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# ONKYO® SERVICE MANUAL


## STEREO CASSETTE TAPE DECK

### MODEL TA-RW909

#### Black models

UDN, UDC, UD	120V AC, 60Hz
UG	230V AC, 50Hz
UW	120 or 220V AC, 50/60Hz
UQA	240V AC, 50Hz

#### 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 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.

## SPECIFICATIONS

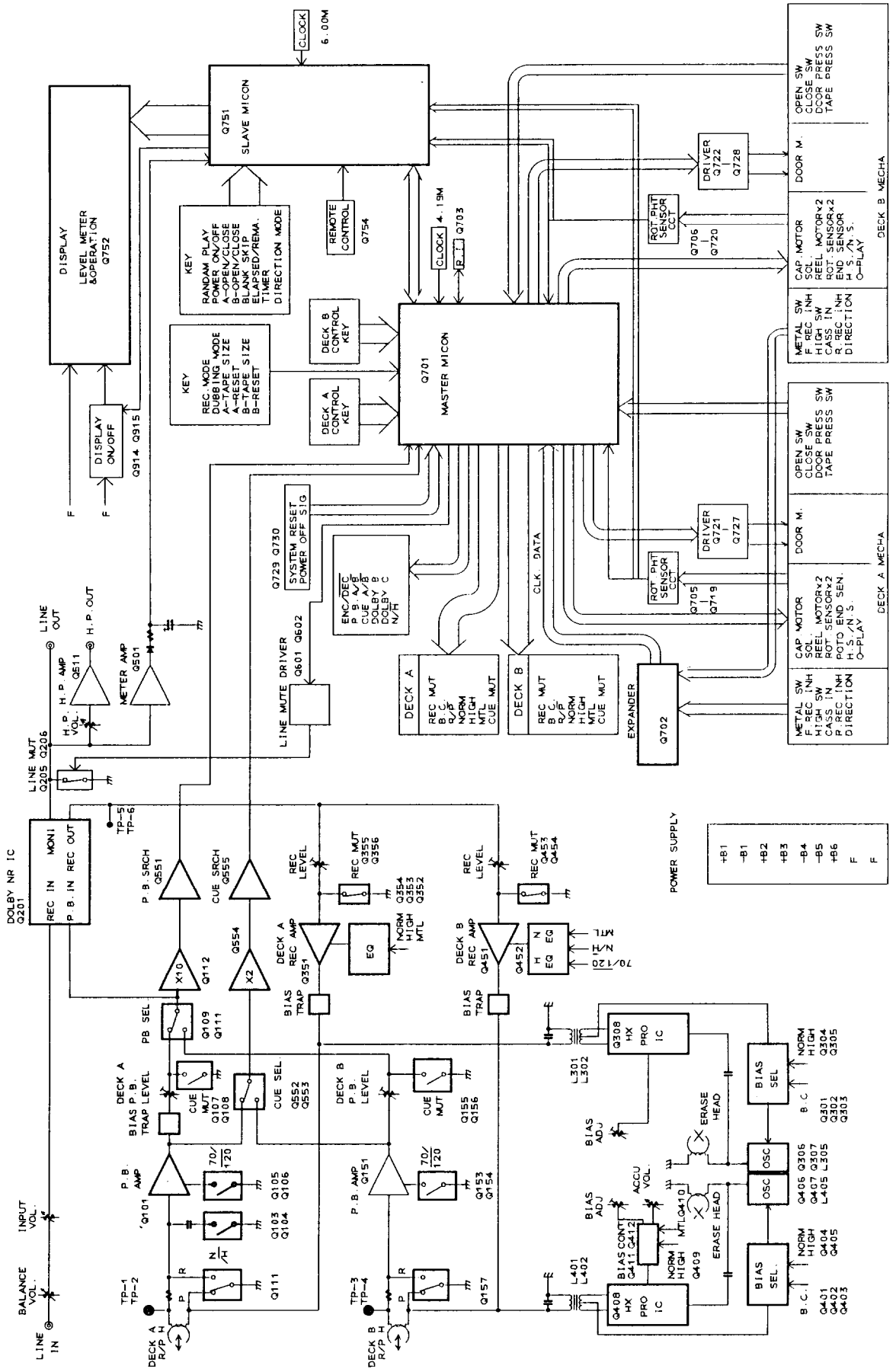
Track System:	4-tracks, 2-channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.) 9.6 cm/sec. (3-3/4 i.p.s.) (high speed dubbing)

Wow and Flutter:	0.065% (WRMS)
Frequency Response:	20 – 15,000Hz (Normal) (30 – 14,000Hz ±3dB) 20 – 16,000Hz (High) (30 – 15,000Hz ±dB) 20 – 17,000Hz (Metal) (30 – 16,000Hz ±3dB)
S/N Ratio:	Dolby NR off: 58dB (metal position tape) A noise reduction of 10dB above 5kHz and 5dB at 1kHz is possible with Dolby B NR. A noise reduction of 20dB at 5kHz is possible with Dolby C NR.
Input Jacks:	Line IN: 2 Input sensitivity: 60mV Input impedance: 50 kohms
Outputs:	Headphone jack: 1 Optimum load impedance: 8 to 200 ohms Line OUT: 2 Standard output level: 500mV (0dB) Optimum load impedance: over 50 kohms
Motors:	DC servo motor x 2; DC motor x 4
Heads:	REC/PB: special hard permalloy x 2; Erase head: ferrite x 2
Power Supply:	<ul style="list-style-type: none"> <li>● U.K and Australian models: AC 240V, 50 Hz</li> <li>● U.S.A and Canadian models: AC 120 V, 60 Hz</li> <li>● Worldwide models: AC120 and 220 V switchable, 50/60 Hz</li> </ul>
Power Consumption:	35 watts
Dimensions:	455(W) x 131(H) x 362(D)mm (17-15/16" x 5-3/16" x 14-1/4")
Weight:	8.2 kg. (18.1 lbs.)

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



# BLOCK DIAGRAM



# CIRCUIT DESCRIPTION

## POWER GLIDE LOADING

For the operation of this function, switch circuits are available as follows:

1. OPEN SW (Mecha. Drwg. 66: Upper 101)
  2. CLOSE SW (Mecha. Drwg. 66: Lower 100)
  3. DOOR PRESS SW (Mecha. Drwg. 68: Appx. 101)
  4. HALF PRESS SW (Mecha. Drwg. 67: Appx. 101)
  5. OPEN/CLOSE SW (Front panel)
1. OPEN SW  
The Loading Motor is to rotate, while operating OPEN, until turned ON this SW by the projection of Cam Gear. Then, because of this SW turned ON, the microcomputer will make a decision that OPEN operation is finished, and stop the Loading Motor.  
If not turned ON this SW within 5 sec. after started OPEN operation, the microcomputer will judge the state to be wrong and then rotate the Loading Motor backwards to make CLOSE operation.
  2. CLOSE SW  
The Loading Motor is to rotate, while operating CLOSE, until turned ON this SW by the projection of Cam Gear. Then, because of this SW turned ON, the microcomputer will make a decision that CLOSE operation is finished, and stop the Loading Motor.  
If not turned ON this SW within 5 sec. after started CLOSE operation, the microcomputer will judge the state to be wrong and then rotate the Loading Motor backwards to make OPEN operation.

3. DOOR PRESS SW  
Under OPEN state, by pressing DOOR manually this SW is to be ON and by letting DOOR go to the original position, this SW will be OFF. The microcomputer will detect this ON to OFF trailing and then rotate Loading Motor so as to carry out CLOSE operation.  
Such an operation, however, shall be carried out only in case where cassette is not put.
4. HALF PRESS SW  
When set the Cassette Half under OPEN condition, this SW is to be ON by pressing upper part of the Cassette Half downward. The microcomputer will detect this OFF to ON rise and then rotate Loading Motor so as to carry out CLOSE operation.

## TEST MODE

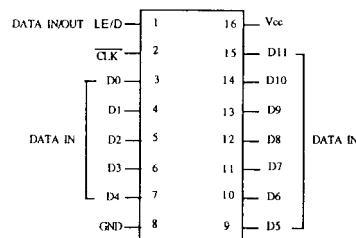
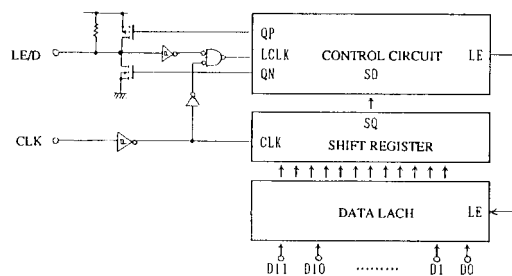
1. By connecting FT Terminal with GND, TEST MODE is to be set up. This operation is to be carried out when adjusting HIGH SPEED.  
At FT Mode, by pressing FWD Button twice continuously, high speed will be set up and, by pressing it again, normal speed will be reset.
2. In order to release TEST MODE, plug off AC cord first and then plug it in again to be reset.

## INPUT EXPANDER (M66007P)

### OPERATION

- (1) When turned power on, LE/D is to be the mode with indefinite Input/Output. And then, after detecting the trailing edge of CLK 13 times and more, LE/D is to be set as Input Mode.
- (2) The access will be started under Input Mode for LE/D with trailing edge from "H" to "L" of LE/D when CLK at "H", and the states from D0 to D11 will be latched.
- (3) Then, LE/D is to be changed into Output Mode from Input and then "L" will be output.
- (4) With trailing edge of CLK from "H" to "L", the data latched in foregoing (2) will be shifted in order and then output in order from D0 to D11 by LE/D.
- (5) After output 12-bit data for D0 ~ D11, the 13th trailing edge of CLK will change LE/D into Input Mode to be ready for the next access.

## M66007P (12 BIT INPUT EXPANDER)



# ADJUSTMENT PROCEDURES

## PRECAUTIONS

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

## TEST EQUIPMENT/TOOLS REQUIRED:

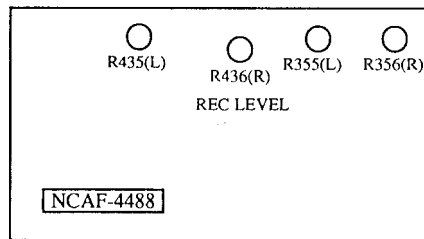
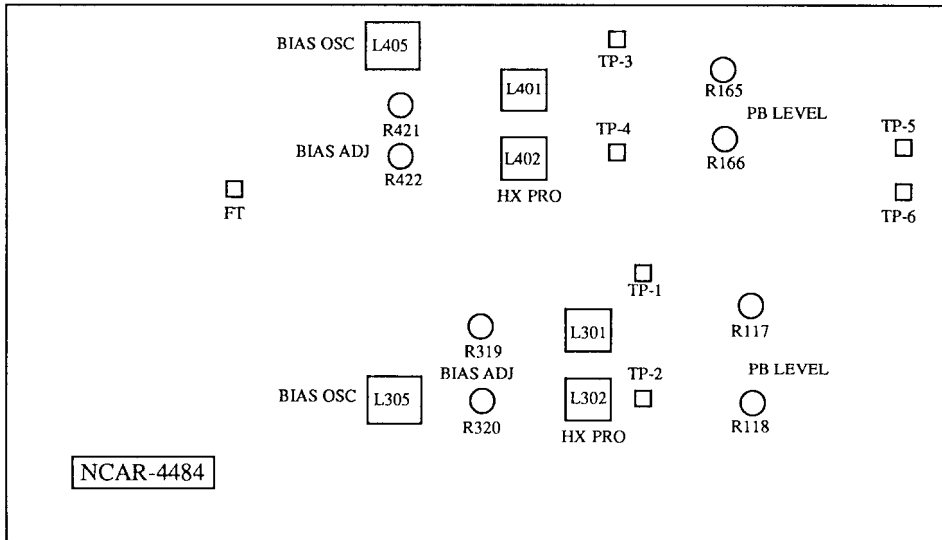
- Audio oscillator  
 Digital frequency counter  
 Oscilloscope  
 Attenuator  
 AC voltmeter  
 Non-magnetic screw driver
- Test tapes
- TCC-153 : 10 KHz, - 5dB
  - MTT-111 : 3 kHz, - 0dB
  - MTT-150 : Dolby level calibration  
400Hz, tone 200nWb/m

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 mechanism P.C.B.	DECK-A 3045±5Hz 6010±10Hz DECK-B 3030±5Hz 6010±10Hz	High speed connect the FT terminal to GND push the FWD button twice continuously	
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal	TCC-153	PB	AC voltmeter	Head azimuth screw	Maximum and same phase at channels L and R	fig-1	
3	Play-back level	AC voltmeter to terminals TP-5 and TP-6	MTT-150	PB	AC voltmeter	T1 R117 (Ch.L) T1 R118 (Ch.R) T2 R165 (Ch.L) T2 R166 (Ch.R)	300mV		
4	OSC Block	Frequency counter to P301 (DECK-A), P401 (DECK-B) read loose coupling	T1, T2 METAL TAPE XS C-60	T1, T2 REC	Frequency counter	DECK-A L-305 DECK-B L-405	105KHz (±1KHz)		
5	HX-PRO	AC voltmeter to TP1, 2 (DECK-A) TP3, 4 (DECK-B)	METAL TAPE XS C-60	REC	AC voltmeter	DECK-A L-301, L-302 DECK-B L-401, L-402	Maximum	DECK-A R-319, R-320 DECK-B R-421, R-422 maximum	
6	Bias current	fig-2	1KHz, -20dB and 12kHz, -20dB	XL-II C-90	REC/PB	AC voltmeter	T1 R319 (Ch.L) T1 R320 (Ch.R) T2 R421 (Ch.L) T2 R422 (Ch.R)	Same level at REC/PB	Input VR maximum.
7	Record level	fig-2	1KHz	XL-II C-90	REC	AC voltmeter	Attenuator or AF OSC output	350mV	
					REC/PB	AC voltmeter	T1 R355 (Ch.L) T1 R356 (Ch.R) T2 R435 (Ch.L) T2 R436 (Ch.R)	Same level at REC/PB	

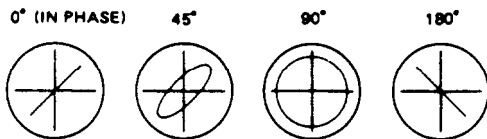
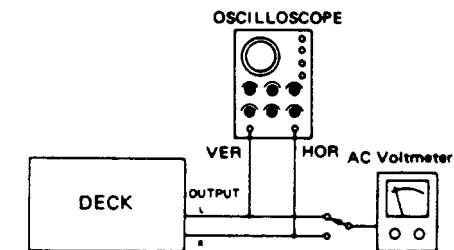
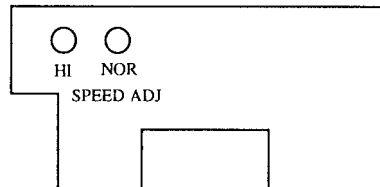
Blank tape

NORMAL ..... UD-1 C-90  
 HIGH ..... XL-II C-90  
 METAL ..... MS C-60  
 PLAY torque ..... 30~70g/cm  
 FF.REW torque ..... 90~180g/cm  
 Back tension ..... 2~6g/cm

# ADJUSTMENT POINT



## DECK MECHA PC BOARD



Confirming phase relationship

fig-1

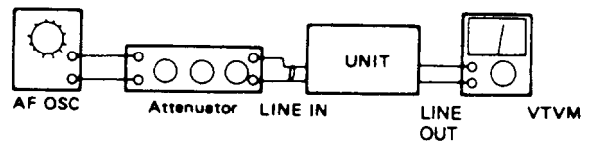
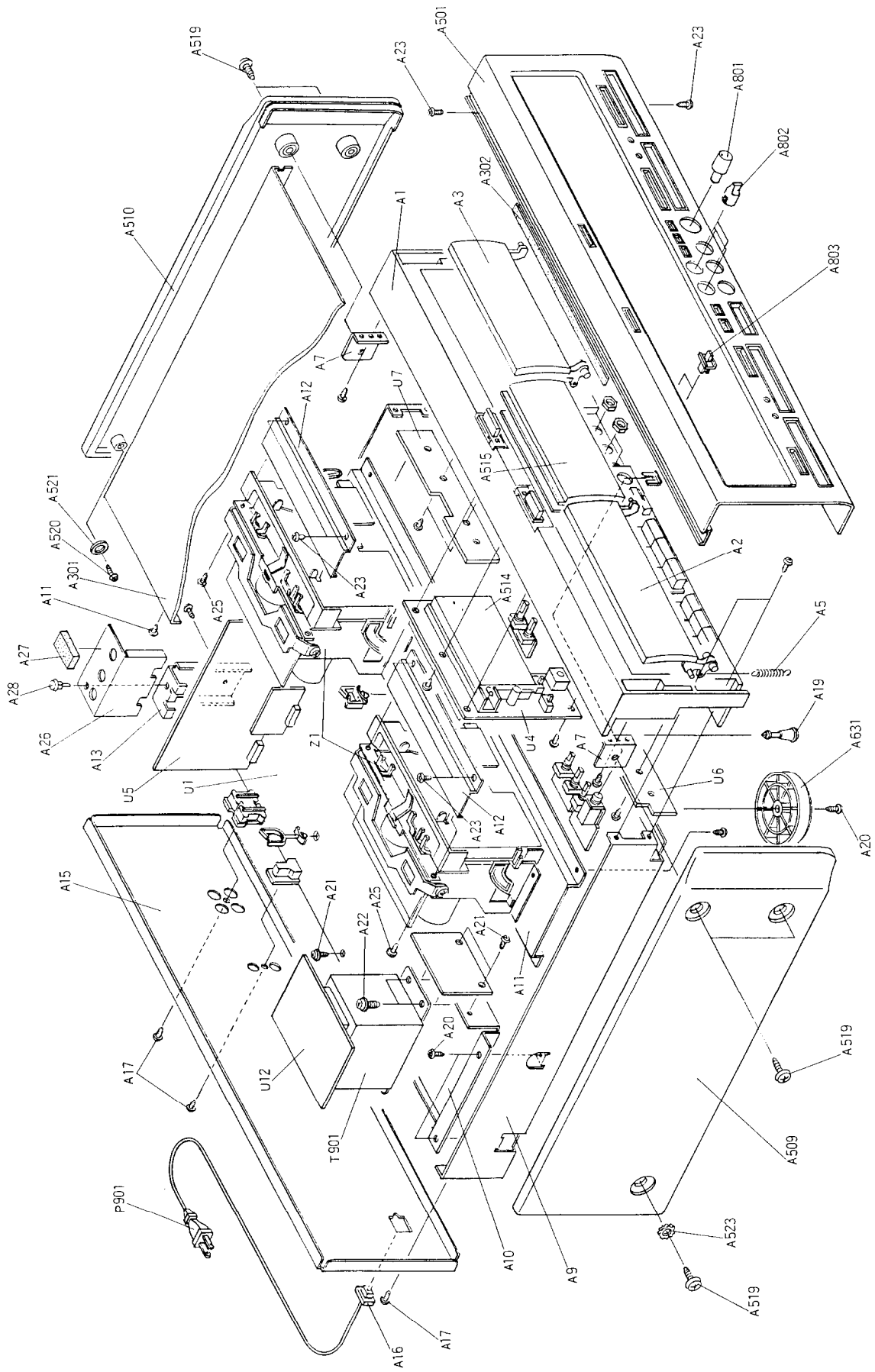


fig-2


CHASSIS-EXPLODED VIEW



# CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
A1	27110707A	FRONT BRACKET AS	P901	253146	AC CORD AS-UC6-#18 [D]
A2	28148266A	DOOR AS (A)		253149	AC CORD AS-CEE [P/W]
A3	28148267A	DOOR AS (B)	T901	2300804	NPT-1145D [D]
A5	27180517	SPRING (LID)		2300805	NPT-1145P [P]
A7	27141496A	BRACKET (S)		2300806	NPT-1145DG [W]
A9	27100247-1A	CHASSIS	U1	IN130584-1	NASR-4484-1
A10	27130695	BRACKET (PT)	U2	IN130585-1	NAETC-4485-1
A11	27130690B	BRACKET (B)	U4	IN130587-1	NADIS-4487-1
A12	27141542A	BRACKET (T)	U5	IN130588-1	NAAF-4488-1
A13	27141544B	BRACKET (PC)	U6	IN130589-1	NASW-4489-1
A15	27121583	BACK PANEL [D]	U7	IN130590-1	NASW-4490-1
	27121584	BACK PANEL [P]	U8	IN130591-1	NAETC-4491-1
	27121586	BACK PANEL [W]	U9	IN130592-1	NAETC-4492-1
A16	27300750	BUSHING (CORD)	U10	IN130593-1	NAETC-4493-1
A17	801230	TAPPING SCREW 3STS+8BQBC	U11	IN130594-1	NAETC-4494-1
A18	27190480	HOLDER	U12	IN130595-1	NAETC-4495-1
A19	27190657	HOLDER	U14	IN130565-1	NAETC-4565-1
A20	834430088	TAP-TIGHT SCREW 3TTS+8BBC	Z1	244167	NASW-4499-1 [W]
A21	831130088	TAP-TIGHT SCREW 3TTW+8B			CASSETTE DECK MECHANISM
A22	830440069	TAP-TIGHT SCREW 4TTC+6CBC			(DECK-A, DECK-B)
A23	833430080	TAP-TIGHT SCREW 3TTP+8PBC	Z2	24611487A	SHIELD PLATE
A25	834430068	TAP-TIGHT SCREW 3TTS+6BBC	Z3	801437	TAPPING SCREW
A26	28175198	SHIELD PLATE			
A27	28141209	CUSHION			
A28	880016	PLASTIC RIVET			
A301	128184490A	TOP COVER			
A302	28140837	CUSHION 250x10x9t			
A501	IN130701K	FRONT PANEL			
A505	28191629A	CLEAR PLATE (RE)			
A509	28185371	SIDE BOARD (L)			
A510	28185377	SIDE BOARD (L) [N]			
	28185372	SIDE BOARD (R)			
	28185378	SIDE BOARD (R) [N]			
A512	28175190	SHIELD PLATE			
A514	28133285A	BACK PLATE			
A515	28191630	CLEAR PLATE			
A519	837440169	TAP-TIGHT SCREW 4TTT+16CB			
A520	834440088	TAP-TIGHT SCREW 4TTS+8BBC			
A521	87644012	WASHER W4x12FBC			
A523	87314008	TOOTH LOCK WASHER M-4B			
A631	27175254	LEG AS			
A801	28324620	KNOB (INP)			
A802	28324621	KNOB (BAL)			
A803	28324625A	KNOB (DOL)			

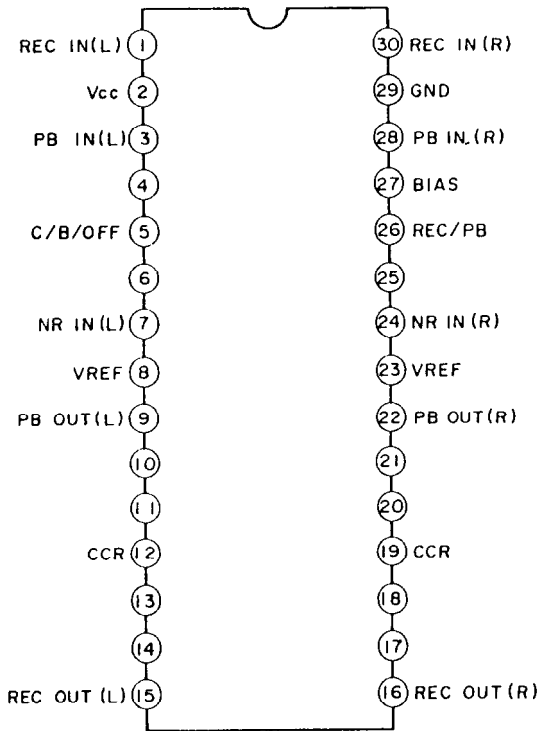
NOTE [D] Only 120V model  
 [P] Only 230V model  
 [W] Only worldwide model  
 [N] Only U.S.A. model

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

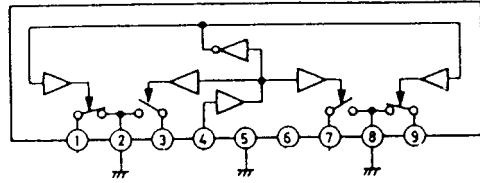


# IC BLOCK DIAGRAM

HA12142NT (DOLBY NR)



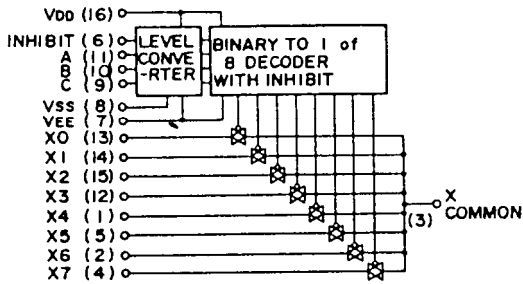
μPC 1330HA (REC/PB SW)



μPC1330HA

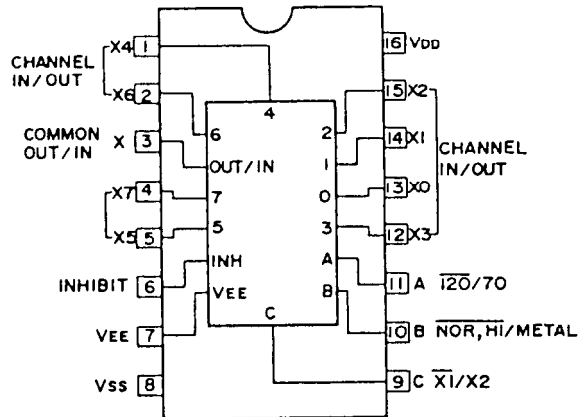
Pin No.	Function
1, 9	PB. signal
2	GND
3, 7	REC signal
4	REC/PB SW control
5	GND
6	+B
8	GND

4051B (ANALOG SW)



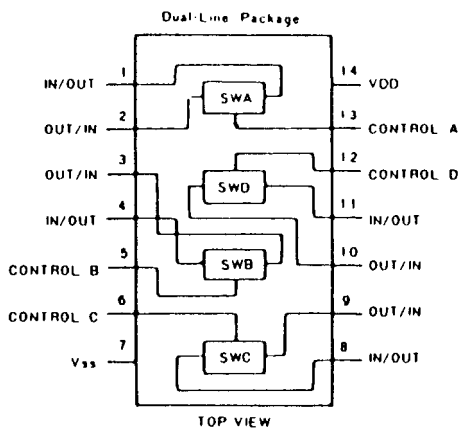
INHIBIT	A(11)	B(10)	C(9)	ON SWITCH
L	L	L	L	X0 (13)
L	H	L	L	X1 (14)
L	L	H	L	X2 (15)
L	H	H	L	X3 (12)
L	L	L	H	X4 (1)
L	H	L	H	X5 (5)
L	L	H	H	X6 (2)
L	H	H	H	X7 (4)
H	X	X	X	NONE

X: Don't Care

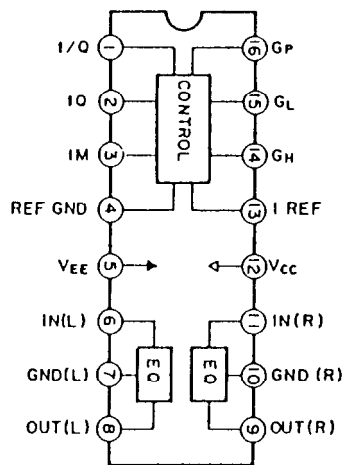


# IC BLOCK DIAGRAM

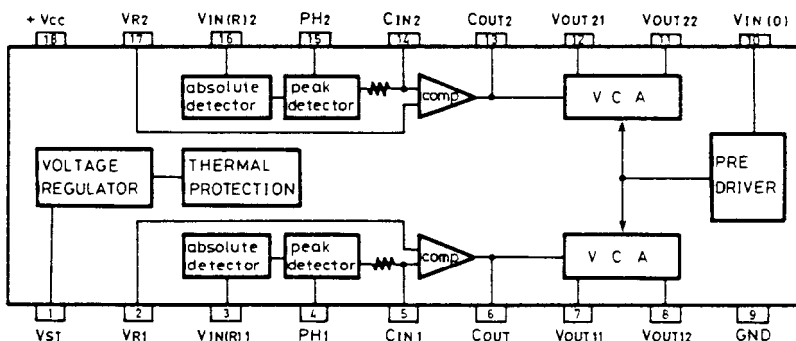
4066(ANALOG SW)



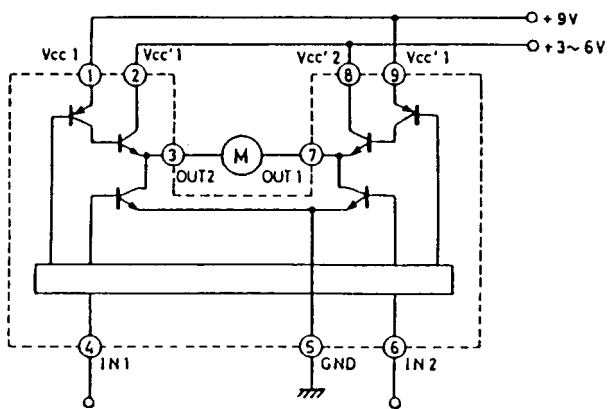
CXA1198A(REC EQ)



μPC1297CA(HX PRO)

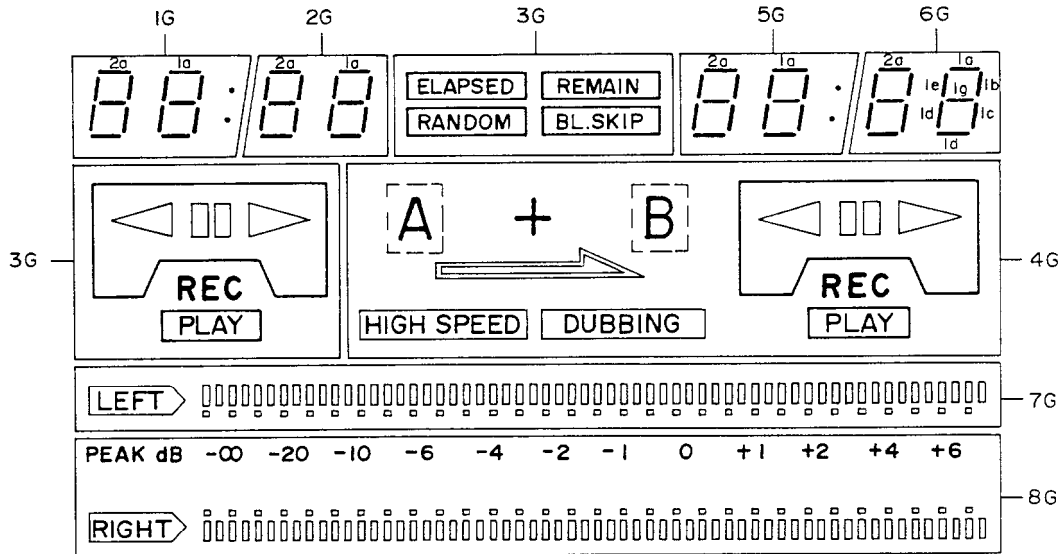


M54544AL(MOTOR DRIVE)



INPUT		OUTPUT		Remark
# 4	# 6	# 3	# 7	
L	L	OFF	OFF	—
H	L	H	L	FWD
L	H	L	H	REV
H	H	L	L	Brake

BJ072GK(DISPLAY TUBE)



PIN CONNECTION

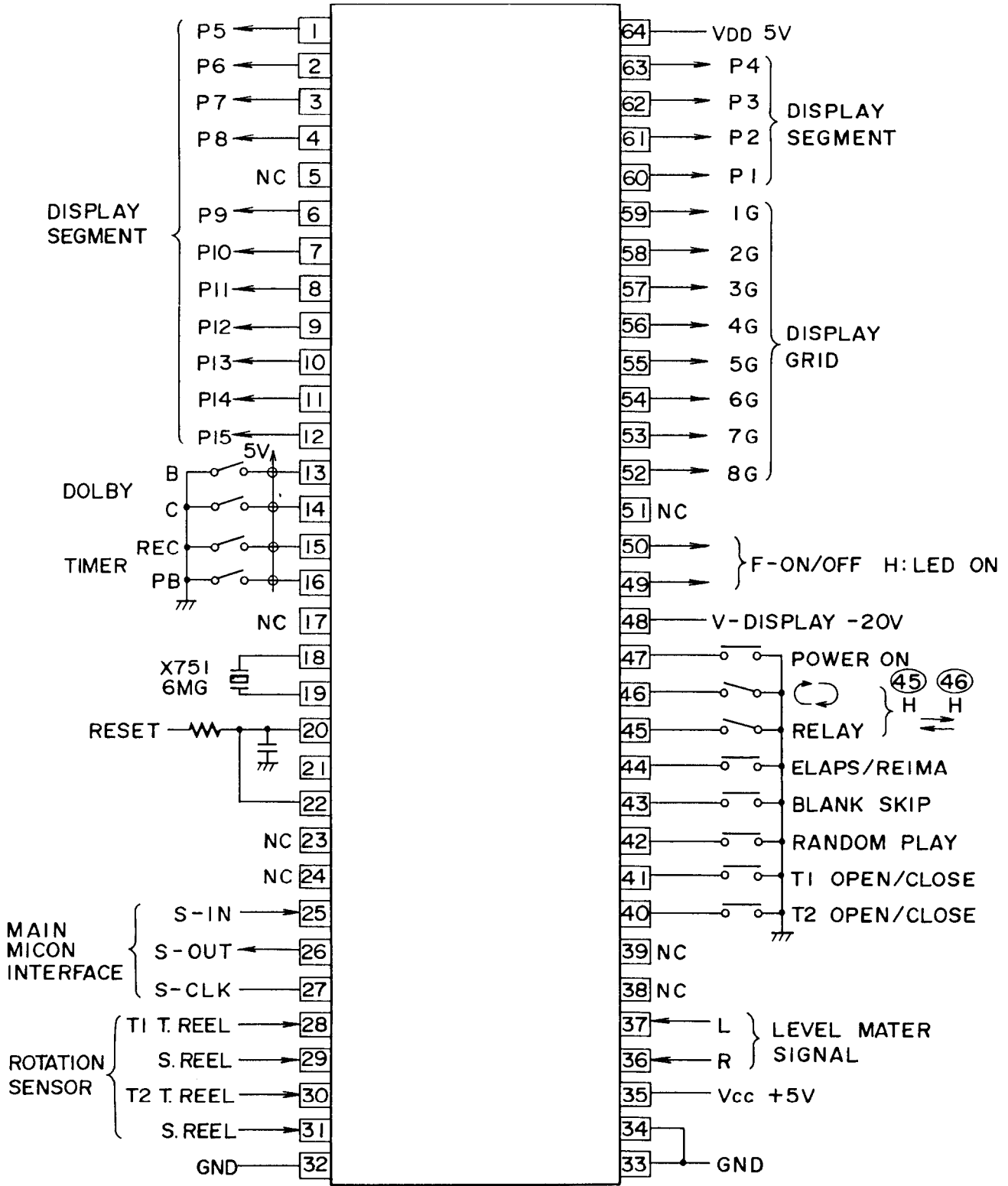
PIN NO.	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1		
CONNECTION	F	F	F	N	N	P	P	P	P	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N	1	2	3	4	5	6	7	8	N	N	F	F
	2	2	2	P	P	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	C	C	C	C	G	G	6	G	G	G	G	G	P	P	1	1	1	

- NOTE 1) F1, F2 --- Filament  
 2) NP ----- No pin  
 3) NC ----- No connection  
 4) 1G~8G --- Grid

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G
P1	°	-	ELAPSED	+	°	-	B1	B1
P2	1a	1a	REMAIN	→	1a	1a	B2	B2
P3	1b	1b	RANDOM	HIGH SPEED	1b	1b	B3	B3
P4	1c	1c	BL.SKIP	DUBBING	1c	1c	B4	B4
P5	1d	1d			1d	1d	B5	B5
P6	1e	1e	▷	▷	1e	1e	B6	B6
P7	1f	1f	◁	◁	1f	1f	B7	B7
P8	1g	1g	⎓	⎓	1g	1g	B8	B8
P9	2a	2a	REC	REC	2a	2a	B9	B9
P10	2b	2b	PLAY	PLAY	2b	2b	B10	B10
P11	2c	2c	-	-	2c	2c	B11	B11
P12	2d	2d	-	-	2d	2d	-	-
P13	2e	2e	-	-	2e	2e	-	-
P14	2f	2f	-	-	2f	2f	-	-
P15	2g	2g	-	-	2g	2g	-	-

# MICROCOMPUTER (TMP47C662N)



# PRINTED CIRCUIT BOARD PARTS LIST

**NAAR-4484-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Ics</b>		
Q101	222956	NJM-2068D-D
Q109	222840661 or 222933	4066B or BU-4066B
Q111	22240147	$\mu$ PC1330HA
Q112	222465	NJM-4558D
Q151	222956	NJM-2068D-D
Q157	22240147	$\mu$ PC1330HA
Q201	22240388	HA12142NT
Q308	222959	$\mu$ PC1297CA
Q408	222959	$\mu$ PC1297CA
Q501	22240368 or 222652	M5218AL or M5218L
Q551	222940	BA335H
Q701	22240609	HD404719A18FS
Q702	22240610	M66007P
Q727, Q728	222953	M-54544AL
Q907	222780065JRC	78M06
Q908	222790065JRC	79M06
Q910	222780055MIT	78M05
Q911, Q912	222780125MIT	78M12
<b>Transistors</b>		
Q103-Q108	221281 or 2213570	DTC114YS or RN1207
Q110	2213570 or 221281	RN1207 or DTC114YS
Q153-Q156	221281 or 2213570	DTC114YS or RN1207
Q202-Q204	221281 or 2213570	DTC114YS or RN1207
Q205, Q206	2211706 or 2211705	2SD655-F or 2SD655-E
Q207, Q208	221281 or 2213570	DTC114YS or RN1207
Q301	221281 or 2213570	DTC114YS or RN1207
Q302	2212853 or 2212855	2SB1068-K or 2SB1068-U
Q303	2211544 or 2211545	2SC1959-Y or 2SC1959-GR
Q304, Q305	221281 or 2213570	DTC114YS or RN1207
Q306, Q307	2211544 or 2211545	2SC1959-Y or 2SC1959-GR
Q401	221281 or 2213570	DTC114YS or RN1207
Q402	2212853 or 2212855	2SB1068-K or 2SB1068-U
Q403	2211544 or 2211545	2SC1959-Y or 2SC1959-GR
Q404, Q405	221281 or 2213570	DTC114YS or RN1207
Q406, Q407	2211544 or 2211545	2SC1959-Y or 2SC1959-GR
Q409-Q411	221281 or 2213570	DTC114YS or RN1207
Q412	2212600 or 2213580	DTA124ES or RN2203
Q601	2213354 or 2213355	2SA933S-R or 2SA933S-S
Q602	221281 or 2213570	DTC114YS or RN1207
Q703	2212600 or	DTA124ES or

CIRCUIT NO.	PART NO.	DESCRIPTION
Q705-Q716	2213580 2213284 or 2213285	RN2203 2SC1740S-R or 2SC1740S-S
Q717-Q722	221281 or 2213570	DTC114YS or RN1207
Q723, Q724	2213284 or 2213285	2SC1740S-R or 2SC1740S-S
Q725, Q726	2201285 or 2201286	2SD882-Q or 2SD882-P
Q729	2213354 or 2213355	2SA933S-R or 2SA933S-S
Q730	2212600 or 2213580	DTA124ES or RN2203
Q907	222780065JRC	78M06
Q908	222790065JRC	79M06
Q913	2213354 or 2213355	2SA933S-R or 2SA933S-S
Q914, Q915	2211705 2211706	2SD655-E 2SD655-F
<b>Diodes</b>		
D201-D205	223163 or 223205	1SS133 or 1SS270A
D401, D402	223163 or 223205	1SS133 or 1SS270A
D501-D504	223163 or 223205	1SS133 or 1SS270A
D701, D702	223163 or 223205	1SS133 or 1SS270A
D703, D704 D705	22380046 223163 or 223205	AM01Z 1SS133 or 1SS270A
D706	224450562	MTZ5.6B
D707-D713	223163 or 223205	1SS133 or 1SS270A
D901-D904 D905	22380046 223163 or 223205	AM01Z 1SS133 or 1SS270A
D906-D909 D911	22380046 224450391	AM01Z MTZ3.9A
D912	224451803	MTZ18C
D914-D916 D917	223163 223205 224450623	1SS133 1SS270A MTZ6.2C
<b>Coils</b>		
L101, L102 L201, L202 L301, L302 L303, L304 L305	231086 233328 231127 231101 231211	NCH-2134 NMC-6051 NCH-4183 NCH-2148 NLO-2056
L401, L402 L403, L404 L405 X701	231127 231101 231211 3010163	NCH-4183 NCH-2148 NLO-2056 CST4, IMGF
<b>Capacitors</b>		
C105, C106 C121, C122 C153, C154 C161, C162 C201-C204 C205 C219, C220 C221, C222 C223, C224 C225, C226	391942217 391944717 391942217 391944717 391980227 391942207 391941007 391941017 391980107 391942217	220 $\mu$ F16V, ELECT. 470 $\mu$ F16V, ELECT. 220 $\mu$ F16V, ELECT. 470 $\mu$ F16V, ELECT. 2.2 $\mu$ F50V, ELECT. 22 $\mu$ F16V, ELECT. 10 $\mu$ F16V, ELECT. 100 $\mu$ F16V, ELECT. 1 $\mu$ F50V, ELECT. 220 $\mu$ F16V, ELECT.



CIRCUIT NO.	PART NO.	DESCRIPTION
	2213570	RN1207
Q355, Q356	2211706 or 2211705	2SD655-F or 2SD655-E
Q453, Q454	2211706 or 2211705	2SD655-F or 2SD655-E
<b>Diode</b>		
D351-D353	223163 or 223205	ISS133 or ISS270A
D451	223163 or 223205	ISS133 or ISS270A
<b>Capacitors</b>		
C351, C352	391980107	1 $\mu$ F50V, ELECT.
C353-C356	391980477	4.7 $\mu$ F50V, ELECT.
C451, C452	391980107	1 $\mu$ F50V, ELECT.
C453, C457	391980477	4.7 $\mu$ F50V, ELECT.
C459, C460	391941007	10 $\mu$ F16V, ELECT.
<b>Resistor</b>		
R355, R356	5210240	N06HR10kBE
R435, R436	5210240	N06HR10kBE
<b>Socket</b>		
P302A	25050461	NSCT-10P566
P402A	25050460	NSCT-9P565

**NASW-4489-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Switchs</b>		
S701-S710	25035548	NPS-111-S510
S732	25035548	NPS-111-S510
<b>Socket</b>		
P710A	2000519	NAAS-6P475

**NASW-4490-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Switch</b>		
S711-S722	25035548	NPS-111-S510
S733	25035548	NPS-111-S510

**NAETC-4491-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistor</b>		
R203	5104307	N09RLC250KW20, VR.
<b>Socket</b>		
P202A	2000804	NSAS-6P760

**NAETC-4492-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistor</b>		
R204	5104308	N14RGL50KA20Z, VR.
<b>Socket</b>		
P203A	2000931	NSAS-6P884

**NAETC-4493-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Resistor</b>		
R418	5104309	N09RLC5KB20, VR.
<b>Switch</b>		
S729	25030355	NRSF-123-20SBM

**NAETC-4494-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>lc</b>		
Q511	22240396	M5218AP
<b>Capcitors</b>		
C505, C506	391941007	10 $\mu$ F16V, ELECT.
C509, C510	391941007	10 $\mu$ F16V, ELECT.
<b>Resistor</b>		
R513	5104310	N09RGL50KA20
<b>Jack</b>		
P504	25045221	HLJ0540-01-410
<b>Socket</b>		
P502A	2009990218	NSAS-6P0319

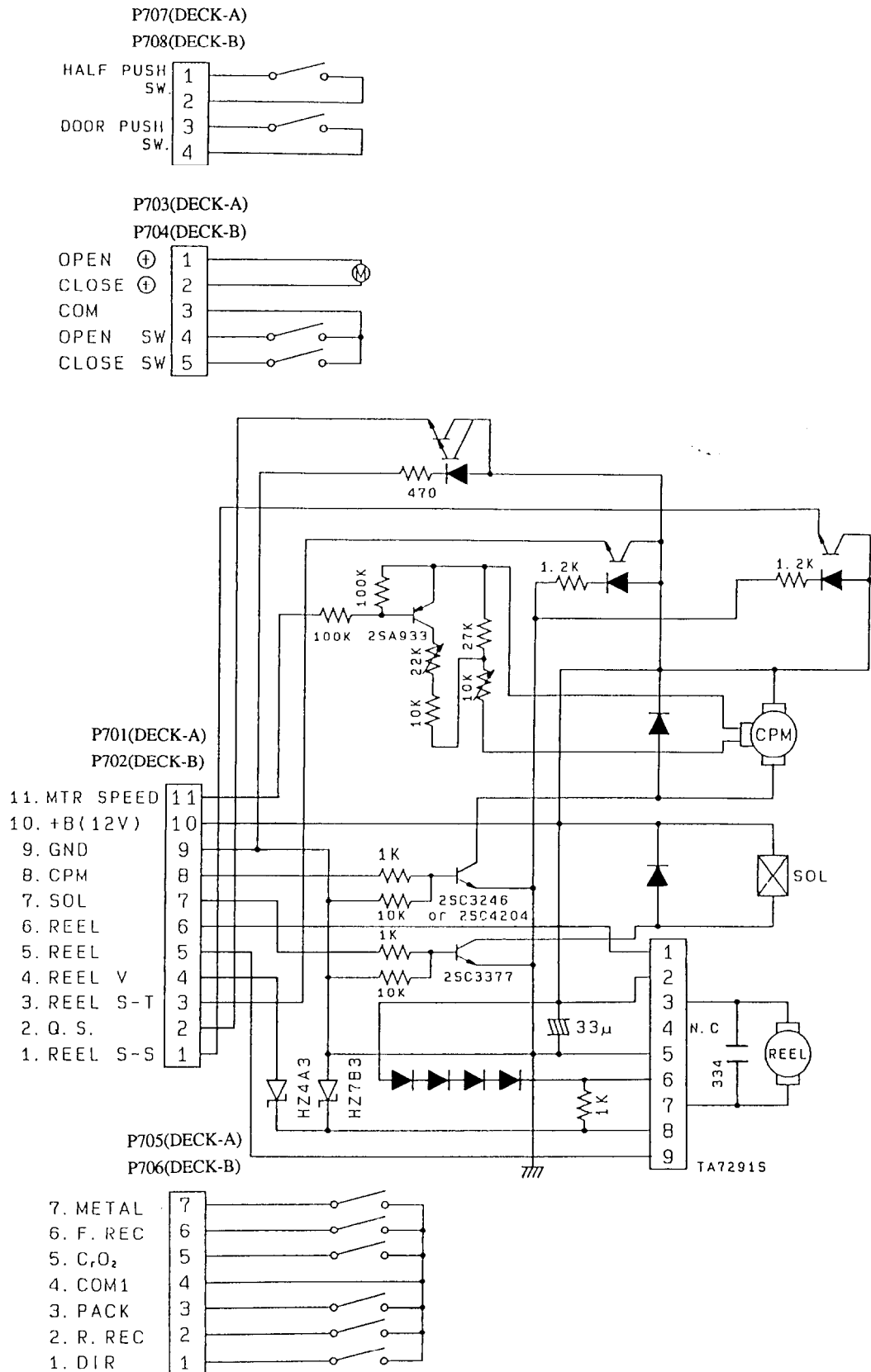
**NAETC-4495-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Socket</b>		
P901A	2009990252	NSAS-7P-0367

**NASW-4499-1**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Switch</b>		
S901	25065437	NSS-22157P

# MECHANISM CONNECTION DIAGRAM



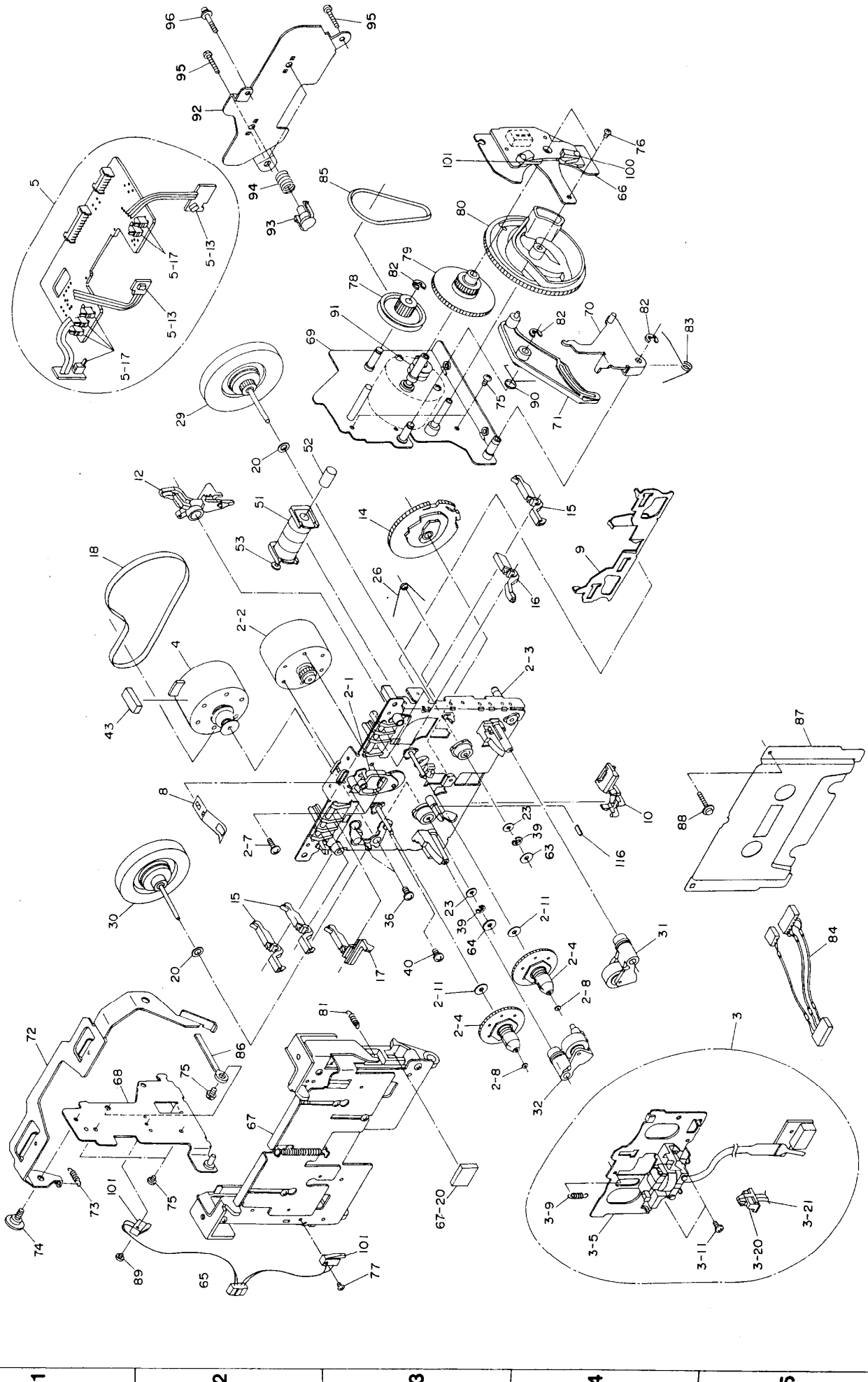


## TAPE MECHANISM PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
2-1	24602482	IDLER AS	84	24606496	WIRE CONNECTOR (R/P. E)
2-2	24601245	REEL MOTOR	85	24602538	BELT
2-3	24611498	BASE AS (CHASSIS)	86	24611323	LUG
2-4	24602483	BASE AS (REEL)	87	24611527	BACK PLATE (CASSETTE)
2-7	24609032	PAN HEAD SCREW 2.6x6.4ZN	88	24609049	TAP-TIGHT SCREW
2-8	24611177	PLASTIC WASHER 1.7x3.2 x.25	89	24609058	PAN HEAD SCREW TT2.0x8ZN
2-11	24611175	PLASTIC WASHER	90	24605761	SPRING (SLIDER)
3	24600091	HEAD PLATE AS	93	24611504	THRUST WASHER
3-5	24611493	BASE (HEAD)	94	24605763	SPRING (THRUST)
3-9	24605711	SPRING	95	838126080	SCREW 2.6x8
3-11	833120059	TAPPING SCREW 2x5ZN	96	24609042	S-TIGHT SCREW M2.6x25
3-20	24606465	PHOTO REFLECTER, SPI-320-B	100	24606453	SWITCH SPPB21
3-21	24611500	LEAD WIRE (QS)	101	24606454	SWITCH SOOB22
4	24601252	MAIN MOTOR AS	116	24611499	REFLECTER
5	24606498	P.C.B. AS (CONTROL)			
5-13	24606494	SG-107F3			
5-17	24606271	PUSH SWITCH			
8	24605739	SPRING			
9	24611384A	SLIDE PLATE			
10	24611385	LEAD HOLDER			
12	24607101	ARM (PLAY)			
14	24602550	CAM GEAR			
15	24603365A	LEVER (REC)			
16	24603387	LEVER (PAC) P			
17	24603367	LEVER (METAL) L			
18	24602486	MAIN BELT			
20	24611041	PLASTIC WASHER 2.6x0.25			
23	24610841	PLASTIC WASHER 2.6x4.7x.5			
26	24605716	SPRING			
29	24602487	FLYWHEEL AS			
30	24602528	FLYWHEEL AS			
31	24602414C	PINCH ROLLER AS (R)			
32	24602421C	PINCH ROLLER AS			
36	24609001	PAN HEAD SCREW SW2.6x5ZN			
39	8930151	E WASHER 1.5S			
40	838130080	WAVE SCREW 3x8			
43	24611488	CUSHION (HOLDER)			
51	24606333	SOLENOID COIL AS			
52	24606332A	CORE			
53	24606331	PLANGER			
63	24611188A	WASHER (OIL SEAL)			
64	24610844	WASHER 1.9x5x0.25			
65	24606497	BASE AS (SW)			
66	24606449	BASE AS (SW)			
67	24611528	PLATE (HOLD BLOCK)			
67-20	24611529	HOLDER CUSHION			
68	24611490	PLATE AS (HOLDER)			
69	24611491	PLATE AS (HOLDER)			
70	24603388	LEVER AS (PLAY)			
71	24603389	LEVER AS (PLAY)			
72	24603390	EJECT LEVER			
73	24605758	SPEING (EJECT)			
74	24609048	SCREW			
75	833126049	TAP-TIGHT SCREW 2.6TTP+4C			
76	833120039	PAN HEAD SCREW TT2.0x3ZN			
77	838120130	WAVE SCREW 2x13			
78	24602535	GEAR (A)			
79	24602536	GEAR (B)			
80	24602537	CAM GEAR			
81	24605769	SPRING (LEVER)			
82	893030	E WASHER 3			
83	24605760	SPRING (DOOR)			

TAPE MECHANISM-EXPLODED VIEW

A B C D E F G



# MICROCOMPUTER TERMINAL DESCRIPTION

NO.	NAME	IN/OUT	FUNCTION	NO.	NAME	IN/OUT	FUNCTION
1-3	AN5~AN7	IN	Key input	42	T2 OPEN	OUT	Door motor drive for open
4	AGND			43	T2 CAPSTAN X1/X2	OUT	Capstan motor NOR/Hi selection
5	RESET		System reset for microcomputer	44	T2 CAPSTAN CONTROL	OUT	Capstan motor drive
6, 7	OSC1, OSC2		Clock 4.19MHz	45	T2 SOLENOID	OUT	Solenoid drive
8	GND			46	T2 REEL-REW	OUT	Reel motor drive for REW
9, 10	CL1, CL2			47	T2 REEL-FF	OUT	Reel motor drive for FF
11	$\overline{\text{TEST}}$			48	T2 O-PLAY	OUT	Reel motor drive for PLAY
12	V <sub>CC</sub>		Power source terminal +5V	49	$\overline{\text{T1 DOOR PRESS}}$	IN	Door press signal detection
13	LINE MUTE	OUT	Line muting	50	$\overline{\text{T1 TAPE PRESS}}$	IN	Tape press signal detection
14	T2 CUE MUTE	OUT	Cue muting	51	$\overline{\text{T1 OPEN SW}}$	IN	Door open detection
15	T2 REC/PB	OUT	T2 REC/PB selection	52	$\overline{\text{T1 CLOSE SW}}$	IN	Door close detection
16	T2 BIAS CONTROL	OUT	T2 bias control	53	T1 CLOSE	OUT	Door motor drive for close
17	STAND BY			54	T1 OPEN	OUT	Door motor drive for open
18	DOLBY ENC/ $\overline{\text{DEC}}$	OUT	Dolby	55	T1 CAPSTAN X1/X2	OUT	Capstan motor NOR/Hi selection
19	DOLBY B	OUT	H: Dolby B tapy	56	T1 CAPSTAN CONTROL	OUT	Capstan motor drive
20	DOLBY C	OUT	H: Dolby C tapy	57	T1 SOLENOID	OUT	Solenoid drive
21	PB SEL. T1/T2	OUT	T1/T2 playback selection	58	T1 REEL-REW	OUT	Reel motor drive for REW
22	T1 BIAS CONTROL	OUT	T1 bias control	59	T1 REEL-FF	OUT	Reel motor drive for FF
23	T1 REC/PB	OUT	T1 REC/PB selection	60	T1 O-PLAY	OUT	Reel motor drive for PLAY
24	T1 CUE MUTE	OUT	Cue muting	61	EXP. DATA	IN/OUT	EXP IC Q702 Data
25	CUE SEL. T1/T2	OUT	T1/T2 Cue selection	62	EXP. CLOCK	OUT	EXP IC Q702 Clock
26	TAPE SPEED X1/X2	OUT	Tape speed NOR/Hi selection	63	T2 ROTATION SENSOR	IN	Reel rotation detection
27	$\overline{\text{T1 PHOTO-END}}$	IN	Tape end detection	64	T1 ROTATION SENSOR	IN	Reel rotation detection
28	$\overline{\text{T2 PHOTO-END}}$	IN	Tape end detection	65	REMOTE SENSOR	IN	Remote control signal input
29	T2 REC. MUTE	OUT	Recording muting : H	66	S-CLOCK	OUT	Slave micon clock
30	T2 NOR	OUT	Normal tape : H	67	S-IN	IN	Slave micom data in
31	T2 HIGH	OUT	High tape : H	68	S-OUT	OUT	Slave micom data out
32	T2 METAL	OUT	Metal tape : H	69	$\overline{\text{SLAVE-RESET}}$	OUT	Slave micon reset
33	T1 REC. MUTE	OUT	Recording muting : H	70	P-OFF	IN	Power off reset
34	T1 NOR	OUT	Normal tape : H	71	NRSC OUT	OUT	Remote control
35	T1 HIGH	OUT	High tape : H	72	NRSC IN	IN	Remote control
36	T1 METAL	OUT	Metal tape : H	73	PLAY SEARCH SIG.	IN	
37	$\overline{\text{T2 DOOR PRESS}}$	IN	Door press signal detection	74	CUE SEARCH SIG.	IN	
38	$\overline{\text{T2 TAPE PRESS}}$	IN	Tape press signal detection	75	AV <sub>CC</sub>		
39	$\overline{\text{T2 OPEN SW}}$	IN	Door open detection	76	$\overline{\text{FT}}$		
40	$\overline{\text{T2 CLOSE SW}}$	IN	Door close detection	77-79	AN1~AN3		
41	T2 CLOSE	OUT	Door motor drive for close	80	AN4	IN	Key input

A

B

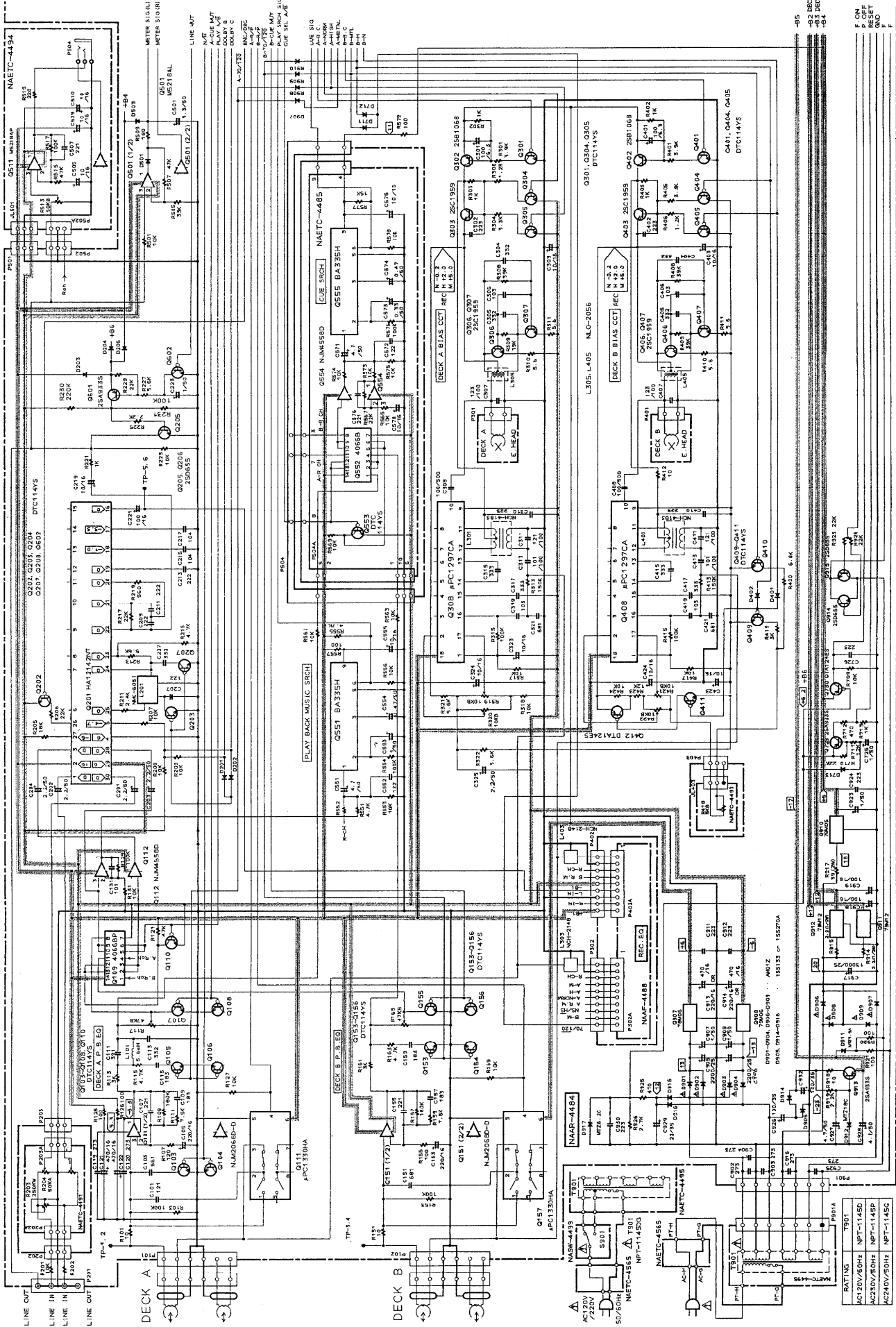
C

D

E

F

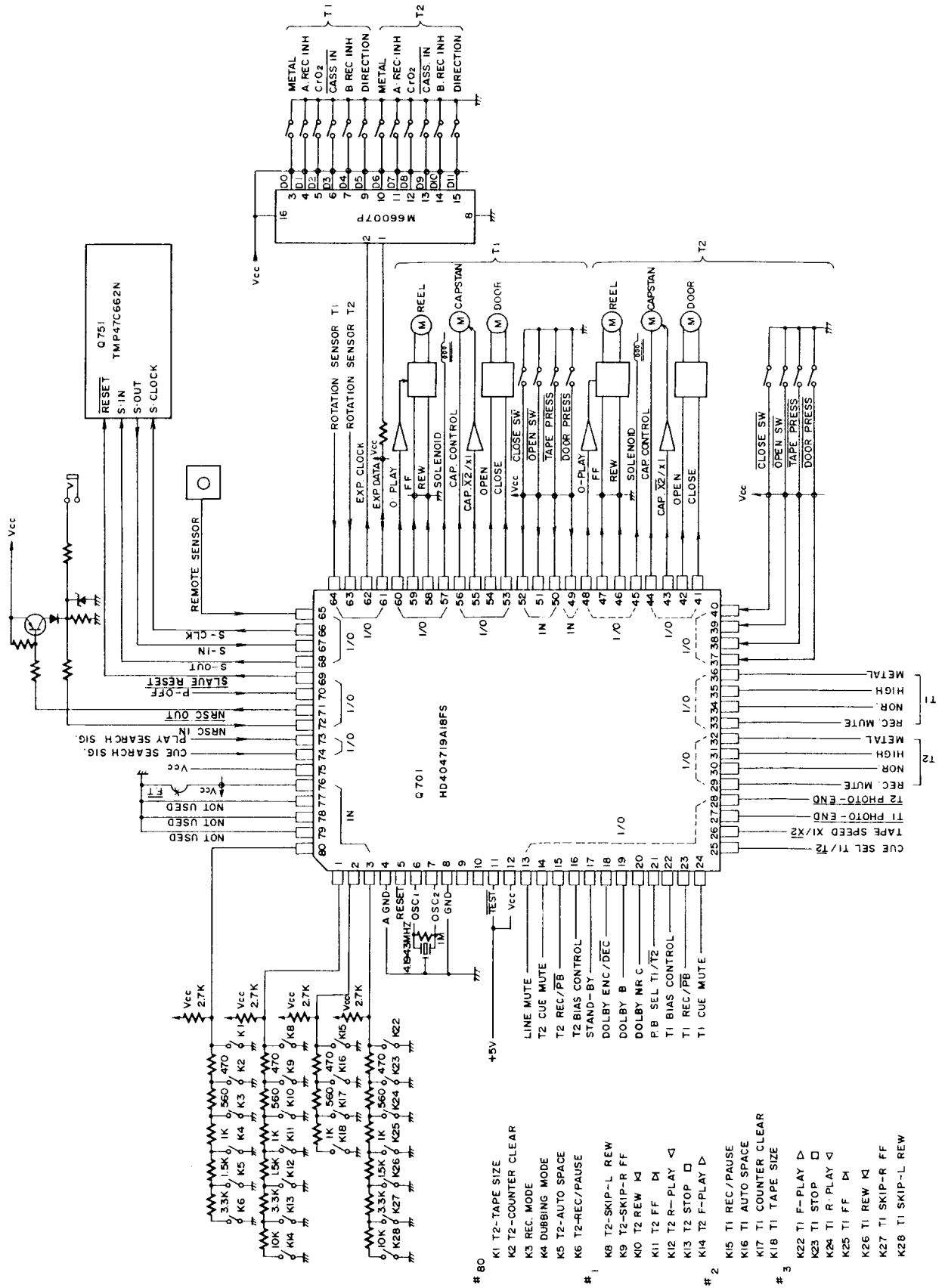
G



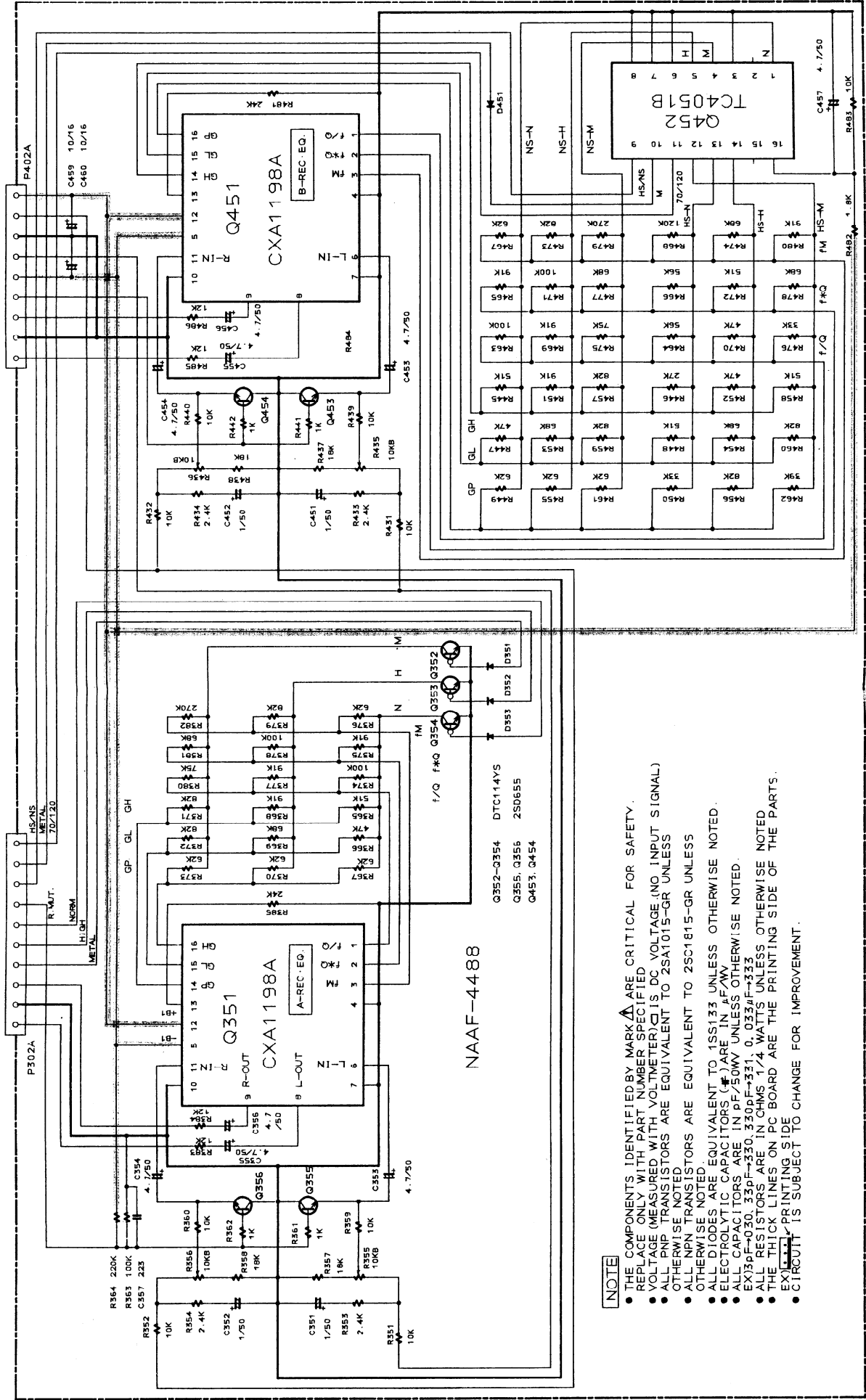
BATING	T801
AC220V/50HZ	NPT-1145D
AC230V/50HZ	NPT-1145P
AC240V/50HZ	NPT-1145C



# MICROCOMPUTER (HD404719A18FS)



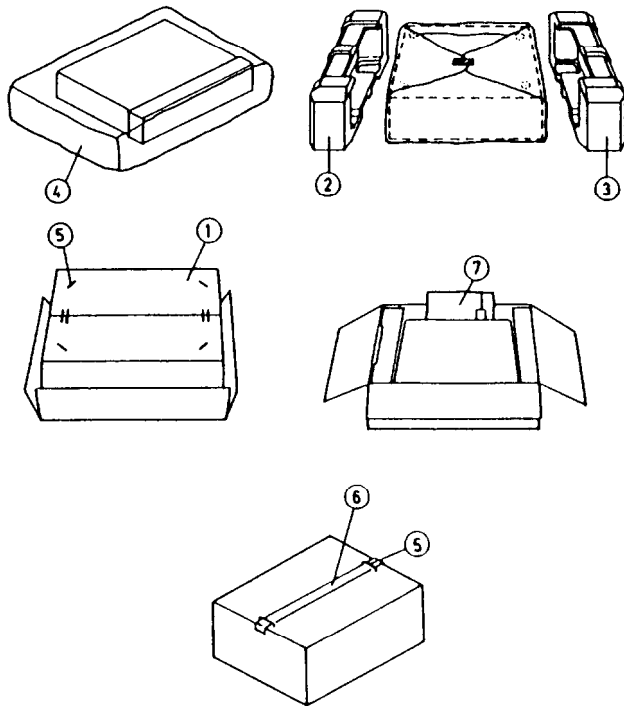
A B C D E F G



**NOTE**

- THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED
- VOLTAGE (MEASURED WITH VOLTMETER) IS DC VOLTAGE (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED
- ELECTROLYTIC CAPACITORS ( $\Psi$ ) ARE IN  $\mu$ F/W
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED
- EX13pF-0330, 330pF-331, 0, 033nF-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. EXCEPT PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

## PACKING VIEW



## PACKING VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	29052406	Master carton box
2	29091518A	Pad (L)
3	29091519A	Pad (R)
4	29100105	620×550 Poly bag
	29095012-1	800×500 Protection sheet
5	282301	Sealing hook
6	29110071	Damplon tape
7	<b>Accessory bag ass'y</b>	
	29341731A	Instruction manual (D)
	29341733A	Instruction manual (UP/UW)
	2010098A	Connection cable
	24140231	Remote control unit RC-232K
	3010054	Battery UM-3
	29365019A	Warranty card (N)
	29358002J	Service station list (N)
	29100006A	350×250 Poly bag
	25055040	CV plug CV-K-2 (W)
	29365024A	Warranty card (F)
	29100107	Poly bag (F)

NOTE (N): Only U.S.A. model  
(W): Only worldwide model  
(F): Only France model  
(UP): Only 230V model