

ONKYO SERVICE MANUAL

STEREO CASSETTE TAPE DECK MODEL TA-R240

Black model

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 System:	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—15,000Hz (Normal) (30—14,000Hz \pm 3dB) 20—16,000Hz (High) (30—15,000Hz \pm 3dB) 20—17,000Hz (Metal) (30—16,000Hz \pm 3dB)
S/N Ratio:	Dolby NR off: 58dB (metal position tape) 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:	Microphone jacks: 2 Input sensitivity: 0.6mV/600 ohms Input impedance: 2.7 kohms Line IN: 2 Input sensitivity: 60mV Input impedance: 50 kohms
Outputs:	Line OUT: 2 Standard output level: 500mV (0dB) Optimum load impedance: over 50 kohms
Motors:	DC servo motor x 1; DC motor x 1
Heads:	REC/PB: Special Hard Permalloy x 1; Erase head: Ferrite x 1
Power Supply:	U.S.A. and Canadian models: AC 120V, 60Hz

ONKYO[®]
AUDIO COMPONENTS

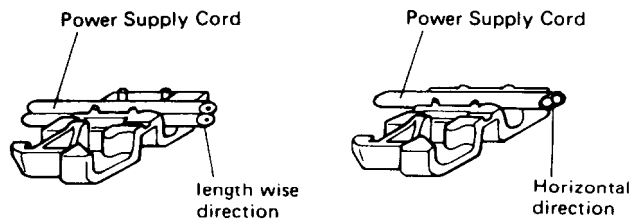
U.K. and Australian models:
 AC 240V, 50Hz
 Worldwide models:
 AC 120V and 220V switchable, 50 / 60Hz
 Power Consumption: 18 watts
 Dimensions: 435(W) x 112(H) x 262(D)mm
 (17-1/8" x 4-3/8" x 10-3/8")
 Weight: 4.2 kg. (9.3 lbs.)

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

SERVICE PROCEDURES

1. Replacement of power supply cord

There are two power supply cord outlets on the strainrelief. Insert them in prescribed direction to ensure safety. AS-UC-3 (UD<120V> model) should be inserted lengthwise and other types of cords should be inserted horizontally.



2. Instruction resistance measurement

Connect the insulating-resistance tester between the plug of power supply cord and chassis. Specifications; 500V more than 10MΩ

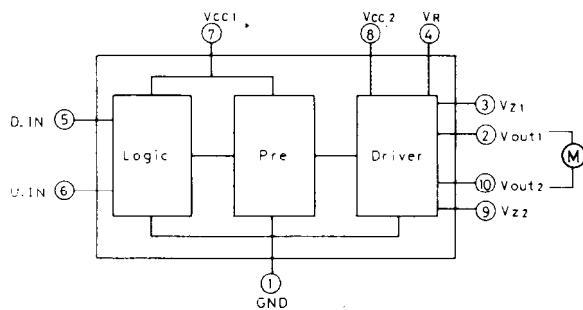
3. Replacing the lamps

This unit used the lamps listed below.

Circuit No.	Part No.	Description
PL901	210090	150mA, 14V. Lamp

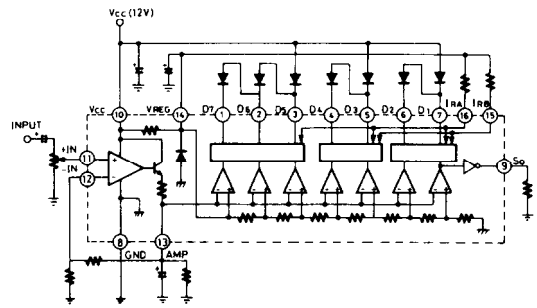
IC BLOCK DIAGRAM

BA6229 (REEL MOTOR DRIVER)

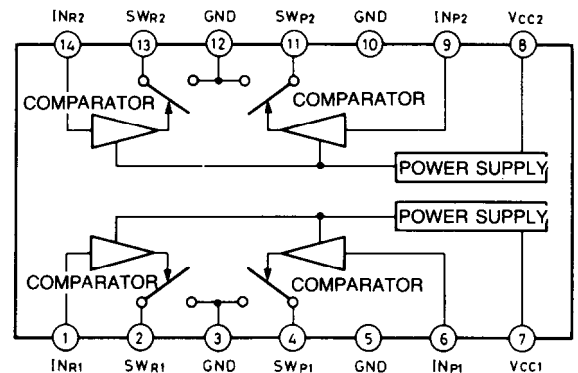


INPUT		OUTPUT		
IN1 (5)	IN2 (6)	OUT1 (2)	OUT2 (10)	
L	L	L	L	STOP
H	L	H	L	REV
L	H	L	H	FOV
H	H	L	L	BRAKE

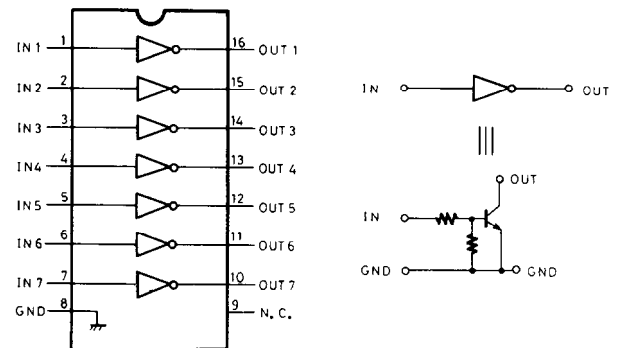
IR2E02 (LEVEL METER DRIVE)



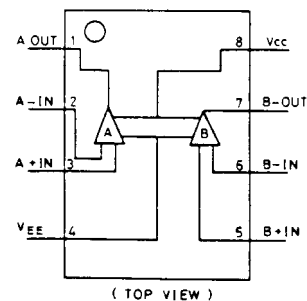
μPC1290C



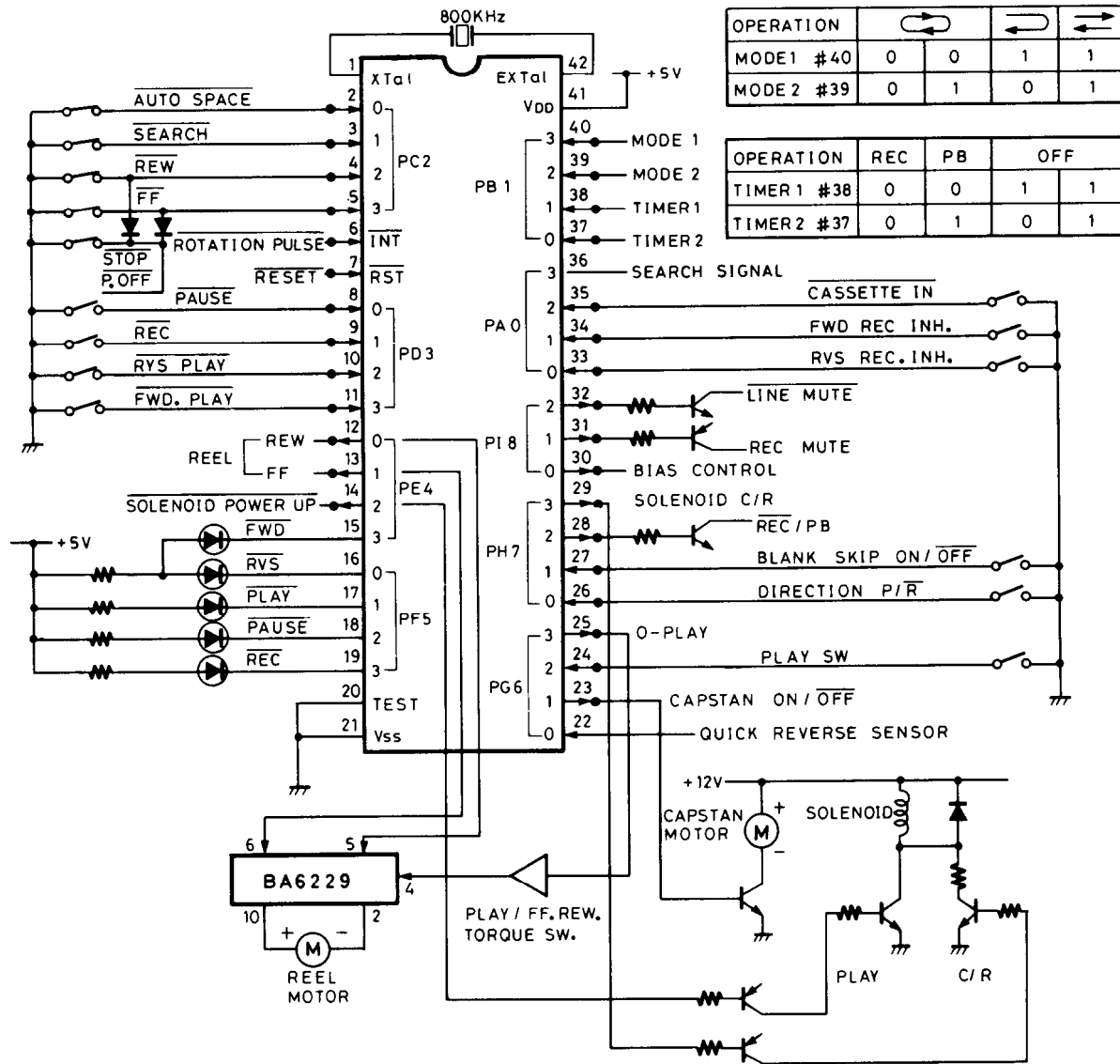
BA6251 (REC AMP. EQ. SW)



NJM-2068D-D

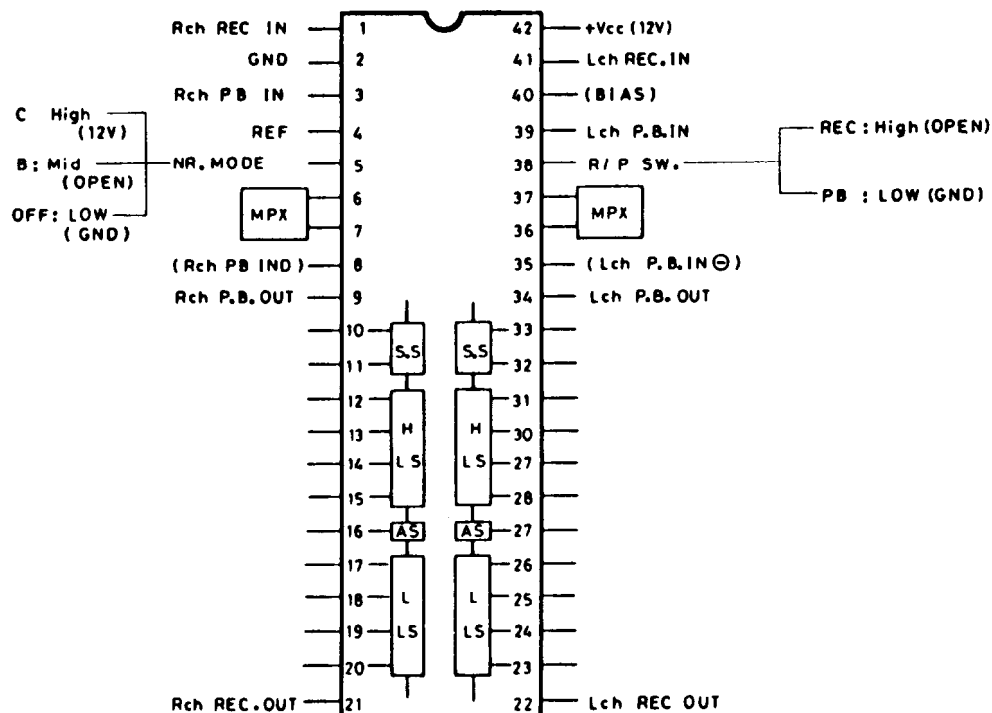


MICRO COMPUTER (LM-6402H-1885)

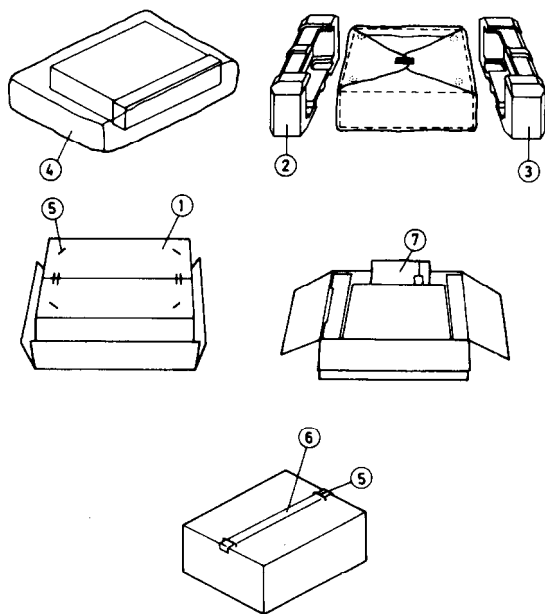


IC BLOCK DIAGRAM

HA12088NT
(DOLBY NR IC 2CH in one package)



PACKING VIEW



NOTE
(N): Only U.S.A. Model

PACKING PART LIST

D Model		
REF NO.	PART NO.	DESCRIPTION
1	29051469	Master carton box
2	29090987	Pad(L)
3	29090988	Pad(R)
4	29100037A	650×500 Poly bag
	29095012-1	500×800 protection sheet
5	282301	Sealing hook
6	260012	Damplon tape
7		Accessory bag ass'y
	29341134	Instruction manual
	2010095	Connection cable
	29365019	Waranty card (N)
	29358002E	Service station list (N)
	29100006A	350×250 Poly bag

UW Model		
REF NO.	PART NO.	DESCRIPTION
1	29051469	Master carton box
2	29090987	Pad(L)
3	29090988	Pad(R)
4	29100037A	650×500 Poly bag
	29095012-1	500×800 protection sheet
5	282301	Sealing hook
6	260012	Damplon tape
7		Accessory bag ass'y
	29341134	Instruction manual
	2010095	Connection cable
	25055018	Conversion plug (CV-K-1)
	29100006A	350×250 Poly bag

ADJUSTMENT PROCEDURES

PRECAUTIONS

- Before adjustment, clean the following parts with an alcohol moistend 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:

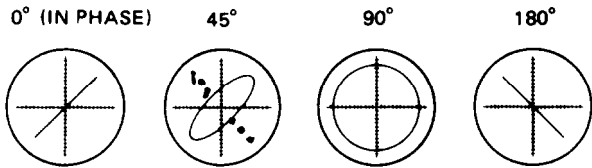
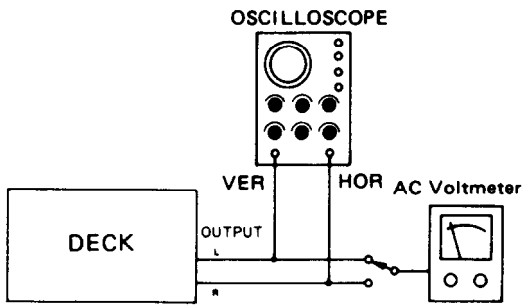
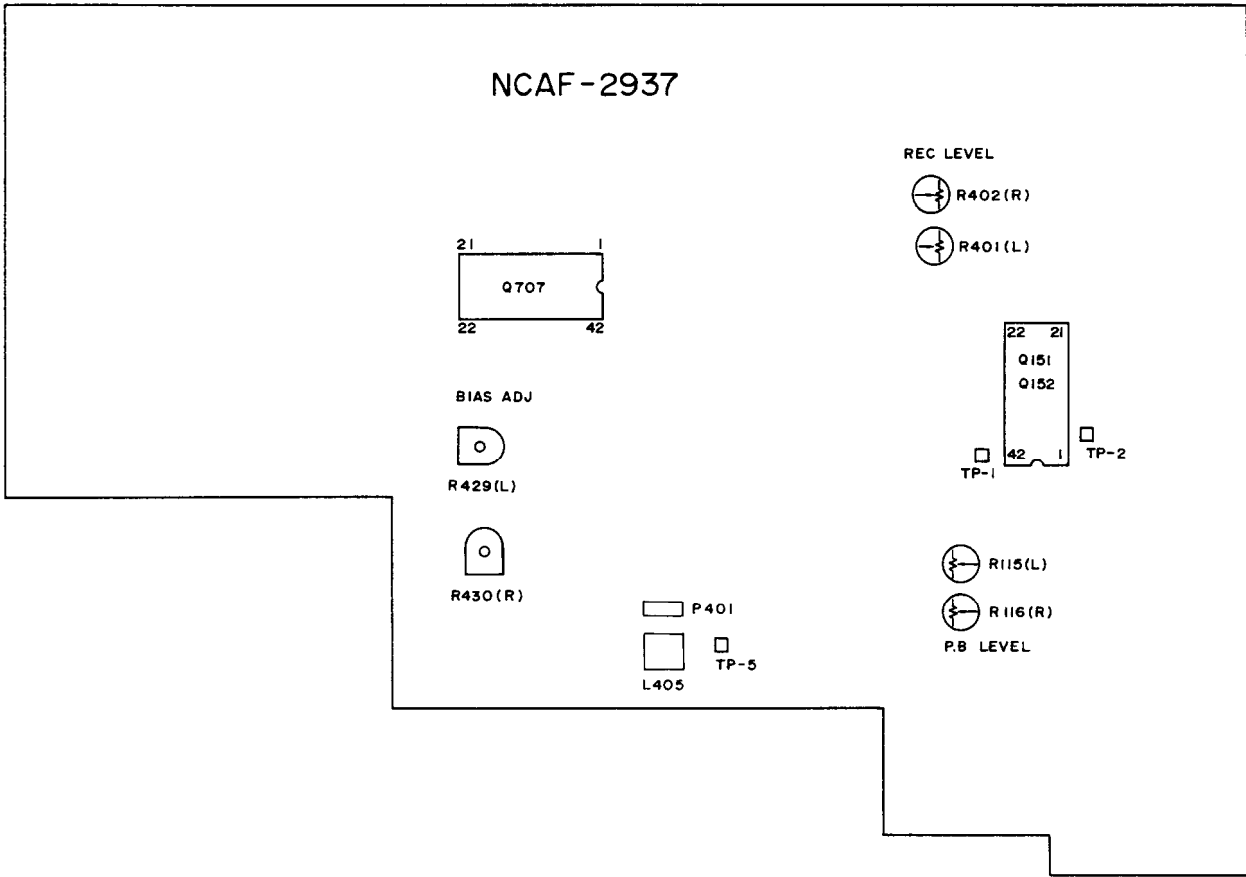
Audio oscillator
Digital frequency counter

Oscilloscope
Attenuator
AC voltmeter
Non-magnetic screw driver
Blank tapes (completely erased)
 NORMAL NEW UD90
 HIGH NEW XL-II90
 METAL NEW MX60
 Test tapes
 VTT-658 : 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	3,010 to 3,020Hz	
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal		VTT-658	PB	AC voltmeter	Head azimuth screw	Maximum and same phase at channels L and R	See fig.1, fig.3
3	Playback level	AC voltmeter to terminals TP-1 and TP-2		MTT-150	PB	AC voltmeter	R-115 (Ch. L) R-116 (Ch. R)	300mV	
4	Bias frequency	Frequency counter to P401. E head read (loose coupling)		METAL TAPE	REC	Frequency counter	L-405	85kHz	
5	Bias current	Fig. 2	1kHz, -20dB and 12kHz, -20dB	NEW XL-II90	REC/PB (FWD) (REV)	AC voltmeter	R-429 (Ch. L) R-430 (Ch. R)	Same level at REC/PB	Input VR maximum
6	Record level	Fig. 2	1kHz		REC PAUSE	AC voltmeter	Attenuator or AF OSC output	350mV	Input VR maximum
					REC/PB	AC voltmeter	R-401 (Ch. L) R-402 (Ch. R)	Same level at REC/PB	
7	Reverse operation sensitivity	DC voltmeter to sockets P709A #2 (NAAF-2937)		TDK AD-120 Magnetic sub stance	FWD PB	DC voltmeter	semi-fixed on the mechanism P.C.B.	-4.5V	

PLAY torque 30 - 70g/cm
 FF.REW torque 90 - 160g/cm
 Back tention 2 - 6g/cm

NOTE
 ACCU VR Center position
 DOLBY NR OFF



Confirming phase relationship

fig-1

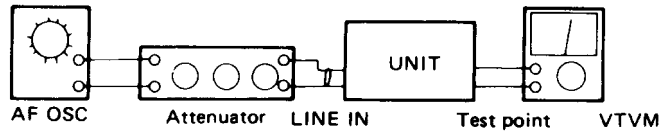


fig-2

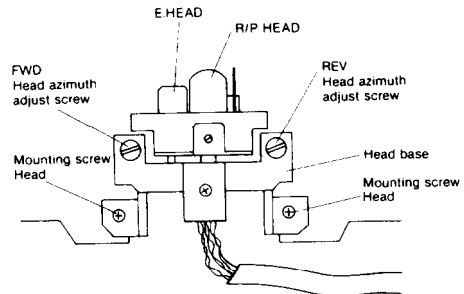


fig3

METHOD FOR REMOVING BOTTOM BOARD

(refer to exploded view of chassis)

1. Remove top cover.
2. Remove front panel.
3. Remove the 2 mounting screws of the main PC board (NAAF-2937-2).
4. Remove the 1 fastening screw of the Power Switch PC board (NASW-2942-1).
6. Remove the holder from the PC board.
7. Remove the 4 fastening screws of the back panel and bottom board.
8. Remove the 3 fastening screws of the front bracket and bottom board.
9. Remove the ground terminal.
10. Remove the bottom board by taking from the lower direction.

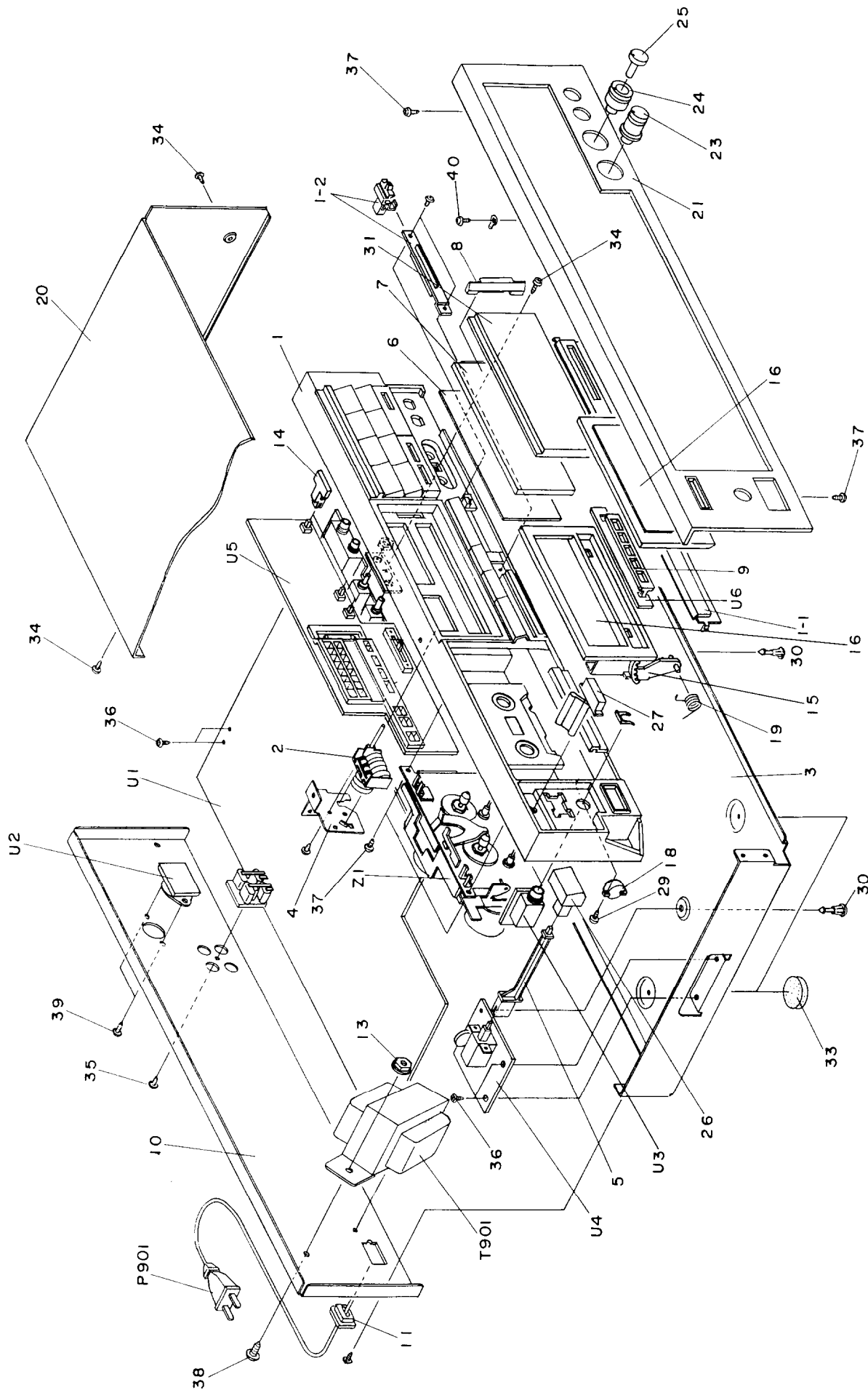
CHASSIS-EXPLODED VIEW PARTS LIST

REF.NO.	PART NO.	DESCRIPTION			
1	27110353	FRONT BRACKET AS	Z1	<u>244105</u>	NDM-97, TAPE MECHANISM ASS'Y
1-1	28194266	DECORATION PLATE (M)			
1-2	28322938	KNOB(SLIDE)AS	U1	1N022537-2	NAAF-2937-2, MAIN PC BOARD ASS'Y
2	24601226	COUNTER			
3	27100122A	BOTTOM BOARD	U2	1N011540-1	NAAR-2940-1, REMOTE CONTROL PC BOARD ASS'Y
4	27141120	BRACKET (C)			
5	27273069A	JOINT (POW)	U3	1N011541-1	NAAR-2941-1, HEAD PHONE TERMINAL PC BOARD ASS'Y
6	28133178A	BACK PLATE			
7	28130245A	INDICATOR PLATE	U4	△ 1N011542-1	NASW-2942-1, POWER SWITCH PC BOARD ASS'Y
8	27190520	HOLDER			
9	27190521	HOLDER (L.E.D.-5)	U5	1N022543-3	NADIS-2943-3, OPERATION DISPLAY PC BOARD ASS'Y
10	27120974	BACK PANEL (D)			
	27120975	BACK PANEL (W)	U6	1N022544-3	NADIS-2944-3, DISPLAY PC BOARD ASS'Y
11	△ 27300750	STRAINRELIEF			
13	86414010	FLANGE NUT FWN4X10FN			
14	28322940A	KNOB (SKIP)			
15	28400299C	CASSETTE LID			
16	28400310A	WINDOW			
17	27180272	SPRING (CA)			
18	28400282	DAMPER			
19	27180315	SPRING			
20	28184346-1	TOP COVER			
21	1N010121	FRONT PANEL			
23	28322944	KNOB (MODE)			
24	28322946	KNOB (BAL)			
25	28322948	KNOB (VOL)			
26	28322795A	KNOB (POW)			
27	28322942	KNOB AS (EJ)			
29	833420108	TAP-TIGHT SCREW 2TTP+10BB			
30	27190524	HOLDER			
31	28191397	CLEAR PLATE			
33	27175028	LEG			
34	834430088	TAP-TIGHT SCREW 3TTS+8BBC			
35	834430108	TAP-TIGHT SCREW 3TTS+10BBC			
36	831130088	TAP-TIGHT SCREW 3TTW+8B			
37	833430080	TAP-TIGHT SCREW 3TTP+8PBC			
38	830440109	TAP-TIGHT SCREW 4TTC+10CBC			
39	82142604	PAN-HEAD SCREW 2.6P+4F BC			
40	834230108	TAP-TIGHT SCREW 3TTS+10BN			
T901	△ 2300203	NPT-956D, POWER TRANSFORMER (D)			
	2300204	NPT-956DG, POWER TRANSFORMER (W)			
P101	△ 253099C	AS-UC-3, POWER SUPPLY CORD (D)			
	253129A ⁿ	AS-CEE, POWER SUPPLY CORD (W)			
S101	△ 25065123	NSS-1258P, VOLTAGE SELECTOR (W)			

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

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

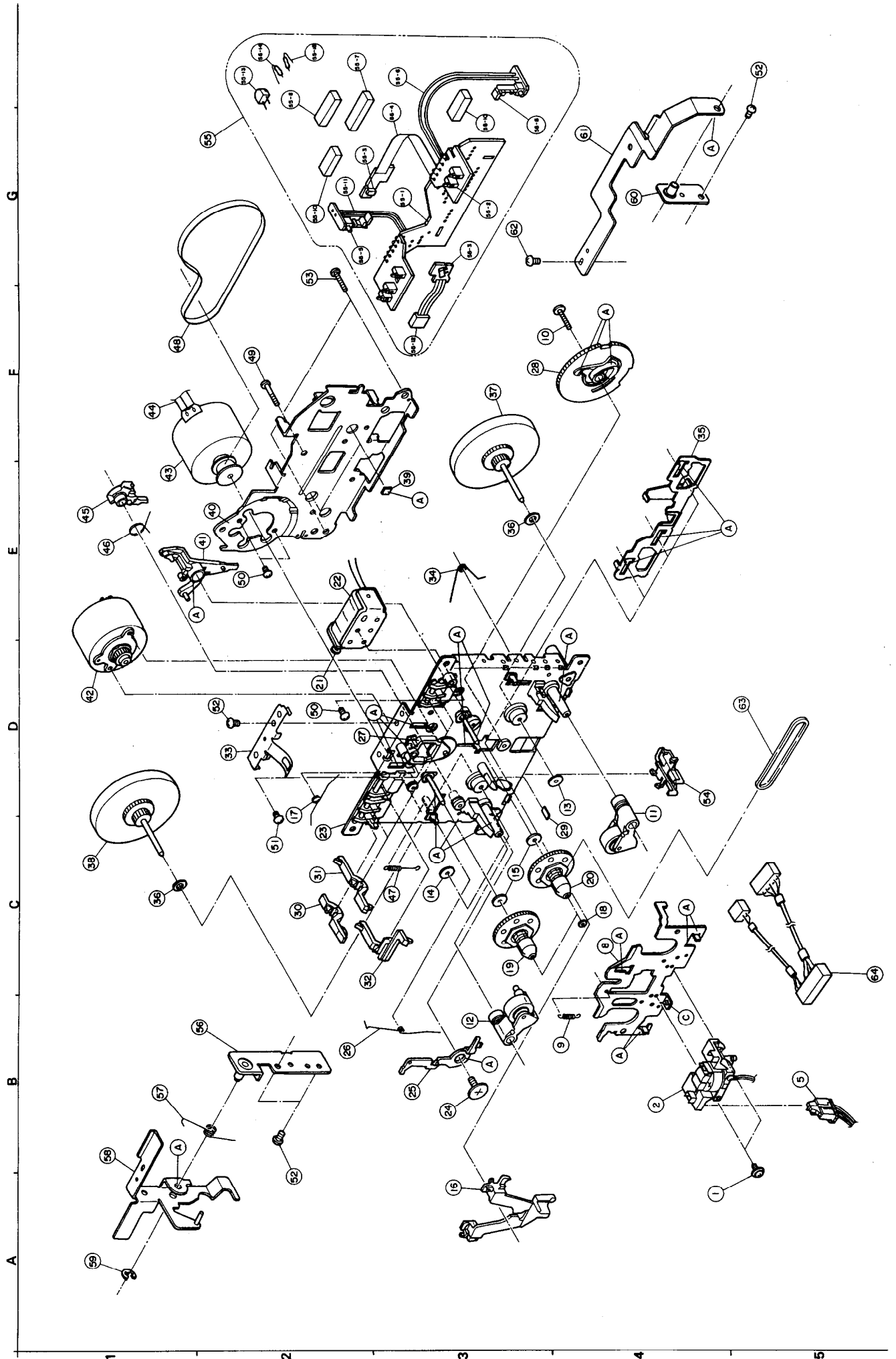
CHASSIS-EXPLODED VIEW



TAPE MECHANISM-PARTS LIST

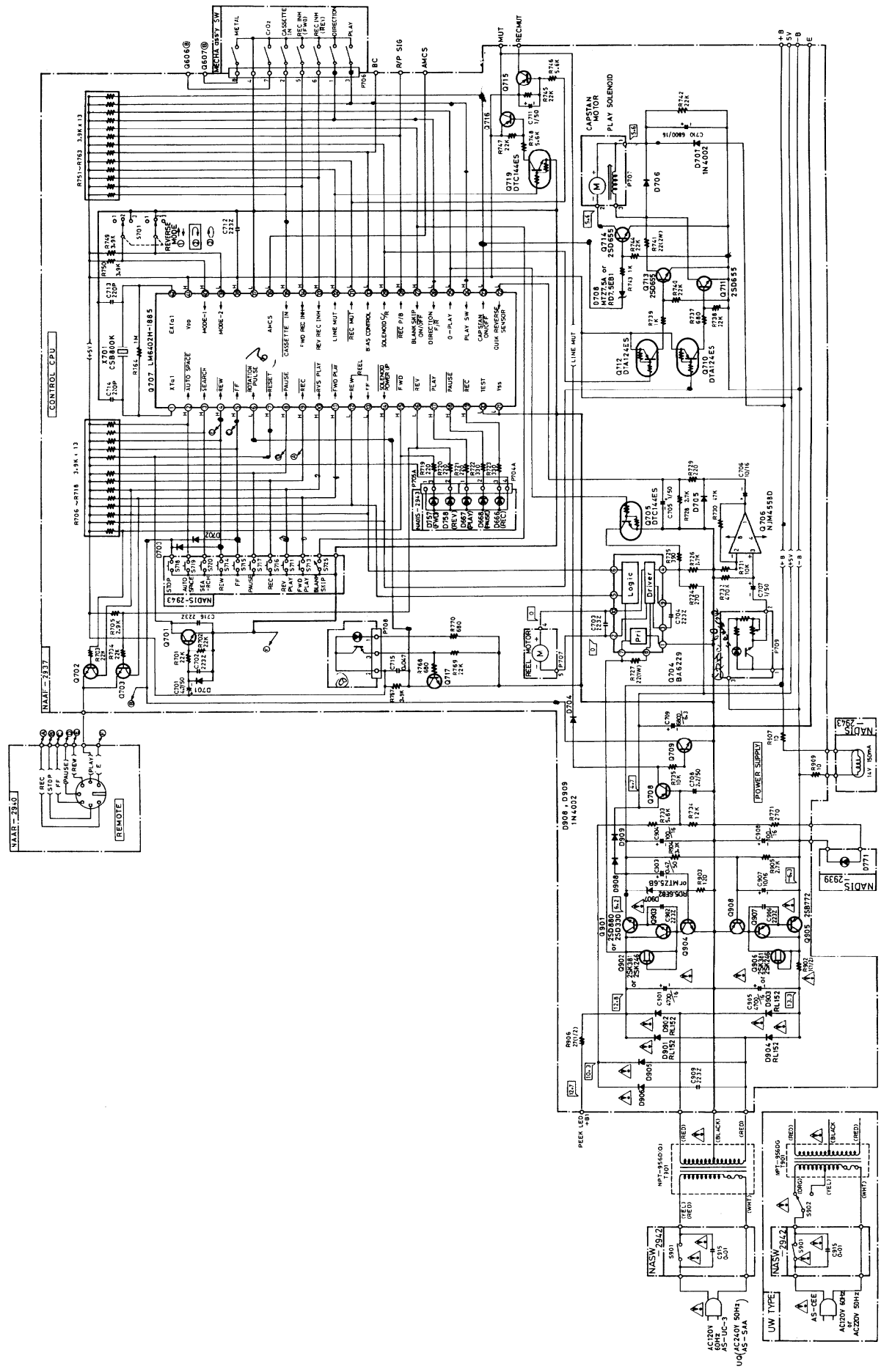
REF.NO	PART NO.	DESCRIPTION T
1	801318	SCREW W/WASHER M2X5
2	24600069	HEAD AS
5	24611308	SENSOR AS
8	24611309	HEAD BASE T
9	24605584	SPRING (HEAD BASE)
10	801382	WAVE SCREW
11	24602414	PINCH ROLLER AS
12	24602421	PINCH ROLLER AS
13	24610926	OIL SEAL
14	24611188A	WASHER (OIL SEAL)
15	24611175	PLASTIC WASHER 2.1X7X25
16	24603326	LEVER (HOLD) C
17	24605587	SPRING (HOLD)
18	24611177	PLASTIC WASHER 1.7X3.2X.25
19	24602340	SUPPLY REEL AS
20	24602419	TAKE UP REEL AS
21	24606274	CORE (SOLENOID)
22	24606273	SOLENOID COIL
23	24611310	CHASSIS AS
24	24609006	SCREW
25	24607041	ARM (PROTECT) L
26	24605586	SPRING (L)
27	24602342A	IDLER AS
28	24602417A	CAM GEAR (E)
29	24611034	REFLECTOR
30	24603347	LEVER (PACK)
31	24603344	LEVER (REC)
32	24603346	LEVER (METAL)
33	24605588	SPRING
34	24605654	SPRING
35	24611311	SLIDE PLATE
36	24611041	PLASTIC WASHER 2.6X0.25
37	24602401	FLYWHEEL AS
38	24602400	FLYWHEEL AS
39	24604076A	SPACER
40	24607068	BRACKET (FW)
41	24607067	ARM (PLAY) F
42	24601227	REEL MOTOR AS
43	24601193	MOTOR AS
45	24607071	ARM (DIRECTION)
46	24605655	SPRING
47	24605590	SPRING
48	24602351	BELT (MAIN)
49	24611305	TAP-TIGHT SCREW
50	801355	SCREW/W M2.6X3.5
51	24611306	PAN HEAD SCREW 2.6X6ZN
52	24609007	PAN HEAD SCREW TT3X4.5
53	838126080	SCREW 2.6X8
54	24611181	HOLDER (LEAD)
55-1	24606269	•BRACKET
55-2	24606271	PUSH SWITCH
55-5	24606270	LEAF SWITCH
56	24611183	BRACKET AS
57	24605592	SPRING (EJECT) L
58	24603331	LEVER (EJECT)
59	893030	E WASHER 3
60	24611190	BRACKET AS
61	24607070	ARM (EJECT) A
62	24609002	PAN HEAD SCREW SW2X4ZN
63	24602411	COUNTER BELT
64		WIRE

TAPE MECHANISM-EXPLODED VIEW



SCHEMATIC DIAGRAM (CONTROL SECTION)

A B C D E F G



PC BOARD PARTS LIST

NAAF-2937-2

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Ics				
Q101, Q102	222956	NJM2068DD	Q717	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q
Q121-Q124	222502	NJM4558DX	Q719	221282	DTC144ES
Q151, Q152	222910	HA-12088NT	Q901	2201074 or 2201385	2SD880Y or 2SD330E
Q301, Q302	222652	M5218L	Q902	2212304, 2212305, 2211945 or 2211946	2SK381D, 2SK381E, 2SK246GR or 2SK246BL
Q321, Q322	222623	IR2E02	Q903, Q904	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q
Q403, Q404	222808	M5218P	Q905	2201275 or 2201276	2SB772Q or 2SB772P
Q405	222918	BA6251	Q906	2212304, 2212305, 2211945 or 2211946	2SK381D, 2SK381E, 2SK246GR or 2SK246BL
Q441	222465, 222921 or 222808	NJM4558D, BA4558 or M5218P	Q907, Q908	2211454 or 2212494	2SA1015Y or JA101P
Q501	222695, 222681 or 22240040	LA6324, IR3702 or NJM2902N			
Q601	22240008	μ PC1290C			
Q704	222775	BA6229			
Q706	222465, 222921 or 222808	NJM4558D, BA4558 or M5218P			
Q707	222909	LM6402H-1885			
	Transistors			Diodes	
Q103, Q104	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q	D121-D124	223163	1SS133
Q153, Q154	2212794, 2212795, 2211705 or 2211706	2SD1468R, 2SD1468S, 2SD655E or 2SD655F	D501-D503	223163	1SS133
Q401, Q402	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q	D601-D607	223163	1SS133
Q434	2201594 or 2201595	2SD1189Q or 2SD1189R	D608, D609	2239472 or 2243152	RD5.6EB2 or MTZ5.6B
Q435	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q	D610	223150, 223124 or 223145	US1040, 1S2473 or 1S2076TD
Q436, Q437	2211544	2SC1959Y	D701-D706	223163	1SS133
Q443, Q444	221282	DTC144ES	D707	223894	1N4002F
Q445	2211454	2SA1015GR	D708	2243181 or 2239531	MTZ7.5A or RD7.5EB1
Q446	221282	DTC144ES	D901-D904	223891F	RL152
Q502	2212304, 2212305, 2211945 or 2211946	2SK381D, 2SK381E, 2SK246GR or 2SK246BL	D905, D906	223163	1SS133
Q602	2212600	DTA124ES	D907	2239472 or 2243152	RD5.6EB2 or MTZ5.6B
Q603	221282	DTC144ES	D908-D910	223894	1N4002F
Q604, Q605	2211454 or 2212494	2SA1015Y or JA101P			
Q606, Q607	2212600	DTA124ES			
Q701-Q703	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q			
Q705	221282	DTC144ES	L151, L152	233313 or 233306	NMC-6048 or NMC-6043
Q708	2211454 or 2212494	2SA1015Y or JA101P	L153, L154	233372	NMC-2063
Q709	2211255, 2210746 or 2212485	2SC1815GR, 2SC945AP or JC501Q	L155, L156	233188 or 231032	NCH-1033 or NCH-2072
Q710	2212600	DTA124ES	L401, L402	24606072, 231040 or 231085	NCH-1010, NCH-2080 or NCH-2133
Q711	2211706	2SD655F	L403, L404	233314	NCH-2097
Q712	2212600	DTA124ES			
Q713, Q714	2211706	2SD655F	L405		
Q715, Q716	2211454 or 2212494	2SA1015Y or JA101P			
					OSC Block
					231063
					NLO-2037
					Ceramic OSC
			X701	3010092	CSB800K
					Capacitors
			C105, C106	354722219	220 μ F, 6.3V, Elect.
			C111, C112	354780229	2.2 μ F, 50V, Elect.
			C123, C124	354741009	10 μ F, 16V, Elect.
			C127, C128	354780109	1 μ F, 50V, Elect.
			C151, C152	354780109	1 μ F, 50V, Elect.
			C153, C154	354741009	10 μ F, 16V, Elect.
			C159, C160	354786899	0.68 μ F, 50V, Elect.
			C161, C162	354780229	2.2 μ F, 50V, Elect.
			C169, C170	354786899	0.68 μ F, 50V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C171, C172	354780229	2.2 μ F, 50V, Elect.
C173-C176	354741009	10 μ F, 16V, Elect.
C301, C302	354780479	4.7 μ F, 50V, Elect.
C303, C304	354780109	1 μ F, 50V, Elect.
C401, C402	354742209	22 μ F, 16V, Elect.
C409, C410	354784799	0.47 μ F, 50V, Elect.
C411, C412	354780479	4.7 μ F, 50V, Elect.
C437	354741009	10 μ F, 16V, Elect.
C440	370131234S	0.12 μ F, 100V, APS.
C458	354722219	220 μ F, 6.3V, Elect.
C504	354780229	2.2 μ F, 50V, Elect.
C601	354780229	2.2 μ F, 50V, Elect.
C603	354742209	22 μ F, 16V, Elect.
C701	354780479	4.7 μ F, 50V, Elect.
C705	354780109	1 μ F, 50V, Elect.
C706	354741009	10 μ F, 16V, Elect.
C707	354780109	1 μ F, 50V, Elect.
C708	354780229	2.2 μ F, 50V, Elect.
C709	354726829	6800 μ F, 6.3V, Elect.
C710	354746829	6800 μ F, 16V, Elect.
C901	354744729S	4700 μ F, 16V, Elect.
C903	354781599	0.15 μ F, 50V, Elect.
C904	354741019	100 μ F, 16V, Elect.
C905	354744729	4700 μ F, 16V, Elect.
C907	354741009	10 μ F, 16V, Elect.
C908	354741019	100 μ F, 16V, Elect.
C921, C922	354741009	10 μ F, 16V, Elect.
C923, C924	354744719	470 μ F, 16V, Elect.
C925-C926	354741009	10 μ F, 16V, Elect.
C929-C930	354741009	10 μ F, 16V, Elect.
C931	354722219	220 μ F, 6.3V, Elect.
Resistors		
R115, R116	5210064	N06HR10kBD, Semifixed
R135, R136	5104203	N09RGL50kA25M, VR
R401, R402	5210064	N06HR10kBD, Semifixed
R429, R430	5215047	N08HR10kBC, Semifixed
R706-R718	49163392413	3.9k Ω X13, 1/10W, Network
R727	441622204	22 Ω , 1W, Oxidefilm
R741	441722204	22 Ω , 2W, Oxidefilm
R751-R763	49163392413	3.9k Ω X13, 1/10W, Network
R902	441520104	1 Ω , 1/2W, Oxidefilm
R906	441522704	27 Ω , 1/2W, Oxidefilm
Terminals		
P601	25045217	NPJ-4PDBL95, Input/output
P121	25045195	HLJ-4338-01-3010, Mic.
Switch		
S701	25030289	NRSF-123-25MP, MODE
Plug		
P101	25055103	NPLG-6P87
P401	25055100	NPLG-3P84
P704	25055185	NPLG-4P169
P705	25055184	NPLG-3P168
Socket		
P706A	2000663	NSAS-16P619
P707A	2000662	NSAS-10P618
P708A	2000661	NSAS-6P617
P709A	2000616	NSAS-6P572
JL301, JK302	25050272	NSCT-8P-100
JL401	25050270	NSCT-6P-98
JL701	25050272	NSCT-8P-100
JL703, JL705	25050267	NSCT-3P-95

CIRCUIT NO.	PART NO.	DESCRIPTION
Miscellaneous		
	27160151	RAD54, Radiator
	27160166	Radiator
	82143006	3P+6FNBC, Screw
	870039A	Washer
	27141121	Bracket(SW)

NAAR-2940-1

CIRCUIT NO.	PART NO.	DESCRIPTION
Socket		
P701	25050070	NSCT-7P20, Remocon.

NAAR-2941-1

CIRCUIT NO.	PART NO.	DESCRIPTION
Terminal		
P301	25045187	HLJ-0541-01-010, Headphon

NASW-2942-1

CIRCUIT NO.	PART NO.	DESCRIPTION
Δ C951	3500065A	0.01 μ F, AC400V, IS
Δ S901	25035559	NPS-111-L5219, Push
	25060092	NTM-1S33, Terminal

NADIS-2943-3

CIRCUIT NO.	PART NO.	DESCRIPTION
LEDs		
D301-D308	225228-J or 225228-K	SLV-31MC(J) or SLV-31MC(K)
D309-D314	225227	SLV-31VC
D661, D662	225227	SLV-31VC
D663-D665,	225228-J or 225228-K	SLV-31MC(J) or SLV-31MC(K)
Lamp		
Δ PL901	210090	14V, 150mA
Resistor		
R481	6111002	N30LL1C-5KB5Z, Accu VR
Switch		
S601, S602	25035523	NPS-122L485, Push
S711-S720	25035548	NPS-122S510, Push
S725	25035523	NPS-122L485, Push

Socket		
P704A	2000571	NSAS-8P527
Holder		
	27190523A	Holder(LED-25)

NADIS-2944-3

CIRCUIT NO.	PART NO.	DESCRIPTION
Diodes		
D757, D758	225192	GLING1
Socket		
P705A	2000489	NAAS-6P445

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