

ONKYO SERVICE MANUAL

STEREO CASSETTE TAPE DECK MODEL TA-R301

Ref. No. 3392

UDN, UDC, UD	120V AC, 60Hz
UW	120 or 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 PARTS 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.

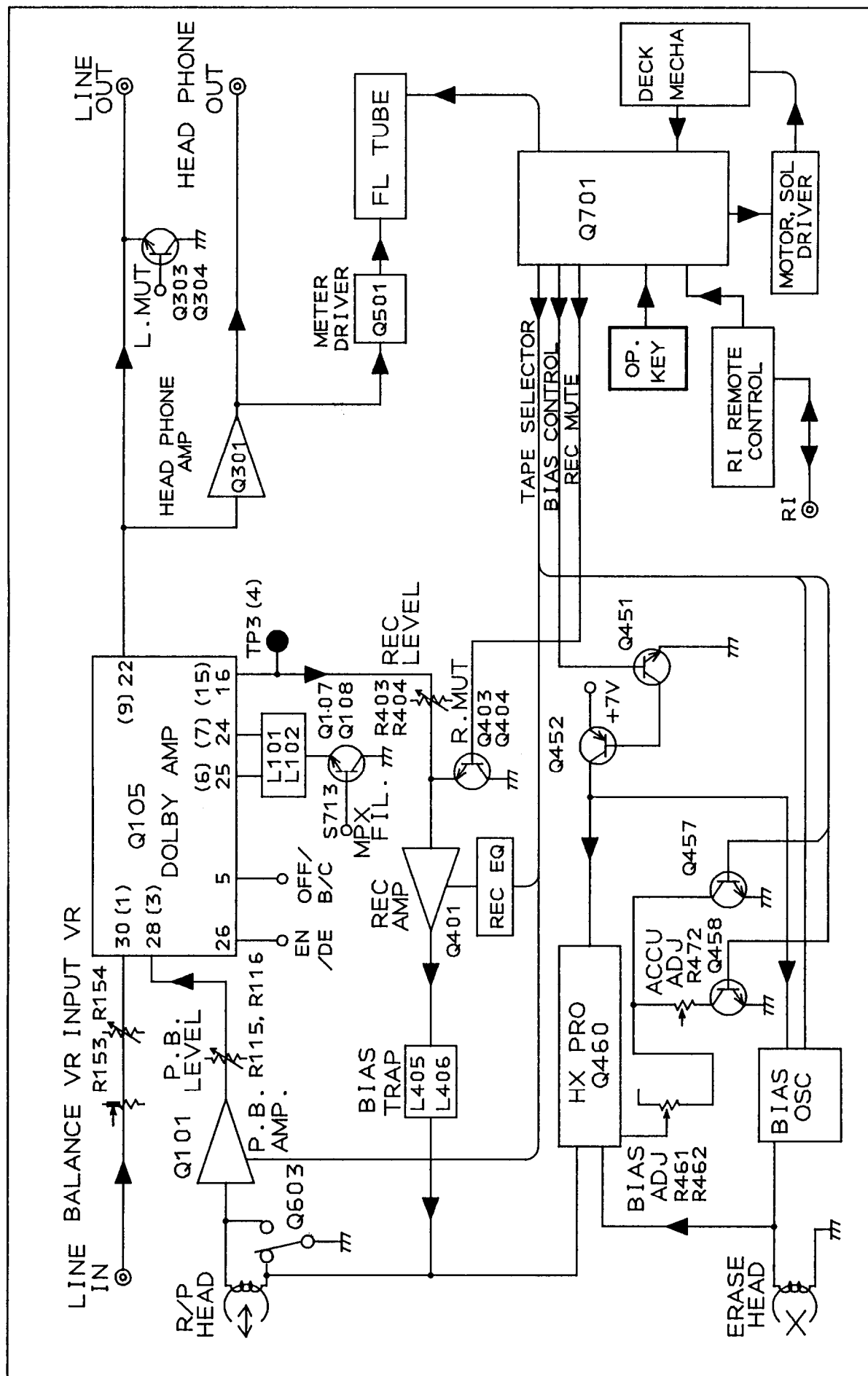
SPECIFICATIONS

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)
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: 60mV Input impedance: 50kohms
Outputs:	Line OUT: 2 Standard output level: 500mV (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 x 1; Erase head: Ferrite x 1
Power Supply Rating:	U.K. and Australian models: AC 240V, 50Hz U.S.A. and Canadian models: AC 120V, 60Hz Worldwide models: AC 120V and 220V switchable, 50 / 60Hz
Power Consumption:	17 watts
Dimensions:	455(W) x 120(H) x 308(D)mm (17-15/16" x 4-3/4" x 12-1/8")
Weight:	5.1 kg. (11.2 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.
 - * record/playback head
 - * pinch roller
 - * erase head
 - * capstan
- Do not use magnetized screwdriver for adjustments.
- Demagnetize record/playback head with a head demagnetizer.

TEST EQUIPMENT/TOOLS REQUIRED:

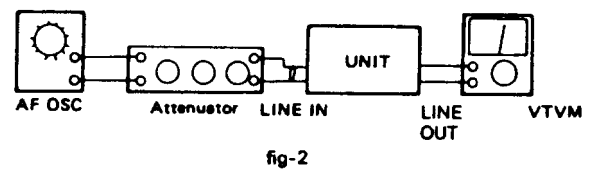
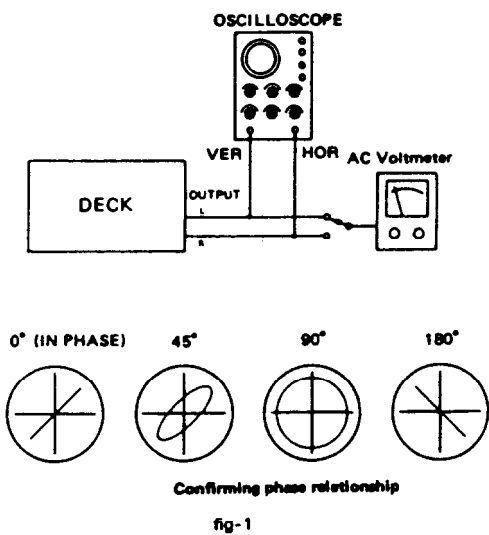
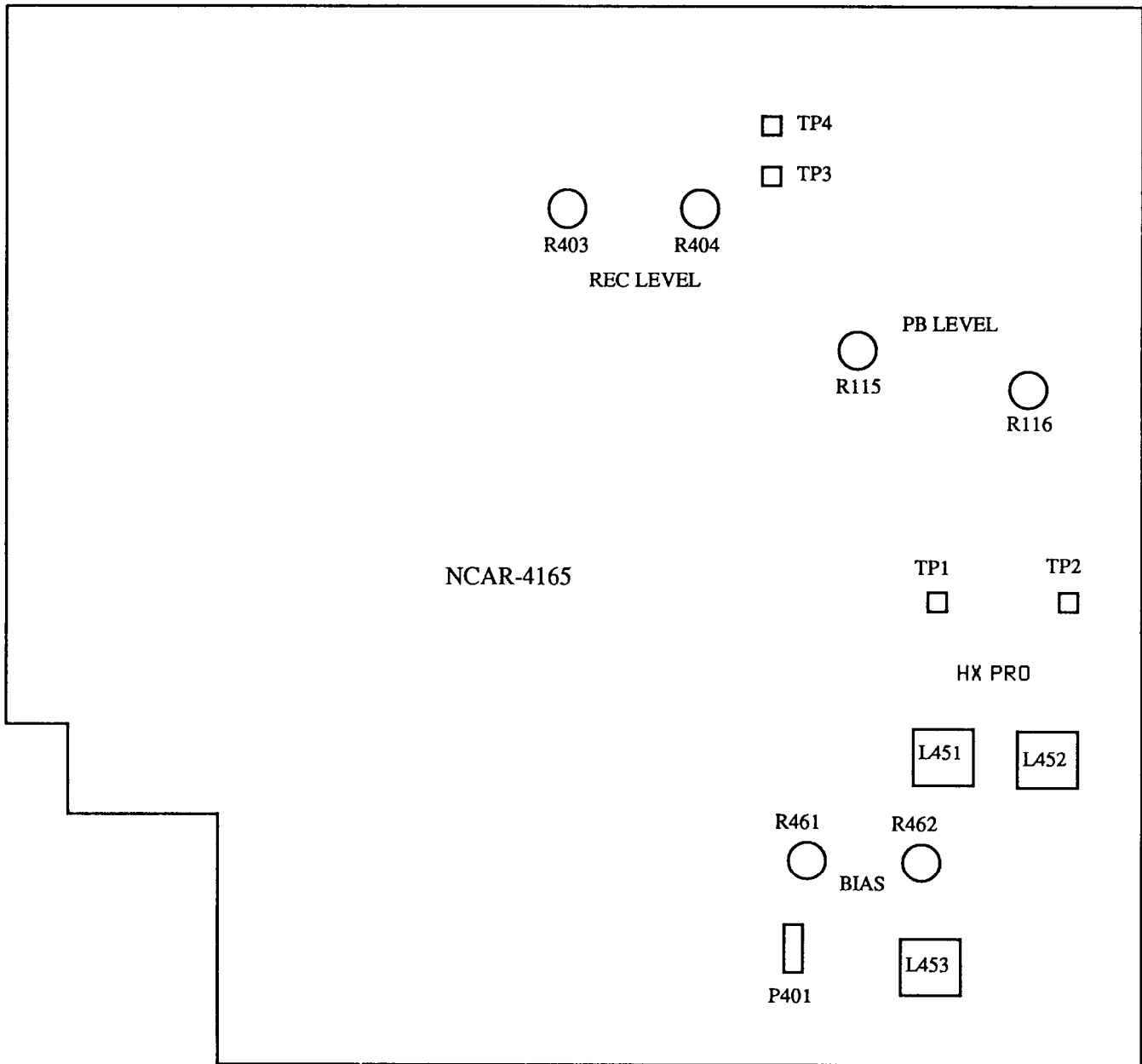
Audio oscillator
 Digital frequency counter
 Oscilloscope
 Attenuator
 AC voltmeter
 Non-magnetic screw driver
 Test tapes

TCC-153 : 10 KHz, -15dB
 MTT-111 : 3 kHz, -10dB
 MTT-150 : Dolby level calibration
 400Hz, tone 200nWb/m

Item		Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust	Remarks
1	Tape speed	Frequency counter to LINE output terminal		MTT-111	PB	Frequency counter	Semi-fixed on the moter	3005±10Hz	
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal		TCC-153	PB	AC voltmeter	Haed azimuth screw	Maximum and same phase at channels L and R	fig-1
3	Playbac k level	AC voltmeter to terminals TP-3 and TP-4		MTT-150	PB	AC voltmeter	R115(Ch.L) R116(Ch.R)	300mV	
4	OSC Block	Frequency counter to P401 read loose coupling		METAL TAPE MX-C90	REC	Frequency counter	L453	85kHz±2kHz	
5	HX-PRO	AC voltmeter to terminals TP-1 and TP-2		METAL TAPE	REC	AC voltmeter	L-451(ch.L) L-452(ch.R)	Maximum	R-461 R-462 maximum
6	Bias current	fig-2	1kHz, −20dB and 12kHz, −20dB	XL-II C-90	REC/PC	AC voltmeter	R461(Ch.L) R462(Ch.R)	Same level at REC/PB	Input VR maximum.
7	Record level	fig-2	1kHz	XL-II C-90	REC	AC voltmeter	Attenuator or AF OSC output	350mV	
					REC/PB	AC voltmeter	R403(Ch.L) R404(Ch.R)	Same level at REC/PB	

Blank tape

NORMALUD-1 C-90
 HIGH.....XL-5II C-90
 METALMX C-90
 PLAY torque.....30 ~ 70g/cm
 FF. REW torque.....80 ~ 180g/cm
 Back tention2 ~ 7g/cm



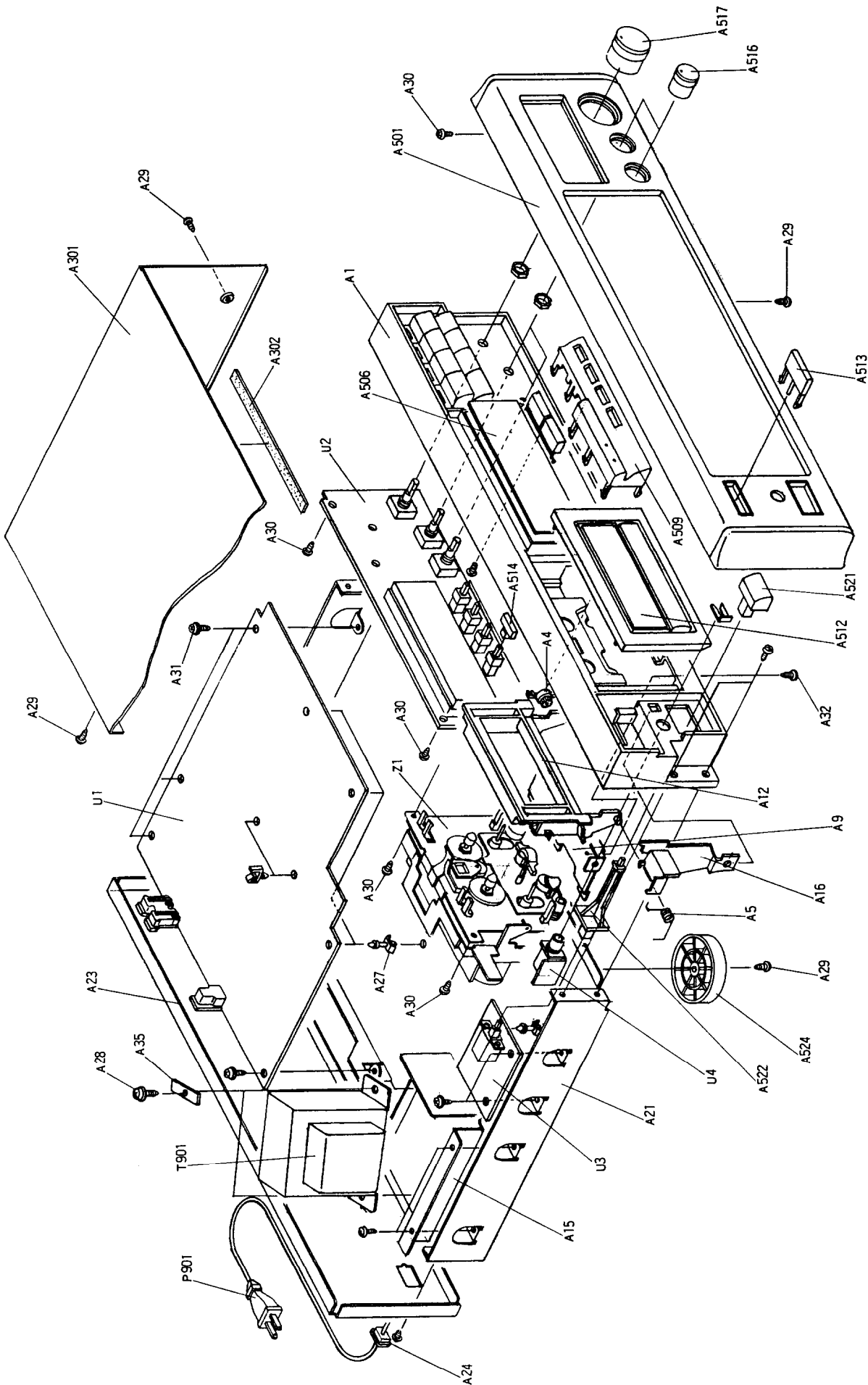
CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27110635	FRONT BRACKET AS	U1	IN106565-2	NAAR-4165-2
A4	28400282	DAMPER	U2	IN106566-2	NADIS-4166-2
A5	27180478	SPRING (B)	U3	IN106567-2	NAPS4167-2
A9	27130646C	BRACKET (F)	U4	IN106568-2	NAETC-4168-2
A12	28400473-1A	FRAME AS (CASSETTE)	Z1	244151	NDM-141, CASSETTE DECK MECHANISM
-a	28400463B	FRAME (CASSETTE)			
-b	27180435	SPRING			
-c	28141109	CUSHION			
A15	27130608D	BRACKET (PT)			
A16	27273137	JOINT (EJ)			
A21	27100233	CHASSIS			
A23	27121433	BACK PANEL (D)			
	27121433-3	BACK PANEL (W)			
A24	27300750	BUSHING (CORD)			
A27	27190408	HOLDER			
A28	830440089	TAP-TIGHT SCREW 4TTC+8C(BC)			
A29	834430088	TAP-TIGHT SCREW 3TTS+8B(BC)			
A30	833430080	TAP-TIGHT SCREW 3TTP+8P(BC)			
A31	831130088	TAP-TIGHT SCREW 3TTW+8B			
A32	835430068	TAP-TIGHT SCREW 3TTF+6B(BC)			
A35	870065	PT WASHER			
A301	28184479	TOP COVER			
A302	28140837	CUSHION 250 × 10 × .9t			
A501	1N106121	FRONT PANEL			
A506	28191594A	CLEAR PLATE			
A509	27267744	GUIDE (DOL)			
A512	28400642	CASSETTE LID AS			
-a	28400639	CASSETTE LID			
-b	28400625	WINDOW			
A513	28323985	KNOB (EJ)			
A514	28324325	KNOB (DOL)			
A516	28324150-1	KNOB (LEV)			
A517	28324335	KNOB (INP)			
A521	28324140	KNOB (POW)			
A522	27273136	JOINT (POW)			
A524	27175254	LEG AS			
S902	25065123	NSS-1258P, SWITCH (W)			
P901	253112A	AC CORD AS-UC-4 #18 (D)			
T901	253149	AC CORD AS-CEE (W)			
	2300642	NPT-1105D (D)			
	2300644	NPT-1105DG (W)			

NOTE (D): Only 120V model
(W): Worldwide model

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

CHASSIS-EXPLODED VIEW

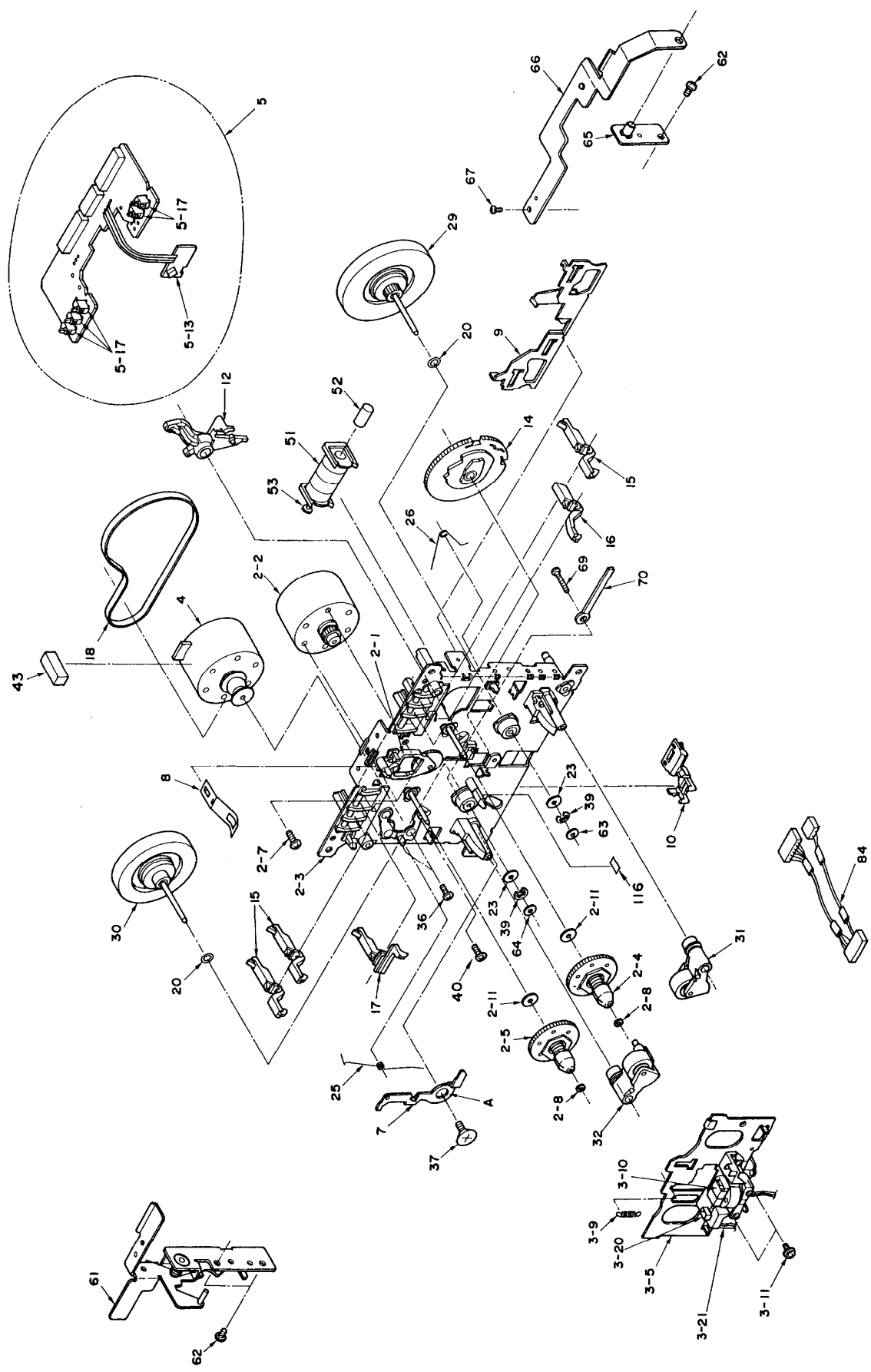


TAPE MECHNISM PARTS LIST

REF.NO.	PARTS NO.	DESCRIPTION
2	24611425	MECHANISM CHASSIS AS
2-1	24602482	IDLER AS
2-2	24601245	REEL MOTOR
2-3	24611382A	BASE AS (CHASSIS)
2-4	24602483	BASE AS (REEL)
2-5	24602484	BASE AS (REEL)
2-7	24609032	PAN HEAD SCREW 2.6 × 6.4ZN
2-8	24611177	PLASTIC WASHER 1.7 × 3.2 × .25
2-11	24611175	PLASTIC WASHER 2.1 × 7 × .25
3	24600091	HEAD PLATE AS
3-5	24611383B	BASE (HEAD)
3-9	24605711	SPRING
3-10	24600110	R/P HAED
3-11	833120059	TAPPING SCREW 2 × 5ZN
3-20	24606465	PHOTO REFLECTOR
3-21	24611500	LEAD WIRE (QS)
4	24601253A	MAIN MOTOR AS
5	24606461	P.C.B. AS (CONTROL)
5-1	24606462	BASE AS (P.C.B.)
5-13	24606463	PHOTO REFLECTOR
5-17	24606271	PUSH SWITCH
7	24607041B	ARM (PROTECT) L
8	24605739	SPRING
9	24611384A	SLIDE PLATE
10	24611385	LEAD HOLDER
12	24607101	ARM (PLAY)
14	24602485A	CAM GEAR (3R)
15	24603365A	LEVER (REC)
16	24603366	LEVER (PACK) L
17	24603367	LEVER (METAL) L
18	24602486	MAIN BELT
20	24611041	PLASTIC WASHER 2.6 × 0.25
23	24610841	PLASTIC WASHER 2.6 × 4.7 × .5
25	24605714	SPRING
26	24605716	SPRING
29	24602487	FLYWHEEL AS
30	24602528	FLYWHEEL AS
31	24602414C	PINCH ROLLER AS (R)
32	24602421C	PINCH ROLLER AS
36	24611306	PAN HEAD SCREW 2.6 × 6ZN
37	24609006A	SCREW
39	8930151	E WASHER 1.5S
40	838130080	WAVE SCREW 3 × 8
43	24611488	CUSHION (HOLDER)
51	24606333	SOLENOID COIL AS
52	24606332A	CORE
53	24606331	PLANGER
61	24611446	PLATE HOLDER AS
62	833126049	TAP-TIGHT SCREW 2.6TTP+4C
63	24611188A	WASHER (OIL SEAL)
64	24610844	WASHER 1.9 × 5 × 0.25
65	24611389	HOLD PLATE AS
66	24607099	EJECT ARM (A)
67	24609002	PAN HEAD SCREW SW2 × 4ZN
69	838126080	SCREW 2.6 × 8
70	24611323	LUG
71	24609042	S-TIGHT SCREW M2.6 × 25
84	24606464	WIRE CONNECTOR (R/P.E)
116	24611499	REFLECTER

A B C D E F G

TAPE MECHANISM-EXPLODED VIEW



1 2 3 4 5

PRINTED CIRCUIT BOARD PARTS LIST

NAAR-4165-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION	CIRCUIT NO.	PARTS NO.	DESCRIPTION
	Ics			Diodes	
Q101	222956	NJM-2068D-D	D601-D610	223163	1SS133
Q105	22240388	HA12142NT	D701, D704	223163	1SS133
Q301	22240368	M5218AL	D702	224150752	05AZ7.5Y
Q401	22240369	M5218AP	D703	224150433	05AZ4.3Z
Q402	22240240	IR2C30	D705	224150562	05AZ5.6Y
Q460	222959	μ PC1297CA	D706	223163	1SS133
Q501	22240461	M62302P	D901-D906	22380046	AM01Z
Q603	22240147	μ PC1330HA	D907	224151303	05AZ13Z
Q701	22240479	HD614049SA97(1 ~ 6000)	D908, D909	223163	1SS133
	22240484	HD614049SAB03(6001 ~)	D910	224150623	05AZ6.2Z
Q708	22240239	TA-7291S	D911-D913	223163	1SS133
Q901	222780075MIT	78M07L (1 ~ 1536)	D914	224151803	05AZ18Z
	222780065JRC	78M06 (1537 ~)	D915	224150512	05AZ5.1Y
Q902	222790075MIT	79M07L (1 ~ 1536)	D916-D919	223163	1SS133 (1536 ~)
	222790065JRC	79M06 (1537 ~)		Coils	
Q905	222780055MIT	78M05	L101, L102	233313	NMC-6048
	Transistors		L401, L402	231085	NCH-2133
Q103, Q104	2213284 or	2SC1740S-R or	L403, L404	231083	NCH-2131
	2213285	2SC1740S-S	L405, L406	231165	NTR-6506
Q106-Q108	221281 or	DTC114YS or	L451, L452	231127	NCH-4183
	2213570	RN1207	L453	231180	NLO-2053
Q303, Q304	2211706	2SD655-F	X701	3010149	CST6.00MGW
Q403, Q404	2212794 or	2SD1468-R or		Capacitors	
	2212795	2SD1468-S	C111-C113	391942217	220 μ F16V, ELECT.
Q451	221281 or	DTC114YS or	C115	391942217	220 μ F16V, ELECT.
	2213570	RN1207	C119-C122	391980227	2.2 μ F50V, ELECT.
Q452	2212853 or	2SB1068-K or	C125, C126	391980227	2.2 μ F50V, ELECT.
	2212855	2SB1068-U	C133-C136	391981097	0.1 μ F50V, ELECT.
Q453	2211544	2SC1959-Y	C137, C138	391980227	2.2 μ F50V, ELECT.
Q454, Q455	221281 or	DTC114YS or	C139, C141	391942217	220 μ F16V, ELECT.
	2213570	RN1207	C143	391980477	4.7 μ F50V, ELECT.
Q456	2211544	2SC1959-Y	C151, C152	391941007	10 μ F16V, ELECT.
Q457, Q458	221281 or	DTC114YS or	C403, C404	391944707	47 μ F16V, ELECT.
	2213570	RN1207	C405, C406	391981097	0.1 μ F50V, ELECT.
Q601	2211455	2SA1015-GR	C407, C408	391941007	10 μ F16V, ELECT.
Q602	221281 or	DTC114YS or	C451	391921017	100 μ F6.3V, ELECT.
	2213570	RN1207	C452	391980477	4.7 μ F50V, ELECT.
Q702	221281 or	DTC114YS or	C454	370131334	0.013 μ F100V, APS
	2213570	RN1207	C456	391980477	4.7 μ F50V, ELECT.
Q703	2212853 or	2SB1068-K or	C459, C460	370131514	150PF 100V, APS
	2212855	2SB1068-U	C471-C473	391941007	10 μ F16V, ELECT.
Q704	2212600 or	DTA124ES or	C501, C502	391980227	2.2 μ F50V, ELECT.
	2213580	RN2203	C503, C504	391980477	4.7 μ F50V, ELECT.
Q705	221281 or	DTC114YS or	C601	391980477	4.7 μ F50V, ELECT.
	2213570	RN1207	C603	391980477	4.7 μ F50V, ELECT.
Q706	2212853 or	2SB1068-K or	C604	391941017	100 μ F16V, ELECT.
	2212855	2SB1068-U	C701	391941007	10 μ F16V, ELECT.
Q707	221281 or	DTC114YS or	C703	391941017	100 μ F16V, ELECT.
	2213570	RN1207	C706	391982297	0.22 μ F50V, ELECT.
Q709	2211255	2SC1815-GR	C707	391921017	100 μ F6.3V, ELECT.
Q710	2212600 or	DTA124ES or	C708	391980477	4.7 μ F50V, ELECT.
	2213580	RN2203	C906, C907	391952227	2200 μ 25V, ELECT.
Q711-Q714	2211255	2SC1815-GR	C908, C909	391944717	470 μ F16V, ELECT.
Q903	2211255	2SC1815-GR	C912	393156827	6800 μ F25V, ELECT.
Q904	2202115 or	2SD2061-E or	C913, C914	391961017	100 μ F35V, ELECT.
	2202116	2SD2061-F	C916	391980107	1 μ F50V, ELECT.
Q906	2211455	2SA1015-GR	C918	391962207	22 μ F35V, ELECT.
Q907	2212600 or	DTA124ES or	C921	391980107	1 μ 50V, ELECT.
	2213580	RN2203	C924, C925	391961017	100 μ F35V, ELECT.
Q908	2211455	2SA1015-GR			

CIRCUIT NO.	PARTS NO.	DESCRIPTION
C926, C927	391980477	4.7 μ F50V, ELECT.
C928	391980107	1 μ F50V, ELECT.
C929, C930	391922217	220 μ F6.3V, ELECT (1536 ~)

Resistors

R115, R116	5210220	N06HR50KBD
R403, R404	5210064	N06HR 10KBD
R461, R462	5210064	N06HR 10KBD
R702	49163392410	3.9K Ω $\times$ 10, 1/10W
R703	49163392405	3.9K Ω $\times$ 5, 1/10W
R709	442524704	RS1/2WBJ 47 Ω
R903	442520224	RS1/2WBJ 2.2 Ω
R904	442521004	RS1/2WBJ 10 Ω

Plug, jack, socket

P101	25055136	NPLG-6P120
P102, P103	25050267	NSCT-3P95
P105	25045329	NPJ-4PDBL183
P401	25055132	NPLG-2P116
P701	25045330	NPJ-2PDBL184
P702A, P704A	2002321020	NSAS-10P0241
P703A	2000962	NSAS-6P914

Miscellaneous

27160211	RAD-68, RADIATOR
82143006	3P+6FN(BC), SCREW
27141059	BRACKET
27301271	MSC-1609, CLAMP

NADIS-4166-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Display tube		
Q751	212097	BG-924GK
Diodes		
D751, D752	223163	1SS133
D753, D754	225256B	SEL3410E-B
	225256C or	SEL3410E-C or
	225256D	SEL3410E-D
Resistors		
R153	5104289	N14RGLC250KMN17Z
R154	5104251	N14RGL50KA17Z
R472	5104290	N14RGLC5KB17Z
Switch		
S701-S703	25035548	NPS-111-510
S705-S711	25035548	NPS-111-510
S712	25035611	NPS-122-L573
S713-S715	25035611	NPS-122-L573
Holder		
	27190838	HOLDER(FL)
	27190839	HOLDER(LED)

NAPS-4167-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
C901	3500065A	0.01 μ F, AC400V/125V, IS
S901	25035558	NPS-111-L520P
	25060092	NMT-1S33, TERMINAL

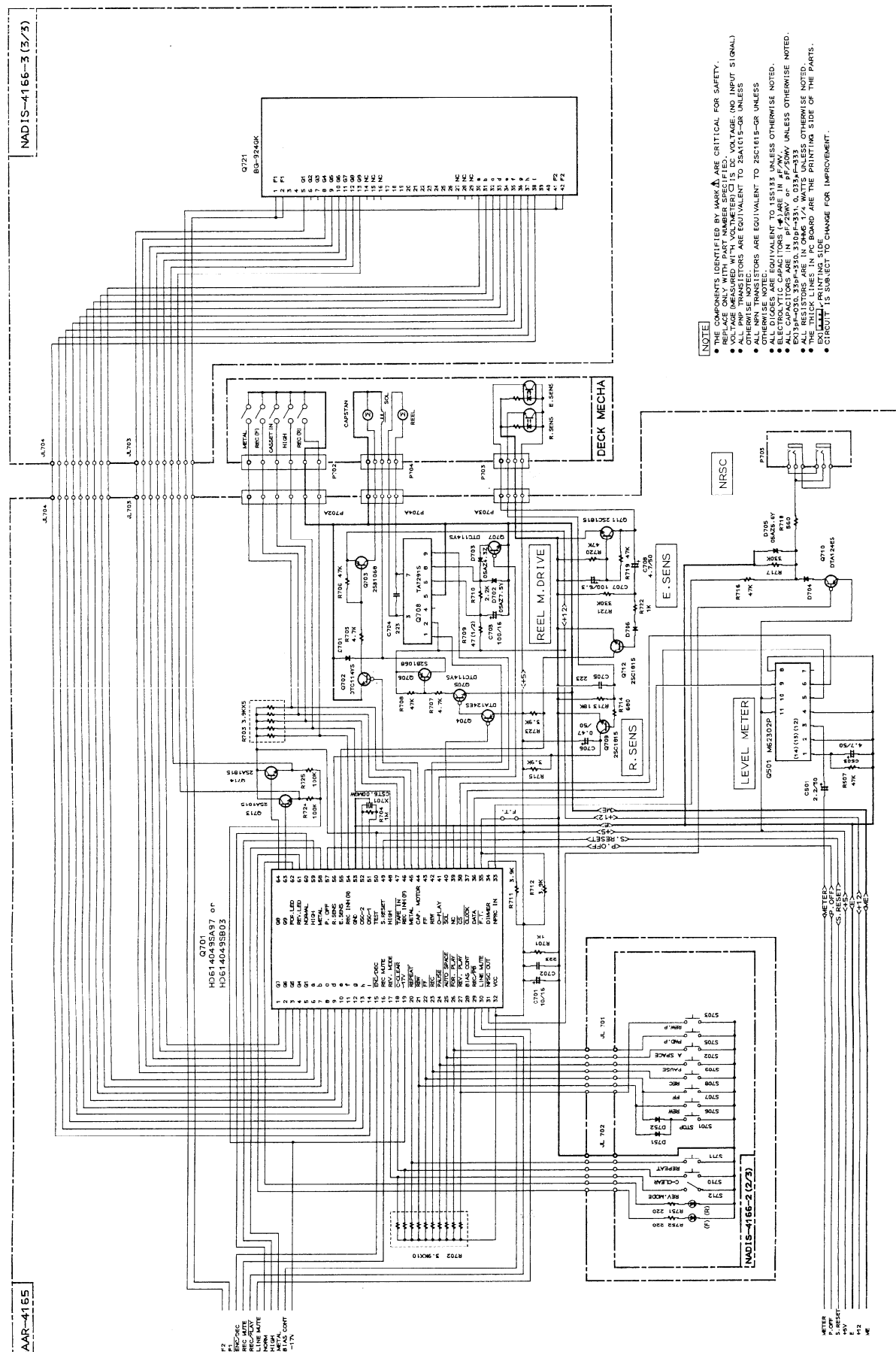
NAETC-4168-2

CIRCUIT NO.	PARTS NO.	DESCRIPTION
P301	25045289	HLJ0540-01-010, ST-JACK

SCHEMATIC DIAGRAM (CONTROL SECTION) 2/2

NAAR-4165

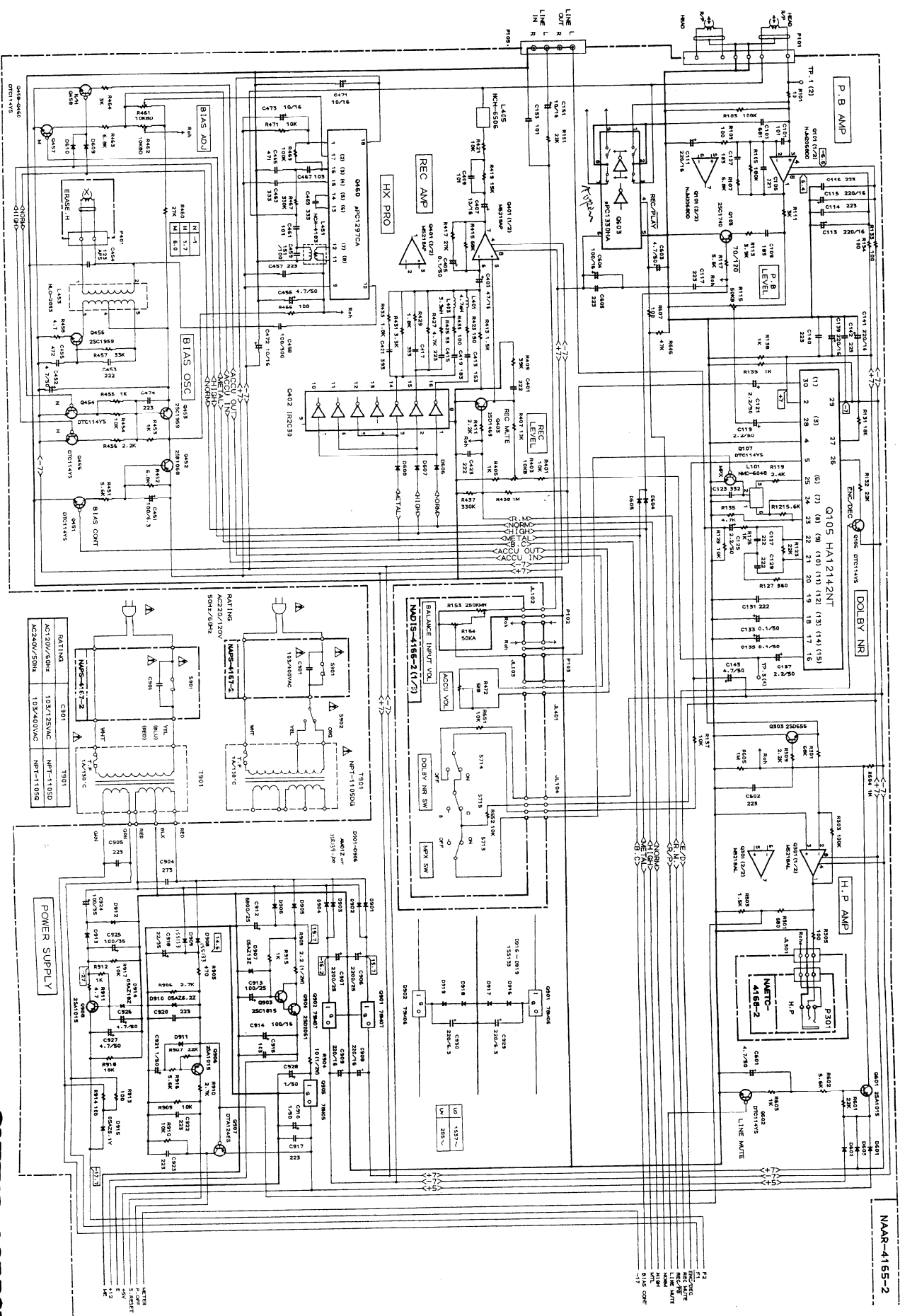
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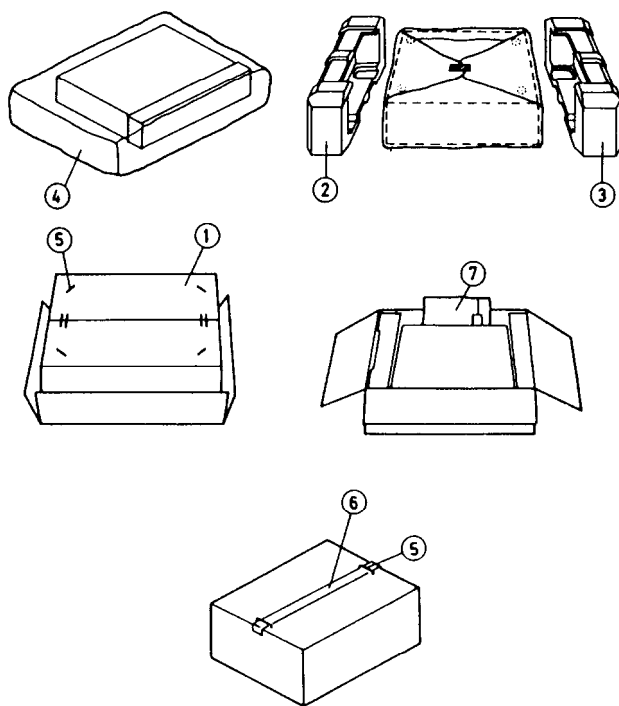
TA-F301

TA-F301

SCHEMATIC DIAGRAM (AUDIO SECTION) 1/2



PACKING VIEW



PACKING PART LIST

REF. NO.	PART NO.	DESCRIPTION
1	29052184	Master carton box
2	29091452A	Pad (L)
3	29091453A	Pad (R)
4	29100105	620 × 550 Poly bag
5	282301	Sealing hook
6	29110071	Damplon tape
7	Accessory bag ass'y	
	29341618	Instruction manual (D)
	29341619	Instruction manual (W)
	25055040	CV-K-2
	2010098A	Connection cable
	29365019A	Warranty card (N)
	29358002J	Service station list (N)
	29100006A	350 × 250 Poly bag

NOTE (N): Only U.S.A.model
 (D): Only 120V model
 (W): Worldwide model

ONKYO CORPORATION

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