

ONKYO SERVICE MANUAL

STEREO CASSETTE TAPE DECK

MODEL TA-RW66

Black model

UDN, UDC, UD	120V AC, 60Hz
UG	220V AC, 50Hz
UW	120 or 220V AC, 50/60Hz
UQA, UQB	240V AC, 50Hz

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

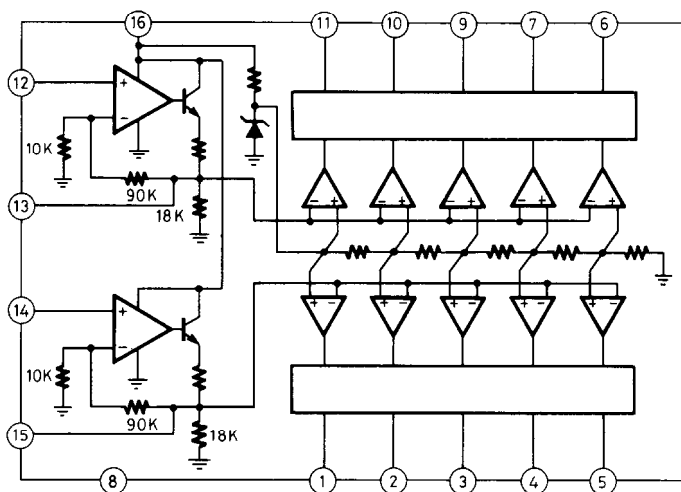
Track System:	4-tracks, 2-channels
Recording System:	AC bias
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec (1-7/8 i.p.s.)
Wow and Flutter:	0.07% (WRMS)
Frequency Response:	20 – 15,000Hz (Normal) (30 – 14,000Hz \pm 3dB) 20 – 16,000Hz (High) (30 – 15,000Hz \pm 3dB) 20 – 17,000Hz (Metal) (30 – 16,000Hz \pm 3dB)
S/N Ratio:	Dolby NR out: 56dB (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:	Line IN: 2 Input sensitivity: 60mV Input impedance: 50k-ohm
Outputs:	Line OUT: 2 Std. output level: 500mV (0dB) Optimum load impedance: over 50k-ohm Headphone Jack: 1 Optimum load impedance: 8 ohm to 200 ohm



Motors: DC servo motor: 2
 Heads: REC/PB: Special Hard Permalloy x 2
 Erase head: Ferrite x 1
 Power Supply: AC120V/60Hz, 120/220V 50/60Hz,
 Power Consumption: 18 watts
 Dimensions: 435(W) x 122(H) x 259(D)mm (17-1/8" x 4-7/8" x 10-3/16")
 Weight: 4.4 kg. (9.7 lbs.)

Because of product improvements, specifications and external appearance are subject to change without notice.

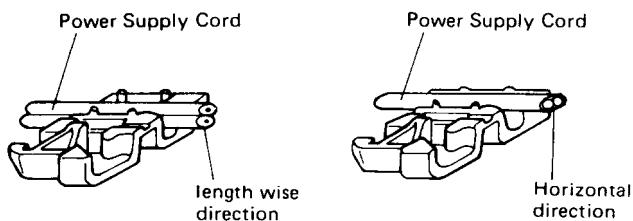
IR-2E27



SERVICE PROCEDURES

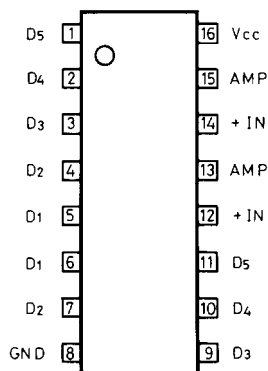
1. Replacement of power supply cord

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.

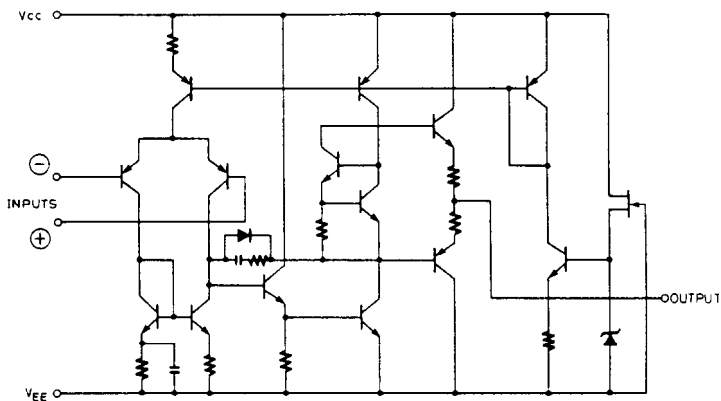


2. Instruction resistance measurement

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

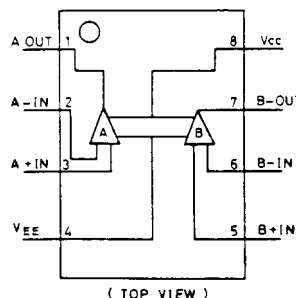
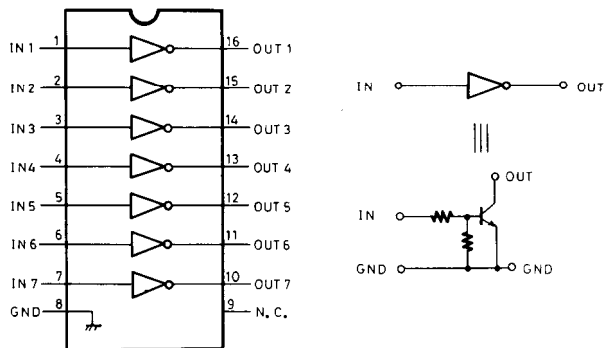


NJM-2068D-D

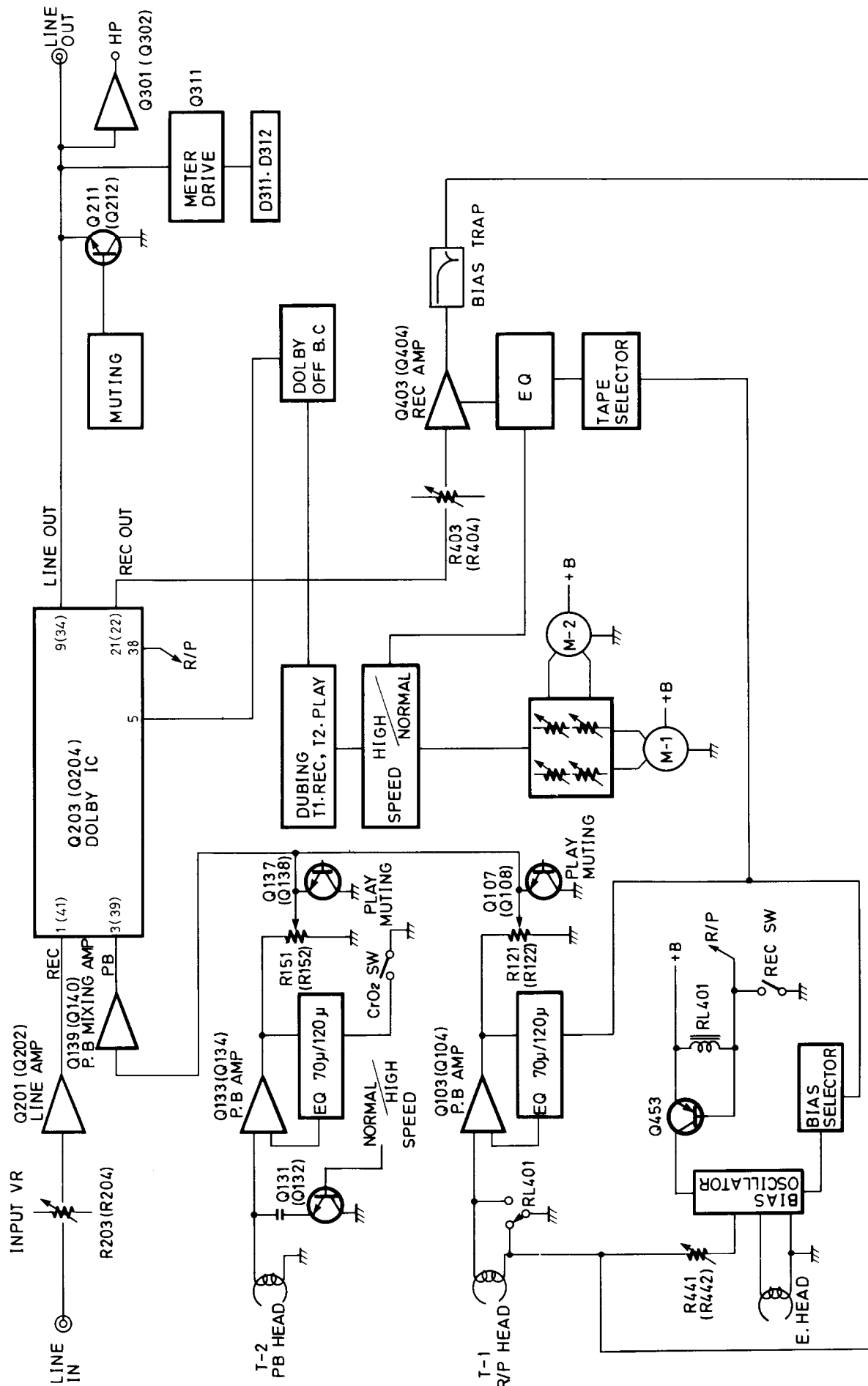


IC BLOCK DIAGRAM

BA6251 (REC AMP. EQ. SW)



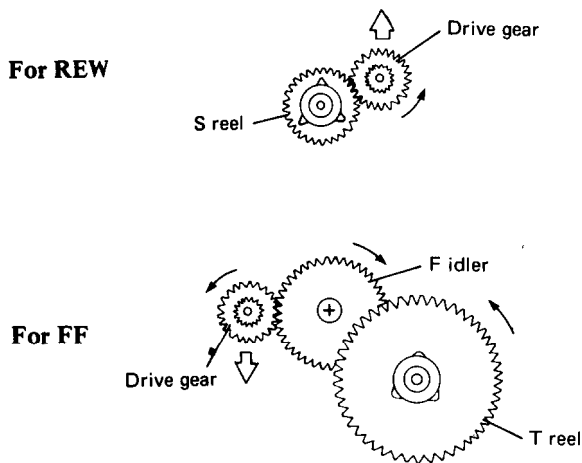
BLOCK DIAGRAM



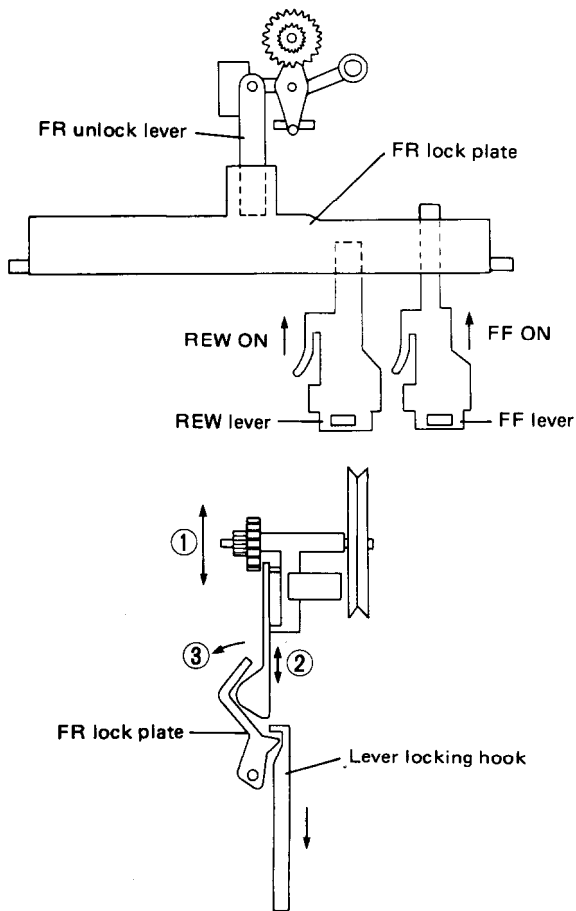
TAPE (1) MECHANISM OPERATION

1. FF and REW Auto-Stop Mechanism

When the S or T reel is stopped during REW or FF, the drive gear, which is still trying to rotate, moves upward for REW and downward for FF.

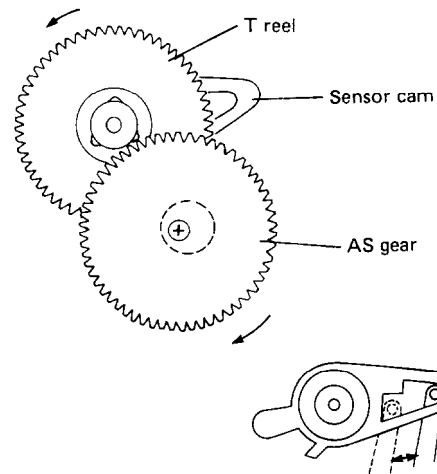
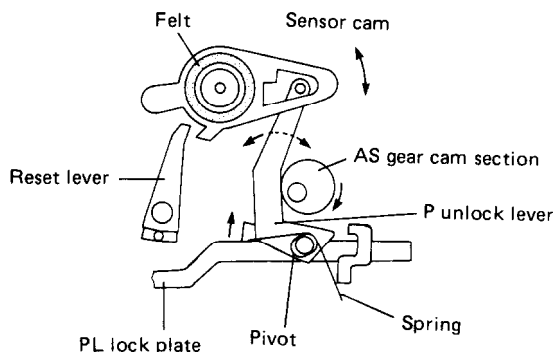


When the FR idler (drive gear) moves up and down 1, the FR unlock lever also moves up and down 2 causing the FR lock plate to rotate (move upward) 3. As the FR lock plate moves upward (flot S), the lever locking hook is released to switch to the stop mode.



2. PLAY Auto-Stop Mechanism

2-1 Tape Transport During the play Mode



When the T reel rotates, friction with the felt causes the sensor cam to rotate to the left. However, the rotations of the AS gear (from the cam) cause the P unlock lever to back and forth. The sensor arm also moves back forth because the boss of the P unlock lever is in the sensor cam. The boss therefore moves back and forth along the underside of the inside of the sensor cam.

2-2 Auto-Stop

If the T reel is stopped during play mode transport, the force generated by the sensor arm rotating to the left no longer exists, but the AS gear does not stop rotating. As a result, the P unlock lever boss, which was moving back and forth on the underside of the inside of the sensor cam, now moves to the top of the cam. However, since the top is shorter, the back and forth movement of the P unlock lever is stopped it can be completed. This causes the lever to pivot at the point where it has stopped, so the PL lock plate is moved to the left and PLAY lever is unlocked.

TAPE (2) MECHANISM OPERATION

PLAY operation (refer to Fig. 1 and Mechanism Disassembly dwg.)

Push play button (83) → Trigger (ASSIST) (77) lock shifts → Cam (ASSIST) (72) meshes with Flywheel AS (C) (2) → Cam (ASSIST) (72) turns, Base AS (HEAD) (20) raises. For FWD, by means of arm (REVERSE) (14), Flywheel AS (C) (2), Gear A (71) (right side) and Reel AS (F) (112) mesh, and tape reels.

F.F. operation

If FF button (84) is pushed, by means of Arm (FR) (131), Arm (DRIVE) (130) gear, Flywheel AS (C) (2), and Reel AS (F) (112) mesh, and tape reels.

REW operation

If REW button (84) is pushed, by means of Arm (FR) (131), Arm (DRIVE) (130) gear, Flywheel (3), and Reel AS (R) (113) mesh, and tape reels.

AUTO STOP operation (refer to Mechanism Exploded View for No. following part name)

At the end of the tape, the reel stops.

Actuating plate (CLUTCH) (111) → Sensor (107) operates, Sensor (107) is pulled by the Arm (SENSOR) (106) at Gear (STOP) (110) Arm (RELEASE) (122) → Lever AS (RELEASE) (117) → Release (18) operates, Release plate (115) releases.

Head reverse rotation

With the Change arm (MODE) (81) at the Reverse mode position, when the tape end is reached, and when the mechanism enters the auto stop operation, Trigger (104) operates, Cam AS (109) lock opens, Cam AS (109) makes a half turn, and by means of Arm (REVERSE) (14), the head is caused to rotate in reverse direction.

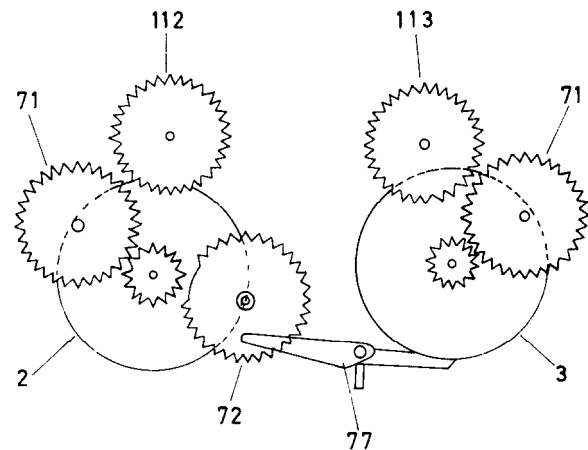
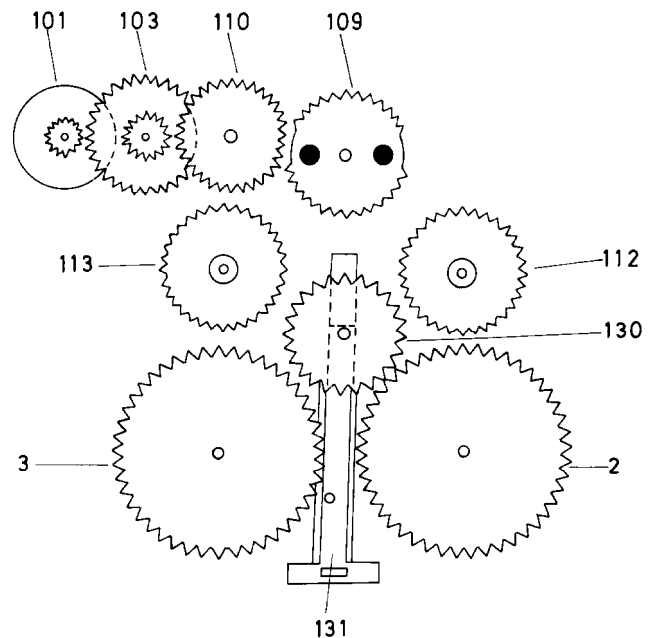


fig.-1

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	Frequency counter to LINE output terminal		MTT-111	PB	Frequency counter	Semi-fixed R647	6,010 ± 10Hz	High speed connect the TP-3 to GND	
				PB		R643	3,005 ± 5Hz		
				PB		Semi-fixed R648	6,020 ± 10Hz		
				PB		R644	3,015 ± 5Hz		
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	
3	Playback level	AC voltmeter to terminals TP-1 and TP-2	MTT-150	PB	AC voltmeter	T-1 R-121. R-122 T-2 R-151. R-152	300mV		
4	Bias current	Fig. 2	1KHz, -20dB and 12KHz, -20dB	NEW XL-II90	T-1 REC/PB	AC voltmeter	R-441 (Ch. L) R-442 (Ch. R)	Same level at REC/PB	Input VR maximum
5	Record level	Fig. 2	1 KHz		REC PAUSE	AC voltmeter	Attenuator or AF OSC output	350mV	Input VR maximum
					REC/PB	AC voltmeter	R-403 (Ch. L) R-404 (Ch. R)	Same level at REC/PB	
6	Bias OSC frequency	Frequency counter to TP-4		T-1 REC		L-407	85KHz±2KHz	Connection cable 10: 1	

PLAY torque 30 - 70g/cm
 FF.REW torque 70 - 160g/cm
 Back tention 1.5 - 5g/cm

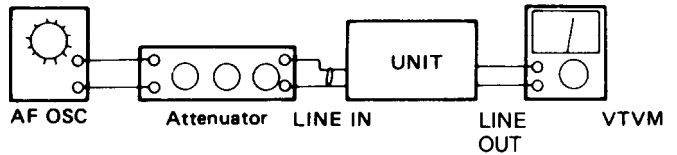
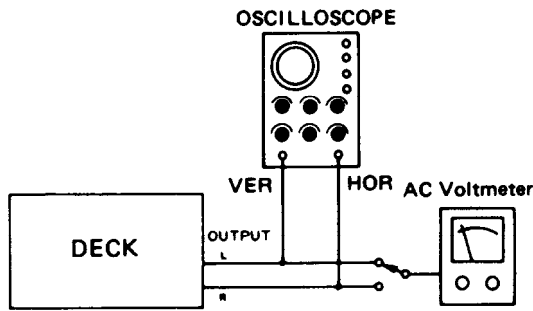
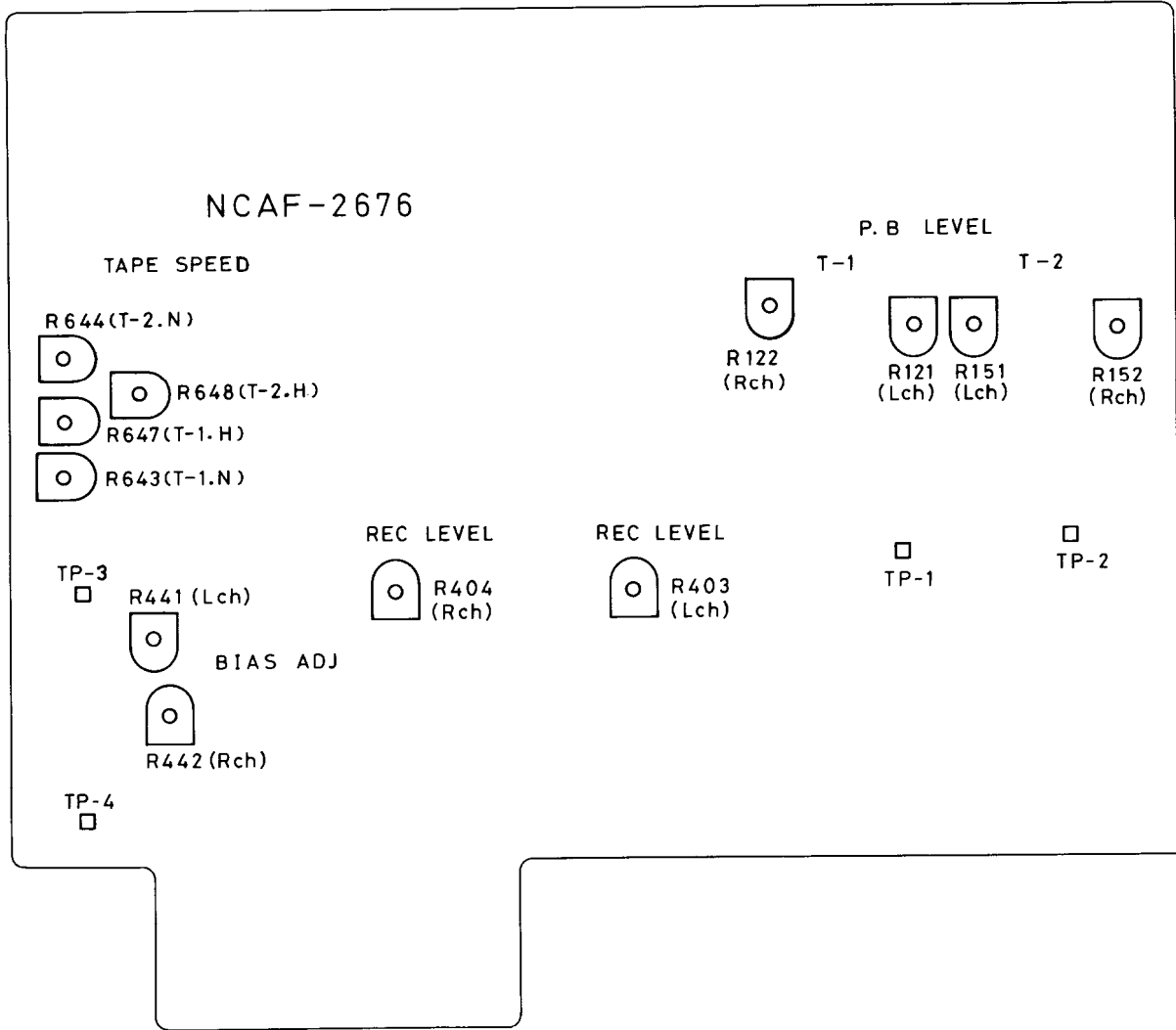
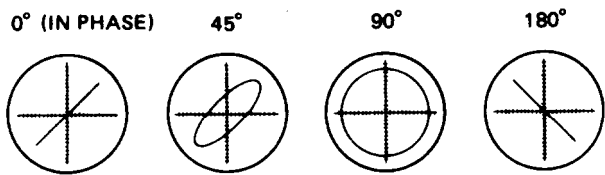


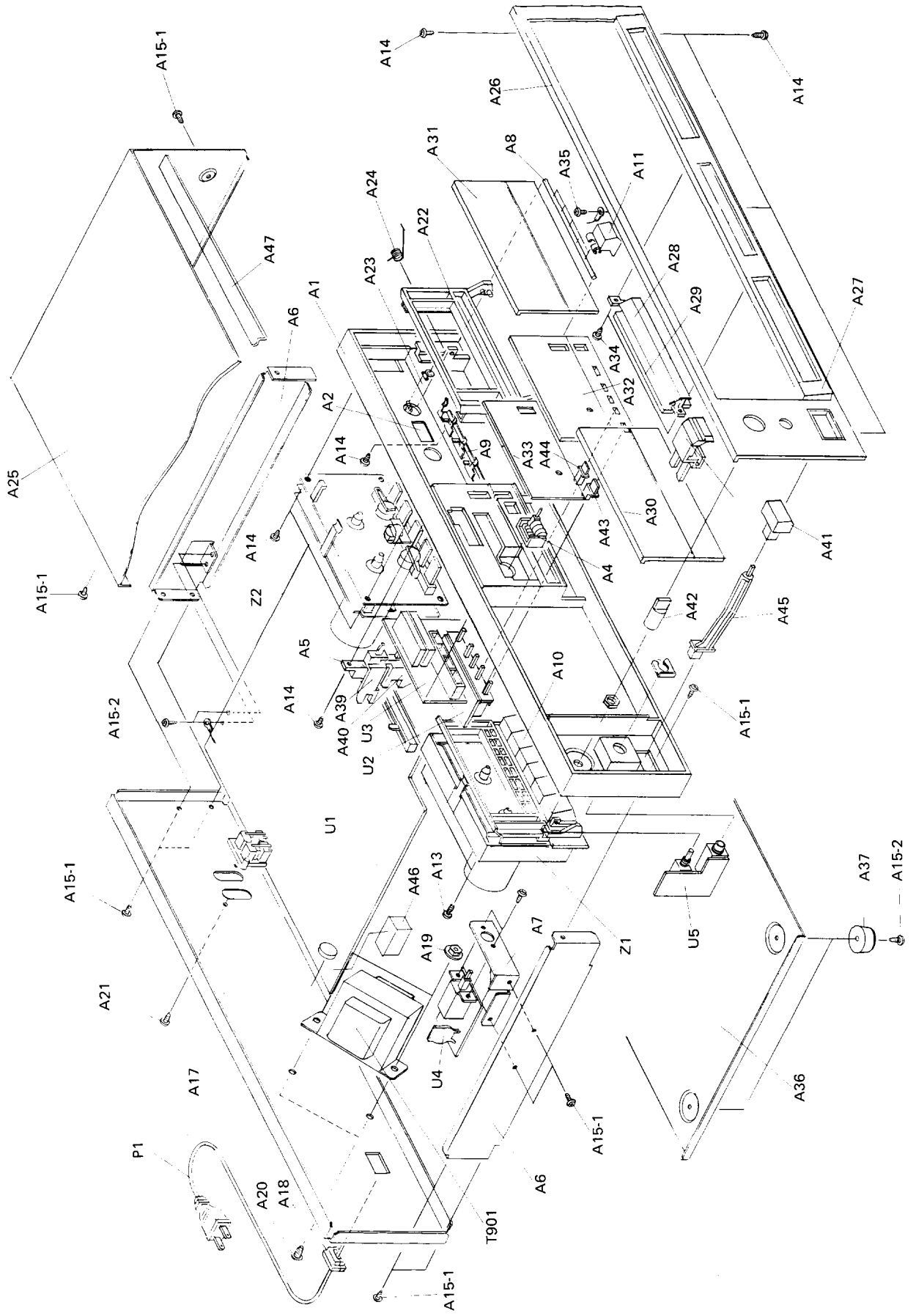
fig-2



Confirming phase relationship

fig-1

CHASSIS-EXPLODED VIEW



CHASSIS EXPLODED VIEW PARTS LIST

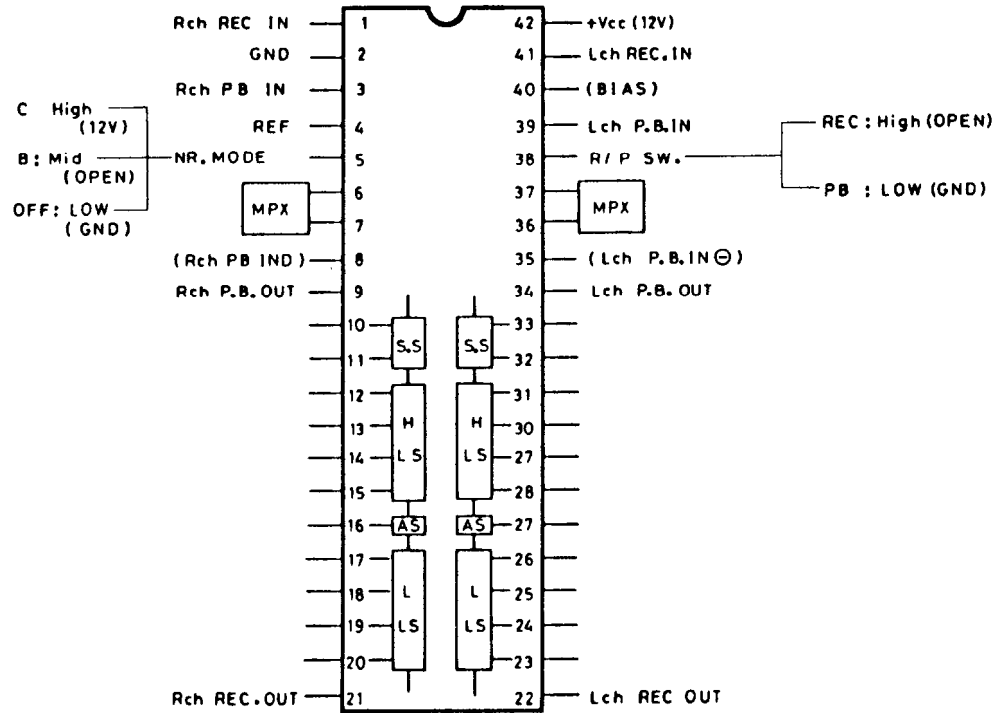
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27110287C	FRONT BRACKET	A45	27273030C	JOINT (L)
A2	27262412	PLATE (T2)	A46	28140397	CUSHION
A3	27141086	BRACKET	A47	28140699	CUSHION
A4	24601203	TAPE COUNTER	T901	2300110A	POWER TRANSFORMER (D)
A5	27300830A	RAIL (T2)			POWER TRANSFORMER (G)
A6	27115168C	SIDE BRACKET (L)			POWER TRANSFORMER (W)
A7	27140990A	BRACKET (POW)			POWER TRANSFORMER (Q)
A8	27260219	SHAFT			AC CORD (D)
A9	27180306B	SPRING (KNOB)			AC CORD AS-CEE (G/W)
A10	28322545	KNOB (T1)			AC CORD AS-SAA (Q)
A11	28322544C	KNOB (T2)			NSS-1258P VOLTAGE SELECTOR SWITCH (W)
A12	82143006	PAN-HEAD SCREW 3P+6FN BC	P1	253099C	CASSETTE DECK MECHANISM, NDM-85 (T1)
A13	831430100	TAP-TIGHT SCREW 3TTW+10PBC			CASSETTE DECK MECHANISM, NDM-86 (T2)
A14	833430080	TAP-TIGHT SCREW 3TTP+8PBC			NAAF-2676-1 MAIN PC BOARD ASS'Y
A15-1	834430068	TAP-TIGHT SCREW 3TTS+6BBC			NASW-2677-1 TAPE SELECTOR SWITCH (W)
A15-2	831130088	TAP-TIGHT SCREW 3TTW+8B	S902	25065123	NADIS-2678-1 DISPLAY PC BOARD ASS'Y
A16	833426060	TAP-TIGHT SCREW 2.6TTP+6PBC	Z1	244093	NAPS-2679-1 POWER SWITCH PC BOARD ASS'Y
A17	27120872A	BACK PANEL (D)	Z2	244094	BOARD ASS'Y
	27120879	BACK PANEL (G)			NAHP-2680-1 HEADPHONE
	27120880	BACK PANEL (W)			TERMINAL PC BOARD ASS'Y
	27120892	BACK PANEL (Q)			
A18	27300750	BUSHING (CORD)	U1	15108576-1	
A19	86414010	FLANGE NUT FWN4X10FN	U2	15108577-1	
A20	830440109	TAP-TIGHT SCREW 4TTC+10CBC	U3	15108578-1	
A21	834430108	TAP-TIGHT SCREW 3TTS+10BBC	U4	15108579-1	
A22	27300834A	FRAME ASS'Y (CASSETTE)	U5	15108580-1	
A22-1	24605334	SPRING (CASSETTE)			
A22-2	833420068	TAP-TIGHT SCREW 2TTP+6BBC			
A23	24610994	DAMPER UNIT			
A24	27180307	SPRING (FRAME)			
A25	28184274B	TOP COVER			
A26	15108121	FRONT PANEL ASS'Y			
A27	27215116B	COSMETIC FRAME			
A28	27262293-1	PLATE (VR)			
A29	27300831	RAIL (VR)			
A30	28400270A	CASSETTE LID ASS'Y (T1)			
A31	28400273A	CASSETTE LID ASS'Y (T2)			
A32	28191353A	CLEAR PLATE (C)			
A33	28133167B	BACK PLATE			
A34	833430080	TAP-TIGHT SCREW 3TTP+8PBC			
A35	834230108	TAP-TIGHT SCREW 3TTS+10BN			
A36	27170229	BOTTOM BOARD			
A37	27175003A	LEG			
A38	28322547	KNOB ASS'Y (VR)			
A39	28322548A	KNOB ASS'Y (MODE)			
A40	28322550A	KNOB ASS'Y (DIR)			
A41	28321905A	KNOB (POW)			
A42	28322028	KNOB (TONE)			
A43	28322552	KNOB (REC)			
A44	28322553	KNOB (SEL)			

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

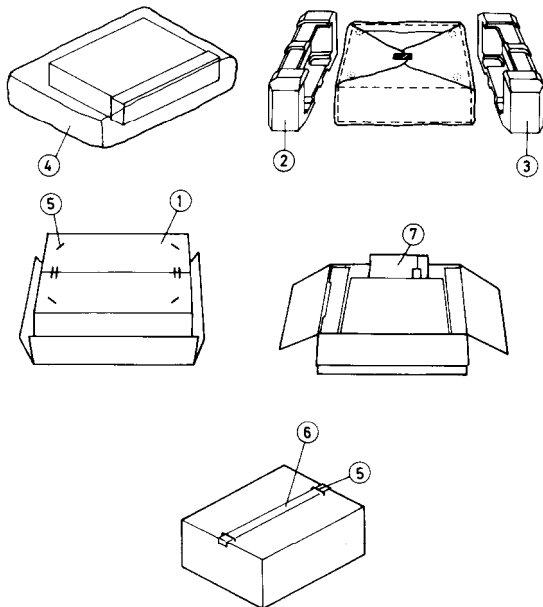
NOTE: (D): Only 120V model
 (G): Only 220V model
 (W): Only Universal model
 (Q): Only 240V model

IC BLOCK DIAGRAM

HA12088NT (DOLBY NR IC 2CH in one package)



PACKING VIEW



NOTE
(N) : Only U.S.A. Model
(W) : Only 120/220V Model

D Model

REF NO.	PART NO.	DESCRIPTION
1	29051323A	Master carton box
2	29090947A	Pad (L)
3	29090946A	Pad (R)
4	29100037A	650 x 500 Poly bag
5	282301	Sealing hook
6	260012	Damplon tape
7		Accessory bag ass'y
	29341016	Instruction manual
	2010095	Connection cable
	29365006-7	Waranty card (N)
	29358002C	Service station list (N)
	29100006A	350 x 250 Poly bag

G/W Model

REF NO.	PART NO.	DESCRIPTION
1	29051323A	Master carton box
2	29090947A	Pad (L)
3	29090946A	Pad (R)
4	29100037A	650 x 500 Poly bag
5	282301	Sealing hook
6	260012	Damplon tape
7		Accessory bag ass'y
	29341017	Instruction manual
	2010095	Connection cable
	25055018	Conversion plug (CV-K-2) (W)
	29100006A	350 x 250 Poly bag

PRINTED CIRCUIT BOARD PARTS LIST

MAIN CIRCUIT PC BOARD (NAAF-2676-1)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs			Diodes	
Q103, Q104	222956	NJM-2068DD	D401-D404	223155 or	1SS138 or
Q133, Q134	222956	NJM-2068DD		223163	1SS133
Q139, Q140	222917	NJM-4558SD	D405	223145,	1S2076TD,
Q201, Q202	222811 or	NJM-4558DD or		223124 or	1S2473 or
	222502	NJM-4558DX		223150	US1040
Q203, Q204	222910	HA-12088NT	D601, D602	223155 or	1SS138 or
Q301, Q302	222652	M5218L		223163	1SS133
Q403, Q404	222808	M5218P	D604	223155 or	1SS138 or
Q413	222912	BA6251		223163	1SS133
Q901	222780120	78M12	D606	223145,	1S2076TD,
Q902	222790122	79M12		223124 or	1S2473 or
				223150	US1040
	Transistors		D607, D609	223155 or	1SS138 or
Q105-Q108	2211255,	2SC1815GR,		223163	1SS133
	2210746 or	2SC945 AP or	D610	223155 or	1SS138 or
	2212485	JC501Q		223163	1SS133
Q131, Q132	221299	DTC114TC	D613-D616	223155 or	1SS138 or
Q135-Q138	2210746 or	2SC945 AP or		223163	1SS133
	2212485	JC501Q	D619, D621	223155 or	1SS138 or
Q209	2210746 or	2SC945 AP or		223163	1SS133
	2212485	JC501Q	D620	223145,	1S2076TD,
Q211, Q212	2211705,	2SD655E,		223124 or	1S2473 or
	2211706,	2SD655F,		223150	US1040
	2212794 or	2SD1468R or	D622	2239552	RD8.2EB2
	2212795	2SD1468S	D901	223862 or	WL01 or
Q213, Q214	2210746 or	2SC945 AP or		223890	W01RL
	2212485	JC501Q	D902, D903	223842 or	GP15B or
Q401, Q402	2210746 or	2SC945 AP or		223891	RL152
	2212485	JC501Q	D904	2239651 or	RD13EB1 or
Q405-Q412	2212304	2SK381D		2243241	MTZ13A
Q451, Q452	2211544	2SC1959Y			
Q453	2211454 or	2SA1015Y or		LED	
	2212494	JA101P	D608	225232	LTZ-R15
Q454	2211255,	2SC1815GR,			
	2210746 or	2SC945 AP or		Coils	
	2212485	JC501Q	L201, L202	233349	NMC-6053
Q601-Q609,	2211255,	2SC1815GR,	L203, L204	233245 or	NMC-2029 or
Q631, Q632	2210746 or	2SC945 AP or		233352	NMC-2056
	2212485	JC501Q	L205, L206	233188 or	NCH-1033 or
Q633, Q634	2211454 or	2SA1015Y or		231077	NCH-2125
	2212494	JA101P	L401, L402	231040,	NCH-2080,
Q635	2212600	DTA124ES		24606072 or	NCH-1010 or
Q903	2201074 or	2SD880Y or		231085	NCH-2133
	2201385	2SD330E	L403, L404	231036,	NCH-2076,
				24606068 or	NCH-1006 or
				231081	NCH-2129
			L405, L406	233283 or	NCH-4060 or
				233314	NCH-2097

CIRCUIT NO.	PART NO.	DESCRIPTION
L407	OSC Block 231104	NL0-2044
	Capacitors	
C107, C108	354744709	47 μ F, 16V, Elect.
C115, C116	354780109	1 μ F, 50V, Elect.
C137, C138	354744709	47 μ F, 50V, Elect.
C145, C146	354780109	1 μ F, 50V, Elect.
C201, C202	354741009	1 μ F, 16V, Elect.
C203, C204	354781009	1 μ F, 50V, Elect.
C211, C212	354783399	0.33 μ F, 50V, Elect.
C217, C218	354741009	10 μ F, 16V, Elect.
C220	354744719	470 μ F, 16V, Elect.
C221, C222	354741009	10 μ F, 16V, Elect.
C227, C228	354780109	1 μ F, 50V, Elect.
C229, C230	354786899	0.68 μ F, 50V, Elect.
C231, C232	354780229	2.2 μ F, 50V, Elect.
C239, C240	354786899	0.68 μ F, 50V, Elect.
C241, C242	354780229	2.2 μ F, 50V, Elect.
C243-C246	354741009	10 μ F, 16V, Elect.
C425, C426	354781099	0.1 μ F, 50V, Elect.
C427, C428	354741009	10 μ F, 16V, Elect.
C455	370131234	0.12 μ F, 100V, APS.
C456, C460	354780109	1 μ F, 50V, Elect.
C602	354780109	1 μ F, 50V, Elect.
C603	354743319	330 μ F, 16V, Elect.
C604	354742209	22 μ F, 16V, Elect.
C605	354750479	4.7 μ F, 25V, Elect.
C607	354780109	1 μ F, 50V, Elect.
C608	354750479	4.7 μ F, 25V, Elect.
C612	354741009	10 μ F, 16V, Elect.
C613	354780109	1 μ F, 50V, Elect.
C901	354752229	2200 μ F, 25V, Elect.
C902	354751029	1000 μ F, 25V, Elect.
C903, C904	354781099	0.1 μ F, 50V, Elect.
C906	354754719	470 μ F, 50V, Elect.
C907, C908	354741019	100 μ F, 16V, Elect.
C911-C916	354744709	47 μ F, 16V, Elect.
C917	354754709	47 μ F, 25V, Elect.
	Resistors	
R121, R122	5215046	N08HR50KBC, Semi-fixed
R151, R152	5215046	N08HR50KBC, Semi-fixed
R403, R404	5215046	N08HR50KBC, Semi-fixed
R441, R442	5215024	N08HR100KBC, Semi-fixed
R203, R204	6142034	N60LG50KA10E, Variable
R455	441521004	10 Ω , 1/2W, Oxidefilm
R456	441528214	820 Ω , 1/2W, Oxidefilm
R457	441526814	680 Ω , 1/2W, Oxidefilm
R458	441521814	180 Ω , 1/2W, Oxidefilm
R639, R640	4000103	LT3600V4S-1.2K
R643, R644	5210060	N06HR2.2KBD, Semi-fixed
R647, R648	5210062	N06HR2.2KBD, Semi-fixed
R901	441520224	2.2 Ω , 1/2W, Oxide-film
R902	441523314	330 Ω , 1/2W, Oxide-film

CIRCUIT NO.	PART NO.	DESCRIPTION
	Miscellaneous	
RL401	25065174	NRL-2P1A, DC-12V-09, Relay
P101	25055136	NPLG-6P-120, Plug
P131	25055134	NPLG-4P-118, Plug
P401	25055132	NPLG-2P-116, Plug
P601	25045084	NPI-4PDBL-42, Plug
P602	25055139	NPLG-9P-123, Plug
P603	25055141	NPLG-11P-125, Plug
	27150189	Shield plate
	27160029	RD-07, Radiator
	27160029-1	RD-07B, Radiator
	82143006	3P+4FN (BC), Screw

TAPE SELECTOR SWITCH CIRCUIT PC BOARD (NASW-2677-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S601-S605	25035527	NPS-332-122-122-L489, Push

DISPLAY CIRCUIT PC BOARD(NADIS-2678-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q311, Q312	222962	IR2E27A
	LEDs	
D311, D312	225165	SEL-9520-MB02
D621, D622	225134	GL-3NG1
D623-D627	225126	GL-3PR1
	Capacitors	
C311-C314	353750479	4.7 μ F, 25V, Elect.
	Resistors	
R319	441623904	39 Ω , 1W, Oxide-film
	Holder	
	27190460	Holder (LED-5)
	27190461A	Holder (LED-2)

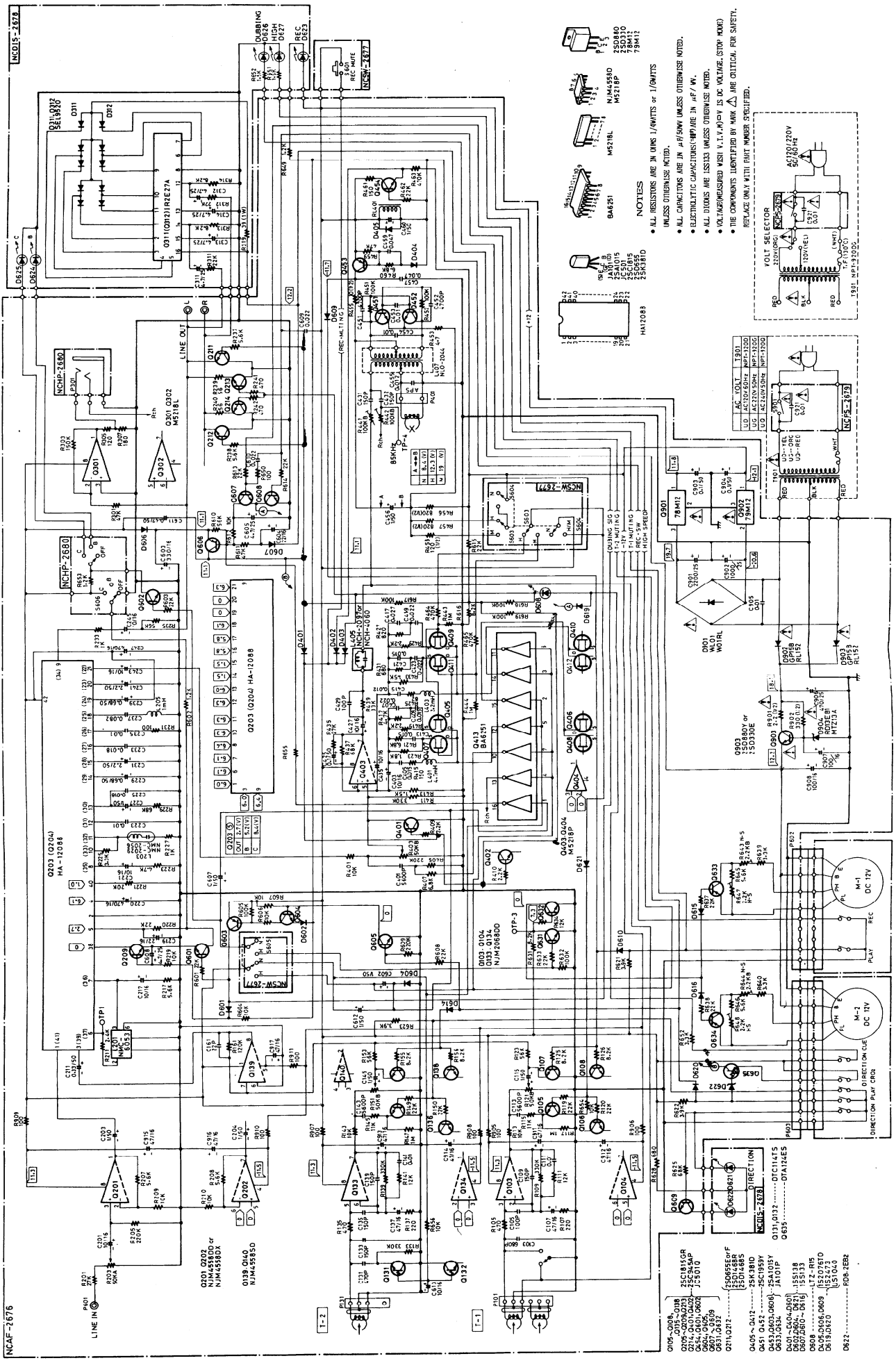
POWER SWITCH CIRCUIT PC BOARD (NAPS-2679-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
C921	3500065A	DE7150FE, 0.01 μ F, IS
	27300601	SB-1925, Cover
S902	25035375	NPS-111-L339P, Push switch

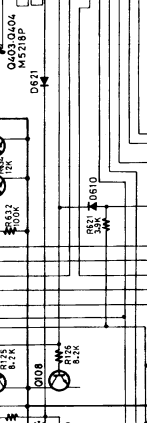
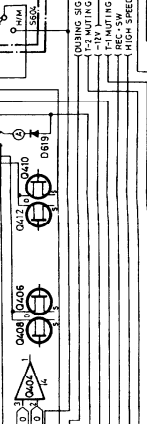
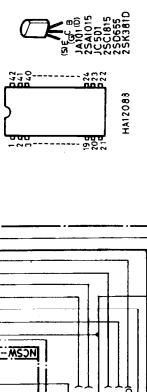
HEADPHONE TERMINAL CIRCUIT PC BOARD (NAHP-2680-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P301	25045187	HLJ0541-01-010
S606	25030266	NPS-123-255BM, Switch

A B C D E F G



- NOTES**
- ALL RESISTORS ARE IN OHMS / K/WTS OR /M/WTS UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN μ F/50V UNLESS OTHERWISE NOTED.
 - ELECTROLYTIC CAPACITORS REQUIRE IN μ F / W.
 - ALL DIODES ARE 1N4133 UNLESS OTHERWISE NOTED.
 - VOLTAGE/RESISTOR VISH V.I.V. IS DC VOLTAGE (STOP MARK).
 - THE COMPONENTS IDENTIFIED BY MKK Δ ARE CRITICAL FOR SAFETY.



- 0104-0108 1N4133
 0109-0118 2N4133
 0119-0120 1N4133
 0121-0122 1N4133
 0123-0124 1N4133
 0125-0126 1N4133
 0127-0128 1N4133
 0129-0130 1N4133
 0131-0132 1N4133
 0133-0134 1N4133
 0135-0136 1N4133
 0137-0138 1N4133
 0139-0140 1N4133
 0141-0142 1N4133
 0143-0144 1N4133
 0145-0146 1N4133
 0147-0148 1N4133
 0149-0150 1N4133
 0151-0152 1N4133
 0153-0154 1N4133
 0155-0156 1N4133
 0157-0158 1N4133
 0159-0160 1N4133
 0161-0162 1N4133
 0163-0164 1N4133
 0165-0166 1N4133
 0167-0168 1N4133
 0169-0170 1N4133
 0171-0172 1N4133
 0173-0174 1N4133
 0175-0176 1N4133
 0177-0178 1N4133
 0179-0180 1N4133
 0181-0182 1N4133
 0183-0184 1N4133
 0185-0186 1N4133
 0187-0188 1N4133
 0189-0190 1N4133
 0191-0192 1N4133
 0193-0194 1N4133
 0195-0196 1N4133
 0197-0198 1N4133
 0199-0200 1N4133

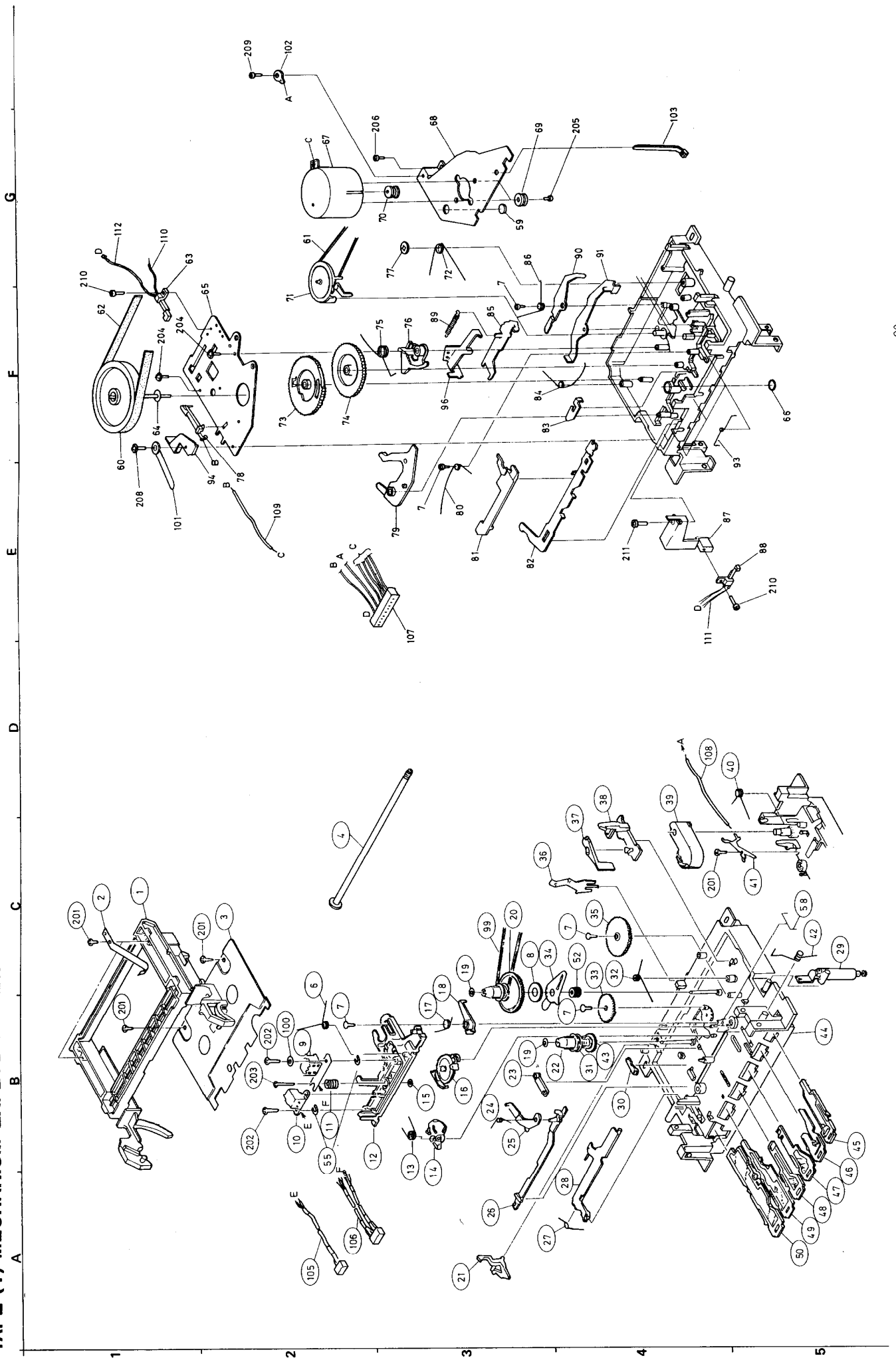
TAPE (1) MECHANISM-PART LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
1	24611151	CASSETTE CASE	62	24602393	BELT
2	24605334	SPRING (CASSETTE)	63	24606252	LEAF SWITCH
3	24611236	BACK PLATE (CASSETTE)	64	24611171	WASHER
4	24604073	SHAFT (BUTTON)	65	24611164	HOLDER (GEAR)
6	24605566	SPRING	66	24611274	OIL SEAL
7	24611087	BUSHING	67	24601206	MOTOR AS (67+70)
8	24611152	FELT WASHER	68	24611165	PLATE (MOTOR)
9	24600060	R/P HEAD	69	24610723	CUSHION
10	24600041	E HEAD	70	24602394	PULLEY
11	24605136	SPRING	71	24602334	ARM (F. R. IDLER)
12	24611153	HEAD BASE	72	24605576	SPRING
13	24605567	SPRING	73	24602335	ASSIST GEAR (A)
14	24603307	LEVER (F. R.)	74	24602336	ASSIST GEAR (B)
15	863120	NUT M2	75	24605577	SPRING
16	24602322	IDLER AS (P)	76	24603318	LEVER (P CAM)
17	24605568	SPRING	77	891035	STOP RING 3.5
18	24603308	LEVER (RESET)	78	24606253	LEAF SWITCH
19	24611170	WASHER	79	24603319	LEVER (CR CAM)
20	24602323	TAKE UP REEL AS	80	24605578	SPRING
21	24611154	INTER LOCK PLATE	81	24603320	LEVER (FR START)
22	24602390	CAP (REEL)	82	24603343	LEVER (FRS)
23	24603309	LEVER (FR UNLOCK)	83	24611166	PLATE (PROTECT)
24	24605569	SPRING	84	24605579	SPRING
25	24603310	LEVER (P. UNLOCK)	85	24611167	PLATE (REC JOINT)
26	24611155	LOCK PLATE (PL)	86	24605580	SPRING
27	24605570	SPRING	87	24611273	SWITCH PLATE
28	24611156	LOCK PLATE (FR)	88	24606254	LEAF SWITCH
29	24611272	DAMPER AS	89	24605581	SPRING
30	24611158	PLATE (REC COVER)	90	24611168	PLATE (REC CHANGE)
31	24605644	SPRING	91	24603322	LEVER (PL START)
32	24605572	SPRING	93	24605582	SPRING
33	24602325	GEAR (F IDLER)	94	24611169	HOLDER (DAMPER)
34	24602326	CAM (SENSOR)	96	24603324	LEVER (RSW)
35	24602327	GEAR (A. S.)	99	24602371	BELT (COUNTER)
36	24611159	HOLDER (CASSETTE)	100	873120	WASHER
37	24602328	CAM (EJECT)	101	24611118	LUG
38	24603311	LATCH LEVER	102	24606255	LUG TERMINAL
39	24602329	PINCH ROLLER AS	103		NYLON BAND
40	24605573	SPRING	105		CONNECTOR AS
41	24606226	LUG	106		CONNECTOR AS
42	24605574	SPRING	107		CONNECTOR AS
43	24602391	GEAR (SUPPLY REEL)	108		WIRE
44	24611163	MECHANISM CHASSIS	109		WIRE
45	24603312	LEVER (SE)	110		WIRE
46	24603313	LEVER (PAUSE)	111		WIRE
47	24603314	LEVER (FF)	201	838120055	TAPPING SCREW, M2 x 5
48	24603315	LEVER (REW)	202	838120085	TAPPING SCREW, M2 x 8
49	24603342	LEVER (PL) B	203	82512010	SCREW, M2 x 10
50	24603317	LEVER (REC)	204	831126062	TAPPING SCREW, 2.6STW+6 BQ
52	24605575	SPRING	205	801353	SCREW (MOTOR)
55	24604074	SPACER	206	82112604	PAN-HEAD SCREW, 2.6P+4F
58	24611161	LOCK PIN	208	831126085	TAPPING SCREW, M2.6 x 8
59	24611162	CAPSTAN SUPPORT	209	82112605	PAN-HEAD SCREW
60	24602332	FLY WHEEL AS	210	82111706	SCREW, M1.7 x 6
61	24602392	BELT	211	838126065	TAPPING SCREW, M2.6 x 6

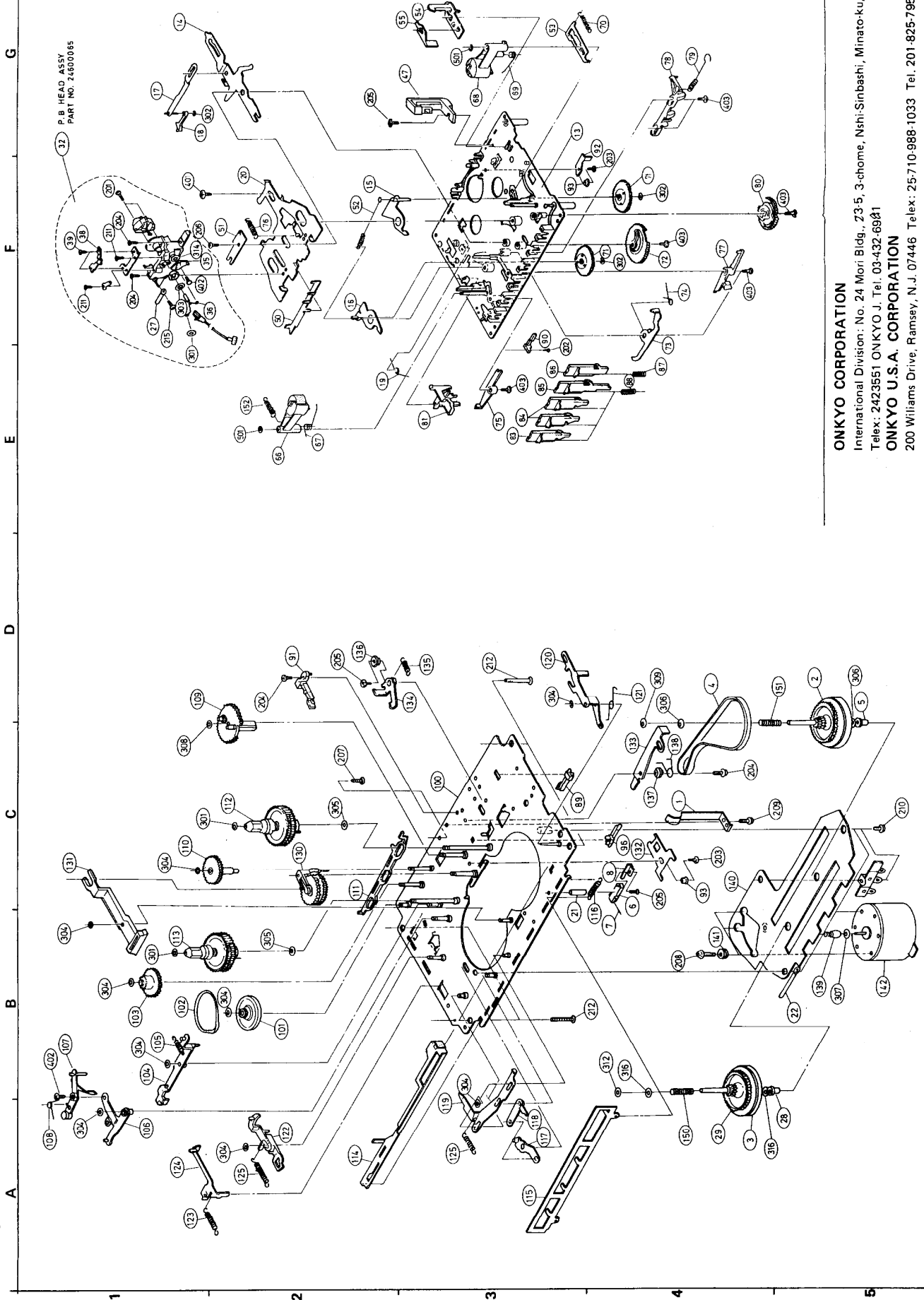
TAPE (2) MECHANISM-PART LIST

REF. NO.	PART NO.	DESCRIPTION	REF. No.	PART NO.	DESCRIPTION
1	24605619	SPRING	114	24611266	PLATE (SWITCH)
2	24602373	FLYWHEEL AS (C)	115	24611267	RELEASE PLATE
3	24602374	FLYWHEEL	116	24605635	SPRING
4	24602375	BELT	117	24603337	LEVER AS (RELEASE)
5	24611238	METAL	118	24611268	RELEASE PLATE (BUTTON)
6	24611239	HOLDER (PAUSE)	119	24603338	LEVER AS (RELEASE) FR
7	24611240	LOCK PIN	120	24611269	CONNECTING PLATE (EJECT)
8	24605620	SPRING	121	24605636	SPRING
13	24611241	BASE AS (MECHANISM)	122	24607061	ARM (RELEASE)
14	24607052	ARM (REVERSE)	123	24605637	SPRING
15	24607053	ARM AS (A) R	124	24603339	LEVER (DIR)
16	24607054	ARM AS (A) L	125	24605638	SPRING
17	24611242	SLIDE PLATE AS	130	24607062	ARM (DRIVE)
18	24611243	ROCKING ARM	131	24607063	ARM (FR)
19	24605621	SPRING	132	24611270	SLIDE PLATE (FR)
20	24611244	BASE AS (HEAD)	133	24603340	LEVER (MS SW)
21	24604081	COLLAR	134	24603341	LEVER (B)
22	24611245	LEAD CLAMPER	135	24605639	SPRING
27	24611246	LEAD CLAMPER	136	24604084	COLLAR
28	24611247	METAL	137	24604085	COLLAR
29	24602376	GEAR (FW)	138	24605640	SPRING
32	24600065	PB HEAD AS	140	24611271	BRACKET (FLYWHEEL)
35	24602388	GEAR (HEAD)	141	24610723	CUSHION
36	24605622	SPRING	142	24601207	MOTOR AS (139+142+307)
38	24605623	SPRING	150	24605641	SPRING
39	24611251	STOPPER	151	24605642	SPRING
47	24606251	LEAF SWITCH	152	24605643	SPRING
50	24611253	SLIDER (H)	201	833114067	PAN HEAD SCREW, M14 x 6
51	24605624	SPRING	202	833117073	PAN HEAD SCREW, M17 x 3
52	24605625	SPRING	203	833117047	PAN HEAD SCREW, M3 x 5
53	24603334	LEVER (SE)	204	838120057	BIND SCREW, M2 x 5
54	24603335	LEVER (EJECT)	205	833120057	PAN HEAD SCREW, M2 x 5
55	24611254	CAM (EJECT)	206	831120067	PAN HEAD SCREW, M2 x 6
66	24607055	P ARM AS (L)	207	838120085	BIND SCREW, M2 x 8
67	24605626	SPRING	208	801377	SCREW (MOTOR)
68	24607056	P ARM AS (R)	209	833126047	PAN HEAD SCREW, M2.6 x 4
69	24605627	SPRING	210	838126057	BIND SCREW, M2.6 x 5
70	24605628	SPRING	211	801378	TAPPING SCREW, M2 x 6
71	24602378	GEAR (A)	212	838126207	BIND SCREW, M2.6 x 20
72	24602379	CAM (ASSIST)	215	838120057	TAPPING SCREW, M2 x 5
73	24607057	ASSIST ARM AS	217	82112016	PAN HEAD SCREW, M2 x 16
74	24605629	SPRING	301	24611278	WASHER, $\phi 1.5 \times \phi 4 \times t0.2$
75	24607058	CHANGE ARM (REC)	302	24611279	WASHER, $\phi 1.5 \times \phi 4 \times t0.2$
76	24605630	SPRING	303	24611280	WASHER, $\phi 3.5 \times \phi 5 \times t0.25$
77	24611255	TRIGGER (ASSIST)	304	24611281	WASHER, $\phi 1.6 \times \phi 4 \times t0.2$
78	24611256	TRIGGER (PAUSE)	305	24611282	WASHER, $\phi 2.0 \times \phi 4 \times t0.2$
79	24605631	SPRING	306	24611283	WASHER, $\phi 2.6 \times \phi 4 \times t0.25$
80	24602380	CAM (PAUSE)	307	24611284	WASHER, $\phi 1.9 \times \phi 4 \times t0.2$
81	24607059	CHANGE ARM (MODE)	308	24611285	WASHER, $\phi 2.0 \times \phi 4 \times t0.2$
83	24611258	BUTTON (PLAY)	309	24611286	WASHER, $\phi 2.4 \times \phi 4 \times t0.3$
84	24611259	BUTTON (F/R)	312	24611287	WASHER, $\phi 2.2 \times \phi 4 \times t0.3$
85	24611260	BUTTON (PAUSE)	314	24611288	WASHER
86	24611261	BUTTON (S/E)	316	24611289	WASHER, $\phi 2.4 \times \phi 4 \times t0.25$
87	24605632	SPRING	401	24611290	BUSHING
88	24605633	SPRING	402	24611291	BUSHING
89	24606248	LEAF SWITCH	403	24611084	BUSHING
90	24606249	LEAF SWITCH	501	893025	E2.5 CIRCLIP
91	24606250	LEAF SWITCH			
92	24603336	LEVER (PROTECT) A			
93	24604083	COLLAR			
100	24611262	SUB CHASSIS			
101	24602389	PULLEY AS (IDLER)			
102	24602381	BELT			
103	24602382	GEAR (IDLER)			
104	24611263	TRIGGER			
105	24605531	SPRING (T)			
106	24607060	ARM (SENSOR)			
107	24611264	SENSOR			
108	24605634	SPRING			
109	24602383	CAM AS			
110	24602384	GEAR (STOP)			
111	24611265	ACTUATING PLATE (CLUTCH)			
112	24602385	REEL AS (F)			
113	24602386	REEL AS (R)			

TAPE (1) MECHANISM-EXPLODED VIEW



TAPE (2) MECHANISM-EXPLODED VIEW



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