

ONKYO® SERVICE MANUAL

STEREO CASSETTE

TAPE DECK

MODEL TA-2035

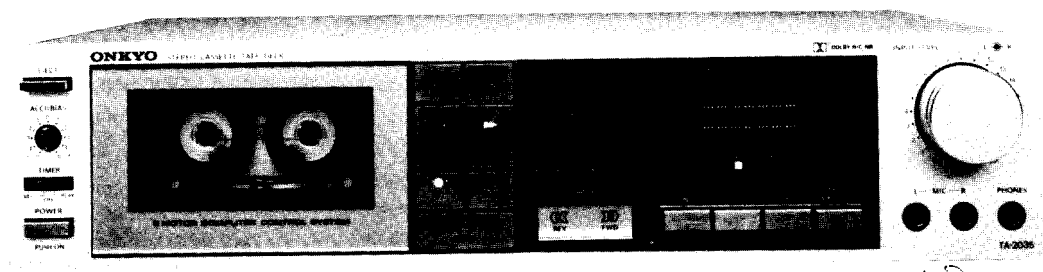


TABLE OF CONTENTS

Item	Page
Specifications	2
Special mode operation	3
Component location	4
Exploded view	5
Adjustment procedures	6
Block diagram	8
Printed circuit board view from component side	9
Printed circuit board—Parts list	11
Printed circuit board view from component side	13
Block diagram of IC	14
Tape mechanism exploded view	15
Block diagram of IC	17
Packing procedures	18

ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

D model

Track Format:	4-track, 2-channel stereo
Recording System:	AC bias
Erasing System:	AC erase
Tape Speed:	4.8cm/sec. (1-7/8 i.p.s.)
Wow & Flutter:	0.045% (WRMS)
Frequency Response:	20—15,000Hz (30—14,000Hz ± 3dB) (normal position tape) 20—17,000Hz (30—16,000Hz ± 3dB) (high position tape) 20—18,000Hz (30—17,000Hz ± 3dB) (metal position tape)
Signal-to-Noise Ratio:	60dB (Metal tape, Dolby NR Out) 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 Minimum input level: 0.3mV/600Ω Input impedance: 5kΩ Line In Jacks: 2 Minimum input level: 50mV Input impedance: 50kΩ
Output Jacks:	Line Out Jacks: 2 Standard output level: 500mV (0dB) Optimum load impedance: more than 50kΩ Headphone: 1 Optimum impedance: 8—200Ω
Motors:	DC servo motor: 2 DC motor: 2
Heads:	Rec/pb head: Hard Permalloy Erase head: Ferrite
Semiconductors:	71 transistors, 41 diodes, 8 ICs, 10 LEDs
Power Supply:	AC 120V/60Hz
Power Consumption:	20 watts
Dimensions:	418(W) x 100(H) x 270(D)mm (16-1/2" x 3-15/16" x 10-5/8")
Weight:	4.5kg. (9.9lbs.)

Specifications and external appearance are subject to change without prior notice due to product improvements.

Mechanism specifications

1) Tape speed:	4.8cm/sec. (3,000Hz ~ 3,060Hz) Use a standard test tape MTT-111 (3kHz) or equipment.
2) Wow and Flutter:	Less than 0.08% (WRMS)
3) Take-up torque:	35—55 gr-cm
4) F.F. torque:	70—140 gr-cm
5) Rewind torque:	70—140 gr-cm
6) Rewind time:	Less than 90sec. (Use a C-60 cassette tape)

G/W models

Track Format:	4-track, 2-channel stereo
Recording System:	AC bias
Erasing System:	AC erase
Tape Speed:	4.8cm/sec. (1-7/8 i.p.s.)
Wow & Flutter:	0.045% (WRMS)
Frequency Response:	20—15,000Hz (30—14,000Hz ± 3dB) (normal position tape) 20—17,000Hz (30—16,000Hz ± 3dB) (high position tape) 20—18,000Hz (30—17,000Hz ± 3dB) (metal position tape)
Signal-to-Noise Ratio:	60dB (Metal tape, Dolby NR Out) 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 Minimum input level: 0.3mV/600Ω Input impedance: 5kΩ Line In Jacks: 2 Minimum input level: 50mV Input impedance: 50kΩ DIN In Jack: 1 Minimum input level: 0.1mV/1kΩ Input impedance: 2.7kΩ
Output Jacks:	Line Out Jacks: 2 Standard output level: 500mV (0dB) Optimum load impedance: more than 50kΩ DIN Out Jack: 1 Standard output level: 500mV (0dB) Optimum load impedance: over 50kΩ Headphone: 1 Optimum impedance: 8—200Ω
Motors:	DC servo motor: 2 DC motor: 2
Heads:	Rec/pb head: Hard Permalloy Erase head: Ferrite
Semiconductors:	73 transistors, 41 diodes, 8 ICs, 10 LEDs
Power Supply:	AC 120V/60Hz AC 220V/50Hz, 120V, 220V 50/60Hz or 240V/50Hz
Power Consumption:	20 watts
Dimensions:	418(W) x 100(H) x 270(D) mm (16-1/2" x 3-15/16" x 10-5/8")
Weight:	4.5kg. (9.9lbs.)

Specifications and external appearance are subject to change without prior notice due to product improvements.

SPECIAL MODE OPERATION

1. Using the AMSS Function

The AMSS (Automatic Music Search System) automatically locates the beginning of each song on a tape and plays the first 15 seconds (approximately) of each one. It is particularly useful to rapidly check the contents of a cassette. When AMSS FWD is pressed during normal tape playback the tape is rapidly wound to the beginning of the next song and, as the play indicator flashes on and off, the first 15 or 16 seconds of that song is played. Then the tape is rapidly wound to the beginning of the next song and, again, the first 15 or 16 seconds is played. This process is repeated until the PLAY button is depressed or the end of the tape is reached. When AMSS REV is pressed, the same process is performed in the reverse direction. If you want to hear the entire song, press the PLAY button to cancel the AMSS function and return to normal playback. The AMSS circuit operates by detection the blank sections between songs. If the space between songs is too short, the AMSS circuit may go on to the next blank space of sufficient length. In order to assure that the blank sections between songs on your cassettes are sufficiently long, you should use the auto space button to insert these spaces when making recordings.

Note: AMSS REV may not operate properly if there is a very quiet section followed by a very loud section in the 15 to 16 second long portion played at the beginning of one of the songs. If this occurs, press AMSS REV again to continue AMSS REV operation.

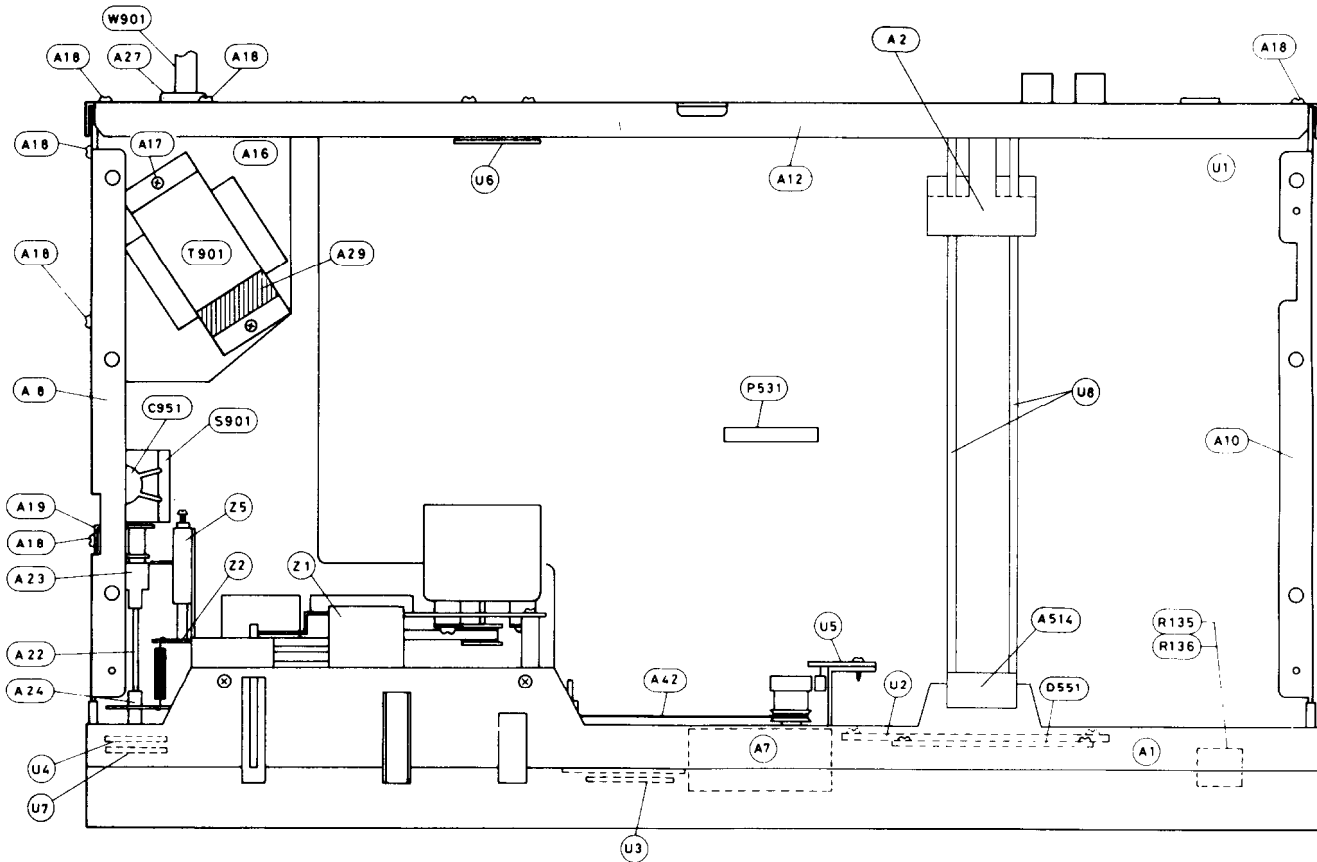
2. Voltage Selector (on Rear Panel)

W model is equipped with a voltage selector. If the unit you own has a voltage selector, be sure it is set to the proper voltage before the power is turned on. To change the selector to conform to the power supply in your area, insert the tip of a screwdriver in the groove of the switch and slide it all the way to the left or right.



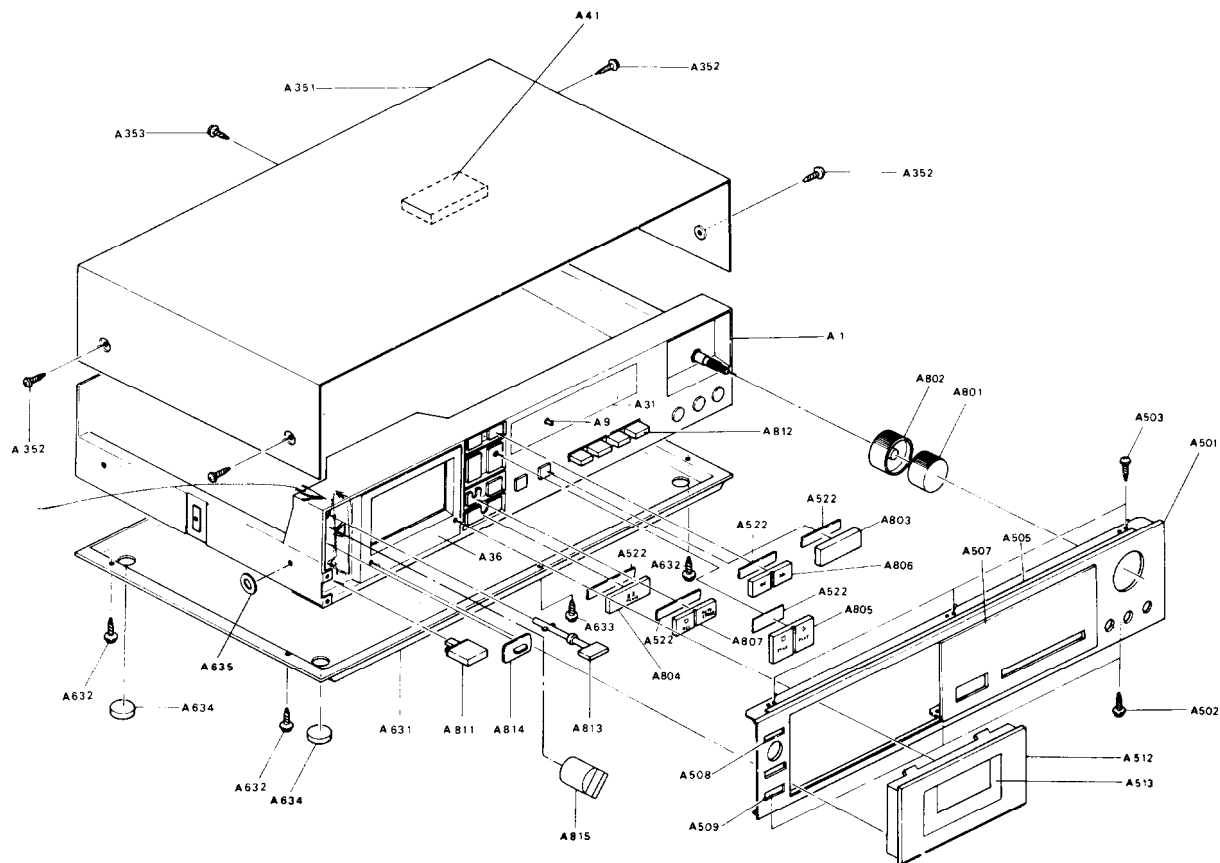
Note: Units not equipped with a voltage selector can only be used in areas where the power supply agrees with the voltage specified on the rear panel.

COMPONENT LOCATION



REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A1	27110170	Front bracket	A30	223004-1	Terminal
A2	27130312	Bracket, pc board	A31	28130132	Dial plate
A3	834130088	3TTS + 8B, Tap screw	A32	24610643	Tape mirror
A4	27130282	Bracket, pc board	A34	24610631-1	Holder, left side
A5	27270089	Spacer	A35	24610632-1	Holder, right side
A6	831130068	3TTW + 6B, Tap screw	A36	27300445-1	Case, cassette W+ε
A7	24601100	Counter	A37	838126088	2.6TTB + 8B, Tap screw
A8	27115120	Side bracket, Left	A38	27180102	Spring
A9	28320387	Knob, counter	A39	27300446	Lever
A10	27115096-1	Side bracket	A40	27180101-1	Spring
A11	833130080	3TTP + 8P, Tapping screw	A41	28140059	Cushion
A12	27120393	Back panel (D)	A42	24602128	Belt, counter
	27120394	Back panel (G)	A45	838126088	2.6TTB + 8B, Tap screw
	27120395	Back panel (W)	A48	82542610	2.6B + 10FN (BC), Screw
A13	834130068	3TTS + 6B, Tap screw	A49	863126	N-2.6FN (BN), Nut
A14	838126088	2.6TTB + 8B, Tap screw	A51	82112604	2.6P + 4F, Pan head screw
A15	833130080	3TTP + 8P, Tap screw	A54	8771301010	W3x10F, Washer
A16	27130247-1A	Bracket, power transformer	A59	29110029	Adhesive tape
A17	833140087	4TTP + 8S, Tap screw	A351	28184126A	Top cover
A18	834130068	3TTS + 6B, Tap screw	A352	834430068	3TTS + 6B (BC), Tap screw
A19	27140478	Bracket, power	A353	834130068	3TTS + 6B, Tap screw
A20	834130068	3TTS + 6B, Tap screw	A501	16158121	Front panel ass'y
A21	82113006	3P + 6FN, Pan head screw	A502	834130088	3TTS + 8B, Tap screw
A22	27260069	Shaft, power switch	A503	833130080	3TTP + 8P, Tapping screw
A23	28320135	Connector	A507	28191141	Clear plate
A24	27273016	Joint	A512	28400088	Window
A25	28140430	Cushion	A513	28400087	Lid
A26	28140291	Cushion	A514	27190165	Holder, pc
A27	270025	SR-3P4, Strainrelief (D)	A522	260701	Adhesive tape
A28	270280	SR-4K-4, Strainrelief (G/W)	A523	29110029	Adhesive tape
A29	28140020	Cushion			
A30	223004-1	Terminal			
A31	28130132	Dial plate			

EXPLODED VIEW



REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A631	2717032	Bottom board	U1	16158505	NAAF-1405, Rec/pb amplifier and control pc board ass'y (D)
A632	831130068	3TTW + 6B, Tap screw		16158505A	NAAF-1405A, Rec/pb amplifier and control pc board ass'y (G/W)
A633	831130088	3TTW + 8B, Tap screw	U2	16158506	NADIS-1406, tape selector indicator L.E.D pc board ass'y
A634	27175028	Leg	U3	16158509	NASW-1409, Control switch pc board ass'y
A635	870087	Washer	U4	16158508	NASW-1408, Timer switch pc board ass'y
A636	838130068	3TTP + 6B, Tap screw	U5	16158507	NAPD-1407, Hall IC pc board ass'y
A801	28320671	Knob, input level, left side	U6	16158511	NARM-1411, Remote control terminal pc board ass'y
A802	28320672	Knob, input level, right side	U7	16158510	NAVR-1410, Accu control pc board ass'y
A803	28320683	Knob, REV/FWD	U8	16158504A	NADOL-1404A, Dolby circuit pc board ass'y
A804	16389704	Knob, pause	Z1	244035	Tape deck mechanism
A805	16389705	Knob, stop/play	Z2	24603234	Lever, eject
A806	28320681A	Knob, FF/Rew	Z5	24610508	Damper
A807	16389706	Knob, Rec/Auto space	Z12	27180109	Spring
A811	28320573	Knob, push	Z14	27180114-1	Spring
A812	28320760	Knob, selector	Z16	834126068	2.6TTS + 6B, Tap screw
A813	28320678	Knob, eject		25065123	NSS-1258P, Voltage selector (W)
A814	28320796	Knob, switch			
A815	28320797	Knob, accu			
C951	3500065A	0.01 μ F, AC400V, Capacitor, IS			
	27300080	Cover, Capacitor			
D551	225099	TLM8102, L.E.D, meter			
P531	25050071	NSAS-12P038, Socket, meter			
P135, R136	5104133	NI6RK50KA25F, Variable resistor, input level			
S901	25035224	NPS-121-L188P, Power switch (D)			
	25035192	NPS-122-L156P, Power switch (G)			
	25035207	NPS-121-L171P, Power switch (W)			
T901	230612	NPT-782D, Power transformer (D)			
	230613	NPT-782G, Power transformer (G)			
	230614	NPT-782DG, Power transformer (W)			
W901	253099A	AS-UC-3, Power supply cable (D)			
	253083	AS-CEE, Power supply cable (G/W)			

Note: (D) : Only 120V model
 (G) : Only 220V model
 (W) : Only 120/220V model

ADJUSTMENT PROCEDURES

PRECAUTIONS

- Before adjustment, clean the following parts with an alcohol moistend swab.
 - * record/playback head
 - * erase head
 - * pinch roller
 - * capstan
 - * rubber belt
- Do not use magnitized screwdriver for adjustments.
- Demagnetize record/playback head with a head demagnetizer.
- The switches and controls should be set as follows unless otherwise specified.

TAPE SEL NORM
 DOLBY NR OUT
 INPUT LEVEL 0
 TIMER OFF

1. Play torque adjustment

Play the torque meter TW-2111 back.

Adjust the R708 so that torque of take-up reel becomes 40 gr-cm.

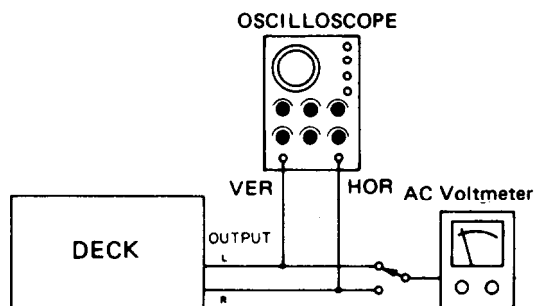
2. Tape speed adjustment

Connect the frequency counter to the line output terminal. Play the MTT-111 back.

Adjust the semi-fixed resistor on the motor control pc board so that the counter indication becomes 3,000 Hz.

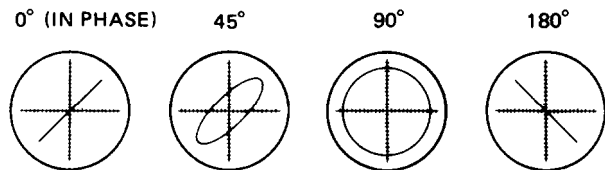
3. Head azimuth adjustment

- Play the test tape VTT-658 back.
- Adjust the head azimuth screw so that the phase relationship between L-and R-channels approximates 0 degrees as indicated on the oscilloscope.
- At this time confirm that play back output level is approximately the maximum value on the AC voltmeter.
- Then confirm that the phase difference of the respective frequency is with in the rated value 90 degrees or less in the range of 40 Hz to 10 kHz is required.
- Secure the screw with the locking paint.



TEST EQUIPMENT/TOOLS REQUIRED:

Audio oscillator
 Digital frequency counter
 Oscilloscope
 Attenuator
 AC voltmeter
 Non-magnetic screw drive
 Blank tapes (completely erased)
 NORMAL UD-XL/I
 HIGH UD-XL/II
 METAL MX
 Test tapes
 VTT-658 : 10 kHz, - 15 dB
 MTT-111 : 3 kHz,
 MTT-150 : Dolby level calibration
 400 Hz tone 200 nWb/m
 TW-2111 : Torque meter



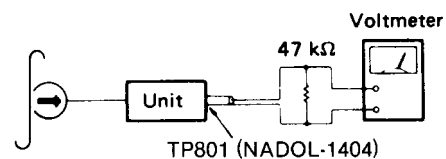
Confirming phase relationship

4. Playback output level adjustment

Connect the AC voltmeter to the TP801 terminals.

Play the MTT-150 back.

Adjust the R131 and R132 so that the indication of AC voltmeter becomes 580mV.



5. Level meter adjustment

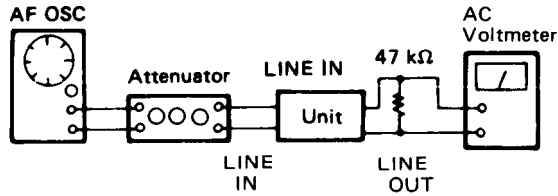
Play the MTT-150 back.

Adjust the R412 so that the 0dB of level meter light on.

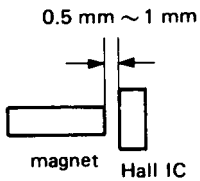
6. Bias current adjustment

Insert the normal blank tape into the cassette holder. Apply the 400Hz signal to the line input terminal. Press the rec and pause button together and set the tape deck to the recording mode. Adjust the input level volume or AF oscillator so that the 0dB of level meter light on. Reduce the input level by 20dB with the attenuator. Record the 400Hz and 10kHz signals on the tape. Adjust the R333 and R334 so that the 400Hz and 10kHz playback signal become the same level.

Connection diagram



8. Hall IC clearance

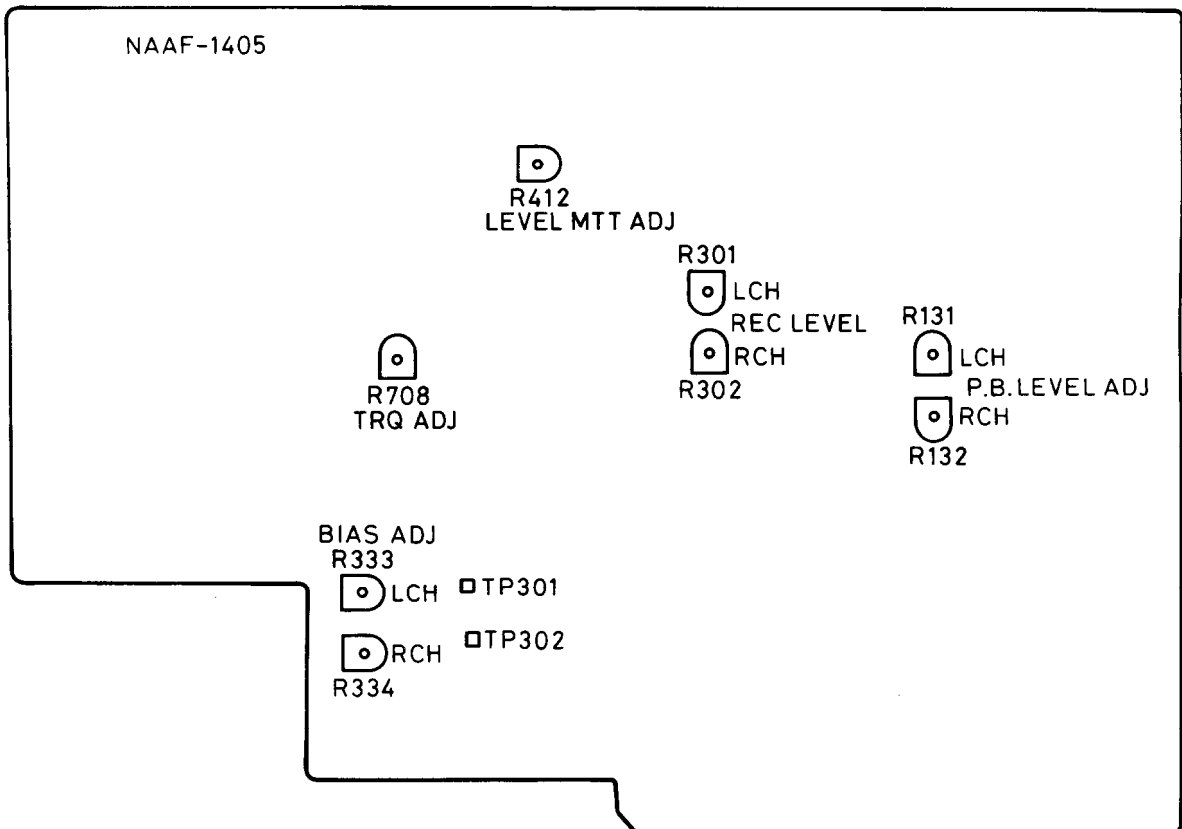
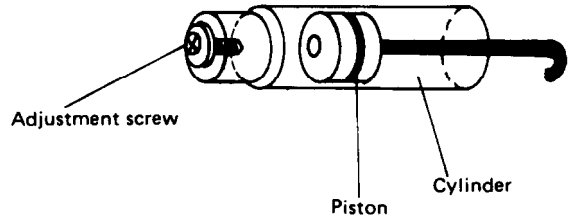


7. Recording level adjustment

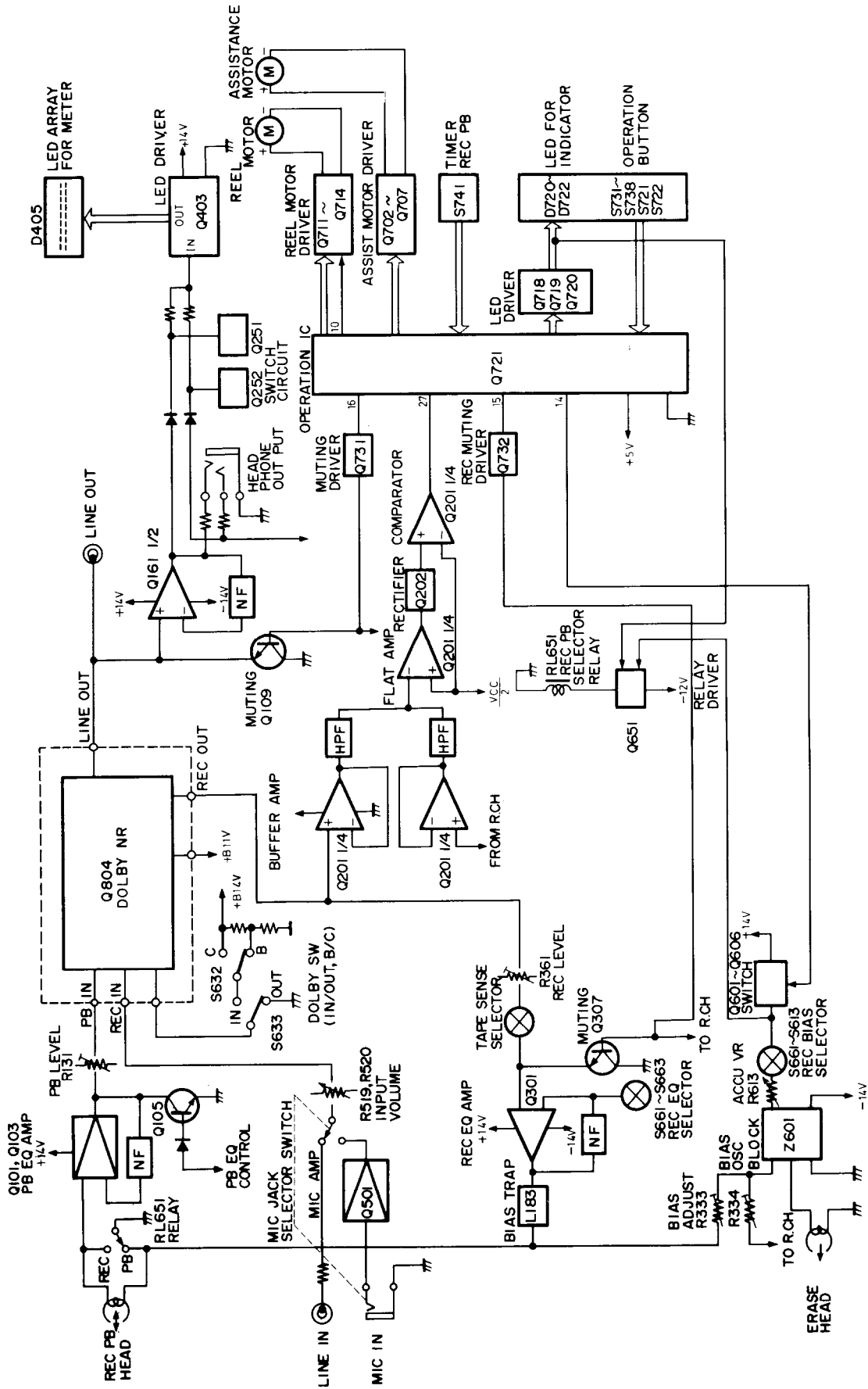
Apply the 700Hz signal to the the line input terminal. Insert the normal blank tape into the cassette holder. Connect the AC voltmeter to the line output terminal. Set the tape deck to the recording mode. Adjust the input volume or AF oscillator output so that the 0dB of level meter light on. Reduce the input level by 3dB. Record the 700Hz signal on the tape and adjust the R301 and R302 so that the level of recording and playback become same.

9. Adjustment of the eject mechanism

The speed of the opening and closing action of the cassette compartment can be controlled by the adjustment screw at the rear of the cylinder as shown in the graph. By turning the screw to the left, speed becomes faster, and to the right, and to the right, slower.



BLOCK DIAGRAM



PRINTED CIRCUIT BOARD-PARTS LIST

REC./PLAYBACK AMPLIFIER AND CONTROL PC BOARD (NAAF-1405)

CIRCUIT NO.	PARTS NO.	DESCRIPTION	CIRCUIT NO.	PARTS NO.	DESCRIPTION
			D902	223804 or 223848	SR1K-2 or GP08B
			D903, D904	2239672	RD16EB2
			D905	2239491	RD6.2EB1
			D906	2239652	RD13EB2
			D701	2239571 or 2241033	RD9.1EB1 or GZA8.2Z
			D702	223133 or 223105	DS442X or 1S1555
			D711-D716	223132	1K60
			D717	223133 or 223105	DS442X or 1S1555
			D718	223132	1K60
					Coils
			L301-L304	24606069	NCH-1007, 3.9mH
			L305, L306	233247	NCH-4054
					Transformer
			L701	232100	NMIF-6030
					Oscillator block
			Z601	24606115	NOB-016
					Capacitors
			C103, C104	392880337	3.3 μ F, 50V, LL
			C110	352741019	100 μ F, 16V, Elect.
			C111, C112	352741009	10 μ F, 16V, Elect.
			C113, C114	352732209	22 μ F, 10V, Elect.
			C119, C120	352741009	10 μ F, 16V, Elect.
			C121	352741019	100 μ F, 16V, Elect.
			C122	352744709	47 μ F, 16V, Elect.
			C161, C162	352741009	10 μ F, 16V, Elect.
			Q203	352741009	10 μ F, 16V, Elect.
			C204, C205	352780109	1 μ F, 50V, Elect.
			C303, C304	352782299	0.22 μ F, 50V, Elect.
			C311, C312	352750479	4.7 μ F, 25V, Elect.
			C401, C402	352780339	3.3 μ F, 50V, Elect.
			C404	352780229	2.2 μ F, 50V, Elect.
			C503-C506	352780109	1 μ F, 50V, Elect.
			C507	352732219	220 μ F, 10V, Elect.
			C508	352741019	100 μ F, 16V, Elect.
			C601	352722219	220 μ F, 6.3V, Elect.
			C602, C603	352744719	470 μ F, 16V, Elect.
			C632	352742209	22 μ F, 16V, Elect.
			C651	352780109	1 μ F, 50V, Elect.
			C652	352780479	0.47 μ F, 50V, Elect.
			C702	352741009	10 μ F, 16V, Elect.
			C704, C731	352780109	1 μ F, 50V, Elect.
			C732, C733	352780109	1 μ F, 50V, Elect.
			C901	352753329	3,300 μ F, 25V, Elect.
			C902	352744719	470 μ F, 16V, Elect.
			C903	352751029	1,000 μ F, 25V, Elect.
			C904, C905	352741019	100 μ F, 16V, Elect.
			C906	3504168	13,000 μ F, 25V, Elect.
			C907, C908	352724709	47 μ F, 6.3V, Elect.
			C909	352741019	100 μ F, 16V, Elect.
					Resistors
			R131, R132	5215046	N08HR50KBC, Playback level adjustment semi-fixed
			R301, R302	5215044	N08HR5KBC, Recording level adjustment semi-fixed
			R333, R334	5215047	N08HR100KB, Bias current ad- justment semi-fixed
			R412	5215045	N08HR10KBC, Level meter ad- justment semi-fixed
			R708	5215042	N08HR1KBC, Playback torque adjustment semi-fixed
			R711	441723904	39 Ω , 2W, Metal oxide film
			R731-R740	49121392410	3.9k Ω x10, 1/8W, Network
			R741-R750	49121562410	5.6k Ω x10, 1/8W, Network
Q161	222654	NJM4556D, Headphone amplifier			
Q201	222604	LM324N, AMSS			
Q301	222465	NJM4558D, Recording amplifier			
Q403	222507	TA-7612P, Meter drive			
Q721	222637	TMP4315AP-1011, Micro com- puter			
					Transistors
Q101-Q104	2211896 or 2212256	2SC1675L (L) or 2SC2458L (L)			
Q105-Q107	2211255,	2SC1815 (GR),			
Q109, Q110	2212115,	2SC2458 (GR),			
Q303-Q314	2210746 or	2SC945A (P) or			
Q401, Q402	2212155	KTN5014 (GR)			
Q111	2211544	2SC1959 (Y)			
Q202	2211454 or 2212124	2SA1015 (Y) or 2SA1048 (Y)			
Q501, Q502	2211896 or 2212256	2SC1815L (L) or 2SC2458L (L)			
Q503, Q504	2211945	2SK246 (GR), F.E.T (G/W)			
Q601	2211554	2SA562TM (Y)			
Q602-Q605	2211255,	2SC1815 (GR),			
Q631-Q633	2212115,	2SC2458 (GR),			
Q651	2210746 or	2SC945A (P) or			
Q661-Q663	2212155	KTN5014 (GR)			
Q606	2201285 or 2201286	2SD882 (Q) or 2SD882 (P)			
Q701	2211611 or 2211612	2SD471 (K) or 2SD471K (L)			
Q702, Q703	2211554	2SA562 (TM) (Y)			
Q704, Q705	2211253	2SC1815 (O)			
Q706, Q707	2211544	2SC1959 (Y)			
Q708, Q710	2211255,	2SC1815 (GR),			
Q733, Q734	2212115,	2SC2458 (GR),			
	2210746 or 2212155	2SC945A (P) or KTN5014 (GR)			
Q709	2201060	2SD549			
Q711, Q712	2211554	2SA562TM (Y)			
Q713, Q714	2211706	2SD655 (F)			
Q731, Q732	2211454 or 2212124	2SA1015 (Y) or 2SA1048 (Y)			
Q735-Q737	2211454 or 2212124	2SA1015 (Y) or 2SA1048 (GR)			
Q901, Q902	2201074	2SD880 (Y)			
Q903, Q904	2201275	2SB772 (Q)			
					Diodes
D101, D102	223133 or 223105 or	DS442X or 1S1555			
D161, D162	223132	1K60			
D201	223133 or	DS442X or			
D401-D404	223105	1S1555			
D407-D410	223133 or	DS442X or			
D601, D602	223105	1S1555			
D501, D502	223133 or 223105	DS442X or 1S1555 (G/W)			
D604	224133	05Z2.0Z			
D661, D662	223133 or	DS442X or			
D641, D642	223105	1S155			
D651	2239511 or 2239512	RD6.8EB1 or RD6.8EB2			
D652	223133 or 223105	DS442X or 1S1555			
D653	223132	1K60			
D901	223868	2W02			

CIRCUIT NO.	PARTS NO.	DESCRIPTION
R765-R769	49121223405	22k Ω x5, 1/8W, Network
R901	441520684	6.8 Ω , 1/2W, Metal oxide film
R902, R904	441520104	1 Ω , 1/2W, Metal oxide film
R905	441521004	10 Ω , 1/2W, Metal oxide film
R906	441528214	820 Ω , 1/2W, Metal oxide film
R907	441521014	100 Ω , 1/2W, Metal oxide film
R908	441520684	6.8 Ω , 1/2W, Metal oxide film
Switches		
S631-S634	25025328	NPS-422-L292, Dolby, Filter, Auto/Manual
S721, S722	25035286	NPS-111-L252, AMSS
Plugs		
P101	25055037	NPLG-6P28
P102	25055038	NPLG-2P29
P109	25055066	NPLG-7P52
P110	25055046	NPLG-10P34
P111	25055066	NPLG-7P52
P112	25055046	NPLG-10P34
P401	25065133	NPLG-12P18
P661	25055045	NPLG-4P33
P701	25055052	NPLG-11P40
Terminals		
P103, P104	25045111	HLJ4305-01-010, Microphone
P105	25045110	HLJ4305-01-020, Stereo head-phone
P106	25050064	NSCT-5P18, DIN (G/W)
P107	25045084	NPJ-4PDBL42, Tape input/output
Relay		
RL651	25065174	NRL-2P-1A-DC12-09

Note: G/W : Only G/W models

TAPE SELECTOR INDICATOR PC BOARD (NADIS-1406)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
D631-D632	225084	SLP-153B, L.E.D.
D633, D635	225085	SLP-253B, L.E.D.
D636	225119	SLP-453B, L.E.D.

AUTO-STOP DETECTOR PC BOARD (NATD-1047)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
Q741	222558	DN6838

TIMER/CONTROL SWITCH PC BOARD (NASW-1408/1409)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
S741, S742	25065170	NSS-2377, Timer switch
S731-S738	25035275	NPS-111-S239, Tape control switch
D720, D722	225059	SEL1110S, L.E.D.
D721	225060	SEL1310E, L.E.D.
	27190086	Holder

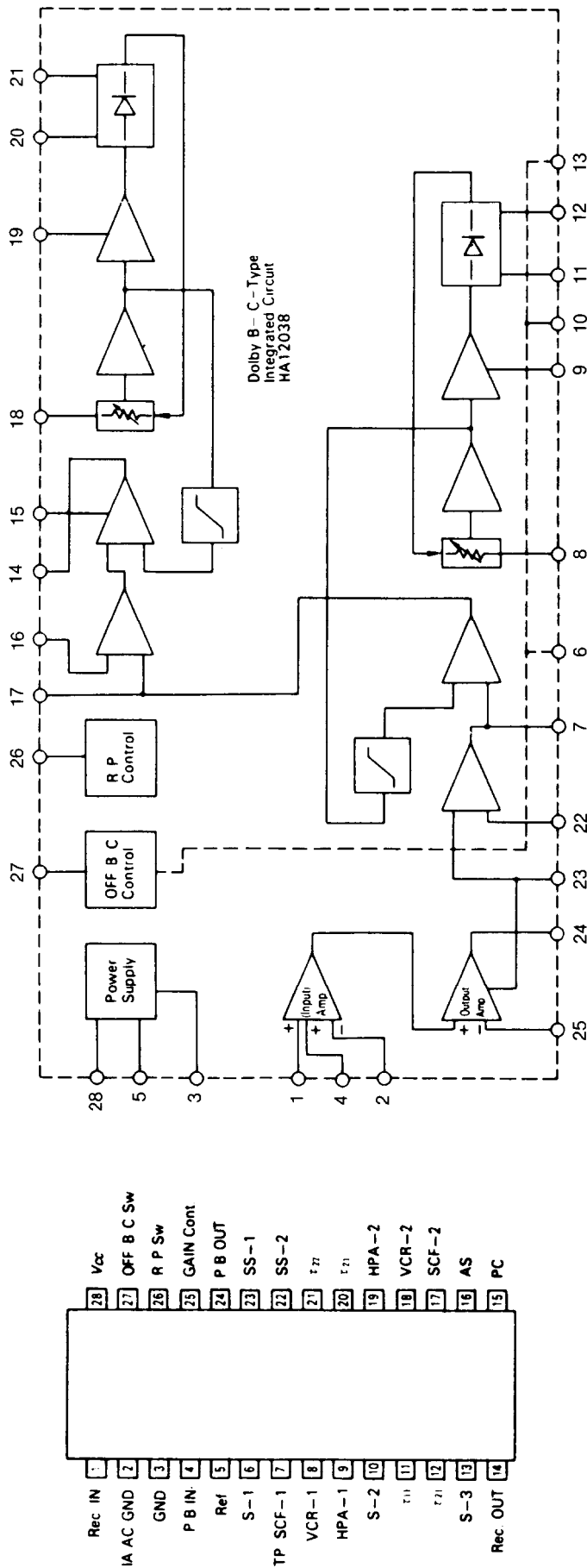
ACCU. CONTROL PC BOARD (NAVR-1410)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
R613	5146035	N16RLC500B20, Accu. level control variable resistor

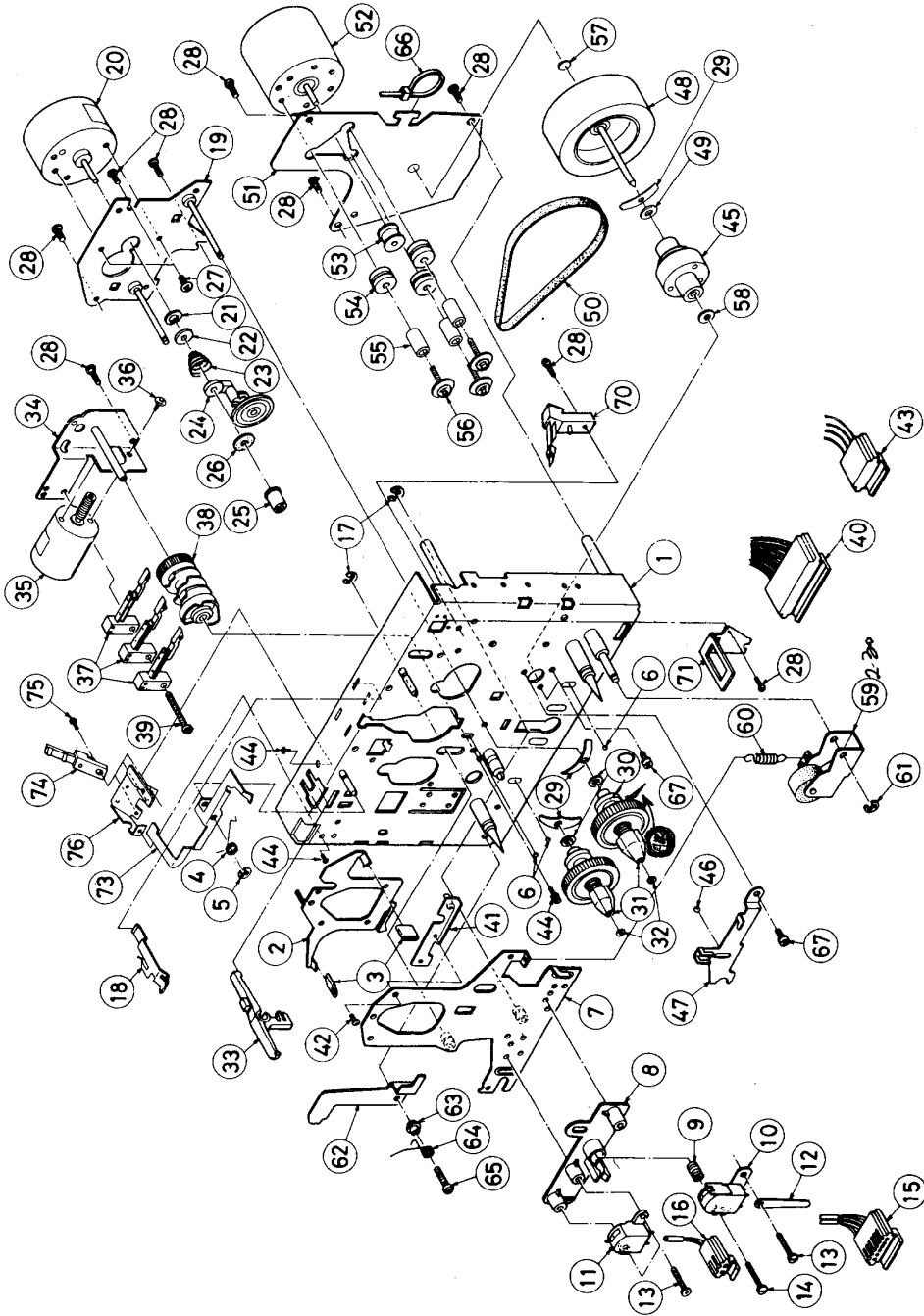
REMOTE CONTROL TERMINAL PC BOARD (NARM-1411)

CIRCUIT NO.	PARTS NO.	DESCRIPTION
P702	25050070	NSCT-7P20, DIN terminal

BLOCK DIAGRAM OF IC HA-12038 (DOLBY B&C TYPE NOISE REDUCTION SYSTEM)



TAPE MECHANISM EXPLODED VIEW



REF. NO.	PARTS NO.	DESCRIPTION
1	24610815	Mechanism chassis
2	24610664	Brake plate
3	24610376	Rubber, brake
4	24603379	Spring
5	8930231	E2.5, Circlip
6	24610351	2 $\frac{1}{2}$ steelball
7	24610805	Head chassis
8	24610346	Head stand
9	24605185	Spring
10	24600018	Rec/playback head

11	24600025	Erase head
12	24610666	Holder, lead wire
13	82512012	M2x13, Binding screw
14	801198	M2x14, Flange screw
15	25050115	Connector, rec/pb head
16	25050136	Connector, erase head
17	8930302	E3, Circlip
18	24605380	Cassette holding spring
19	24610667	Motor chassis
20		Reel motor (See No. 68)

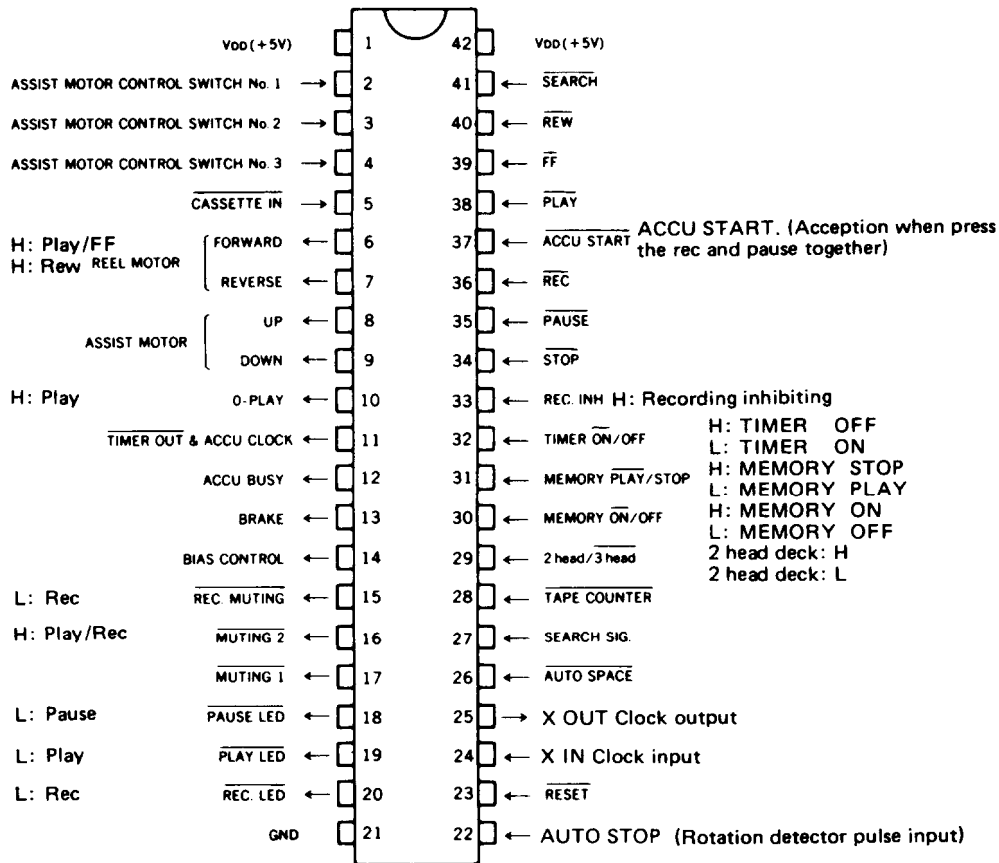
REF. NO.	PARTS NO.	DESCRIPTION
21	24610373	Stand, spring
22	24610374	Washer
23	24605194	Spring
24	24602026	Idler lever ass'y
25	24601102	Motor pulley
26	24610375	Felt
27	82512603	M2.6x3, Binding screw
28	833125059	Pan head screw
29	24605303	Back tension spring
30	24610992	Washer

31	24602136	Reel stand
32	24610349	Washer
33	24603205	Recording lever
34	24610668	Chassis
35	24601103	Motor, assistance
36	801259	M2x3, Screw
37	24606619	Leafswitch
38	24602133	Cam gear
39	833125209	M2.5x20, Pan head screw
40	25050137	Connector, 11P
41	24610866	Joint plate
42	801266	M2.6x3.5 Pan head screw
43	25050138	Connector, 4p
44	801250	M2x4, Pan head screw
45	24610816	Capstan holder
46	24610279	3 $\frac{1}{2}$ steelball
47	24610669	Head holding plate
48	24602135	Flywheel
49	24610515	Washer
50	24602134	Belt
51	24610670	Flywheel holding plate
52	24601107	Motor pulley
53	24610451	Capstan motor ass'y (See No. 69)
54	24610807	Cushion
55	801261	Spacer
56	24610871	Screw, motor
57	24610871	Thrust stand
58	24610873	Pin, washer
59	24610872	Pinch arm ass'y
60	24603370	Spring
61	8930201	E2, Circlip
62	24610345	Locked plate
63	24610344	Collar
64	24605184	Spring
65	833125109	M2.5x10, Pan head screw
66	2460208	Binder
67	801181	M2.6x6, Pan head screw
68	24601117	Reel motor/idler ass'y (20-26)
69	24601113	Capstan motor ass'y (52, 53)
70	24606104	Leafswitch
71	24610659	Protection plate
72	24603236	Lever
73	24603128	M2.6x3, Binding screw
74	833125059	Pan head screw
75	82112004	M2x4, Pan head screw
76	24610814	Switch chassis

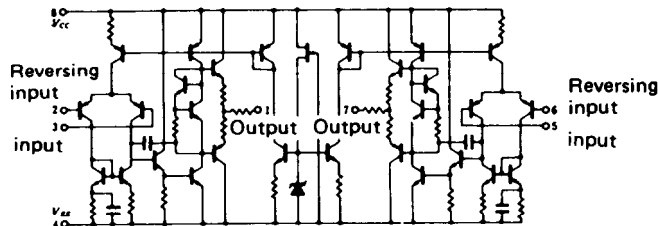
REF. NO.	PARTS NO.	DESCRIPTION
31	24602136	Reel stand
32	24610349	Washer
33	24603205	Recording lever
34	24610668	Chassis
35	24601103	Motor, assistance
36	801259	M2x3, Screw
37	24606619	Leafswitch
38	24602133	Cam gear
39	833125209	M2.5x20, Pan head screw
40	25050137	Connector, 11P
41	24610866	Joint plate
42	801266	M2.6x3.5 Pan head screw
43	25050138	Connector, 4p
44	801250	M2x4, Pan head screw
45	24610816	Capstan holder
46	24610279	3 $\frac{1}{2}$ steelball
47	24610669	Head holding plate
48	24602135	Flywheel
49	24610515	Washer
50	24602134	Belt
51	24610670	Flywheel holding plate
52	24601107	Motor pulley
53	24610451	Capstan motor ass'y (See No. 69)
54	24610807	Cushion
55	801261	Spacer
56	24610871	Screw, motor
57	24610871	Thrust stand
58	24610873	Pin, washer
59	24610872	Pinch arm ass'y
60	24603370	Spring
61	8930201	E2, Circlip
62	24610345	Locked plate
63	24610344	Collar
64	24605184	Spring
65	833125109	M2.5x10, Pan head screw
66	2460208	Binder
67	801181	M2.6x6, Pan head screw
68	24601117	Reel motor/idler ass'y (20-26)
69	24601113	Capstan motor ass'y (52, 53)
70	24606104	Leafswitch
71	24610659	Protection plate
72	24603236	Lever
73	24603128	M2.6x3, Binding screw
74	833125059	Pan head screw
75	82112004	M2x4, Pan head screw
76	24610814	Switch chassis

BLOCK DIAGRAM OF IC

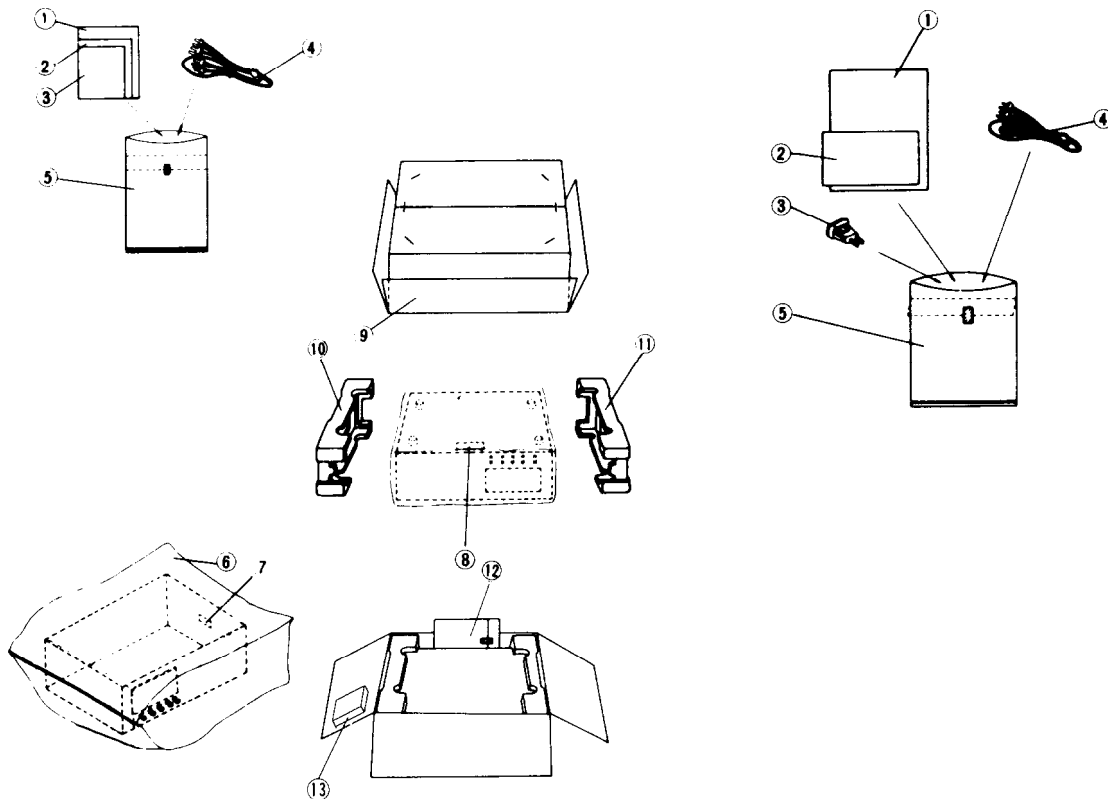
TMP4315AP-1011



NJM4556/4558 (Operational amplifier)



PACKING PROCEDURES



120V model

REF. NO.	PARTS NO.	DESCRIPTION
1	29340609	Instruction manual
2	29358002	Service station list (D)
3	29365006-3	Warranty card (D)
4	253074	Pin-pin connection cord
5	29100005	330 x 220mm, Poly bag
6	29100037	650 x 500mm, Poly bag
7	29360567	Caution label (D)
8	29360566	Caution label (D)
9	29050559	Carton box
10	29090647	Pad (R)
11	29090646-1	Pad (L)
12	29090675	Accessory bag complete
13	29090675	Pad (C)

(D) : Only U.S.A. model

G/W model

REF. NO.	PARTS NO.	DESCRIPTION
1	29340610	Instruction manual
2	29365005-3	Warranty card (G)
3	25055040	Conversion plug (W)
4	253074	Pin-pin connection cord
5	29100005	330 x 220mm, Poly bag
6	29100037	650 x 500mm, Poly bag
9	29050559	Carton box
10	29090647	Pad (R)
11	29090646-1	Pad (L)
12	29090675	Accessory bag complete
13	29090675	Pad (C)

(G) : Only West Germany

(W) : Only 120/220V model

ONKYO CORPORATION

International Division : No. 24 Mori Bldg., 23-5, 3-chome, Nishi-Shinbashi, Minato-ku, Tokyo, Japan
Telex : 2423551 ONKYO J. Phone : 03-432-6981

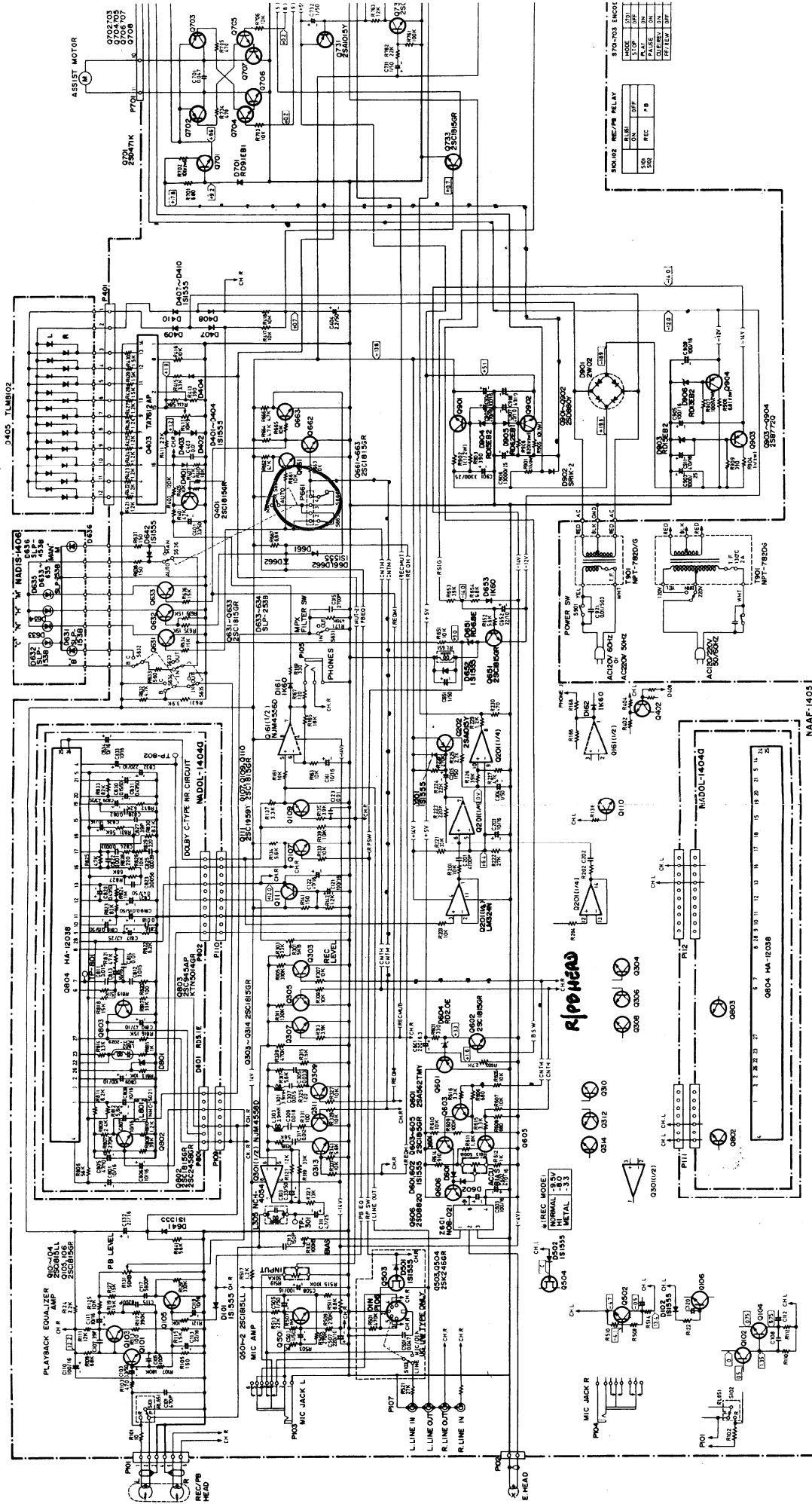
ONKYO U.S.A. CORPORATION

Eastern Office : 200 Williams Drive, Ramsey, N.J. 07446 Tel. 201-825-7950
Midwest Office : 2406 Martin Lane Rolling Meadows, Ill 60008 Tel. 312-577-4300
Western Office : 8607 Canoga Ave., Canoga Park, CA, 91304 Tel. 213-341-8114

ONKYO DEUTSCHLAND GMBH, ELECTRONICS

8034 München-Germering, Industriestrasse 18, West Germany. Telex: 521726 Telefon: (089)-84-3071

SCHEMATIC DIAGRAM
GW model



MAAF-1405

OB04-1403B

MAAF-1404

OB04-1403B

MAAF-1405

510-103 ENCO	ON
510-103 ENCO	OFF
510-103 ENCO	REC
510-103 ENCO	#B

510-102 REC/PA RELAY	ON
510-102 REC/PA RELAY	OFF
510-102 REC/PA RELAY	REC
510-102 REC/PA RELAY	#B

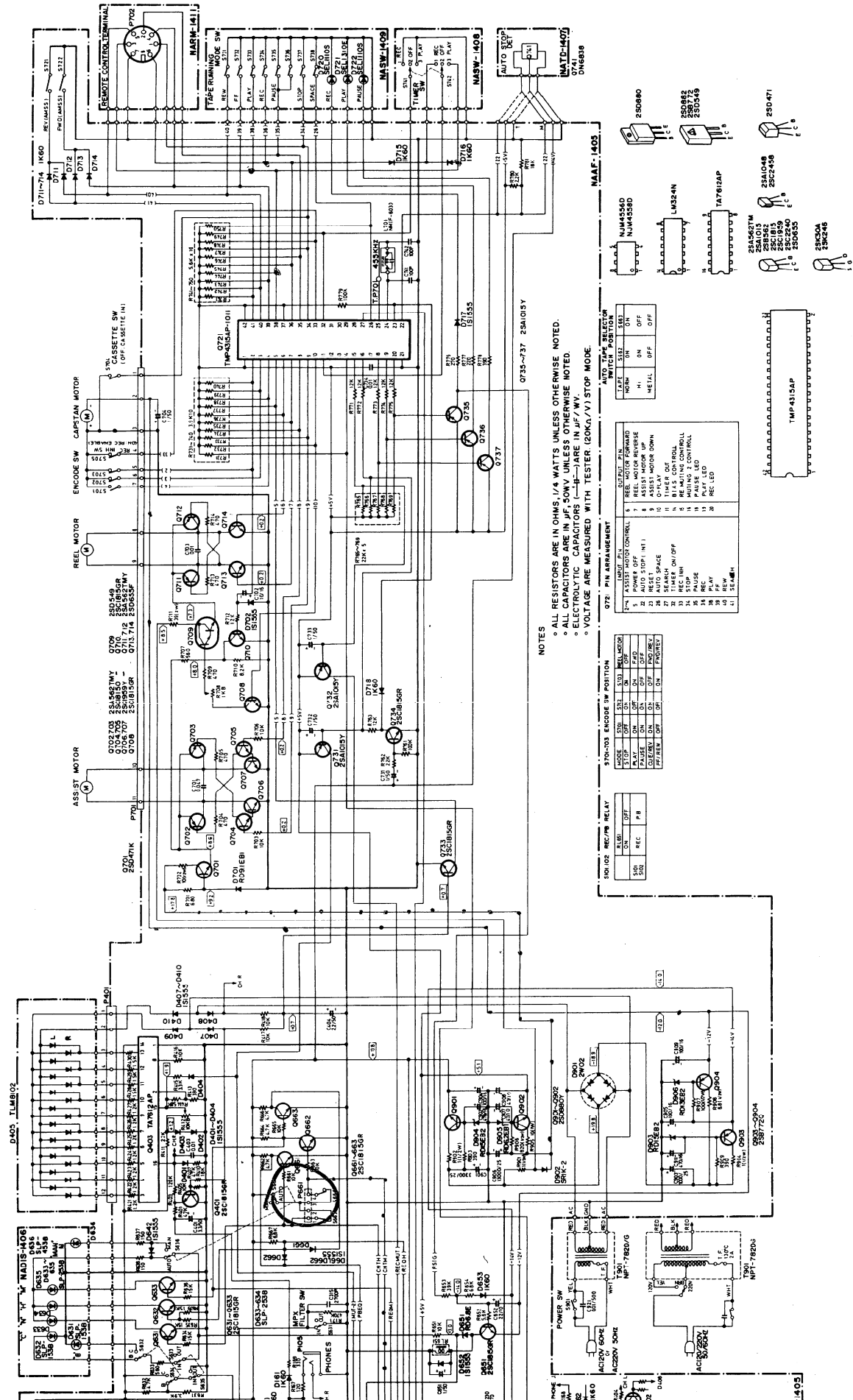
RIP HEAD

REC MODE
NORMAL 1.80
METAL 1.33

MIC JACK R

MIC JACK L

MIC JACK



NOTES

- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μ F 50V UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (—B—) ARE IN μ F/WV.
- VOLTAGE ARE MEASURED WITH TESTER (20K Ω /V) STOP MODE.

74LS100 REC/REV RELAY

MODE	ON	OFF
PLAY	ON	OFF
PAUSE	ON	OFF
FF/REW	ON	OFF

970-003 ENCODE SW POSITION

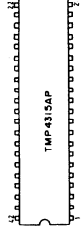
MODE	ON	OFF
PLAY	ON	OFF
PAUSE	ON	OFF
FF/REW	ON	OFF

072 PIN ARRANGEMENT

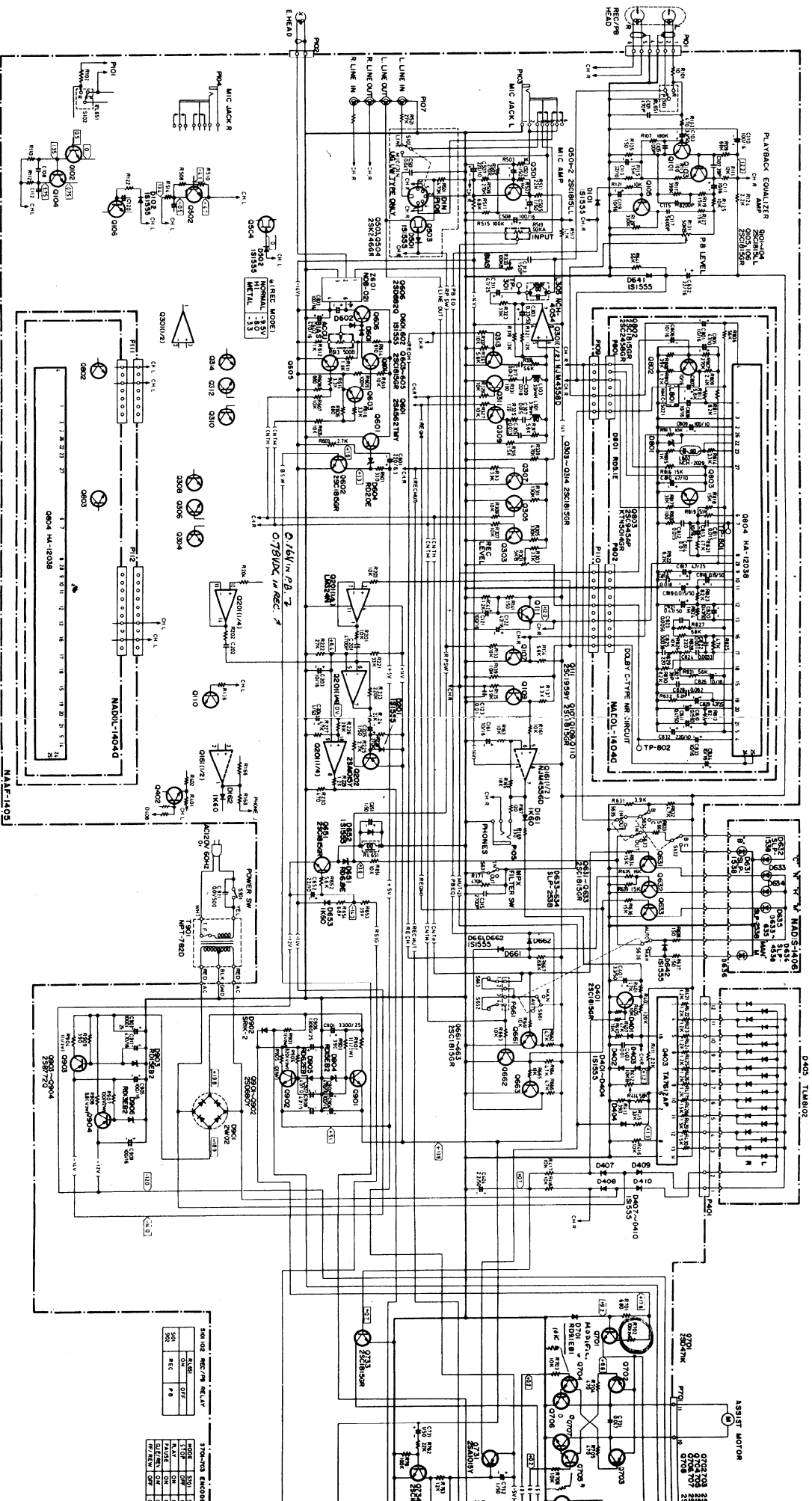
1	REEL MOTOR REVERSE
2	REEL MOTOR UP
3	REEL MOTOR DOWN
4	ASSIST MOTOR UP
5	ASSIST MOTOR DOWN
6	POWER OFF
7	REEL MOTOR CONTROL
8	REEL MOTOR REVERSE
9	REEL MOTOR UP
10	REEL MOTOR DOWN
11	ASSIST MOTOR UP
12	ASSIST MOTOR DOWN
13	POWER OFF
14	REEL MOTOR CONTROL
15	REEL MOTOR REVERSE
16	REEL MOTOR UP
17	REEL MOTOR DOWN
18	ASSIST MOTOR UP
19	ASSIST MOTOR DOWN
20	POWER OFF

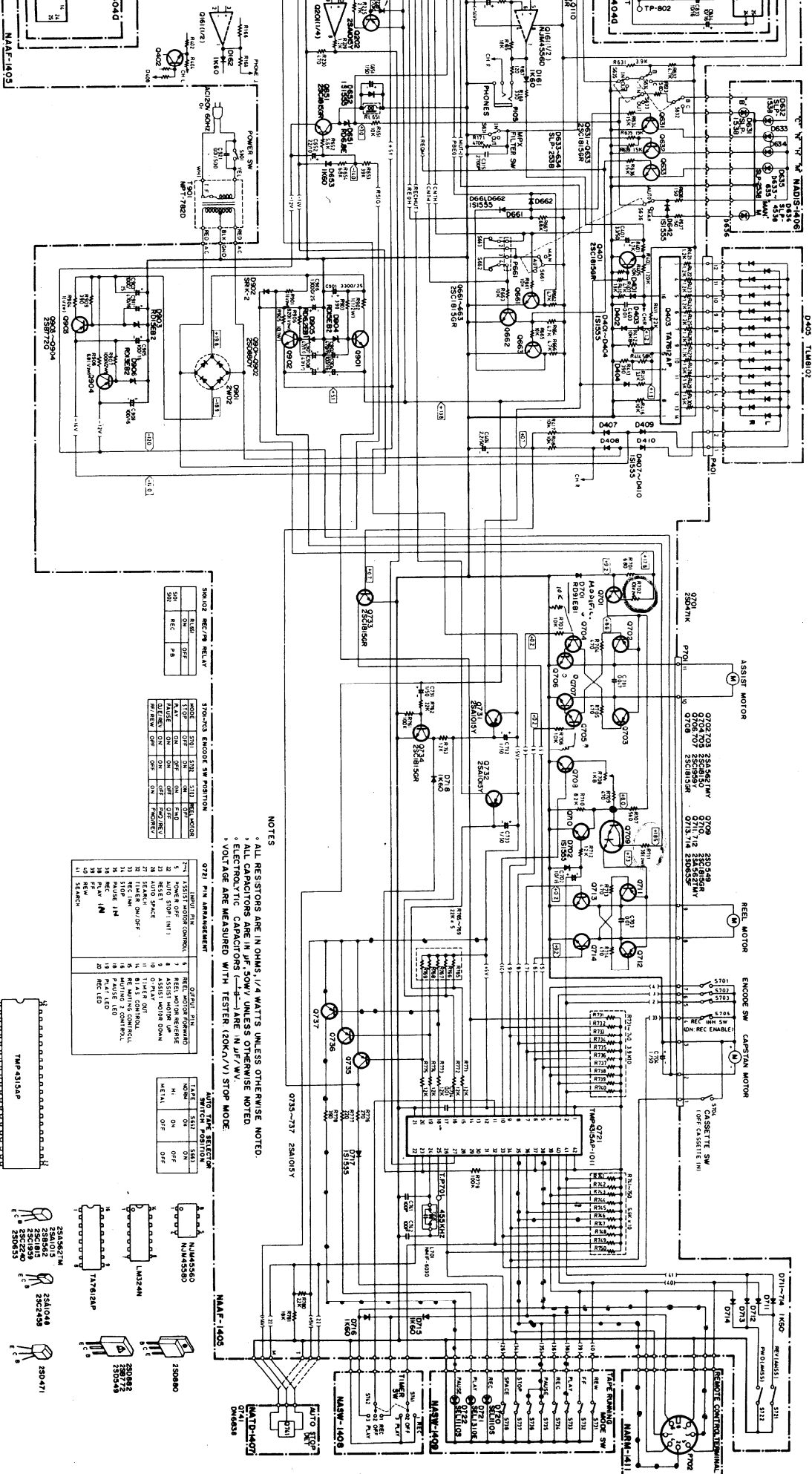
0735-037 25A1015Y

LAZE	ON	OFF
POWER	ON	OFF
METAL	OFF	OFF



SCHEMATIC DIAGRAM
D model



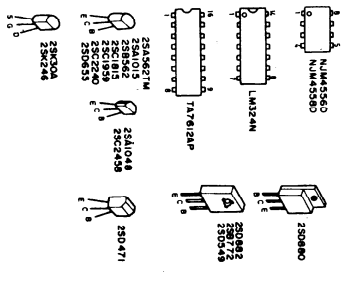


NOTES

- * ALL RESISTORS ARE IN OHMS 1/4 WATT UNLESS OTHERWISE NOTED.
- * ALL CAPACITORS ARE IN UF 50V UNLESS OTHERWISE NOTED.
- * ELECTROLYTIC CAPACITORS — ARE IN UF/WV.
- * VOLTAGE ARE MEASURED WITH TESTER (200K/V) STOP MODE.

721 PIN ARRANGEMENT

1	250V 100W	2	250V 100W	3	250V 100W	4	250V 100W
5	250V 100W	6	250V 100W	7	250V 100W	8	250V 100W
9	250V 100W	10	250V 100W	11	250V 100W	12	250V 100W
13	250V 100W	14	250V 100W	15	250V 100W	16	250V 100W
17	250V 100W	18	250V 100W	19	250V 100W	20	250V 100W
21	250V 100W	22	250V 100W	23	250V 100W	24	250V 100W
25	250V 100W	26	250V 100W	27	250V 100W	28	250V 100W
29	250V 100W	30	250V 100W	31	250V 100W	32	250V 100W
33	250V 100W	34	250V 100W	35	250V 100W	36	250V 100W
37	250V 100W	38	250V 100W	39	250V 100W	40	250V 100W



ONKYO CORPORATION