

# ONKYO SERVICE MANUAL

## CASSETTE TAPE DECK

### MODEL TA-6510



UD	120VAC, 60Hz
UP	230VAC, 50Hz
UW	120/220VAC, 50/60Hz

#### SAFETY-RELATED COMPONENT WARNING!!

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

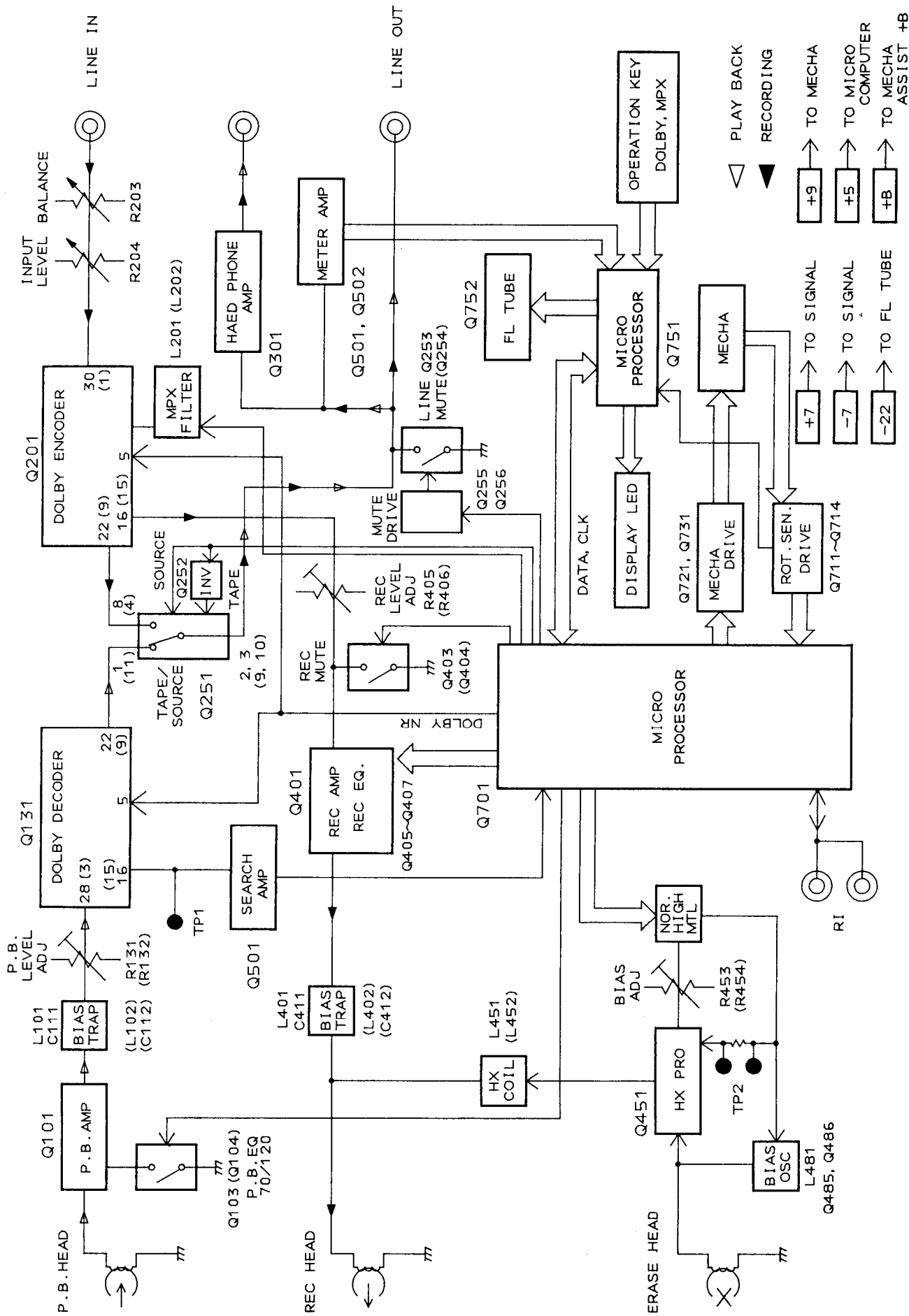
**ONKYO**  
**AUDIO COMPONENTS**

## SPECIFICATIONS

Track Format:	4-tracks, 2-channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.)
Wow and Flutter:	0.045% (WRMS) 0.09 (DIN)
Frequency Response:	20—18,000Hz (normal) (30—17,000Hz $\pm$ 3dB) 20—19,000Hz (high) (30—18,000Hz $\pm$ 3dB) 20—20,000Hz (metal) (30—19,000Hz $\pm$ 3dB)
S/N Ratio:	60dB (metal tape, Dolby NR off) 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: 80 mV Input impedance: 50 kohms
Output Jacks:	LINE OUT: 2 Standard output level: 500 mV (0dB) Optimum load impedance: over 50 kohms Headphone jack: 1 Optimum load impedance: 8 to 200 ohms
Motors:	DC servo motor: 1 DC motor: 3
Heads:	REC/PB: Special Hard Permalloy x 2 Erase head: Ferrite x 1
Power Supply Rating:	U.K. and Australian models AC 240 V 50 Hz European models (Except U.K.) AC 230 V, 50Hz Worldwide models AC 120 and 220 V, Switchable 50/60 Hz
Power Consumption:	13 watts
Dimensions:	455(W) x 120(H) x 310(D)mm 17 <sup>15</sup> / <sub>16</sub> " x 4 <sup>3</sup> / <sub>4</sub> " x 12 <sup>3</sup> / <sub>16</sub> "
Weight:	5.0 kg. (11.0 lbs.)

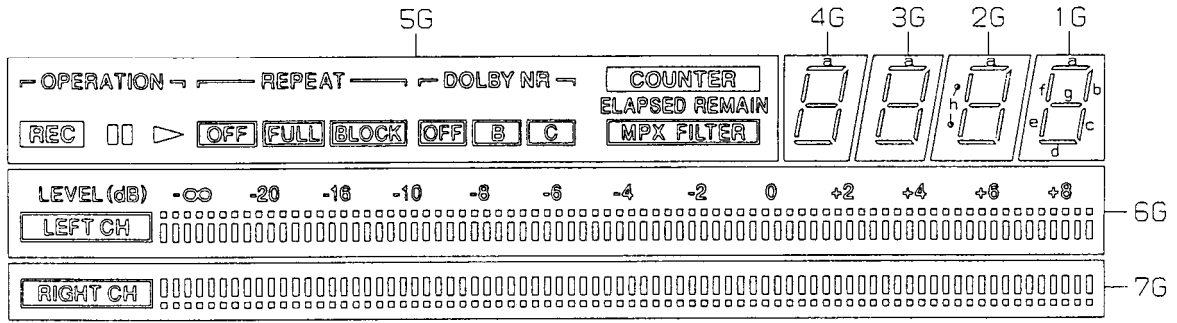
Specifications and external appearance are subject to change without notice because of product improvements.

**BLOCK DIAGRAM**

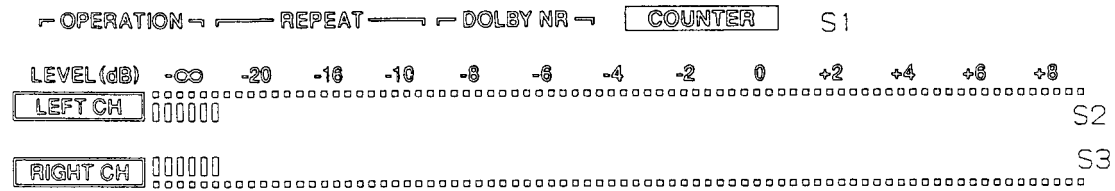


- ▷ PLAY BACK
- ◀ RECORDING
- ▷ +9 → TO MECHA
- ▷ +5 → TO MICRO COMPUTER
- ▷ +B → TO MECHA ASSIST +B
- ▷ +7 → TO SIGNAL
- ▷ -7 → TO SIGNAL
- ▷ -22 → TO FL TUBE

**FLUORESCENT TUBE  
BJ199GK  
GRID ASSIGNMENT**



(5G~7G)



(6G, 7G)



**PIN CONNECTION**

PIN NO.	4	4	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1						
CONNECTION	F	F	N	P	P	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	P	P	1	7	1	6	1	5	4	3	2	1	N	N	F	F

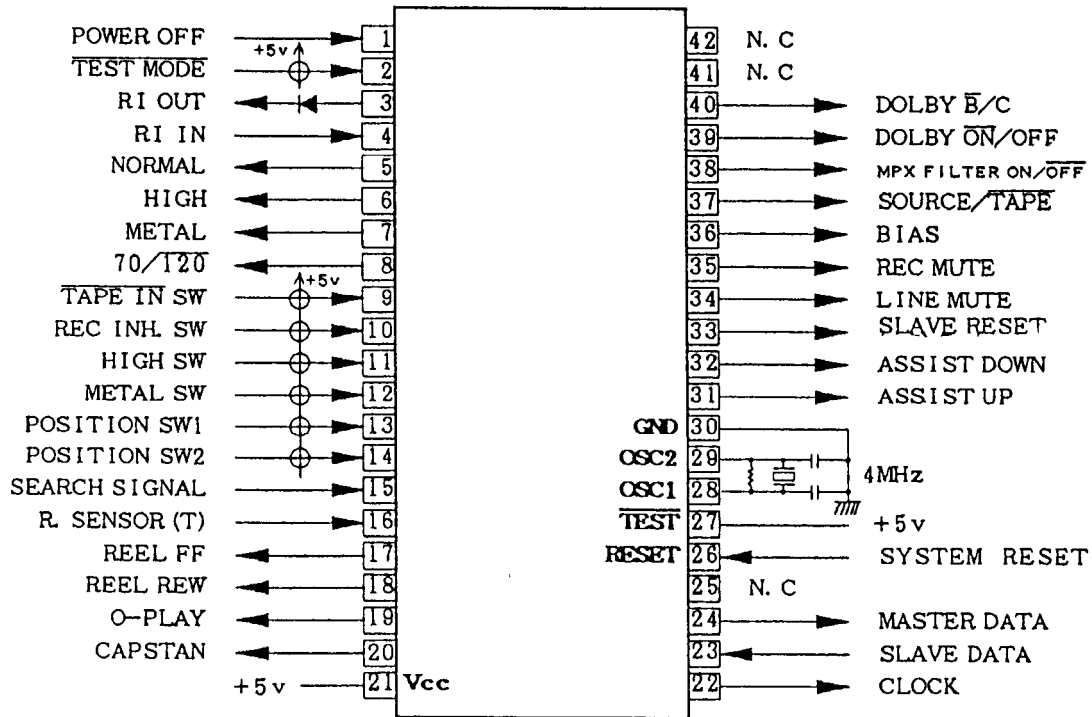
- NOTE
- 1) F1, F2 --- Filament
  - 2) NP ----- No pin
  - 3) NC ----- No connection
  - 4) DL ----- Datum Line
  - 5) 1G~7G --- Grid

**ANODE CONNECTION**

	7G	6G	5G	4G	3G	2G	1G
P1	B1	B1	REC	a	a	a	a
P2	B2	B2	□□	b	b	b	b
P3	B3	B3	▷	c	c	c	c
P4	B4	B4	OFF	d	d	d	d
P5	B5	B5	FULL	e	e	e	e
P6	B6	B6	BLOCK	f	f	f	f
P7	B7	B7	OFF	g	g	g	g
P8	B8	B8	B	-	-	h	-
P9	B9	B9	C	-	-	-	-
P10	B10	B10	ELAPSED	-	-	-	-
P11	B11	B11	REMAIN	-	-	-	-
P12	B12	B12	MPX FILTER	-	-	-	-
P13	-	-	S1	-	-	-	-
P14	-	S2	-	-	-	-	-
P15	S3	-	-	-	-	-	-

# MICROCOMPUTER

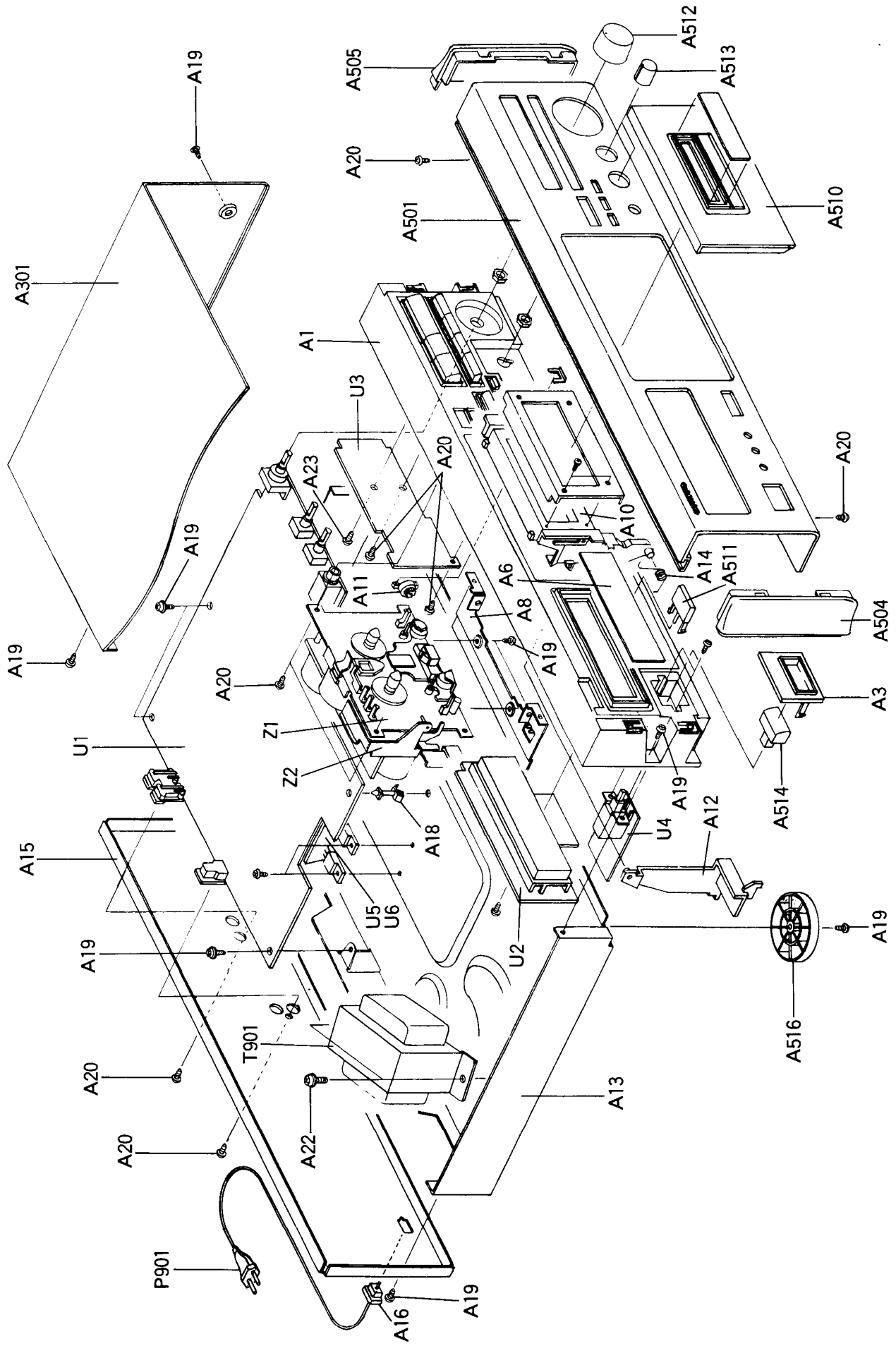
HD40A4240A57S



## MICROCOMPUTER TERMINAL DESCRIPTION (HD40A4240A57S)

Port no.	Name	I/O	Description
1	POWER OFF	IN	Power off detection
2	TEST MODE		
3	RI OUT	OUT	RI cord output
4	RI IN	IN	RI cord input
5	NORMAL	OUT	REC/PB equalizer control active:H
6	HIGH	OUT	
7	METAL	OUT	
8	70/120	OUT	
9	TAPE IN SW	IN	Cassette in detection active:L
10	REC INH.SW	IN	Recording prevention,active:H
11	HIGH SW	IN	Tape position selection active:H
12	METAL SW	IN	
13	POSITION SW1	IN	Head position detection switch
14	POSITION SW2	IN	
15	SEARCH SIGNAL	IN	Search signal input
16	R.SENSOR(T)	IN	Reel rotation pulse input
17	REEL FF	OUT	Reel motor control,active:H
18	REEL REW	OUT	
19	0-PLAY	OUT	Reel motor torque control
20	CAPSTAN	OUT	Capstan motor control
21	Vcc	IN	+5V
22	CLOCK	OUT	Clock to counter micron
23	SLAVE DATA	IN	Data input from counter micron
24	MASTER DATA	OUT	Data output to counter micron
25	NC		
26	SYSTEM RESET	IN	System micron reset
27	TEST		
28	OSC 1		System clock 4MHz
29	OSC 2		System clock
30	GND		
31	ASSIST UP	OUT	Assist motor control,active:H
32	ASSIST DOWN	OUT	
33	SLAVE RESET	OUT	Counter micron reset,active:L
34	LINE MUTE	OUT	Line muting,active:H
35	REC MUTE	OUT	Recording muting,active:H
36	BIAS	OUT	Bias control,active:H
37	SOURCE/TAPE	OUT	Source/tape selection
38	MPX ON/OFF	OUT	MPX.filter ON/OFF control active:H
39	DOLBY ON/OFF	OUT	
40	DOLBY $\overline{B/C}$	OUT	
41	NC		
42	NC		

CHASSIS-EXPLODED VIEW



# CHASSIS-EXPLODED VIEW PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A1	27110878	Front bracket	U1	1N213557-2Y	NAAR-4857-2
A6	28191670A	Clear plate	U2	1N213558-2Y	NADIS-4858-2
A8	27130704B	Bracket (F)	U3	1N213559-2Y	NASW-4859-2
A10	27301772A	Cassette frame AS	U4	1N213560-2Y	NASW-4860-2
A11	28400520	Damper	U5	1N213561-2Y	NAETC-4861-2
A12	27273157	Joint (EJ)	U6	1N213562-2Y	NAETC-4862-2
A13	27100277A	Chassis	T901	2301083	NPT-1190D,Power transformer <D>
A14	27180548	Spring		2300967A	NPT-1190P,Power transformer <P>
A15	27122027	Rear panel <D>		2300971A	NPT-1190DG <W>
	27122028	Rear panel <P>	P901	253192HIT	AC cord,AS-UC <D>
	27122029	Rear panel <W>		253193HIT or	AC cord,AS-CEE <P,W>
A16	27300750	Bushing (cord)	JL701	2047172512	NCFC7-172512,FFC
A18	27190480	Holder	W101	2009990300UL	NSAS-4P0434, Socket AS
A19	838130088	3TTB+8B,Screw	W401	2009990299UL	NSAS-6P0433, Socket AS
A20	833430080	3TTP+8P(BC),Screw	Z1	244183	NDM-174,Cassette deck mechanism
A22	830440069	4TTC+6C(BC),Screw	Z2	24603398	Eject AS
A23	838426088	2.6TTB+8B(BC),Screw	Z3	833326047	2.6TTP+4S,Screw
A301	28184479A	Top cover			
A303	838430088	3TTB+8B(BC),Screw			
A501	1N213121Y	Front panel AS			
A502	28198778	Facet			
A503	28141288	Cushion			
A504	28125248-6	End cap (L)			
A505	28125249-6	End cap (R)			
A507	28135199	Badge			
A508	8910301	Stop ring CS-3			
A510	27301769	Cassette lid AS			
A511	28324912	Knob (EJ)			
A512	28324885A	Knob (REC)			
A513	28324845B	Knob (LEV)			
A514	28324140	Knob (POW)			
A515	27267830	Guide (POW)			
A516	27175292	Leg AS			
A517	29110069	Tape			
A518	838130088	3TTB+8B,Screw			
A521	82113006	3P+6FN,Screw			

NOTE: <P>:230V model only  
 <W>:Worldwide model only  
 <D>: 120V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

## PRECAUTION

- Before adjustment, clean the following parts with an alcohol moistend swab.
  - \*record/playback head
  - \*erase head
  - \*pinch roller
  - \*capstan
- Do not use magnetized screwdriver for adjustment.
- Demagnetized record/playback head with a lead demagnetizer.

## TEST EQUIPMENT/TOOL REQUIRED

Audio oscillator  
 Digital frequency counter  
 Oscilloscope  
 Attenuater  
 AC voltmeter  
 Non-magnetic screwdriver  
 Test tapes  
 TCC-153 : 10kHz, -15dB  
 MTT-111 : 3kHz, -10dB  
 MTT-150 : Dolby level calibration  
 400Hz, tone 200nWb/m

Item	Connection of instrument	Line output freq/level	Test tape	Mode	Output indicator	Adjustment point	Adjustment	Remarks	
1	Tape speed	Frequency counter to LINE output terminal	MTT-111	PB	Frequency counter	Trimmer resistor inside of capstan motor	3,000Hz± 10Hz		
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal	TCC-153	PB	AC voltmeter	Fig.1	Maximum level & same phase at channels L and R	Fig.2	
3	Playback level	AC voltmeter to terminals TP1	MTT-150	PB	AC voltmeter	R131(L.ch) R132(R.ch)	300mV		
4	OSC Block	Frequency counter to P401 lead loose coupling	METAL TAPE	REC	Frequency counter	L481	107kHz± 1kHz	measure point P401	
5	HX-PRO	DC voltmeter to terminals TP2	METAL TAPE	REC	DC voltmeter	L451(L.ch) L452(R.ch)	Minimum	R453 R454 Fully turn clock wise	
6	Biass current		1kHz,35mV & 12.5kHz,35mV	NORMAL TAPE	REC/ PB	AC voltmeter	R453(L.ch) R454(R.ch)	1kHz : 12.5kHz 0dB : +0.5dB	Repeat the recording & play back until the 1kHz playback signals are same level
7	Recording level	AC voltmeter to LINE output terminal	1kHz 350mV	NORMAL TAPE	REC/ PB	AC voltmeter	R405(L.ch) R406(R.ch)	Same level at REC/PB	

## Blank tapes

NORMAL···UD-1 C-90

HIGH·····XL-II C-90

METAL···XS C-90

PLAY torque·····30~70g/cm

FF.REW torque·····80~180g/cm

Back tension·····6~12g/cm

Head azimuth screw

Don't touch these screws.

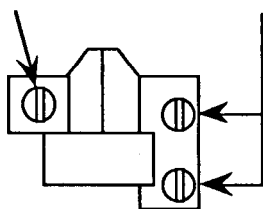
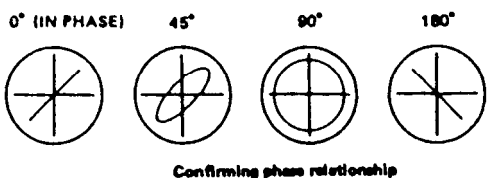
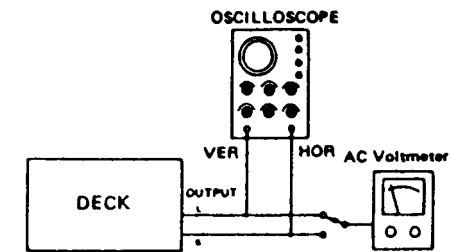
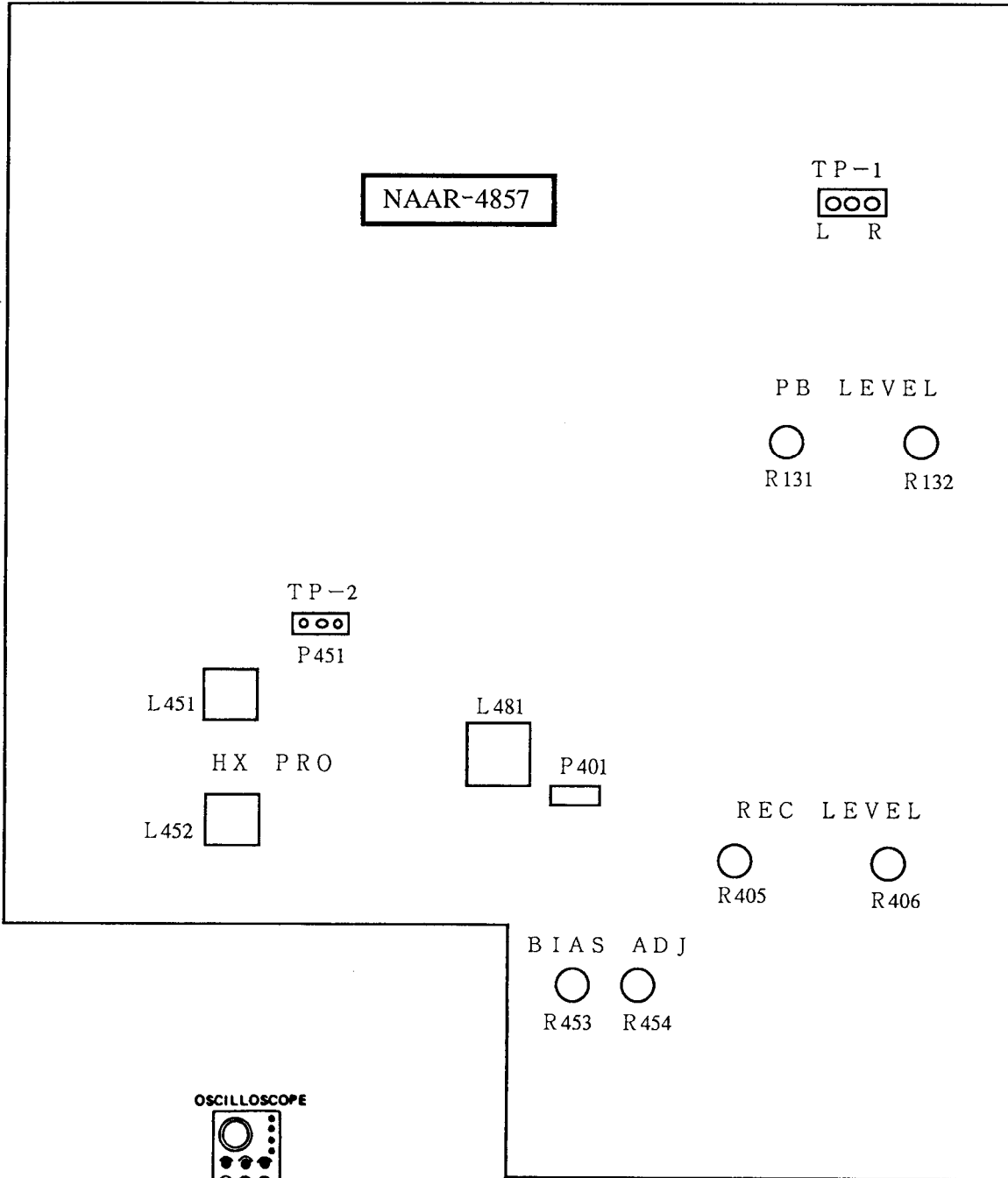


Fig.1 R/P Head



# ADJUSTMENT POINTS



Confirming phase relationship

fig-1

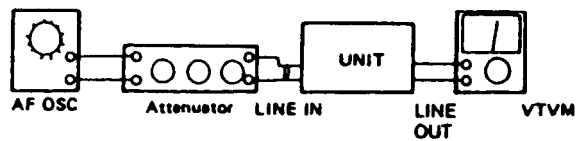
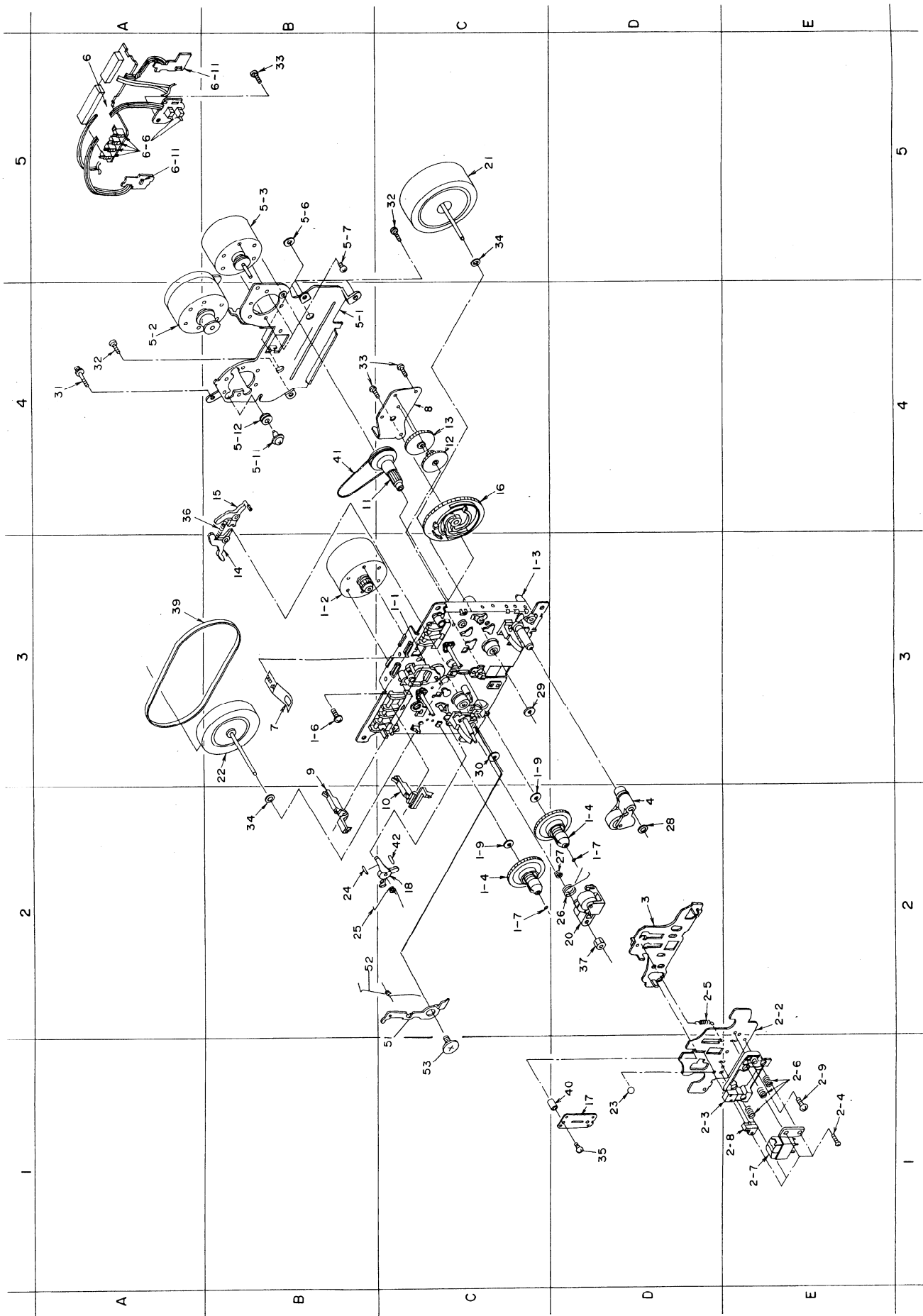


fig-2

# TAPE MECHANISM-PARTS LIST

REF.NO.	PARTS NO.	DESCRIPTION
1-1	24602571	IDLER AS
1-2	24601275	REEL MOTORAS
1-4	24602586	REEL BASE
1-6	24609062	PAN HEAD SCREW 2.6×10
1-7	24611177	PLASTIC WASHER 1.7×3.2×2× .25
1-9	24611175	PLASTIC WASHER 2.1×7×.25
2	24611571	PLAY HEAD BLOCK
2-2	24611572	HEAD BASE D
2-3	24611573	HEAD SPACER
2-4	24609063	PAN HEAD SCREW 2.0×8
2-5	24605784	SPRING (HEAD BASE)
2-6	24605785	SPRING
2-7	24600119	REC/PB HEAD
2-8	24600120	ERASE HEAD
2-9	833126059	TAPPING SCREW CT 2.6×5
3	24611574	P BASE BLOCK
4	24602541	PINCH ROLLER AS
5-2	24601274	MAIN MOTOR
5-3	24601276	MOTOR MMN-6F4RB82
5-6	24609070	WHEEL CATCH SCREW
5-7	24609065	PAN HEAD SCREW SW2.6×3
5-11	24609056	SCREW (MOTOR)
5-12	24611523	CUSHION (MOTOR)
6	24606521	PC BOARD C BLOCK
6-6	24606271	PUSH SWITCH
6-11	24606522	SPI-335-34
7	24605739	SPRING
8	24607131	BRACKET (P.C.B.) H
9	24603365A	LEVER (REC)
10	24603367	LEVER (METAL) L
11	24602574	GEAR (A)
12	24602575	GEAR (B)
13	24602576	GEAR (C)
14	24603393	BRAKE (L)
15	24603394	SLIDE LEVER
16	24602577	CAM GEAR (H)
17	24605787	SPRING
18	24611575	BT ARM
20	24602581	PINCH ROLLER AS (L)
21	24602582	FLY WHEEL AHK (R)
22	24602583	FLY WHEEL TS (L)
23	24611039	STEEL BALL
24	24611576	FELT H
25	24605793	BACK TENTION SPRING
26	24605794	PINCH ROLLER SPRING
27	24605795	HIGHT ADJUST SPRING
28	24611554	WASHER 3.5×0.25
29	24611555	OIL SEAL 2.4×0.25
30	24611188A	WASHER (OIL SEAL)
31	24609042	S-TIGHT SCREW M2.6×25
32	838126080	SCREW 2.6×8
33	838126060	SCREW 2.6×6
34	24611041	PLASTIC WASHER 2.6×0.25
35	833120079	PAN HEDSCREW TT2.6×7ZN
36	24605788	SPRING (BRAKE)
37	24611581	NYLON NUT
39	24602584	MAIN BELT
40	24611580	SPACER
41	24602579	BELT
42	24604101	BT ARM SH
51	24607041B	ARM(PROTECT)L
52	24605786	SPRING
53	24609006A	SCREW
	2009990300	NSAS-4P0434,PB HEAD WIRE
	2009990299	NSAS-6P0433,REC & ERASE HEAD WIRE

TAPE MECHANISM-EXPLODED VIEW



# PRINTED CIRCUIT BOARD – PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs		D903-D906	22380035 or 22380046	GP104003E or AM01Z
Q101	222956	NJM2068D-D	D907,D908	223163	1SS133
Q131,Q201	22240631	HA12142NT-01	D909	224450562	MTZ5.6B, Zener
Q251	222840661TOS	4066B	D911,D912	22380035 22380046	GP104003E AM01Z
Q301	22240368	M5218AL		224452204	MTZJ22D, Zener
Q451	222959 or 222959	$\mu$ PC1297CA or $\mu$ PC1297CA	D913	224450562	MTZ5.6B, Zener
Q501	22240040	NJM2902N	D914		
Q502	22240313	BA6138		Coils	
Q701	22240746	HD40A4240A, 57S	L101,L102	231086	NCH-2134, CHOKE COIL
Q721, Q731	22240239	TA7291S	L201,L202	233436	NMC-6081, MPX COIL
Q903	222465	NJM4558D	L401,L402	231086	NCH-2134, CHOKE COIL
Q904	222780055MIT	M5F78M05L	L451,L452	231100	NCH-4147, CHOKE COIL
Q905	222780095JRC	NJM78M09FA	L481	231212	NLO-2057, OSC COIL
	Transistors		X701	3010150	CST4.00MGW, CERA LOCK
Q103,Q104	2213284 or 2213285	2SC1740S-R or 2SC1740S-S		Capacitors	
Q151	221281	DTC114YS	C101,C102	373302214	PP09 125V, 221J, PP C
Q203,Q204	221299	DTC114TS	C103,C104	374721015	ECQ-B50V, 101K, TF C
Q252	221282	DTC144ES	C105,C106	393142217	CE04W16V, 220M, FM C
Q253,Q254	2211705 or 2211706	2SD655-E or 2SD655-F	C107,C108	374722215	ECQ-B50V, 221K, TF C
Q255	2213354 or 2213355	2SA933S-R or 2SA933S-S	C109,C110	374721834	ECQ-B50V, 183J, TF C
Q256	2213284 or 2213285	2SC1740S-R or 2SC1740S-S	C113,C114	374723934	ECQ-V50V, 393J, TF C
Q401	22240267	CXA1198AP	C115,C116	374723324	ECQ-B50V, 332J, TF C
Q403,Q404	2213284 or 2213285	2SC1740S-R or 2SC1740S-S	C117	374722734	ECQ-V50V, 273J, TF C
Q405-Q407	221281	DTC114YS	C119,C120	354744719	CE04W16V, 470M, ELECT C
Q481	2212600	DTA124ES	C131,C132	354780229	CE04W50V, 2.2M, ELECT C
Q482-Q484	221281	DTC114YS	C133-C136	374722224	ECQ-B50V, 222J, TF C
Q485,Q486	2211544	2SC1959-Y	C137,C138	354761009	CE04W35V, 10M, ELECT C
Q487	2212853 or 2212853 or 2212855 or 2212855 or	2SB1068-K(C) or 2SB1068-K or 2SB1068-U(C) or 2SB1068-U or	C139,C140	374722224	ECQ-B50V, 222J, TF C
Q488,Q732	221281	DTC114YS	C141-C144	374721044	ECQ-V50V, 104J, TF C
Q702-Q704	2212600	DTA124ES	C145,C146	393142217	CE04W16V, 220M, FM C
Q711,Q712	2213284 or 2213285	2SC1740S-R or 2SC1740S-S	C147,C148	374722734	ECQ-V50V, 273J, TF C
Q713,Q714	221282	DTC144ES	C151	354780109	CE04W50V, 1M, ELECT C
Q722	2211705 or 2211706	2SD655-E or 2SD655-F	C201,C202	354780229	CE04W50V, 2.2M, ELECT C
Q906	2213354 or 2213355	2SA933S-R or 2SA933S-S	C203,C204	374723324	ECQ-B50V, 332J, TF C
	Diodes		C205-C208	374722224	ECQ-B50V, 222J, TF C
D151-D701	223163	1SS133	C209,C210	354761009	CE04W35V, 10M, ELECT C
D702	224450562	MTZ5.6B, Zener	C211,C212	374722224	ECQ-B50V, 222J, TF C
D703	223163	1SS133	C213-C216	374721044	ECQ-V50V, 104J, TF C
D721	224450913	MTZ9.1C, Zener	C217,C218	393142217	CE04W16V, 220M, FM C
D731	224450433	MTZ4.3C, Zener	C219,C220	374722734	ECQ-V50V, 273J, TF C
D732	224450752	MTZ7.5B, Zener	C252	354780479	CE04W50V, 4.7M, ELECT C
D901	22380022F or 22380046	RBV402 or AM01Z	C253	354780229	CE04W50V, 2.2M, ELECT C
D902	22380035 22380046	GP104003E AM01Z	C255,C256	354741019	CE04W16V, 100M, ELECT C
			C301,C302	393142217	CE04W16V, 220M, FM C
			C324-C404	354780229	CE04W50V, 2.2M, ELECT C
			C407,C408	393142217	CE04W16V, 220M, FM C
			C409,C410	354780479	CE04W50V, 4.7M, ELECT C
			C451	354761009	CE04W35V, 10M, ELECT C
			C453,C454	374721034	ECQ-B50V, 103J, TF C
			C457-C460	374723334	ECQ-V50V, 333J, TF C
			C461,C462	370131014	APS100V, 101J, APS C
			C463,C464	370134714	APS100V, 471J, APS C
			C465	354780479	CE04W50V, 4.7M, ELECT C
			C466	374722734	ECQ-V50V, 273J, TF C
			C471,C472	354761009	CE04W35V, 10M, ELECT C
			C481	393142217	CE04W16V, 220M, FM C

CIRCUIT NO.	PART NO.	DESCRIPTION
C482,C484	374723324	ECQ-B50V, 332J, TF C
C483	374721034	ECQ-B50V, 103J, TF C
C485	354744709	CE04W16V, 47M, ELECT C
C486	370131234	APS100V, 123J, APS C
C501,C502	354780479	CE04W50V, 4.7M, ELECT C
C503,C504	354761009	CE04W35V, 10M, ELECT C
C505	354744709	CE04W16V, 47M, ELECT C
C701	354761009	CE04W35V, 10M, ELECT C
C704,C722	354780229	CE04W50V, 2.2M, ELECT C
C721,C731	354741019	CE04W16V, 100M, ELECT C
C732	352980226	VPO4D50V, 2.2M, ELECT C
C902	374724734	ECQ-V50V, 473J, TF C
C903,C904	391954727S	CE04W25V, 4700M, RA2 C
C905	354741019	CE04W16V, 100M, ELECT C
C907,C908	354761009	CE04W35V, 10M, ELECT C
C909,C910	393082217S	CE04W50V, 220M, ARE C
C911,C912	374722734	ECQ-V50V, 273J, TF C
C921,C922	354761009	CE04W35V, 10M, ELECT C
C923	354761019	CE04W35V, 100M, ELECT C
C924	354780479	CE04W50V, 4.7M, ELECT C
C925	354762219	CE04W35V, 220M, ELECT C
C926	3500181	CE69W16V, 22000M, ELECT C
C927	393142217	CE04W16V, 220M, FM C
C928	374722734	ECQ-V50V, 273J, TF C
C929	354761009	CE04W35V, 10M, ELECT C
C930	354744709	CE04W16V, 47M, ELECT C
Resistors		
R131,R132	5210263	N06HR, 20KBC, TRIM R
R203	5104307	N09RLC, 250KW20, VARI R
R204	5104330	N16RGL50KA, 20Z, VARI R
R405,R405	5210066	N06HR, 22KBD, TRIM R
R451	5104309	N09RLC, 5KB20, VARI R
R453,R454	5210263	N06HR, 20KBC, TRIM R
R461	443524704	RS1/2WBJ, 47, METAL O R
R483,R732	443521004	RS1/2WBJ, 10, METAL O R
R701	49163392406	RM1/10IJ, 3.9K*6, R NET
R722	453530224	RNU1/2WCJ, 2.2, METAL R
R901,R902	453530334	RNU1/2WCJ, 3.3, METAL R
R915	453530104	RNU1/2WCJ, 1, METAL R
Plugs,Socket		
P101	25055148	NPLG-4P132, P Plug
P131	25055133	NPLG-3P117, P Plug
P201	25045329	NPJ-4PDBL183, Pin jack
P301	25045377	Hlj-7000-01, -3010, Jack
P401	25055150	NPLG-6P134, P Plug
P451	25055132	NPLG-2P116, P Plug
P701	25050849	NSCT-17P644, Socket
P702	25050527	NSCT-5P350, Socket
P703,P704	25051103	NSCT-9P890, Wire hol
P705	25045330	NPT-2PDBL184, Jack
JL703	9J150606K20	UL2651#26, 9-2.0, Jumper lead
JL704	9J150606K20	UL2651#26, 9-2.0, Jumper lead
	25060075	5P-7.5, WW Trm
	27141059	E Plate

DISPLY CIRCUIT PC BOARD (NADIS-4858-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
Transistors		
Q751	22240737	HD404314A, 18S
Q752	212126	BJ199GK, FL Tube
Q753,Q754	2213284 or 2213285	2SC1740S-R or 2SC1740S-S
Diode		
D751	224450562	MTZ5.6B, Zener
Resonator		
X751	3010150	CST4.00MGW, CERA LOCK
Capacitor		
C751	354761009	CE04W35V, 10M, ELECT C
Switch,Socket		
S751-S753	25035652	NPS-111-S604, Power switch
P701A	25050881	NSCT-17P676, SOCKET
	27190838A	HOLDER(FL)

SWITCH PC BOARD (NASW-4859-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
Diodes		
D761	225291D	SEL4910D-D, LED
D762	225290	SEL4110R, LED
Switch,Wire		
S761-S771	25035652	NPS-111-S604,Push switch
P702A	25051099	NSCT-5P886, Wire hol

SWITCH PC BOARD (NASW-4860-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
Capacitor		
C901	△ 3500065A	DE7150FZ103P, AC400V/125V, IS C
Switch		
S901	△ 25035636	NPS-111-L590P,Power switch
Plugs		
P901	25055675	NPLG-2P631, P Plug
P902	25060103	2P-10, WW Trm

POWER SUPPLY PC BOARD (NAETC-4861-2)

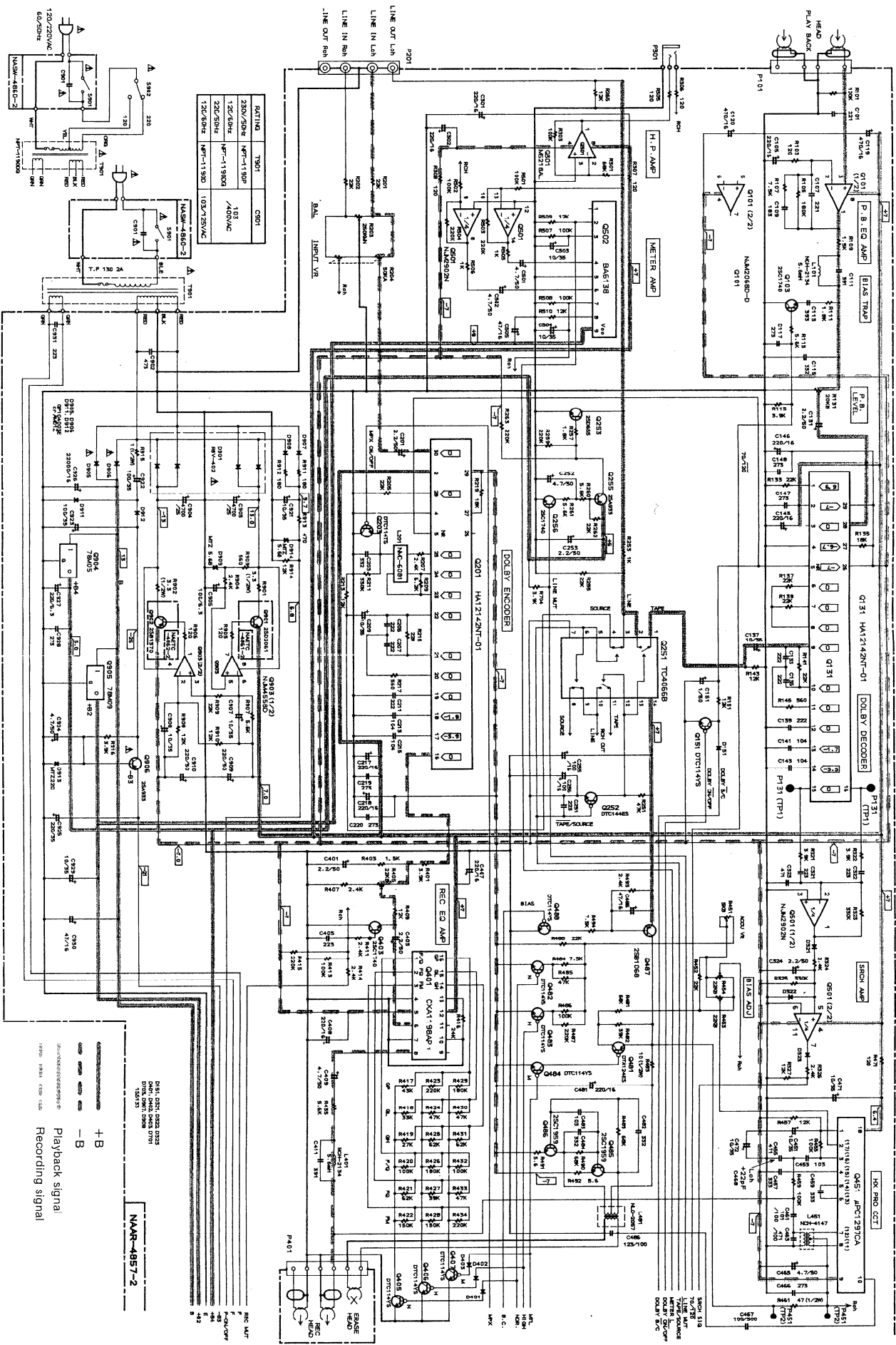
CIRCUIT NO.	PART NO.	DESCRIPTION
Transistors		
Q901	2202115 or 2202116	2SD2061-E or 2SD2061-F

POWER SUPPLY PC BOARD (NAETC-4862-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
Transistors		
Q902	2202175 or 2202176	2SB1370-E or 2SB1370-F

SCHEMATIC DIAGRAM 1/2

A B C D E F G

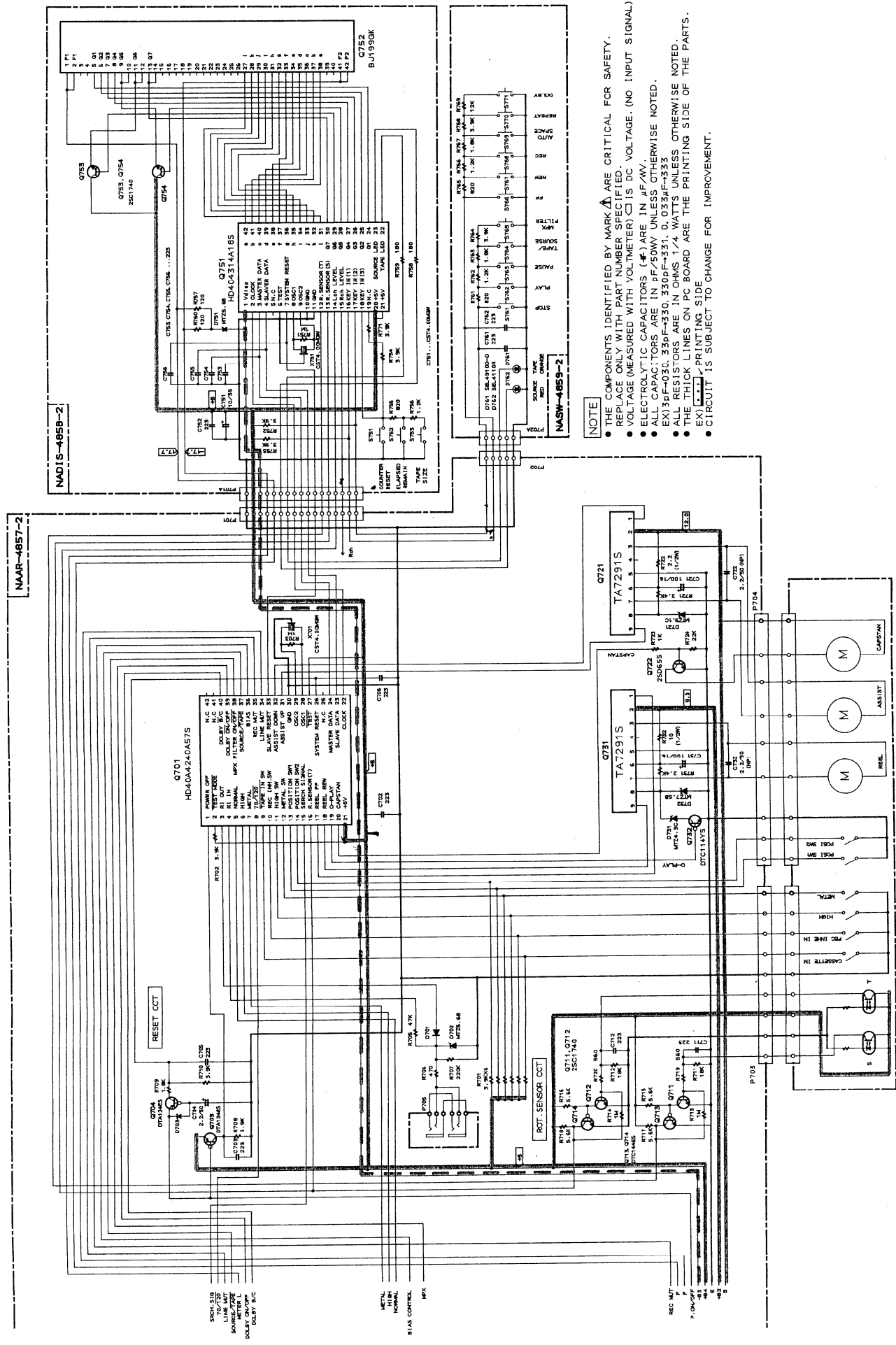


+B Playback signal  
 -B Recording signal

NAAR-4857-2

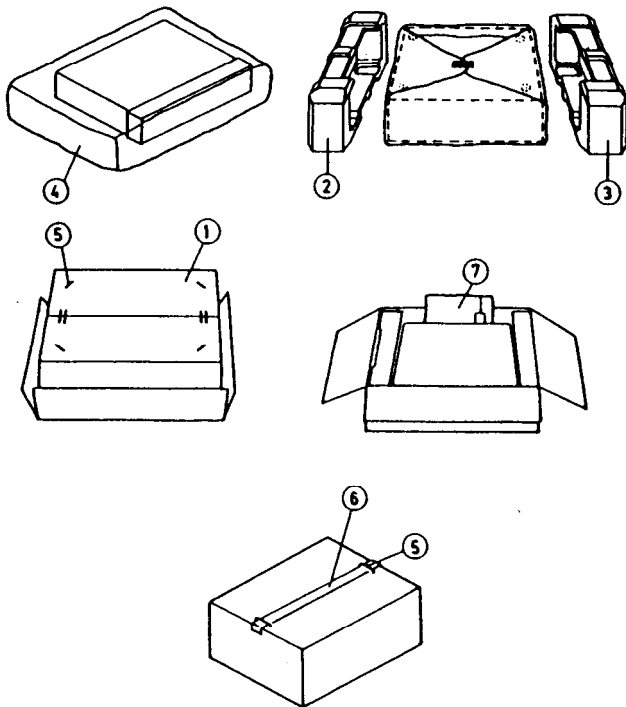
A B C D E F G

SCHEMATIC DIAGRAM 2/2



- NOTE**
- THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR SAFETY.
  - REPLACE ONLY WITH PART NUMBER SPECIFIED.
  - VOLTAGE MEASURED WITH VOLTMETER  $\square$  IS DC VOLTAGE. (NO INPUT SIGNAL)
  - ELECTROLYTIC CAPACITORS ( $\Psi$ ) ARE IN  $\mu$ F/WV.
  - ALL CAPACITORS ARE IN PF/50WV UNLESS OTHERWISE NOTED.
  - EX) 30F-030, 330P-330, 0.033M-333
  - ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
  - THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  - $\square$  PRINTING SIDE
  - $\square$  CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

## PACKING VIEW



## PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
1	29052848Y	Carton
2	29091636AY	Pad (L)
3	29091637AY	Pad (R)
4	29100034-1Y	Poly bag 650×850
5	282301	STAPLE
6	29110071	PP TAPE W=50
7	Accessory bag ass'y	
	29342091Y	Instruction manual (E) <D>
	29342092Y	Instruction manual (U6) <P>
	29342093Y	Instruction manual (G) <V>
	29342094Y	Instruction manual (U3) <W,T>
	29100097-1Y	Poly bag 320×250

NOTE: <P>:230V model only  
 <W>:Worldwide model only  
 <D>: 120V model only  
 <V>:German model only  
 <T>:Taiwanese model only

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