	T901	2301104	△ NPT-1239P, Power transformer <P/T>
A13	27180272A	Spring		2301153	△ NPT-1239D,Power transformer <D>
A15	28325129	Knob, Eject	U1	1N277547-2B	NAAAR-5447-2B, Main circuit PC board ass'y <P/T>
A17	27100299	Chassis		1N277547-2A	NAAAR-5447-2A, Main circuit PC board ass'y <D>
A20	27122514	Rear panel <P/T>	U2	1N277548-2A	NAAF-5448-2A,Dolby circuit PC board ass'y <D>
A20	27122513	Rear panel <D>		1N277548-2B	NAAF-5448-2B,Dolby circuit PC board ass'y <P/T>
A21	27300750	△ Bushing, cord	U3	1N277549-2A	NASW-5449-2A,Switch PC board ass'y <D>
A23	830440089	4TTC+8C(BC),Self-tapping screw		1N277549-2B	NASW-5449-2B,Switch PC board ass'y <P/T>
A24	838130088	3TTB+8B,Self-taping screw	U4	1N277550-2A	NAPS-5450-2A,Power supply PC board ass'y <D>
A301	28184592A	Top cover		1N277550-2B	NAPS-5450-2B,Power supply PC board ass'y <P/T>
A303	838230088	3TTB+8B(NI),Nickel screw	Z1	244246	NDM-196,Deck mechanism ass'y
A501	27212042	Front panel			
A502	28198817	Facet, Power			
A503	28198818	Facet, Dolby			
A504	28198819	Facet, Play			
A506	28135247Y	Badge			
A508	27301868A-1	Cassette lid			
A509	27301870	Cassette lid, base			
A510	28191716A	Clear plate			
A516	27175252-1B	Leg			
A518	838130088	3TTB+8B,Self-tapping screw			

NOTE: <P>: European model only

<T>: Asian model only

<D>: 120V model only

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

A

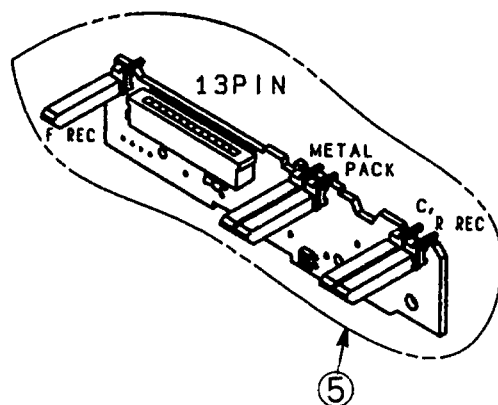
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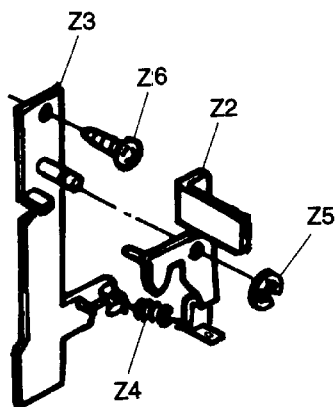
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TAPE MECHANISM-EXPLODED VIEW

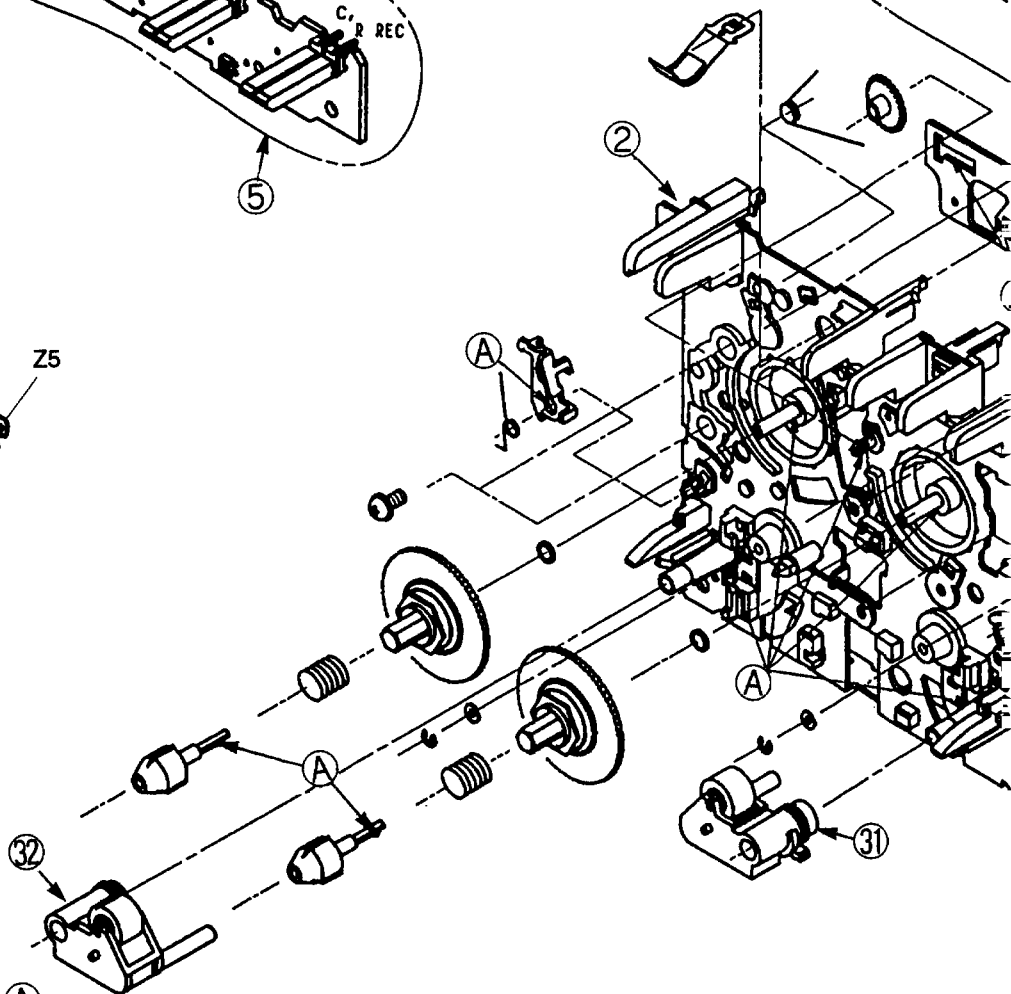
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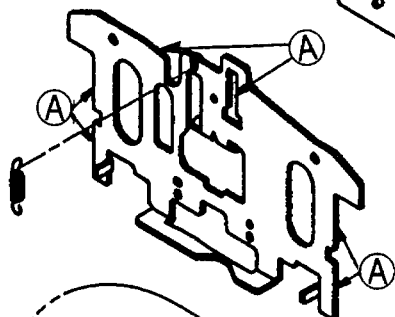
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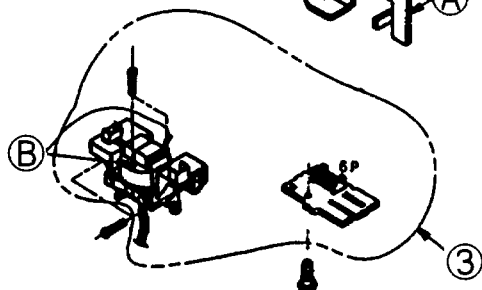
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5



REF.

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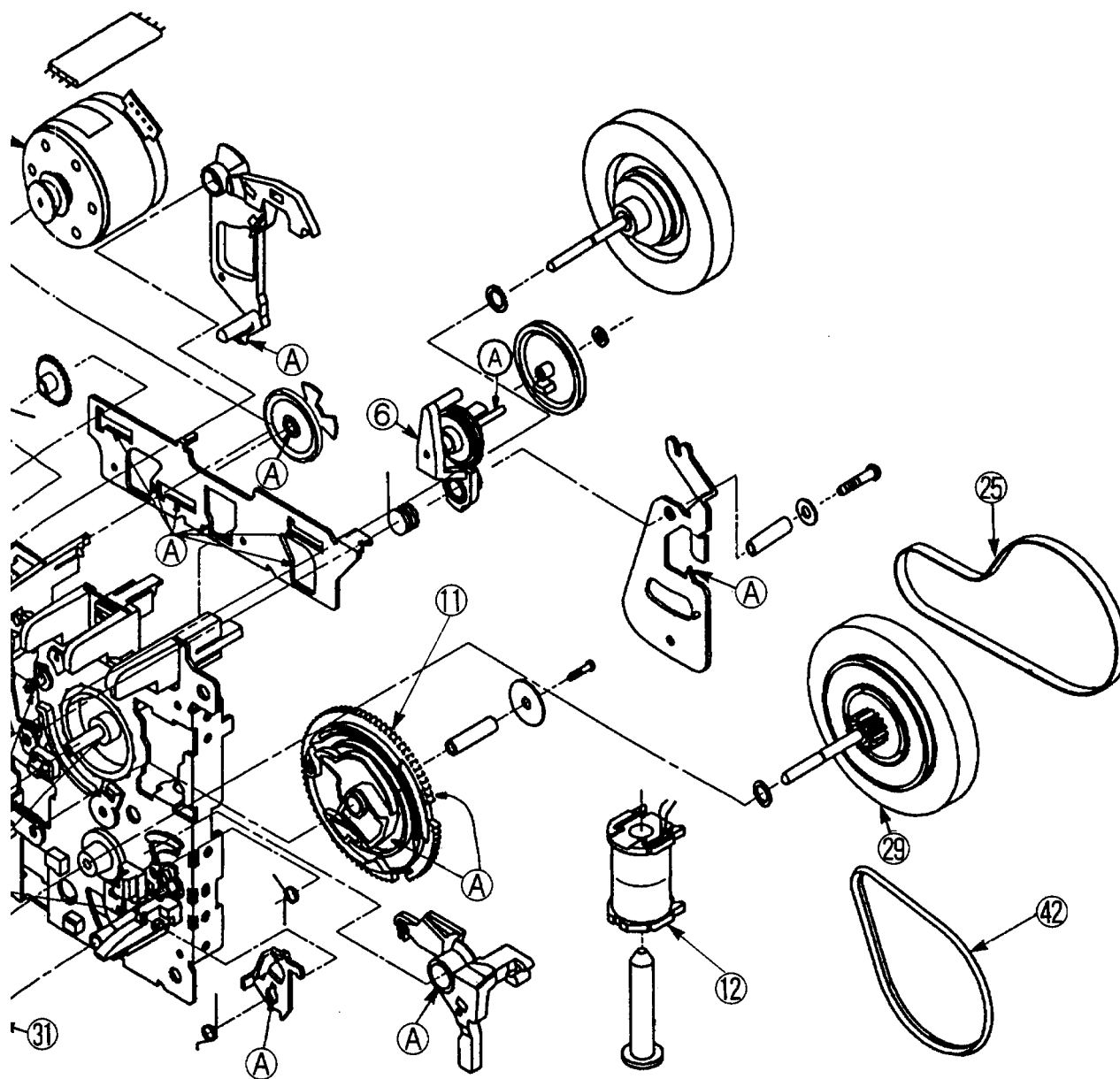
42

Z2

E

F

G



REF. NO.	PART NO.	DESCRIPTION			
2	24611607	Chassis	Z3	24611593A	Retainer
3	24611609	Head plate	Z4	24605798	Spring
4	24601282	Main motor	Z5	8930301S	ES-3S, Circlip
5	24606531	Control PC board	Z6	833326047	2.6TTP+4S, Self-tapping screw
6	F522-037	Clutch	A		Molikote X5, Grease
11	FD52Y	Cam gear	B		Bond
12	F765-277	Solenoid coil			
25	24602551	Main belt			
29	F522-031	Flywheel			
31	24602595	Pinch roller			
32	24602594	Pinch roller			
42	24602596	F/R belt			
Z2	24603404A	Lever, Eject			

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

MAIN CIRCUIT PC BOARD (NAAR-5447-2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
ICs			Capacitors		
Q101	222905	MPC1228HA	C405	354744709	47 μ F, 16V, Elect.
Q102	22240147	MPC1330HA	C406	370138224	8200pF $\pm$ 5%, 100V, Plastic
Q407	222959	MPC1297CA	C408	354741019	100 μ F, 16V, Elect.
Q701	22240887	TMP87CH46N-4256	C409, C410	370131514	150pF $\pm$ 5%, 100V, Plastic
Transistors			C411, C412	370131014	100pF $\pm$ 5%, 100V, Plastic
Q103, Q104	221299 or 2213600	DTC114TS or RN1211	C413-C416	371122734	0.027 μ F $\pm$ 5%, 50V, Mylar
Q205, Q206	2213090 or	DTA114YS or	C417, C418	371121034	0.01 μ F $\pm$ 5%, 50V, Mylar
Q702, Q704	2213590	RN2207	C421, C422	354741009	10 μ F, 16V, Elect.
Q207, Q208	2211705 or 2211706	2SD655-E or 2SD655-F	C703, C708	354741009	10 μ F, 16V, Elect.
Q401	2211504	2SA950-Y	C707	354780109	1 μ F, 50V, Elect.
Q402, Q405	221281 or	DTC114YS or	C709	354780479	4.7 μ F, 50V, Elect.
Q406, Q703	2213570	RN1207	C710, C905	354741009	10 μ F, 16V, Elect.
Q403, Q404	2201883	2SC1213-C	C904	393354727	4700 μ F, 25V, Elect.
Q705, Q707	221281 or	DTC114YS or	C906, C922	393342217	220 μ F, 16V, Elect.
Q710, Q711	2213570	RN1207	C907, C923	393341027	1000 μ F, 16V, Elect.
Q706, Q708	2212853 or 2212855	2SB1068-K or 2SB1068-U	C909	393324717	470 μ F, 6.3V, Elect.
Q709	2213354 or 2213355	2SA933S-R or 2SA933S-S	Resistors		
Q901, Q904	2202724 or 2202725	2SB1569A-D or 2SB1569A-E	R115, R116	5210265	N06HR50KBC, Trimming
Q902, Q905	2213284 or 2213285	2SC1740S-R or 2SC1740S-S	R117	443521214	120 Ω $\pm$ 5%, 1/2W, Metal oxide
Q907	2202705 or 2202706	2SD2394-E or 2SD2394-F	R403, R404	453530824	8.2 Ω $\pm$ 5%, 1/2W, Metal
Diodes			R415, R416	5210262	N06HR10KBC, Trimming
D701, D703	223163,	1SS133,	R723	5210258	N06HR1KBC, Trimming
D704, D905	223205 or	1SS270A or	R911, R912	453534794	0.47 Ω $\pm$ 5%, 1/2W, Metal
D906	223222	WG713A	Terminals		
D901, D902	22380035 or 22380260	GP104003E or RL1N4003	P701	25045330	NPJ-2PDBL184, IN/OUT
D907, D909	224470562	MTZJ5.6B, Zener	P202	25045338	NPJ-4PDBL189, RI
D908, D910	224471203	MTZJ12C, Zener	Sockets		
Oscillator			JL704B	25051129	NSCT-13P916
X701	3010190	CST8.00MTW, Ceramic	JL906A	25050267	NSCT-3P95
Coils			Plugs		
L401	231223	NLO-2064	JL705A	25055633	NPLG-12P595
L403, L404	231218	NCH-4453	P101	25055136	NPLG-6P120
Capacitors			P102B	25055709	NPLG-13P665
C101, C102	374726814	680pF $\pm$ 5%, 50V, Plastic	P103B	25055772	NPLG-10P728
C103, C104	393380227	2.2 μ F, 50V, Elect.	P201	25055038	NPLG-2P29
C105, C106	393341017	100 μ F, 16V, Elect.	P401	25055132	NPLG-2P116
C107, C108	374728224	8200pF $\pm$ 5%, 50V, Plastic	Radiators		
C109, C110	393341007	10 μ F, 16V, Elect.	Q901A, Q904A	27160211	RAD-68
C111, C112	374721834	0.18 μ F $\pm$ 5%, 50V, Plastic	Screws		
C113	393341027	1000 μ F, 16V, Elect.	Q901B, Q904B	838430107	3TTB+10S(BC)
C401, C910	393322217	220 μ F, 6.3V, Elect.			
C402	371121034	0.01 μ F $\pm$ 5%, 50V, Mylar			
C403, C404	371123324	3300pF $\pm$ 5%, 50V, Mylar			

DOLBY CIRCUIT PC BOARD (NAAF-5448-2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
IC		
Q201	22240544	HA12155NT
Transistors		
Q203,Q204	221299 or 2213600	DTC114TS or RN1211
Diodes		
D201,D202	223163, 223205 or 223222	1SS133, 1SS270A or WG713A
Coils		
L201,L202	233436	NMC-6081
	233436	NMC-6081
L203,L204	231085	NCH-2133
	231085	NCH-2133
Capacitors		
C201-C204	393380227	2.2 μ F,50V,Elect.
C205-C207	393380107	1 μ F,50V,Elect.
C209-C214	374722224	2200pF $\pm$ 5%,50V,Plastic
C215-C218	374721044	0.1 μ F $\pm$ 5%,50V,Plastic
C219,C220	393341007	10 μ F,16V,Elect.
C221,C222	393380107	1 μ F,50V,Elect.
C223,C224	374721044	0.1 μ F $\pm$ 5%,50V,Plastic
C225,C226	354782299	0.22 μ F,50V,Elect.
C227,C228	393380227	2.2 μ F,50V,Elect.
C229,C230	393341007	10 μ F,16V,Elect.
C233,C234	393341007	10 μ F,16V,Elect.
C238	391944717	470 μ F,16V,Elect.
Resistors		
R221,R222	5210263	N06HR20KBC,Trimming
Sockets		
P102A	25051238	NSCT-13P1028
P103A	25051415	NSCT-10P1202

DOLBY CIRCUIT PC BOARD (NAAF-5448-2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
LEDs		
D705-D709	225320	SLR-342YY
D710,D712	225321	SLR-342VR
D711	225320	SLR-342YY
Push switches		
S701-S712	25035652	NPS-111-S604
Socket		
JL705B	25051096	NSCT-12P883

POWER SUPPLY PC BOARD (NAPS-5450-2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
Capacitor		
C901	374721044	0.1 μ F $\pm$ 5%,50V,Plastic
Fuse		
F901A	252075 Δ	2.5A-SE-EAK <P/T>
Fuse holder		
F901	25050065 Δ	YSH403T <P/T>
Plug		
P901	25055676	NPLG-2P632
Socket		
JL906B	25051107	NSCT-3P894
AC outlet		
P902	25050684 Δ	NSCT-2P488 <D>
P903	25050410 Δ	NSCT-2P235 <P/T>

NOTE: <P>: European model only

<T>: Asian model only

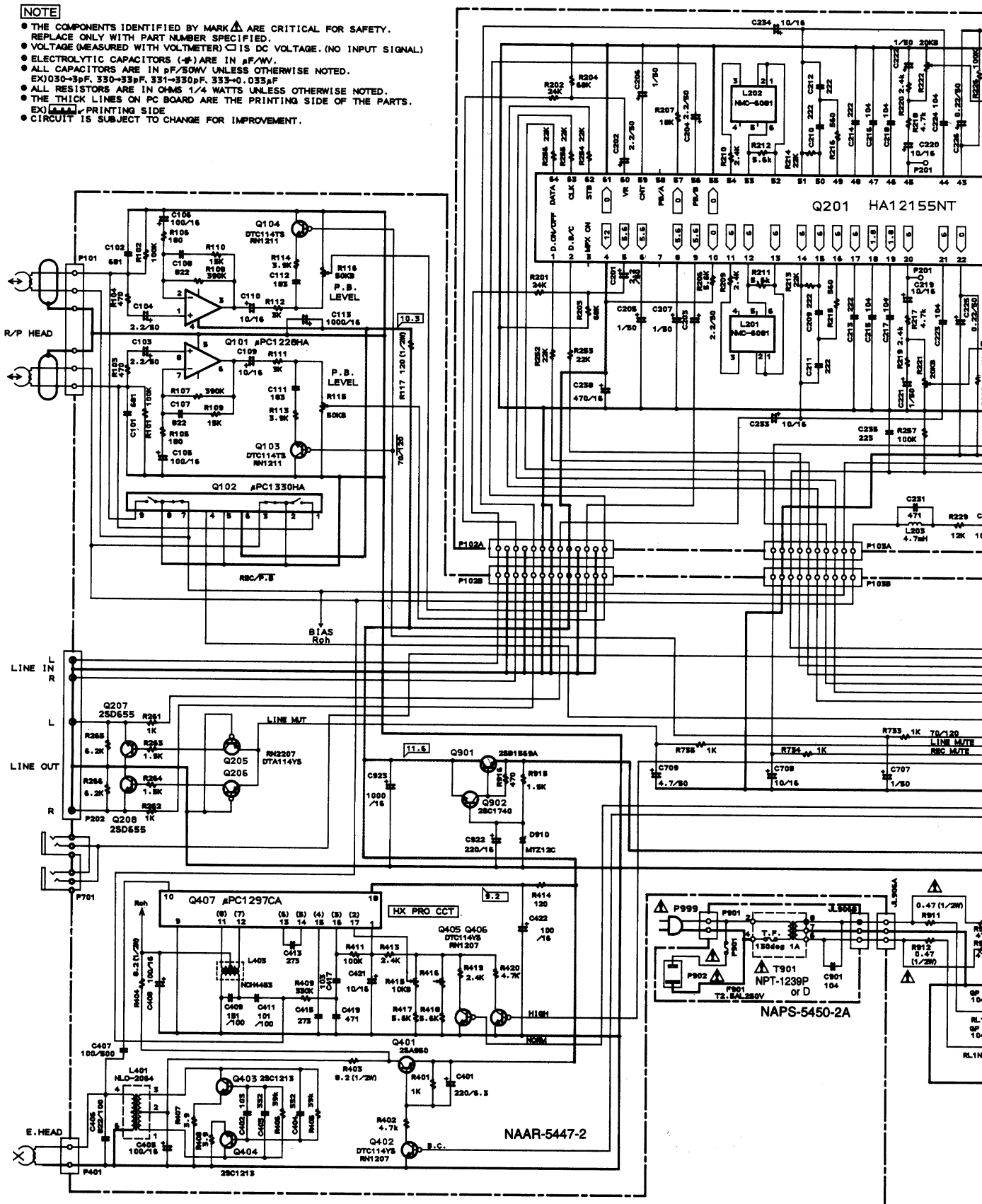
<D>: 120V model only

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

SCHEMATIC DIAGRAM

NOTE

- THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) $\square$ IS DC VOLTAGE. (NO INPUT SIGNAL).
- ELECTROLYTIC CAPACITORS (Ψ) ARE IN μ F/VV.
- ALL CAPACITORS ARE IN pF/50V UNLESS OTHERWISE NOTED.
- EX0030-39F, 330-339F, 331-339F, 333-0.0339F
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
- EX0030-39F PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.



E

F

G

