SERIAL NO. 3183

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.

ONKYO®
AUDIO COMPONENTS

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 ± 3dB) (normal position tape) 20–16,000 Hz (30–15,000 Hz ± 3 dB) (high position tape) 20–17,000 Hz (30–16,000 Hz ± 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

PRINTED CIRCUIT BOARD-PARTS LIST

REC./PB AMPLIFIER PC BOARD (NAAF-1999/a)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	ICs	
Q109, Q110	222729	HA-12058NT
Q301, Q302	222652	M5218L
Q401, Q402	222465 or 222808	NJM4558D or M5218P
Q503-Q506	222681, 222695 or 222604	IR3701, LA6324 or LM324N
Q701	222728	LM6405L-233
Q708	222698	LB-1287
	Transistors	
Q101-Q104	2211896,	2SC1815L (L),
Q121, Q122	2212256 or 2211406	2SC2458L (L) or 2SC2240 (BL)
Q105, Q106	2211254,	2SC1815 (Y),
Q405-Q414	2212114,	2SC2458 (Y),
Q501, Q502	2210747 or	2SC945A (Q1) or
Q702	2212484	JC501P
Q107, Q108	2211255,	2SC1815 (GR),
Q403, Q404	2212115,	2SC2458 (GR),
Q602-Q604	2210746 or 2212485	2SC945A (P) or JC501 (Q)
Q115, Q116	2211706 or 2211705	2SD655 (F) or 2SD655 (E)
Q125, Q126	2212304, 2212303, 2211945 or 2211944	2SK381 (D), 2SK381 (C), 2SK246 (GR) or 2SK246 (Y), (G/W)
Q507, Q508	2211454,	2SA1015 (Y),
Q601, Q605	2212124,	2SA1048 (Y),
Q703-Q707	2210804 or	2SA733A (Q) or
Q906	2212494	JA101P
Q901	2201285 or 2201286	2SD882 (Q) or 2SD882 (P)
Q902	2201275 or 2201276	2SB772 (Q) or 2SB772 (P)
Q903, Q904	2201074, 2201035 or 2201385	2SD880 (Y), 2SD325 (E) or 2SD330 (E)
Q905	2211544 or 2211543	2SC1959 (Y) or 2SC1959 (O)
	Diodes	
D101, D102	223105, 223133, 223145 or 223150	1S1555, DS442X, 1S2076TD or US1040, (G/W)
D501, D502	223105,	1S1555,
D601, D711	223133,	DS442X,
D701-D705	223145 or	1S2076TD or
D901	223150	US1040
D602	2239671, 2242912 or 2243251	RD15EB1, EQA02-13B or MTZ15A
D610	2239591, 2242877 or 2243211	RD10EB1, EQA-02-09D or MTZ-10A, (G/W)
D706, D707	223132	1K60
D901	223862	WL-01
D902, D903	223842	GP-15B
D904	2239672, 2242921 or 2243252	RD15EB2, EQA02-14A or MTZ15B
D905, D908	2239651, 2242901 or 2243241	RD13EB1, EQA-02-12A or MTZ13A
D906	2239671, 2242912 or 2243251	RD15EB1, EQA-02-13B or MTZ15A
D907	2239473, 2242845 or 2243153	RD5.6EB3, EQA02-06B or MTZ5.6C
	Coils	
L151, L152	233313 or 233306	NMC-6048 or NMC-6043
L155, L156	233245 or	NMC-2029
L401, L402	24606070 or 231041	NCH-1008 or NCH-2081
L403, L404	231039 or 24606069	NCH-2079 or NCH-1007
L405, L406	233314	NCH-2097
	Osc. Block	
Z601	24606141	NOB-022
	Capacitors	
C103, C104	392841007	10μF, 16V, LL
C107, C108	352732209	22μF, 10V, Elect.
C111, C112	352741009	10μF, 16V, Elect.
C117, C118	352780109	1μF, 50V, Elect.
C119-C122	352741009	10μF, 16V, Elect.
C123, C124	352742219	220μF, 16V, Elect.
C127, C128	392850477	4.7μF, 25V, LL
C133, C134	352783399	0.33μF, 50V, Elect.
C135, C136	352781599	0.15μF, 50V, Elect.
C137, C138	352786899	0.68μF, 50V, Elect.
C139, C140	352784799	0.47μF, 50V, Elect.
C147, C148	392850477	4.7μF, 25V, LL
C153, C154	352781599	0.15μF, 50V, Elect.
C155, C156	352784799	0.47μF, 50V, Elect.
C157-C160	352741009	10μF, 16V, Elect.
C181-C184	352780109	1μF, 50V, Elect.
C505	352782299	2.2μF, 50V, Elect.
C507	352741009	10μF, 16V, Elect.
C508	352744709	47μF, 16V, Elect.
C509-C511	352780109	1μF, 50V, Elect.
C401, C402	352782299	0.22μF, 50V, Elect.
C403, C404	352741009	10μF, 16V, Elect.
C601	352780109	1μF, 50V, Elect.
C603	352734709	47μF, 10V, Elect.
C604	352750479	4.7μF, 25V, Elect.
C605	352741009	10μF, 16V, Elect.
C609, C610	352742209	22μF, 16V, Elect.
C703	352784799	0.47μF, 50V, Elect.
C704	352780109	1μF, 50V, Elect.
C902, C903	352752229	2,200μF, 25V, Elect.
C904	352751019	100μF, 25V, Elect.
C905, C906	352742219	220μF, 16V, Elect.
C907, C908	352741019	100μF, 16V, Elect.
C910	352751029	1,000μF, 25V, Elect.
C911	352744709	47μF, 16V, Elect.
C912	352741009	10μF, 16V, Elect.
C914	352780109	1μF, 50V, Elect.
C916	352741019	100μF, 16V, Elect.
C918	352742219	220μF, 16V, Elect.
C919	352741019	100μF, 16V, Elect.
C920	352722219	220μF, 6.3V. Elect.
C921, C922	352741009	10μF, 16V, Elect.
C925, C926	352734709	47μF, 10V, Elect.
C927, C928	352741019	100μF, 16V, Elect.
	Resistors	
R129, R130	5215023 or 5215046	N08HR50KBC, Semi-fixed
R401, R402	5215021 or 5215045	N08HR10KBC, Semi-fixed
R439, R440	5215024 or 5215047	N08HR100KBC, Semi-fixed
R601	441525604	56Ω, 1/2W, Metal oxide film
R602	441528214	820Ω, 1/2W, Metal oxide film
R603	441522214	220Ω, 1/2W, Metal oxide film
R604	441521224	1.2kΩ, 1/2W, Metal oxide film
R701	5215003 or 5215022	N08HR20KBC, Semi-fixed
R703-R710	49121392408	3.9kΩx8, 1/8W, Network
R711-R714 R715-R718 R719-R721	49121392404	3.8kΩx4, 18W, Network
	49121222404	2.2kΩx4, 1/8W, Network
R901, R904 R906	441520224	2.2Ω, 1/2W, Metal oxide film
R902, R905	431524715	470Ω, 1/2W, Solid
R907	431523315	330Ω, 1/2W, Solid
R908	441521014	100Ω, 1/2W, Metal oxide film
	Relay	
RL601	25065174	NRL-2P1A-DC12-09
	Sockets	
P301	2000307A	NSAS-8P-266
P606	2000306A	NSAS-6P-265
P607	2000226	NSAS-20P-130
P701	25050145	NJPS-8P-S
P702	25050144	NJPS-7P-S
P703	25050141	NJPS-4P-S
P704-P706	25050140	NJPS-3P-S
P707	25050146	NJPS-9P-S
P708	2000251	NSAS-11P-189
	Plugs	
P401	25055042	NPLG-3P32
P604	25055037	NPLG-6P28
	Terminals	
P601	25045120	NPJ-4PDBL49, Input/output
P602	25045134	HLJ-4337-01-010, Microphone
P605	25050064	NSCT-5P1, DIN input/output (G/W)
	Radiator	
	27160029	RAD-07, Power supply
	27160029-1	RAD-07B, Power suuply for micro computer

CONTROL SWITCH PC BOARD (NASW-2000)

CIRCUIT NO.	PART NO.	DESCRIPTION
	LEDs	
D708-D710	225127	GL-3PG1
D712	225130	SEL-510
	Switches	
S701-S711	25035389	NPS-111-L353
	Holder	
	27190278	LED

INPUT VOLUME PC BOARD (NAVR-2001)

CIRCUIT NO.	PART NO.	DESCRIPTION
R175, R176	5104132	N16GKF50KA45F, Variable resistor

TIMER SWITCH PC BOARD (NASW-2002)

CIRCUIT NO.	PART NO.	DESCRIPTION
S712	25030227	NRS-123-25U, Rotary switch

POWER SWITCH PC BOARD (NASW-2003)

CIRCUIT NO.	PART NO.	DESCRIPTION
C901	3500065A	0.01μF, AC125V/400V, Capacitor IS
C901a	27300601	SB-1925, Cover for C901
S901	25035375	NPS-111-L339P, Power switch
A7	27140878	Bracket, power

HALL IC PC BOARD (NATD-2004)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q709	222558 or 222470	DN6838 or DN838K, Hall IC
	27190173	Holder for DN6838
	27190251	Spacer for DN838K

EDGE LOGHT PC BOARD (NAPL-2005)

CIRCUIT NO.	PART NO.	DESCRIPTION
PL601	210090	150mA, 14V, Lamp

REMOTE CONTROL TERMINAL PC BOARD (NARM-2006)

CIRCUIT NO.	PART NO.	DESCRIPTION
P709	25050070	NSCT-7P20, Terminal

HEADPHONE TERMINAL PC BOARD (NAHP-2007)

CIRCUIT NO.	PART NO.	DESCRIPTION
P603	25045139	HLJ0540-01-010, Stereo hedaphone terminal

DISPLAY TERMINAL PC BOARD (NADIS-2008)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q303, Q304	222623	IR2E02
	LEDs	
D301, D302	225159	SEL9720MB01, Array
D605, D606	225142	SEL2913K
D607-D609	225137	SEL2413E
	Capacitors	
C301, C302	352750479	4.7μF, 25V, Elect.
C303, C304	352780109	1μF, 50V, Elect.
	Switches	
S601-S603	25035399	NPS-122-L364
	Plugs	
P302	25055101	NPLG-4P85
P609	25055107	NPLG-10P91
P610	25055100	NPLG-3P84
	Holder	
	27190277	LED

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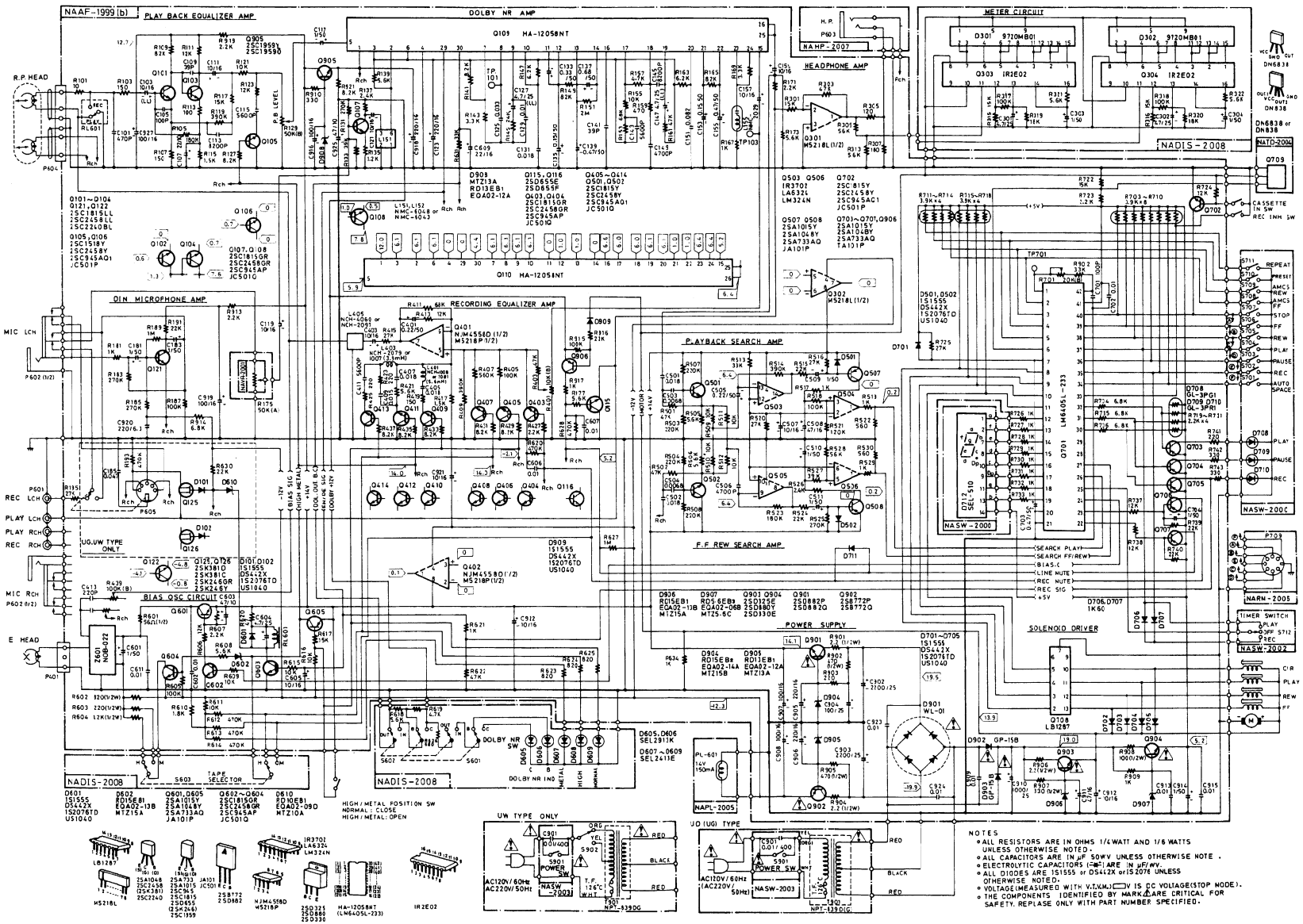
A407 Printed in Japan

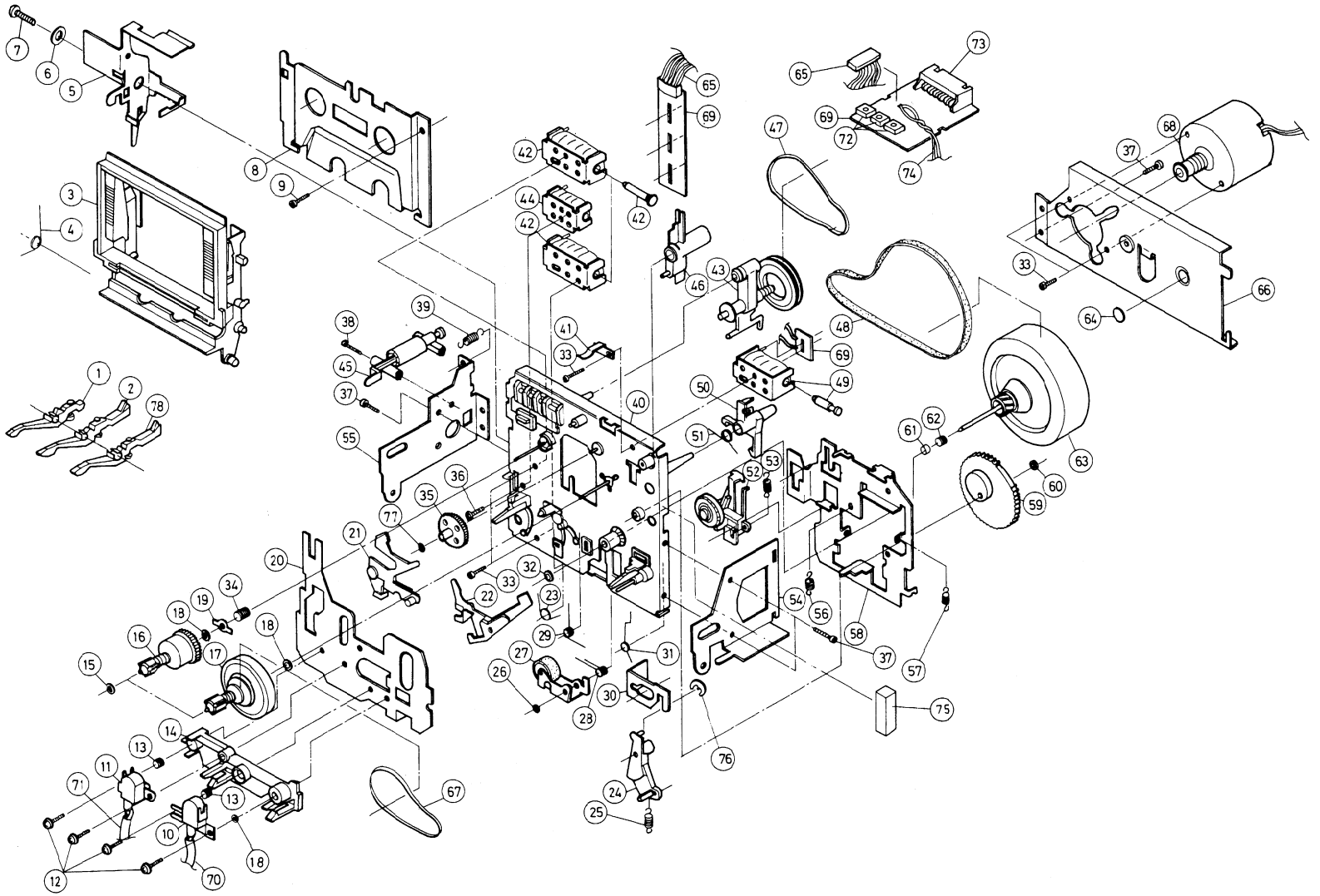
SCHEMATIC DIAGRAM



ONKYO CORPORATION

A B C D E F G

TAPE MECHANISM-EXPLODED VIEW



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.

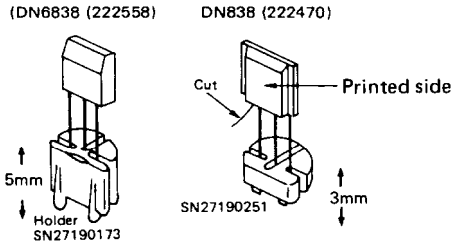
2. Instruction resistance measurement

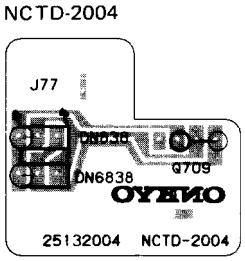
Connect the insulating-resistance tester between the plug of power supply cord and chassis.

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.

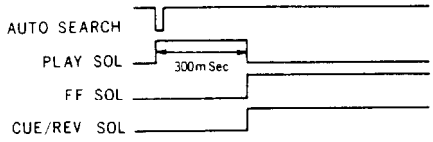




MICROCOMPUTER OPERATION TIMING

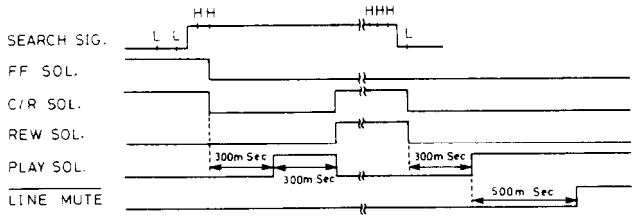
1. Start of Cue/Rewind (Auto Search and song location)

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.



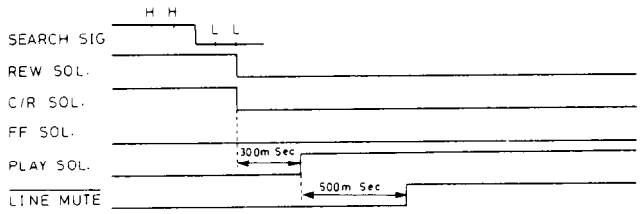
2. Song Location with Cue (AMCS in FF direction and song skip song location)

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.

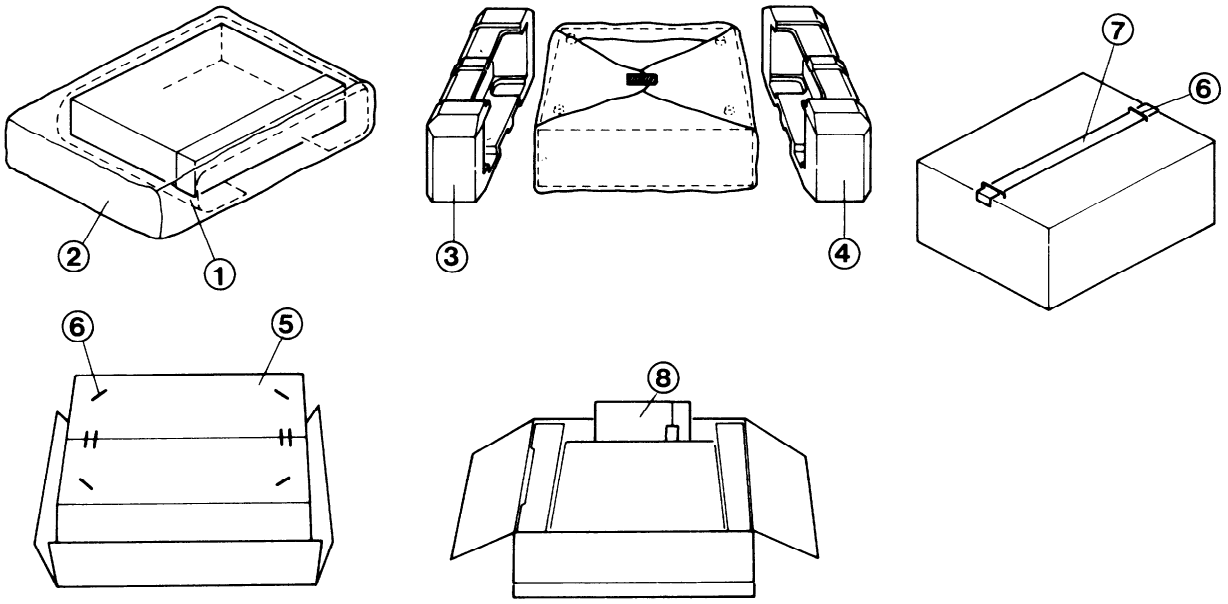


3. Song Location with Review (AMCS in REW direction and song skip song location)

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

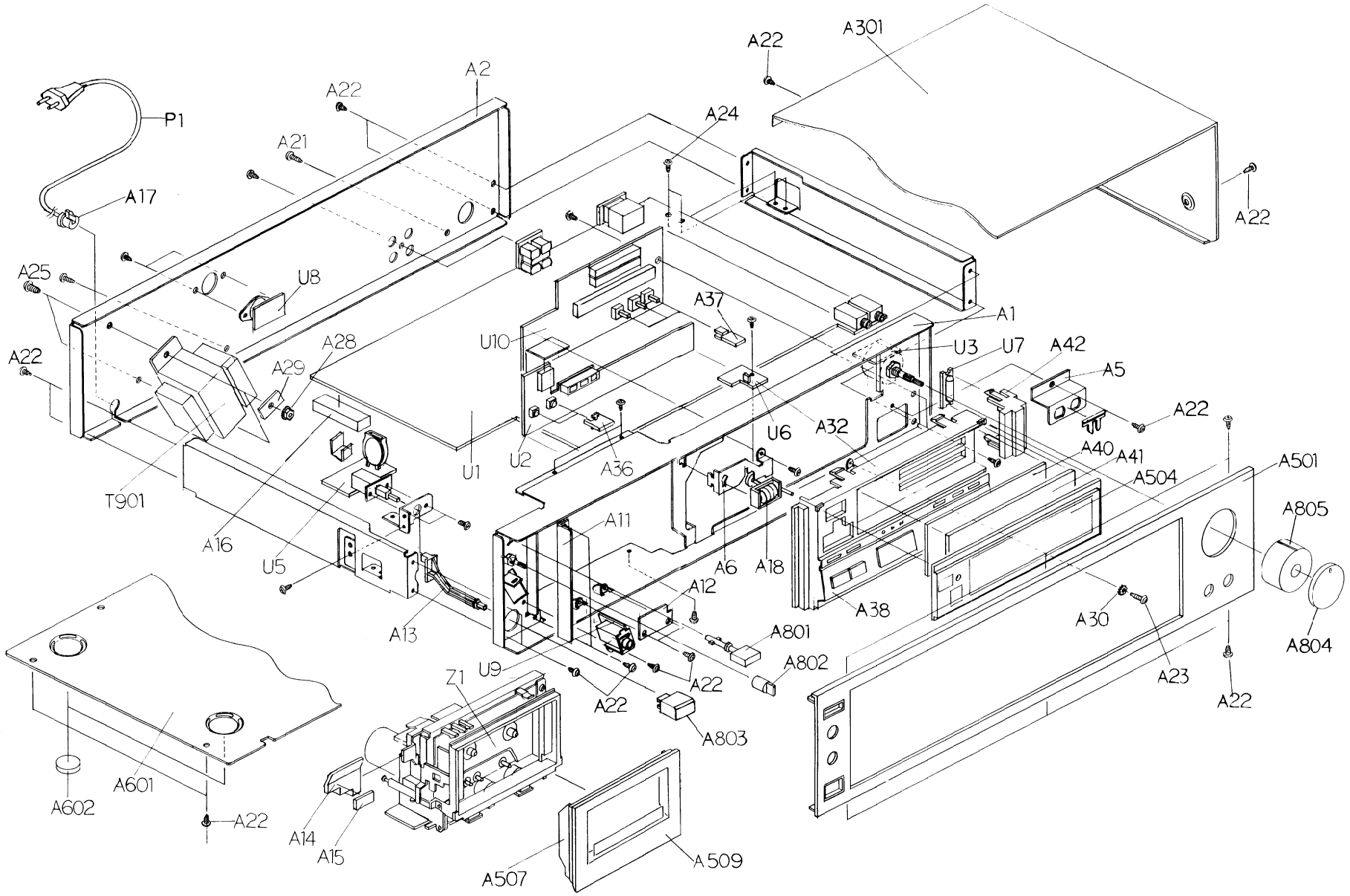
REF. NO.	PART NO.	DESCRIPTION
1	29095012-1	500x800 Protection sheet (B)
2	29100063	500x750 Poly bag
3	29090746	Pad (L)
4	29090747	Pad (R)
5	29050945	Master caton box
	29050946	Master caton box (B)
6	282301	Sealing hook
7	260012	Damplon tape
8	Accessary bag ass'y	
	29340778	Instruction manual
	2010095	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 caton box
	29050946	Master caton box (B)
6	282301	Sealing hook
7	260012	Damplon tape
8	Accessary 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
A1	27110219	Front bracket
A2	27120599	Back panel (D)
	27120600	Back panel (G)
	27120602	Back panel (W)
A3	27115130A	Side bracket
A4	27140896	Bracket, headphone
A5	27140706	Bracket, microphone
A6	27140897	Bracket, counter
A7	28175104	Insulating plate (G)
A11	28400098B	Plate
A12	28175075	Insulating plate
A13	27273030B	Joint (L)
A14	27273024	Joint
A15	27270117	Spacer
A16	28140553	60x10x13mm, Cushion
A17	270025	SR-3PM, Strainrelief (D)
	270280	SR-4K-4, Strainrelief (G/W)
A18	24601163	Counter
A19	28140552	28x28x0.5mm, Cushion
A21	834230108	3TTS+10B (Ni), Nickel screw
A22	834420068	3TTS+6B (BC), Tapping screw
A23	834420108	3TTS+10B (BC), Tappong screw
A24	831130088	3TTW+8B (BC), Tappong screw
A25	838440109	4TTB+10C (BC), Tapping screw
A26	82142604	2.6P+4F (BC), Pan head screw
A27	82143006	3P+6FN (BC), Pan head screw
A28	86414010	FWN4x10FN, Flange nut
A29	870065	Special washer
A30	87313006	M-3B, Toothed washer
A32	28321531B	Knob ass'y (S)
	28321532B	Knob ass'y (B)
A36	28321540	Knob, repeat (S)
	28321541	Knob, repeat (B)
A37	28321542	Knob, selector (S)
	28321543	Knob, selector (B)
A38	27262278A	Plate (S)
	27262279A	Plate (B)
A40	28133099	Back plate
A41	28130214	Dial plate
A42	27190276	Holder, lamp
A61	834430108	3TTW+10B (BC), Tappling screw (G)
A62	82143006	3P+6FN (BC), Pan head screw for voltage selector switch (W)

REF. NO.	PART NO.	DESCRIPTION
A301	28184193	Top cover (S)
	28184192	Top cover (B)
A501	11228121	Front panel ass'y (S)
A502	27267216	Guide, eject
A503	27267215	Guide, power
A501	11248121	Front panel ass'y (B)
A502	27267273	Guide, eject
A503	27267272	Guide, power
A504	28191248A	Clear plate
A507	28400182	Cassette lid ass'y (S)
A509	28400184A	Window
	28400183	Cassette lid ass'y (B)
	28400185A	Window
A601	27170155	Bottom board
A602	27175028	Leg
A701	834430068	3TTS+6B (BC), Tappong screw
A801	28320856	Knob, eject (S)
A801	28321165A	Knob, eject (B)
A802	28320797	Knob, selector (S)
	28321130	Knob, selector (B)
A803	28320852	Knob, power (S)
	28321160	Knob, power (B)
A804	28320671	Knob L (S)
	28321711	Knob L (B)
A805	28320672A	Knob R (S)
	28321712	Knob R (B)
⚠ P1	253098B	AS-UC-3, Power supply cord (D)
	253083-1	AS-CEE, Power supply cord (G/W)
P2	260208	Binder
⚠ S902	25065123	NSS-1258P, Voltage selector switch (W)
⚠ T901	230811	NPT-839D, Power transformer (D)
	230799	NPT-839G, Power transformer (G)
	230800	NPT-839DG, Power transformer (W)
U1	11225899	NAAF-1999, Rec./pb amplifier pc board ass'y (D)
	11234599B	NAAF-1999b, Rec./pb amplifier pc board ass'y (G/W)
U2	11228500	NASW-2000, Control switch pc board ass'y
U3	11228501	NAVR-2001, Input volume pc board ass'y
U4	11228502	NASW-2002, Timer switch pc board ass'y

REF. NO.	PART NO.	DESCRIPTION
⚠ U5	11228503	NASW-2003, Power switch pc board ass'y
U6	11228504	NATD-2004, Holl IC pc board ass'y
U7	11228505	NAPL-2005, Edge light pc board ass'y
U8	11228506	NARM-2006, Remote control terminal pc board ass'y
U9	11228507	NAHP-2007, Headphone terminal pc board ass'y
U10	11228508	NADIS-2008, Display pc board ass'y
Z1	244050	NDM-45, Cassette mechanism ass'y

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

TAPE MECHANISM PARTS LIST

PLACE	REF. NO.	PARTS NO.	DESCRIPTION
D1	1	24610913	Cassette detection lever
D1	2	24610914	Recording detection lever
B3	3	24610915	Cassette holder ass'y
B4	4	24605399	Spring for door
A1	5	24607025	Eject arm
A1	6	24604048	Spacer
A1	7	82113006	3x6mm, Pan head screw
B2	8	24610912	Cassette panel
B2	9	801293	2.6x12mm, Tapping screw
G1	10	24600040	Rec/pb head
G1	11	24600032	Erase head
H1	12	801291	Screw
G1, G2	13	24605387	Head azimuth spring
F1	14	24604049	Head stand
F1	15	24610923	Washer
F1	16	24602211	Supply reel ass'y
F2	17	24602256	Take-up reel ass'y
F2, G2	18	24610924	Poly-slider washer
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
D5	61	24604051	Collar
D5	62	24605449	Spring
D6	63	24602218	Flywheel
C6	64	24604050	Spacer
A4-A5	65	2000234	Connector
C7	66	24607024	Motor bracket
G3	67	24602231	Counter belt
B7	68	24601132	Motor
B4, B5, C5	69	24606178	Pc board
H2	70		Connector
G1	71		Connector
B5	72	25035389	Tact switch
A6	73		Connector
B4	74		Lead wire
F5	75	24610977	Cushion
G4	76	893015	E1.5, Circlip
E3	77	24610840	Washer
D1	78	24610978	Chrome tape detection switch

ADJUSTMENT PROCEDURES

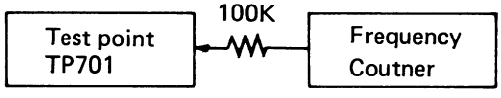
PRECAUTIONS

1. Before adjustment, clean the following parts with an alchol moinstend 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.

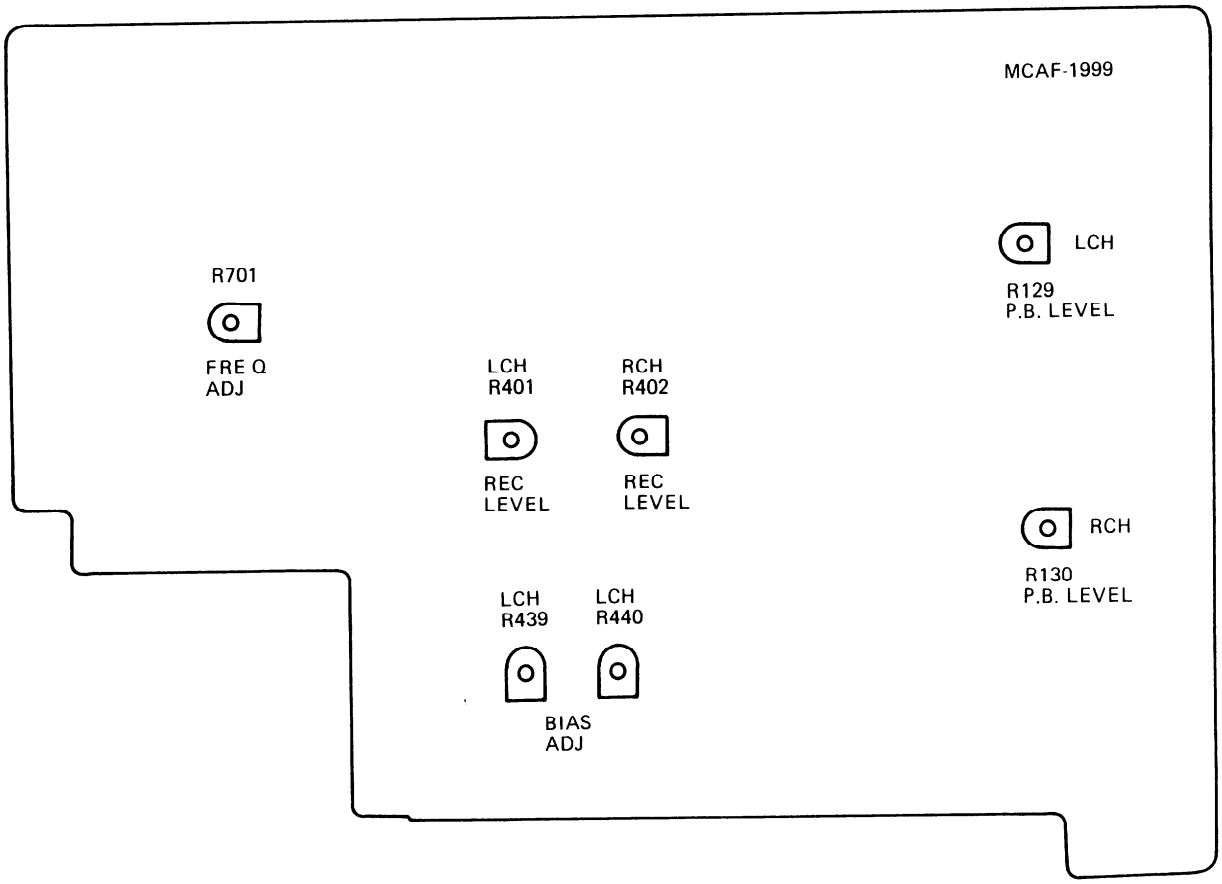
TEST EQUIPMENT/TOOLS REQUIRED:

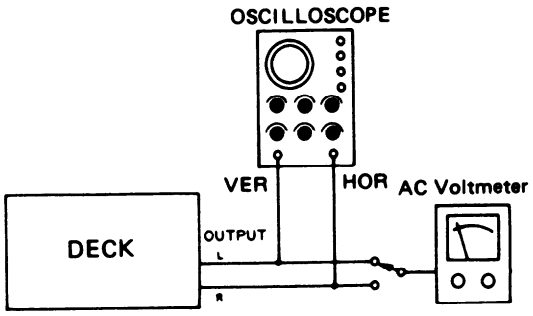
Audio oscillator
Digital frequency counter
Oscilloscope
Attenuator
AC voltmeter
Non-magnetic screw driver
Blank tapes (completely erased)
NORMAL . . . . . NEW UD90
HIGH . . . . . NEW XL-II90
METAL . . . . . NEW MX60
Test tapes
VTT-658 : 10 KHz, −15dB
MTT-111 : 3 kHz, −10dB
MTT-150 : Dolby level calibration 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	**Clock adjustment** 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.								



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





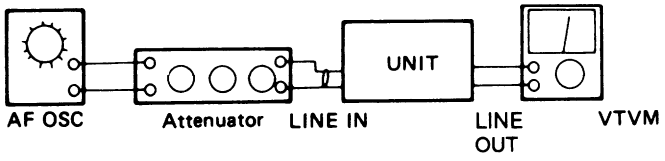
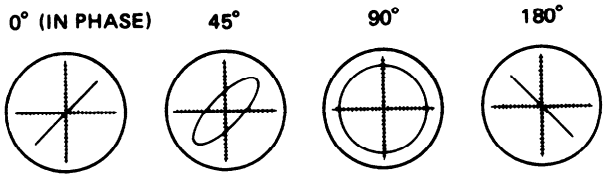


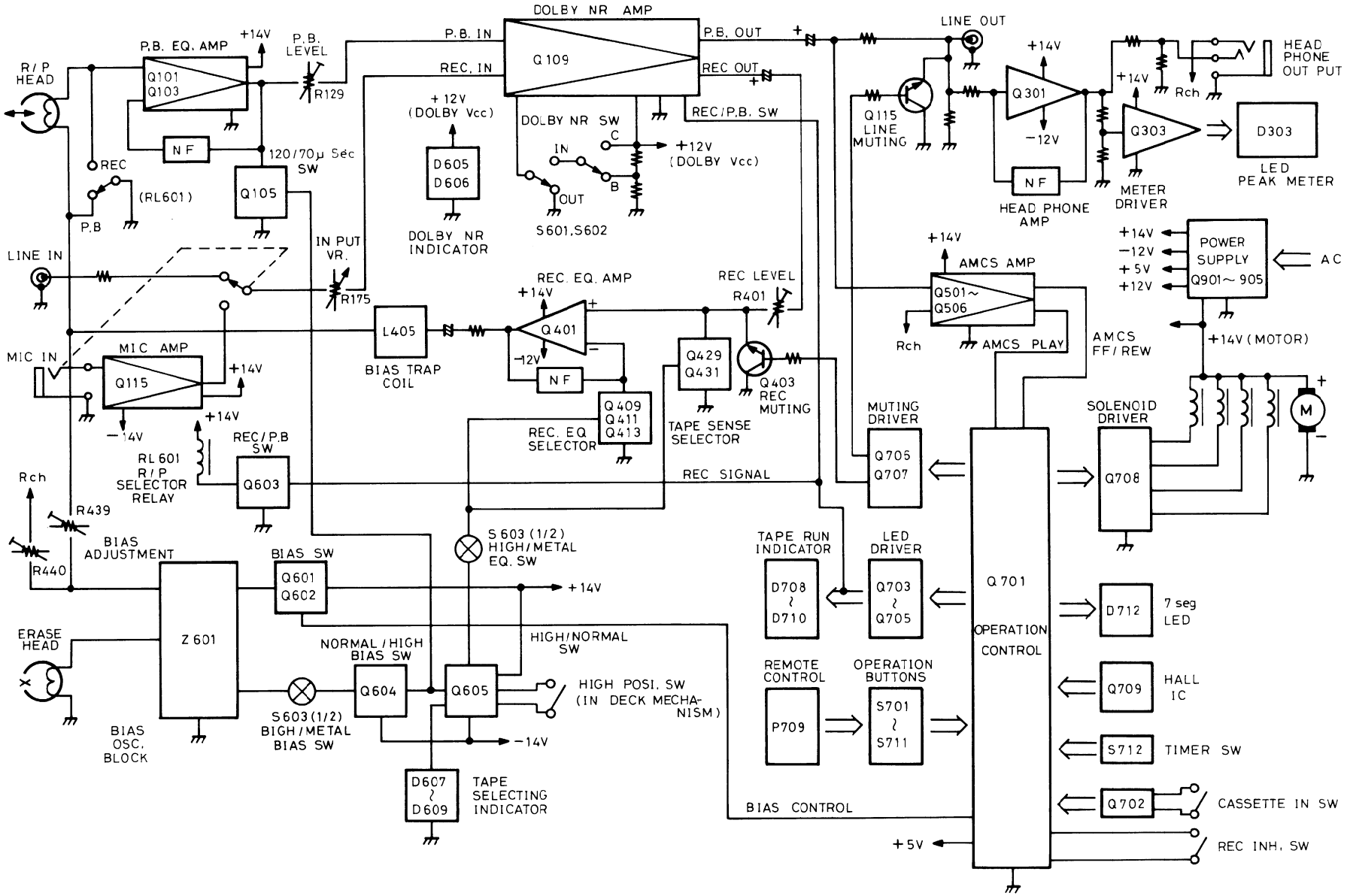
fig-2



Confirming phase relationship

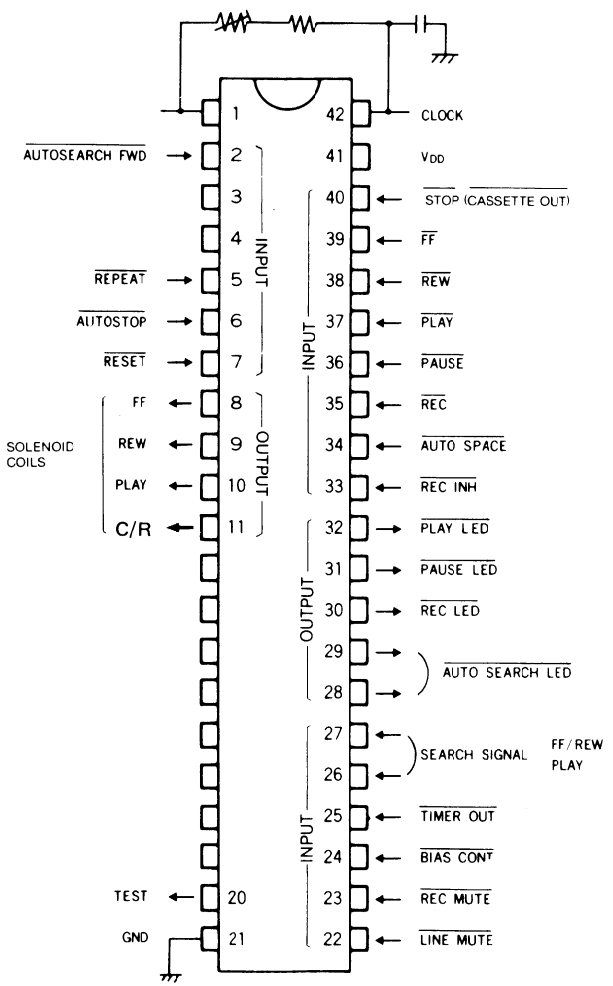
fig-1

BLOCK DIAGRAM

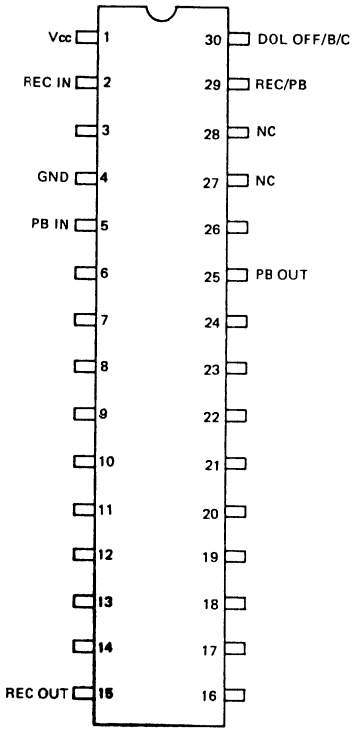
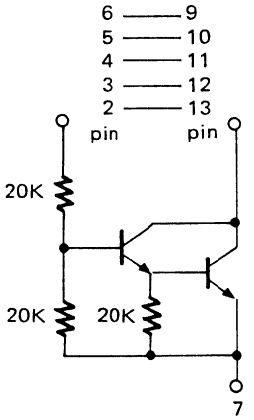


IC BLOCK DIAGRAM

LM6405L-233
(MICROCOMPUTER)



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



LB-1287
(SOLENOID DRIVER)