

# ONKYO SERVICE MANUAL


## STEREO CASSETTE TAPE DECK

### MODEL TA-2036

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

Black and silver model

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE 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.

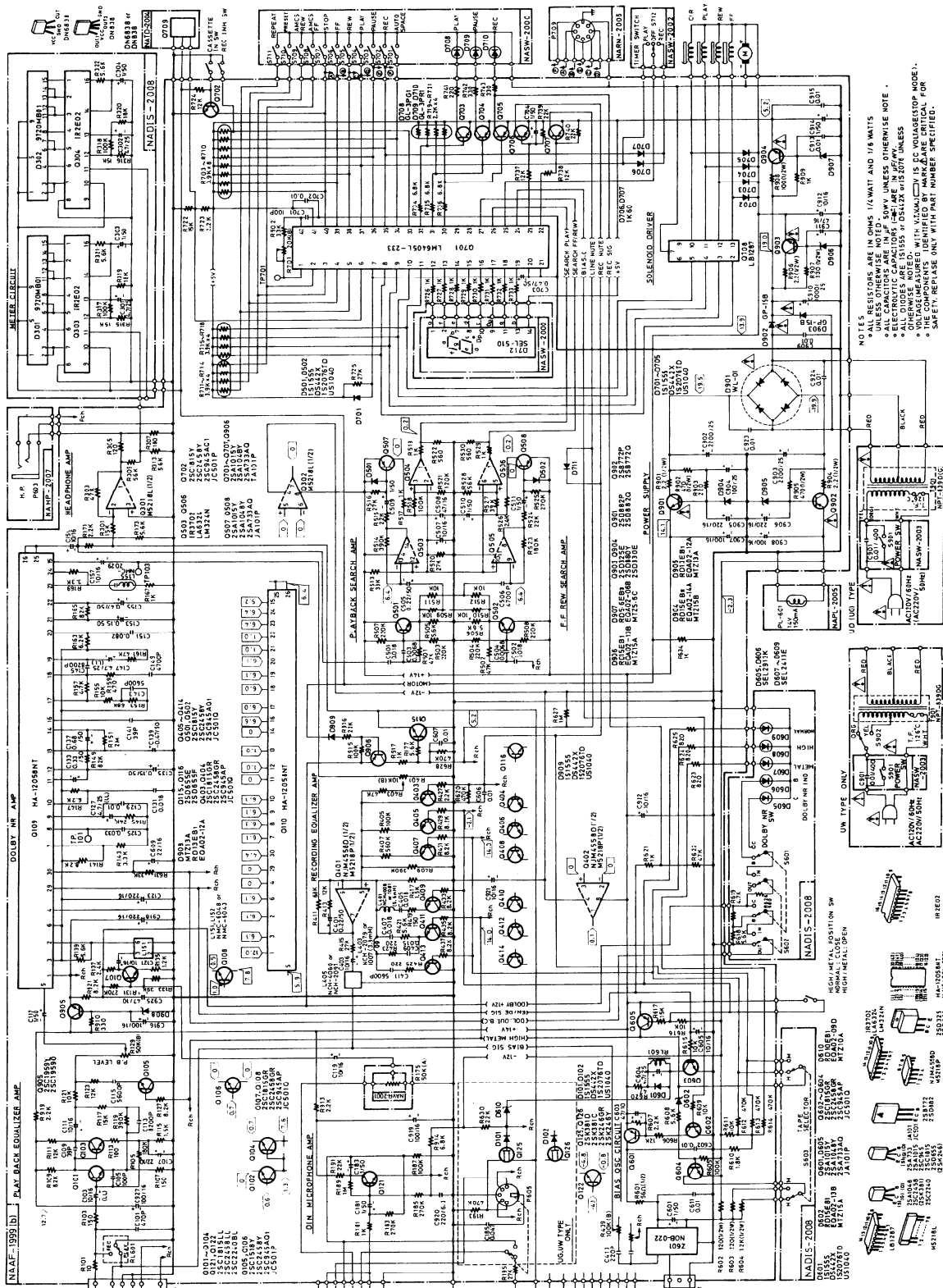
#### SPECIFICATIONS

Track Format:	4 tracks, 2 channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.)
Wow & Flutter:	0.05% (WRMS)
Frequency Response:	20–15,000 Hz (30–14,000 Hz $\pm$ 3dB) (normal position tape) 20–16,000 Hz (30–15,000 Hz $\pm$ 3 dB) (high position tape) 20–17,000 Hz (30–16,000 Hz $\pm$ 3 dB) (metal position tape)
Signal-to-Noise Ratio:	60 dB (metal position tape, Dolby NR out) A noise reduction of 10 dB above 5 kHz and 5 dB at 1 kHz is possible with Dolby B NR. A noise reduction of 20 dB at 5 kHz is possible with Dolby CNR.
Input Jacks:	Mic Jacks: 2 Input sensitivity: 0.3 mV/600 ohms Input impedance: 2.7 kohms Line IN: 2 Input sensitivity: 60 mV Input impedance: 50 kohms





SCHEMATIC DIAGRAM

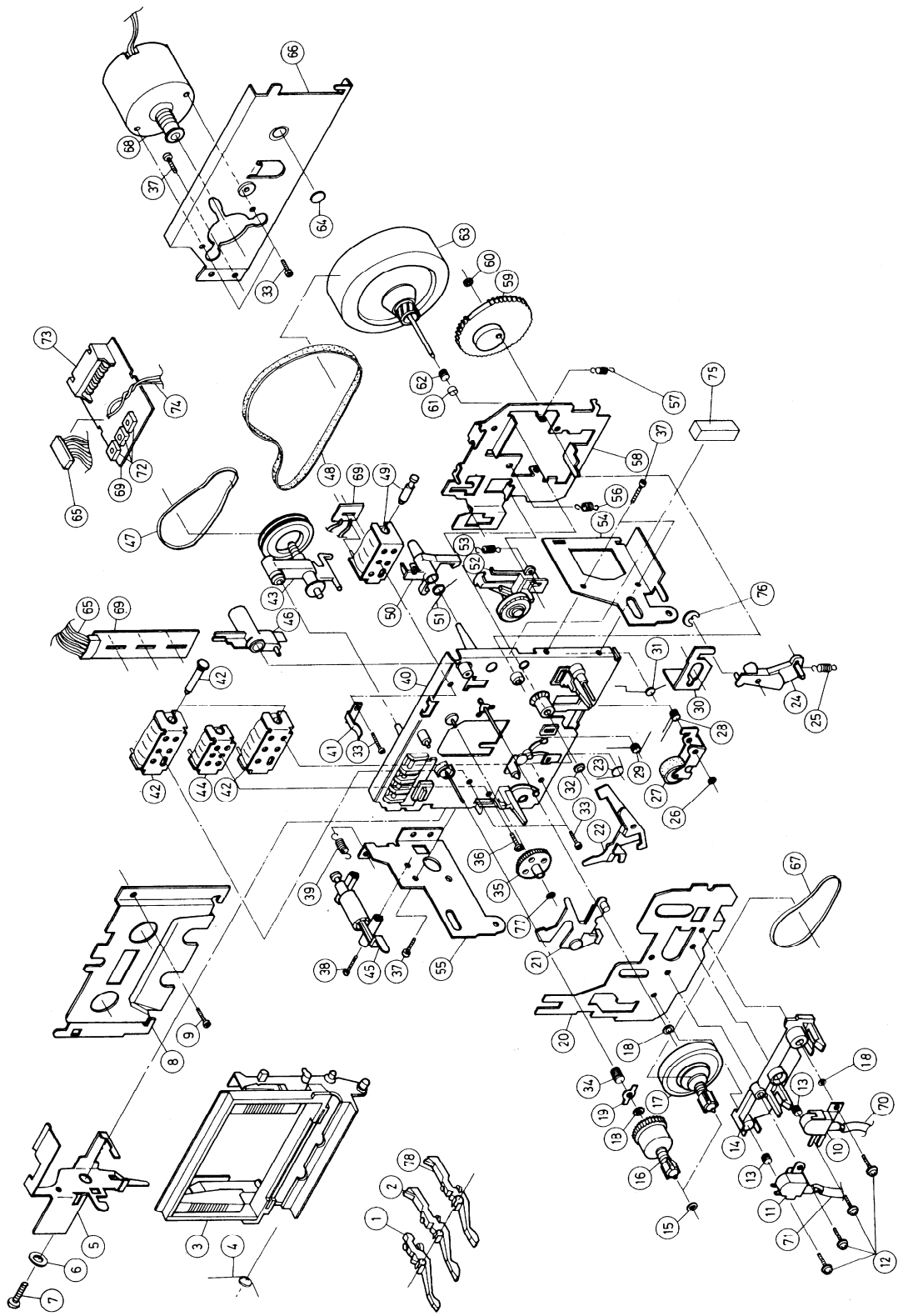


NOTES

- \* ALL RESISTORS ARE IN OHMS 1/4 WATT AND 1% TOLERANCE
- \* ALL CAPACITORS ARE IN PF UNLESS OTHERWISE NOTED
- \* ELECTROLYTIC CAPACITORS ARE 50V UNLESS OTHERWISE NOTED
- \* OTHERWISE NOTED WITH VOLTAGE AND POLARITY
- \* THE COMPONENTS IDENTIFIED BY MARK ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.

A B C D E F G

TAPE MECHANISM-EXPLODED VIEW



1 2 3 4 5

Outputs: Line OUT: 2  
 Std output level: 500 mV (0 dB)  
 Opt load impedance: over 50 kohms  
 Headphone Jack: 1  
 Opt load impedance: 8–200 ohms

Motor: DC servo motor: 1  
 Rec/PB head: Special Hard Permalloy  
 Erase head: Ferrite

Semiconductors: TR: 45 Diodes: 21 IC: 10  
 LED: 11

Power Supply: AC 120V/60 Hz  
 Power Consumption: 24 watts  
 Dimensions: 418(W) x 112(H) x 270(D) mm  
 (16-1/2" x 4-3/8" x 10-5/8")  
 Weight: 4.5 kg (9.9 lbs.)

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

## SERVICE PROCEDURES

### 1. Replacing the lamp

This unit used the lamp listed below.

Circuit No.	Parts No.	Description
PL-601	210090	PL14V 150mA

Caution; Before replacing the lamp. Be sure to unplug the power supply cable.

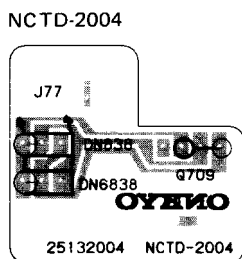
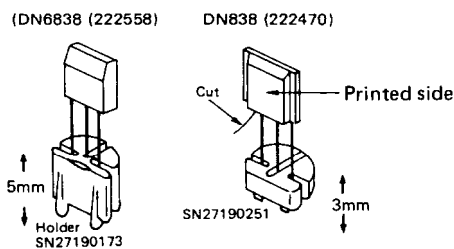
### 2. Instruction resistance measurement

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

Specifications; 500V more than 10MΩ

### 3. Replacing the Hall ICs

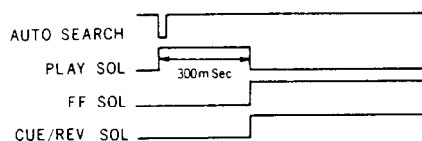
Cautions: As the position of leg of DN6838 and DN838 differ, use the same Hall IC when replacing.



## MICROCOMPUTER OPERATION TIMING

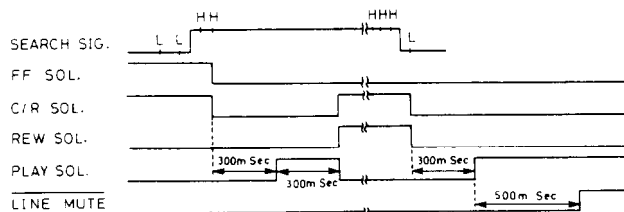
### 1. Start of Cue/Rewind (Auto Search and song location)

When the auto search (in the FF or REW direction) or the FF or REW button (for song location) is pressed, the FF or REW and Cue/Review solenoids are both switched on simultaneously 300 msec. after the play solenoid has been switched on.



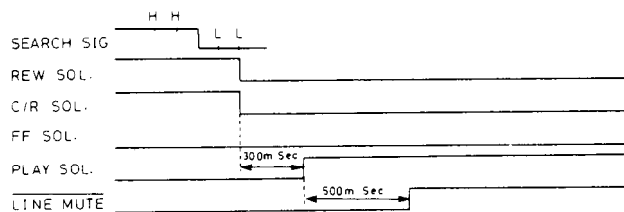
### 2. Song Location with Cue (AMCS in FF direction and song skip song location)

When the beginning of the desired song is detected, the deck is switched to the stop mode for 300 msec. and, in order to return to the beginning of the song, review operation is performed. When the beginning is located, the deck is again switched to the stop mode for 300 msec. and then switched to the play mode. 500 msec. after play has begun, muting on line out is switched off. If the beginning of the song is not located during review operation, the deck is switched to the play mode 500 msec. later.

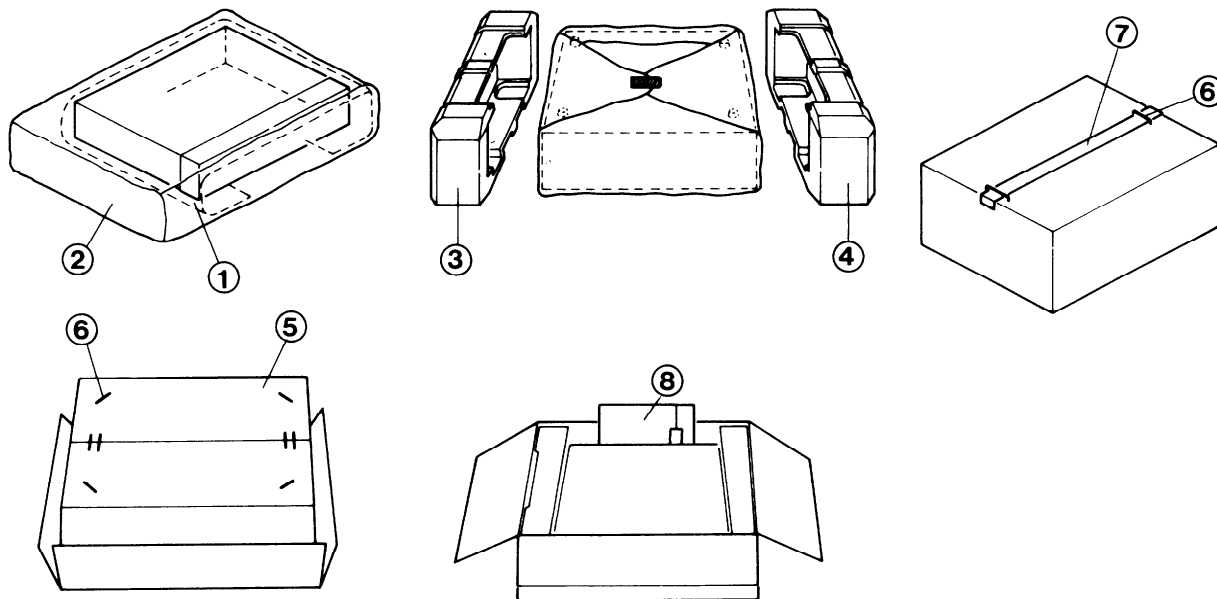


### 3. Song Location with Review (AMCS in REW direction and song skip song location)

When the beginning of the desired song is detected, the deck is switched to the stop mode for 300 msec. and then switched to the play mode. 500 msec. after play has begun, muting on line out is switched off.



# PACKING VIEW



## D MODEL

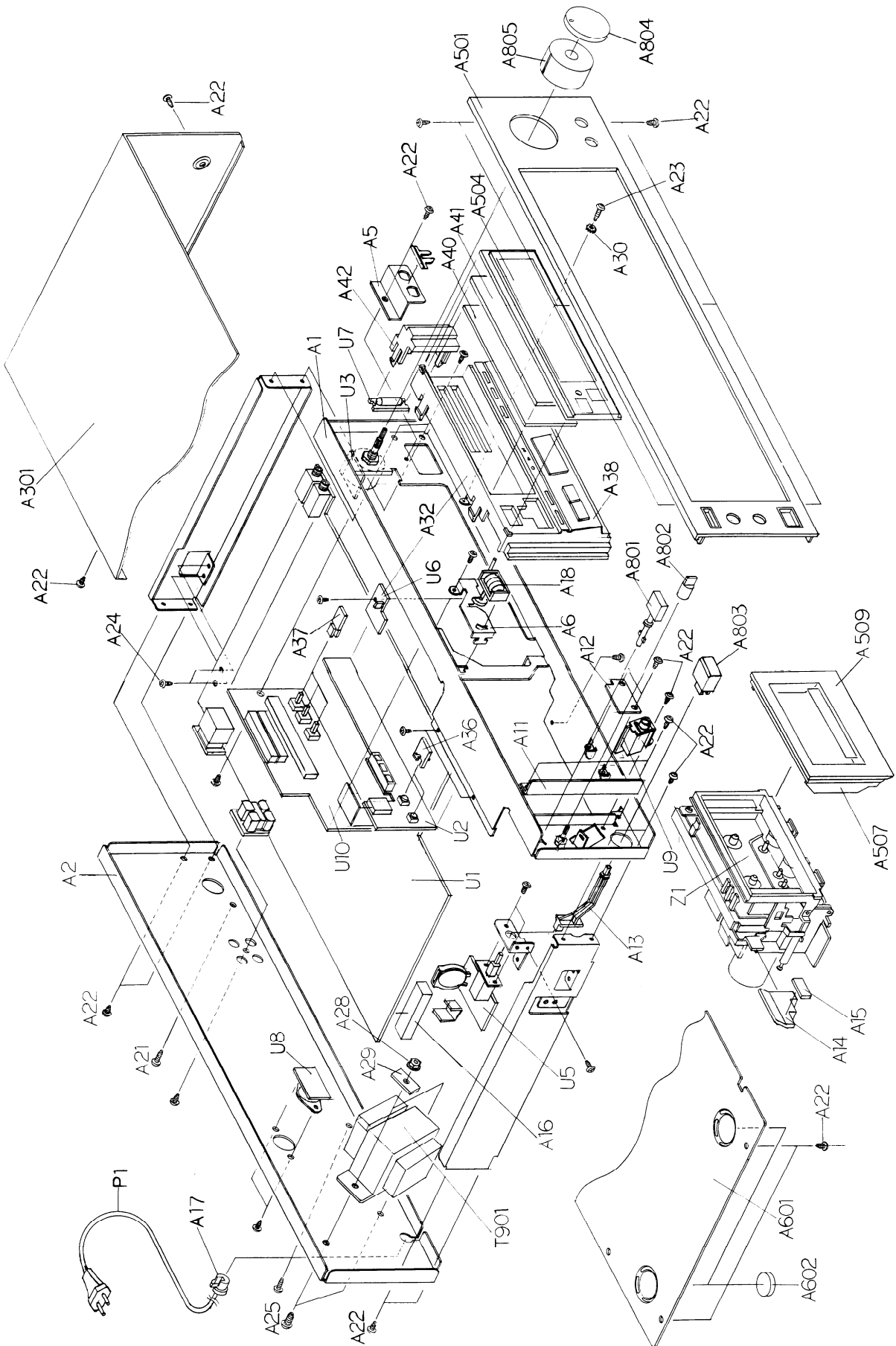
REF. NO.	PART NO.	DESCRIPTION
1	29095012-1	500x800 Protection sheet (B)
2	29100063	500x750 Poly bag
3	29090746	Pad (L)
4	29090747	Pad (R)
5	29050945	Master carton box
	29050946	Master carton box (B)
6	282301	Sealing hook
7	260012	Damplon tape
8	Accessory bag ass'y	
	29340778	Instruction manual
	2010095	Connection cable
	29365006-5	Waranty card (N)
	29358002A	Service station list (N)
	29100005	220x330 Poly bag

## G/W MODEL

REF. NO.	PART NO.	DESCRIPTION
1	29095012-1	500x800 Protection sheet (B)
2	29100063	500x750 Poly bag
3	29090746	Pad (L)
4	29090747	Pad (R)
5	29050945	Master carton box
	29050946	Master carton box (B)
6	282301	Sealing hook
7	260012	Damplon tape
8	Accessory bag ass'y	
	29340779	Instruction manual (G)
	2010095	Connection cable
	25055040	Conversion plug CV-K-2 (G)
	29100005	220x330 Poly bag

NOTE (N) : Only U.S,A Model  
 (G) : Only 120/220V Model  
 (B) : Black Model

# CHASSIS EXPLODED VIEW



# CHASSIS EXPLODED VIEW-PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27110219	Front bracket	A301	28184193	Top cover (S)	△ U5	11228503	NASW-2003, Power switch pc board ass'y
A2	27120599	Back panel (D)	A501	28184192	Top cover (B)	U6	11228504	NATD-2004, Holl IC pc board ass'y
A3	27120600	Back panel (G)	A502	11228121	Front panel ass'y (S)	U7	11228505	NAPL-2005, Edge light pc board ass'y
A4	27120602	Back panel (W)	A503	27267216	Guide, eject	U8	11228506	NARM-2006, Remote control terminal pc board ass'y
A5	27140896	Bracket, headphone	A501	27267215	Guide, power	U9	11228507	NAHP-2007, Headphone terminal pc board ass'y
A6	27140706	Bracket, microphone	A502	11248121	Front panel ass'y (B)	U10	11228508	NADIS-2008, Display pc board ass'y
A7	27140897	Bracket, counter	A503	27267273	Guide, eject	Z1	244050	NDM-45, Cassette mechanism ass'y
A8	27175104	Insulating plate (G)	A504	27267272	Guide, power			
A9	28400098B	Plate	A507	28400182	Clear plate			
A10	28175075	Insulating plate	A504	28191248A	Cassette lid ass'y (S)			
A11	27273030B	Joint (L)	A507	28400184A	Cassette lid ass'y (B)			
A12	27273024	Joint	A509	28400183	Window			
A13	27270117	Spacer	A601	28400185A	Window			
A14	28140553	60x10x13mm, Cushion	A602	27170155	Bottom board			
A15	270025	SR-3PM, Strainrelief (D)	A701	27175028	Leg			
A16	270280	SR-4K-4, Strainrelief (G/W)	A801	834430068	3TTS+6B (BC), Tapping screw			
A17	24601163	Counter	A801	28320856	Knob, eject (S)			
A18	28140552	28x28x0.5mm, Cushion	A802	28321165A	Knob, eject (B)			
A19	834230108	3TTS+10B (Ni), Nickel screw	A803	28320797	Knob, selector (S)			
A20	834420068	3TTS+6B (BC), Tapping screw	A803	28321130	Knob, selector (B)			
A21	834420108	3TTS+10B (BC), Tapping screw	A803	28320852	Knob, power (S)			
A22	831130088	3TTW+8B (BC), Tapping screw	A804	28321160	Knob, power (B)			
A23	838440109	4TTB+10C (BC), Tapping screw	A805	28320671	Knob L (S)			
A24	82142604	2.6P+4F (BC), Pan head screw	A805	28321711	Knob L (B)			
A25	82143006	3P+6FN (BC), Pan head screw	A805	28320672A	Knob R (S)			
A26	86414010	FWN4x10FN, Flange nut	△ P1	28321712	Knob R (B)			
A27	870065	Special washer	P2	253098B	AS-UC-3, Power supply cord (D)			
A28	87313006	M-3B, Toothed washer	△ S902	253083-1	AS-CEE, Power supply cord (G/W)			
A29	28321531B	Knob ass'y (S)		260208	Binder			
A30	28321532B	Knob ass'y (B)		25065123	NSS-1258P, Voltage selector switch (W)			
A31	28321540	Knob, repeat (S)	△ T901	230811	NPT-839D, Power transformer (D)			
A32	28321541	Knob, repeat (B)		230799	NPT-839G, Power transformer (D)			
A33	28321542	Knob, selector (S)		230800	NPT-839DG, Power transformer (G)			
A34	28321543	Knob, selector (B)			(W)			
A35	27262278A	Plate (S)	U1	11225899	NAAF-1999, Rec./pb amplifier pc board ass'y (D)			
A36	27262279A	Plate (B)			board ass'y (D)			
A37	28133099	Back plate		11234599B	NAAF-1999b, Rec./pb amplifier pc board ass'y (G/W)			
A38	28130214	Dial plate	U2	11228500	NASW-2000, Control switch pc board ass'y			
A39	27190276	Holder, lamp	U3	11228501	NAVR-2001, Input volume pc board ass'y			
A40	834430108	3TTW+10B (BC), Tapping screw (G)	U4	11228502	NASW-2002, Timer switch pc board ass'y			
A41	82143006	3P+6FN (BC), Pan head screw for voltage selector switch (W)						

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



# TAPE MECHANISM PARTS LIST

PLACE	REF. NO.	PARTS NO.	DESCRIPTION	PLACE	REF. NO.	PARTS NO.	DESCRIPTION
D1	1	24610913	Cassette detection lever	D5	61	24604051	Collar
D1	2	24610914	Recording detection lever	D5	62	24605449	Spring
B3	3	24610915	Cassette holder ass'y	D6	63	24602218	Flywheel
B4	4	24605399	Spring for door	C6	64	24604050	Spacer
A1	5	24607025	Eject arm	A4-A5	65	2000234	Connector
A1	6	24604048	Spacer	C7	66	24607024	Motor bracket
A1	7	82113006	3x6mm, Pan head screw	G3	67	24602231	Counter belt
B2	8	24610912	Cassette panel	B7	68	24601132	Motor
B2	9	801293	2.6x12mm, Tapping screw	B4, B5, C5	69	24606178	Pc board
G1	10	24600040	Rec/pb head	H2	70		Connector
G1	11	24600032	Erase head	G1	71		Connector
H1	12	801291	Screw	B5	72	25035389	Tact switch
G1, G2	13	24605387	Head azimuth spring	A6	73		Connector
F1	14	24604049	Head stand	B4	74		Lead wire
F1	15	24610923	Washer	F5	75	24610977	Cushion
F1	16	24602211	Supply reel ass'y	G4	76	893015	E1.5, Circlip
F2	17	24602256	Take-up reel ass'y	E3	77	24610840	Washer
F2, G2	18	24610924	Poly-slider washer	D1	78	24610978	Chrome tape detection switch
E2	19	24610921	Spring holder				
E2	20	24610916	Head chassis				
E2	21	24607018	Brake arm L				
E3	22	24607019	Brake arm R				
E3	23	24605437	Brake spring				
G4	24	24610917	Lock plate				
G4	25	24605438	Spring for 24				
F3	26	2480104	Washer				
F3	27	24602214	Pinch roller ass'y				
F4	28	24605439	Spring for 27				
F3	29	24605440	Spring				
F4	30	24610918	Operation plate				
F4	31	24605441	Assist spring				
E3	32	24610926	Washer				
C6, D4, E3	33	801176	2.6x4, Screw with washer				
E2	34	24605442	Back tension spring				
E3	35	24602213	Idler gear				
D3	36	801177	2.6x5, Screw with washer				
B6, D2, F5	37	833130057	3x5, Tapping screw				
C2	38	833120127	2x12, Tapping screw				
C3	39	24605443	Eject arm spring				
D4	40	24610919	Chassis				
C4	41	24605444	Cassette holding spring				
A3, A4	42	24606156	Solenoid				
C4	43	24610920	Clutch ass'y				
A3	44	24606157	Solenoid				
D2	45	24610834	Damper				
C4	46	24607020	Change arm				
B5	47	24602186	Belt				
C5	48	24602215	Belt				
D5	49	24606158	Solenoid				
D4	50	24607021	Plyback arm				
D4	51	24605445	Spring for 50				
D4	52	24602216	Idler ass'y				
D5	53	24605446	Spring for 52				
E5	54	24607022	Bracket R				
D2	55	24607023	Bracket L				
F5	56	24605447	Head base spring				
F5	57	24605448	Assist base spring				
F5	58	24610922	Assist base				
E6	59	24602217	Playback gear				
D6	60	870094	Washer				

# ADJUSTMENT PROCEDURES

## PRECAUTIONS

1. Before adjustment, clean the following parts with an alcohol moistend swab.
  - \* record/playback head
  - \* erase head
  - \* pinch roller
  - \* capstan
2. Do not use magnetized screwdriver for adjustments.
3. 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 screws	Maximum and same phase at channels L and R.	See fig. 1 Set the semi-fixed resistors R129 and R130 to center position.	
3	Playback level	AC voltmeter to terminals TP-101 and TP-102	MTT-150	PB	AC voltmeter	R129 (Ch. L) R130 (Ch. R)	580mV		
4	Bias current	Fig. 2	1kHz, -20dB and 12kHz, -20dB	NEW XL-II 90	REC/PB	AC voltmeter	R439 (Ch. L) R440 (Ch. R)	Same level at REC/PB	INPUT VOLUME ..... maximum
5	Record level	Fig. 2	1kHz	REC PAUSE	AC voltmeter	Attenuator or AF OSC output	350mV	INPUT VOLUME ..... maximum	
				REC/PB	AC voltmeter	R401, R402	Same level at REC/PB.		
6	<b>Clock adjustment</b> Connect the frequency counter via the resistor 100 kΩ to the terminal TP701 on the control pc board. Adjust the R701 so that the frequency counter indication becomes 170 ± 10 kHz.					<pre>                     graph LR                         TP701[Test point TP701] --- R100K[100K] --- FC[Frequency Counter]                     </pre>			

PLAY torque ..... 35 ~ 55gcm  
FF, REW torque ..... 70 ~ 130gcm

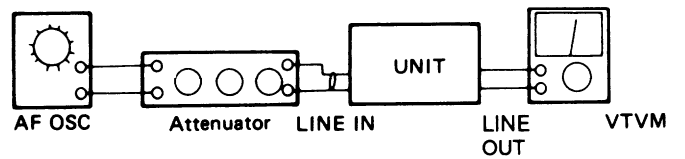
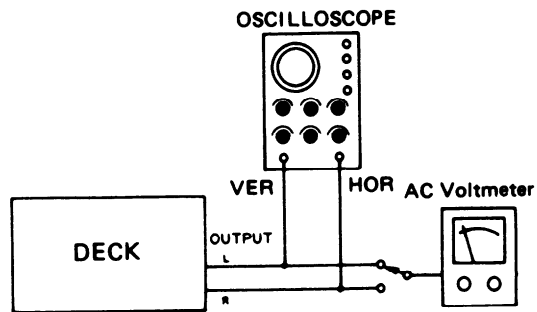
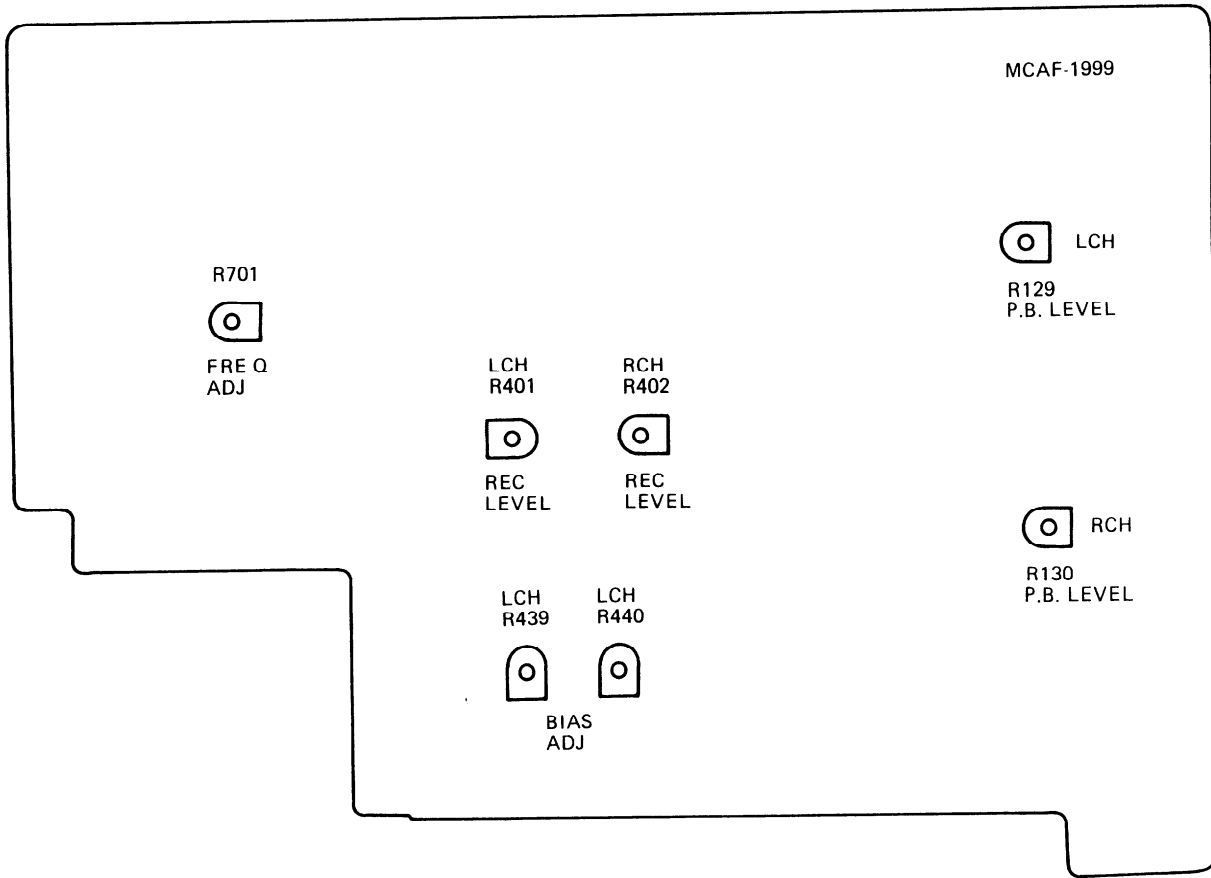
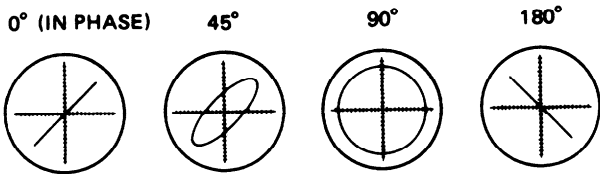


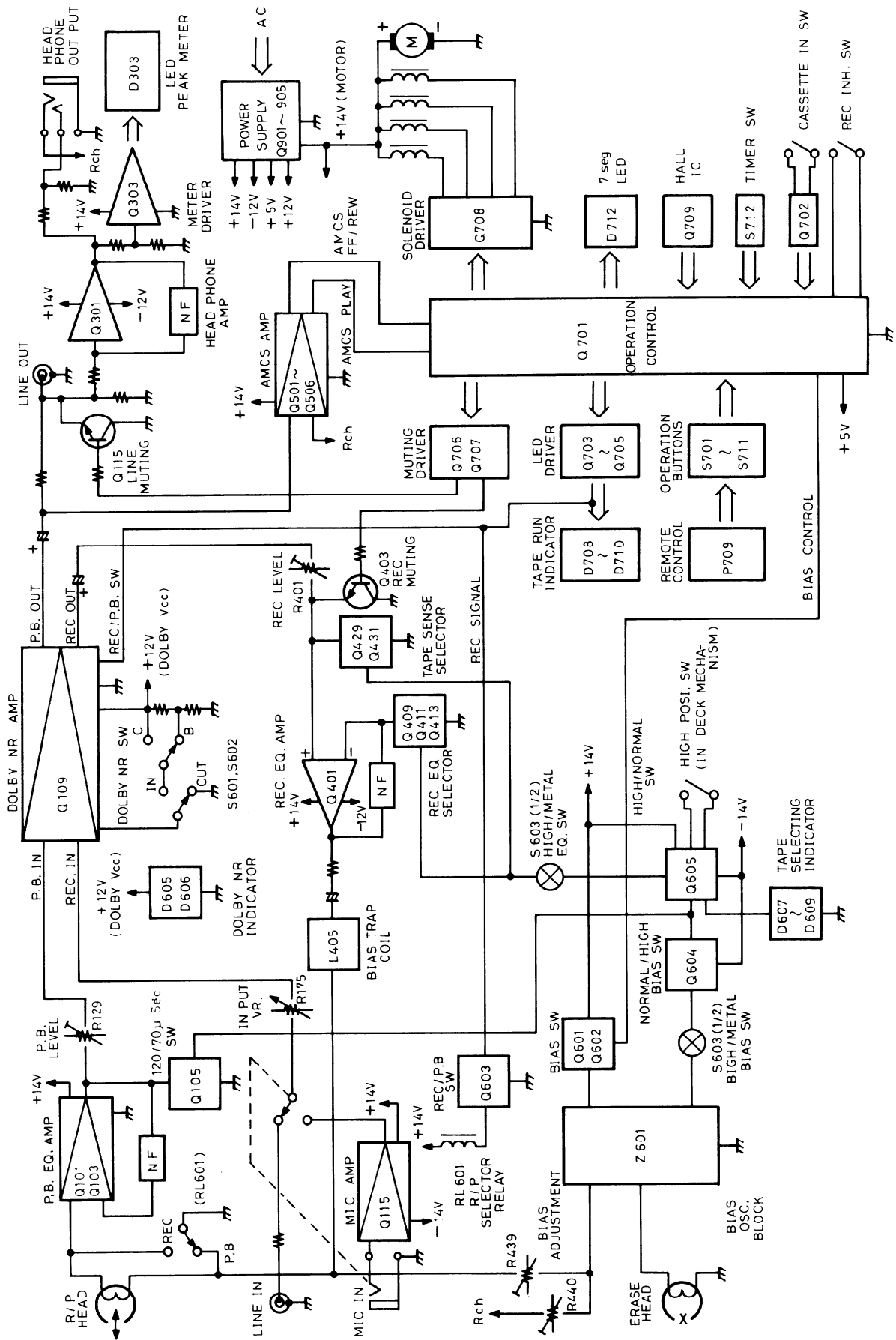
fig-2



Confirming phase relationship

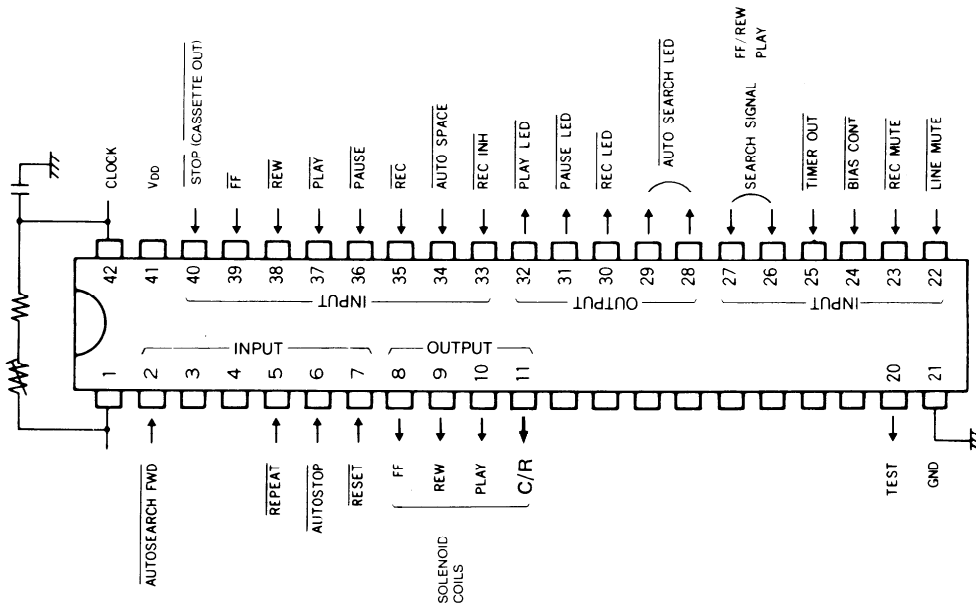
fig-1

# BLOCK DIAGRAM

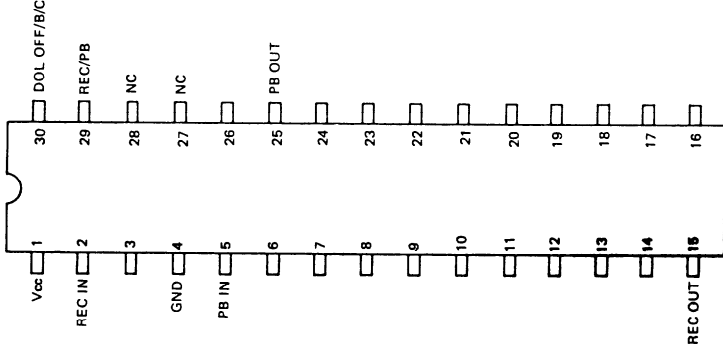


**IC BLOCK DIAGRAM**

**LM6405L-233  
(MICROCOMPUTER)**



**HA-12058 NT  
(DOLBY B & C TYPE NOISE REDUCTION SYSTEM)**



**LB-1287  
(SOLENOID DRIVER)**

