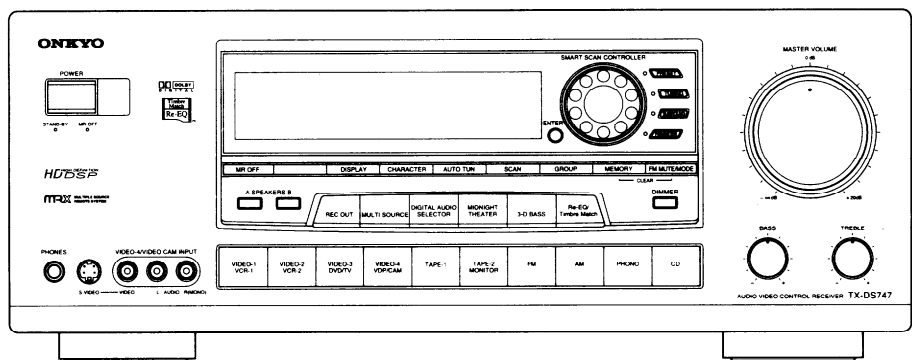


# ONKYO® SERVICE MANUAL

## AUDIO VIDEO CONTROL RECEIVER MODEL TX-DS747



### Black and Golden models

BMP, BMPT, GMPT	230V AC, 50Hz
BMWT, GMWT	230-230V / 120V AC, 50/50Hz
BMD	120V AC, 60Hz
GMGK	220V AC, 50Hz

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\Delta$  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.

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## SPECIFICATIONS

### AMPLIFIER SECTION

#### Power Output

U.S. & Canadian models:

##### **Stereo mode**

Front L/R channels: **90 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.**

##### **Surround mode**

Front L/R and Center channels: **80 watts per channel, min. RMS at 8 ohms, three channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.**

Surround L/R channels: **40 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.**  
(Rear only driven)

Other area models:

##### **Stereo mode**

Front L/R channels: 2 × 110 watts at 6 ohms, 1 kHz (DIN)

##### **Surround mode**

Front L/R and Center channels: 3 × 95 watts at 6 ohms, 1 kHz (DIN)

Surround L/R channels: 2 × 50 watts at 6 ohms, 1 kHz (DIN)  
(Rear only driven)

IM Distortion: 0.08% at rated power (Front)

Damping Factor: 60 at 8 ohms (Front)

#### Input Sensitivity and Impedance

Phono: 2.5 mV/50 kohms

CD/Tape Play: 150 mV/50 kohms

#### Output Level and Impedance

Tape Rec: 150 mV/2.2 kohms

Pre out: 1 V/470 ohms

Phono Overload: 120 mV RMS at 1 kHz, 0.5% T.H.D.

Frequency Response: 20 Hz to 30 kHz, ±0.5 dB

RIAA Deviation: 20 Hz to 20 kHz, ±0.8 dB

#### Tone Control

Bass: ±10 dB at 50 Hz

Treble: ±10 dB at 10 kHz

#### Signal-to-Noise Ratio

Phono: 80 dB (IHF A, 5 mV input)

CD/Tape: 100 dB (IHF A)

Muting: -∞ dB

### VIDEO SECTION

#### Television format

U.S. & Canadian models: NTSC

Other models: NTSC/PAL

#### Input Sensitivity and Impedance

Video (Composite): 1 V<sub>p-p</sub>/75 ohms

S-Video (Y signal): 1 V<sub>p-p</sub>/75 ohms

S-Video (C signal): 0.28 V<sub>p-p</sub>/75 ohms

#### Output Level and Impedance

Video (Composite): 1 V<sub>p-p</sub>/75 ohms

S-Video (Y signal): 1 V<sub>p-p</sub>/75 ohms

S-Video (C signal): 0.28 V<sub>p-p</sub>/75 ohms

### DIGITAL SECTION

Digital Input Sampling Frequency: 32 kHz, 44.1 kHz, 48 kHz

#### Input Sensitivity Impedance

Coaxial: 0.5 V<sub>pp</sub>/75 ohms

AC-3 RF: 0.4 V<sub>pp</sub>/75 ohms (other than U.S. & Canadian model)

### TUNER SECTION

#### FM

Tuning Range: 87.5 — 108.0 MHz (50 kHz steps)

#### Usable Sensitivity

Mono: 11.2 dBf, 1.0 μV (75 ohms)

Stereo: 17.2 dBf, 2.0 μV (75 ohms)

#### 50 dB Quieting Sensitivity

Mono: 17.2 dBf, 2.0 μV (75 ohms)

Stereo: 37.2 dBf, 20 μV (75 ohms)

#### Capture Ratio:

1.5 dB

#### Image Rejection Ratio

U.S. & Canadian models: 40 dB

Other area models: 85 dB

#### IF Rejection Ratio:

90 dB

#### Signal-to-Noise Ratio

Mono: 76 dB

Stereo: 70 dB

#### Alternate Channel Attenuation:

55 dB

#### Selectivity:

50 dB (DIN)

#### AM Suppression Ratio:

50 dB

#### Total Harmonic Distortion

Mono: 0.1%

Stereo: 0.2%

#### Frequency Response:

30 Hz — 15 kHz, ±1.0 dB

#### Stereo Separation:

45 dB at 1 kHz

30 dB at 100 Hz — 10 kHz

#### Muting level:

17.2 dBf

#### AM

#### Tuning Range

U.S. & Canadian models: 530—1,710 kHz (10 kHz steps)

European & Australian models: 522—1,611 kHz (9 kHz steps)

Worldwide models: 531—1,602 kHz (9 kHz steps), 530—1,710 kHz (10 kHz steps)

#### Usable Sensitivity:

30 μV

#### Image Rejection Ratio:

40 dB

#### IF Rejection Ratio:

40 dB

#### Signal-to-Noise Ratio:

40 dB

#### Total Harmonic Distortion:

0.7%

### GENERAL

#### Power Supply

U.S. & Canadian models: AC 120 V, 60 Hz

European & Australian models: AC 230 V, 50 Hz

Worldwide models: AC 220-230 V and 120 V switchable, 50/60 Hz

#### Power Consumption

U.S. & Canadian models: 4.2 A

Other area models: 400 W

#### Dimensions (W × H × D):

435 × 175 × 390 mm

17-1/8" × 6-7/8" × 15-3/8"

#### Weight:

13 kg, 28.7 lbs.

### REMOTE CONTROL

U.S. & Canadian models: RC-P101S

Other area models: RC-P201S

#### Transmitter:

Infrared

#### Signal range:

Approx. 5 meters, 16 ft.


#### Power supply:


Two "AA" batteries (1.5 V × 2)

Specifications and features are subject to change without notice.

## SERVICE PROCEDURES

### 1. Replacing the fuses

 This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

 Ce symbole indique que le fusible utilise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce dernier est indique la qu le present symbol est appose.

CIRCUIT NO.	PART NO.	DESCRIPTIONS
F901	252198	△ 8A-UL, Primary Fuse <D/W>
F902	252077	△ 4A-SE-EAK, Primary Fuse <P/T/W/K>
F903	252075	△ 2.5A-SE-EAK, Fuse <P/T>
	252166Y	△ 6.3A-ULIT-237, Fuse <D>
F915, F916	252166	△ 6.3A-UL/T-237, Secondary Fuse <D>
	252079	△ 6.3A-SE-EAK, Secondary Fuse <P/T/W/K>
	NOTE:	<D>: 120V model only <P>: 230V model only <T>: Asian model only <W>: Worldwide model only <K>: Korean model only

### 2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. Press and hold down the CD button, then press the POWER button.
2. After "clear" is displayed, the prest memory and each mode stored in the memory, such as surround, are initialized and will return to the factory settings.

### 3. Safety-check out

(Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel.

Specifications: 3.3 Mohm $\pm$ 10% at 500V.

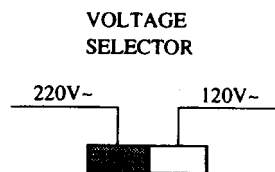
### 4. Change of voltage

Worldwide models are equipment with a voltage selector to conform with local power supplies. This switch is located on the back panel.

Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right

or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



### 5. Memory preservation

This unit does not require memory preservation batteries.

A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged.

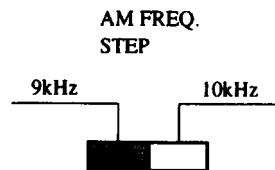
The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.

The period of the time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorted when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

### 6. Setting the tuning step frequency

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9 kHz at the factory, but may have to be reset to 10 kHz depending on the area where the unit is used.

	AM band step
Europe:	9 kHz
U.S.A.:	10 kHz

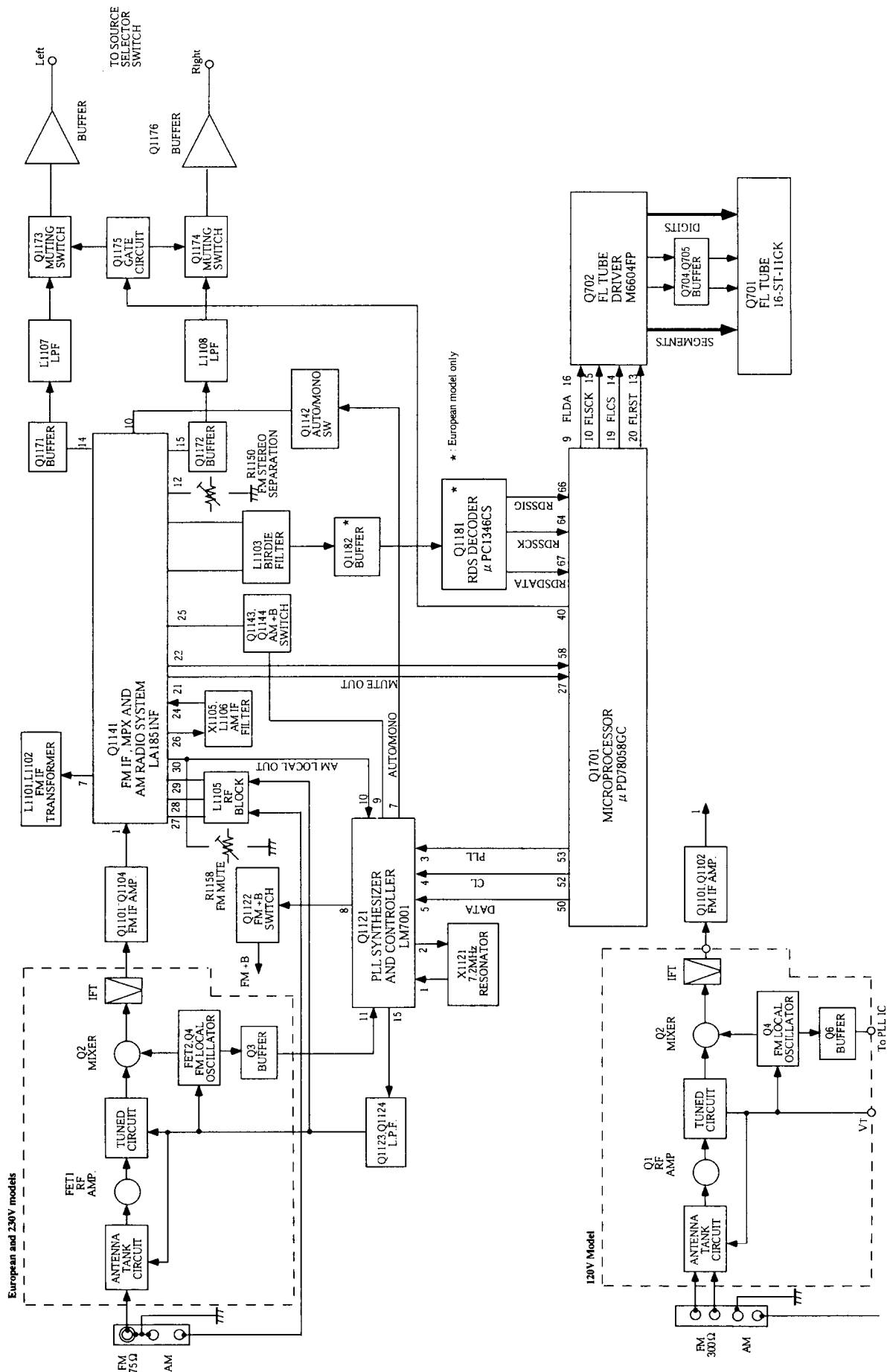


### 7. Changing the band step

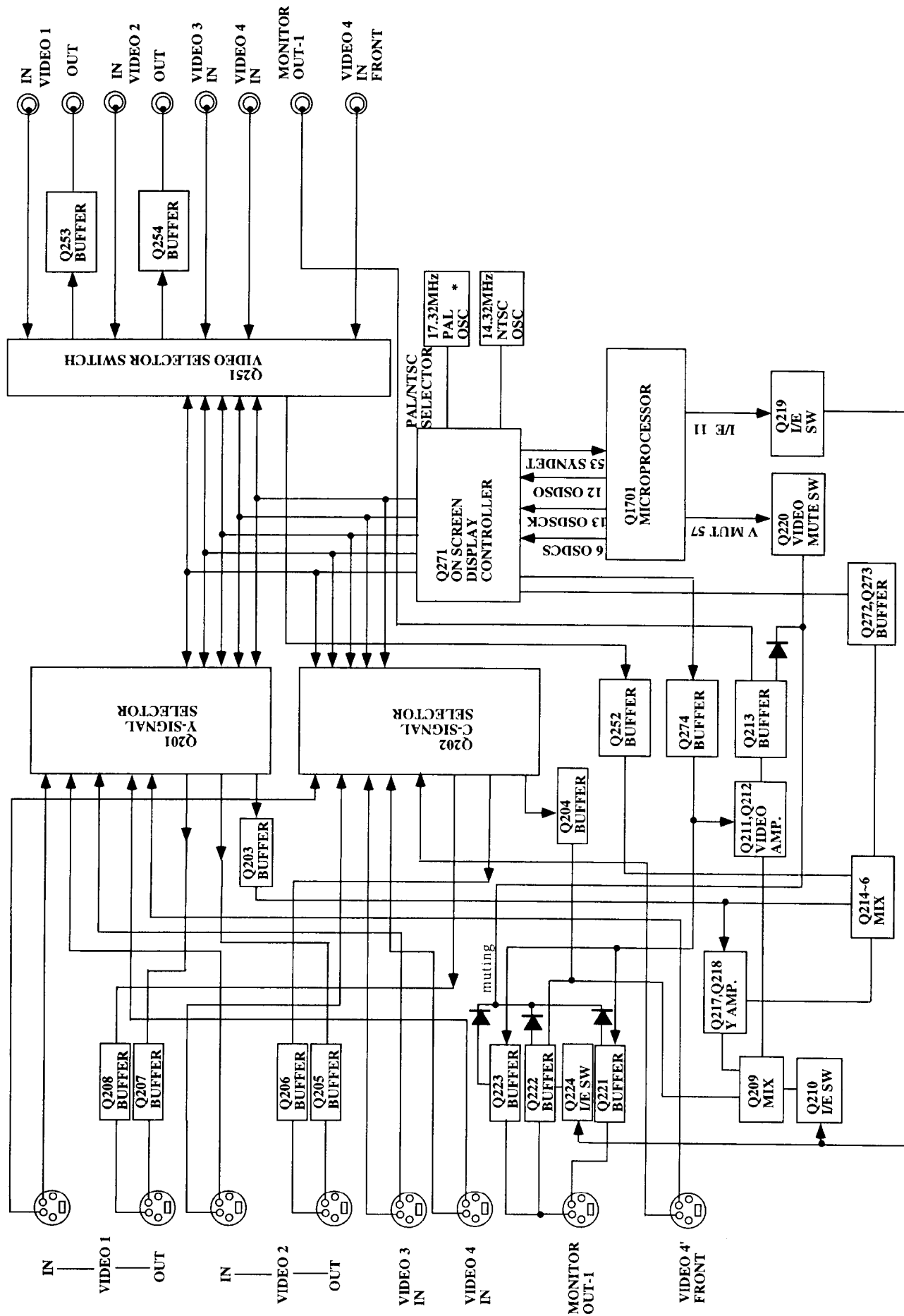
With the exception of the worldwide models, a tuning step selector switch is not provided. When you change the band step, change the parts as shown below.

	To 10 kHz	To 9 kHz
R1720	No connection	3.9 kohm
R1721	10 kohm	4.7 kohm

**BLOCK DIAGRAMS  
TUNER SECTION**



VIDEO SECTION







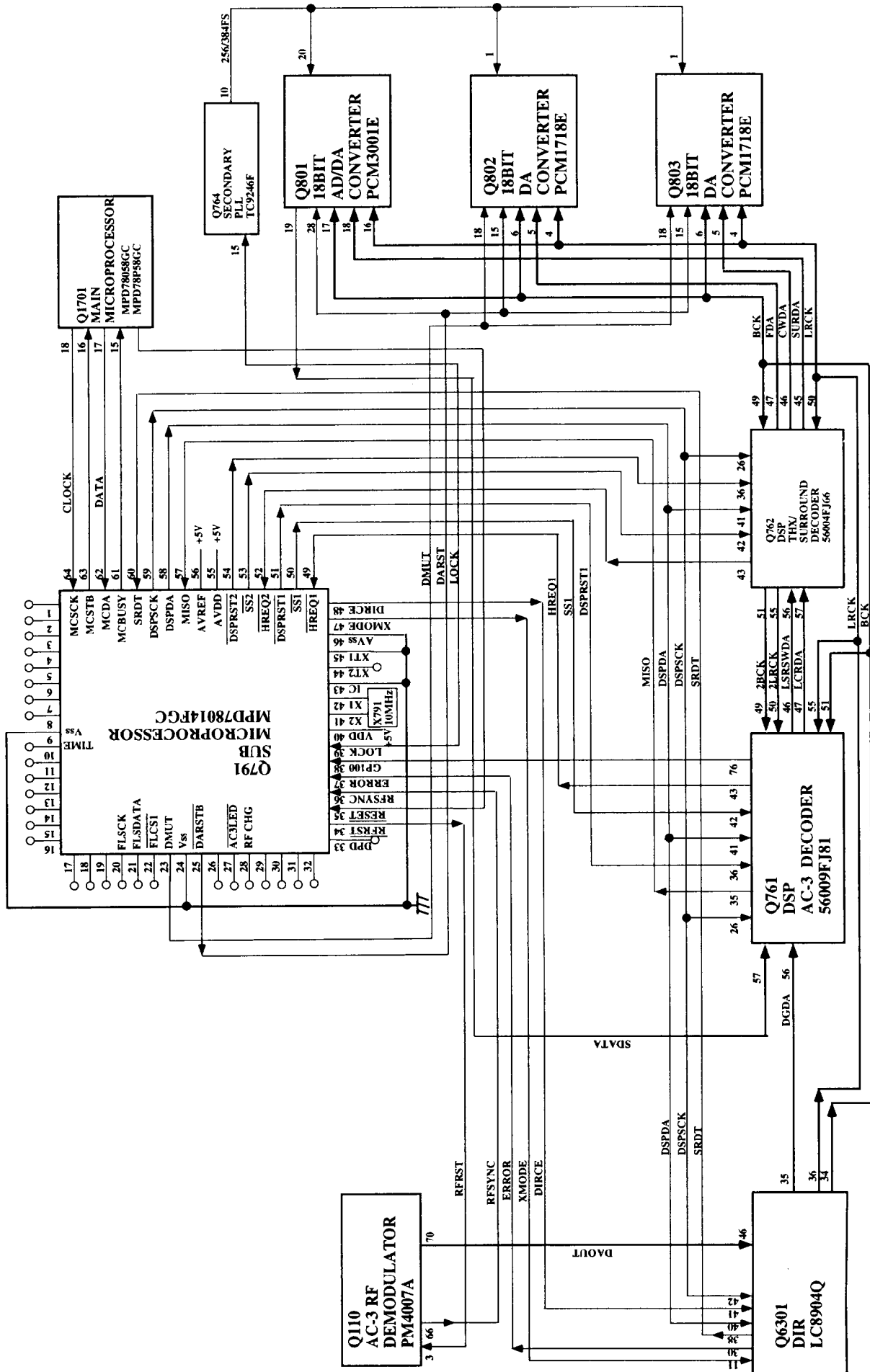
## TERMINAL DESCRIPTIONS

No.	Mark	Symbol	Description
1	P15/ANI5	K3	Operation key connection pin
2	P16/ANI6	ENCB	Rotary encoder connection pin
3	P17/ANI7	ENCA	Rotary encoder connection pin
4	AVss	AVSS	Ground voltage pin for A/D converter
5	P130/ANO0	AC3/RF SEL	Initializing pin of AC3 RF function
6	P131/ANO1	OSDCS	Output pin to connect to the terminal CS for OSD controller LC74761
7	AVREF	AVREF1	Reference voltage pin for D/A converter
8	P70/SI2/RxD	SYNCDT	Judge input pin for external synchronizing of OSD IC
8			External synchronizing when high level
9	P71/SO2/TxD	FLDATA	Data output pin to connect to pin SDTAT of FL tube driver IC
10	P72/SCK2/ASCK	FLSCK	Clock output pin to connect to pin SCK of FL tube driver IC
11	P20/SI1	I/E	Output pin to show the status of synchronizing for OSD IC. High level when external synchronizing
12	P21/S01	OSDSO	Output pin to connect to the pin SIN of OSD controller
13	P22/SCK1	OSDSCK	Output pin to connect to the pin SCLK of OSD controller
14	P23/STB	RDSEN	Initializing input for RDS
15	P24/BUSY	MCBUSY	Busy pin for transfer to the sub microprocessor
16	P25/SI0/SB0	MCSTB	Data input pin for transfer to the sub microprocessor
17	P26/SO0/SB1	DSPDATA	Data output pin for transfer to the sub microprocessor
18	P27/SCK0	DSPSCK	Clock output pin for transfer to the sub microprocessor
19	P40/AD0	FLCS	Output pin to connect to pin CS of FL tube driver
20	P41/AD1	FLRES	Output pin to connect to pin RES of FL tube driver Use for the reset signal of sub microprocessor when power on
21	P42/AD2	MROFF	Multi room indicator and control output pin
22	P43/AD3	5.1CHSEL	Not used
23	P44/AD4	SPB	Speaker B relay control output pin
24	P45/AD5	SRSTB	Strobe output pin to connect to the pin STB of electro. volume
25	P46/AD6	POWER	Power source control pin
26	P47/AD7	SPA2	Muting output pin when SPEAKER switch is changed A.
27	P50/A8	SD	Station detection pin
28	P51/A9	STBY/RECV	RECEIVED or STANDBY indicator control output pin
29	P52/A10	VD5SC	Control output pin for VIDEO-4 on the front panel. On when high level.
30	P53/A11	VD5MR	Control output pin for multi-source and recording of VIDEO-4 on the front panel. On when high level.
31	P54/A12	AUTON/P	Initializing pin to select NTSC or PAL.
32	P55/A13	TUNINGLED	TUNING indicator control pin
33	Vss	VSS	Ground pin
34	P56/A14	PRESETLED	PRESET indicator control pin
35	P57/A15	SWMUT	Muting control output pin for sub-woofer. On when high level
36	P60	CMUT	Muting control output pin for center amplifier On when high level
37	P61	SRMUT	Muting control output pin for surround amplifier On when high level
38	P62	FMUT	Muting control output pin for front amplifier On when high level
39	P63	MRMUT	Muting control output pin for multi-amplifier On when high level
40	P64/RD	TUMUT	Muting control output pin for tuner section. On when high level



No.	Mark	Symbol	Description															
41	P65/WR	VOL.DOWN	Volume control output pin															
42	P66/WAIT	VOLUP	These pins change as the below table by the signal from remote control transmitter. <table border="1" data-bbox="516 283 976 447"> <thead> <tr> <th>Operation</th> <th>VOLUP</th> <th>VOLDOWN</th> </tr> </thead> <tbody> <tr> <td>STOP</td> <td>H</td> <td>H</td> </tr> <tr> <td>When UP</td> <td>H</td> <td>L</td> </tr> <tr> <td>When DOWN</td> <td>L</td> <td>H</td> </tr> <tr> <td>Power OFF</td> <td>L</td> <td>L</td> </tr> </tbody> </table>	Operation	VOLUP	VOLDOWN	STOP	H	H	When UP	H	L	When DOWN	L	H	Power OFF	L	L
Operation	VOLUP	VOLDOWN																
STOP	H	H																
When UP	H	L																
When DOWN	L	H																
Power OFF	L	L																
43	P67/ASTB	V-4FEN	Detector input pin for VIDEO-4 on the front panel This pin becomes the high level when the video cassette deck is connected to VIDEO-4 on the front panel. When this pin is high, the selector switch is changed the VIDEO-4 on the front panel. When this pin is low, the selector switch is changed the VIDEO-4 on the rear panel.															
44	P30/TO0	3D BASS	3D BASS control output pin															
45	P31/TO1	A/D SEL	Analog/Digital switch control output pin															
46	P32/TO2	HPEN	Detection input pin for insertion of headphone When the headphone is used, the surround mode turns off.															
47	P33/TO1	CWSTB	Strobe output pin to connect to the terminal STB of electro volume.															
48	P34/TO2	FSTB	Strobe output pin to connect to the terminal STB of electro volume.															
49	P35/PCL	MRSTB	Strobe output pin to connect to the terminal STB of electro volume.															
50	P36/BUZ	DATA	Data output pin to the function switch, PLL, and electro volume ICs.															
51	P37	FUNC1	Strobe output pin to the function switch ICs.															
52	P120/RTP0	CL	Strobe output pin to the function switch, PLL and electro volume ICs.															
53	P121/RTP1	PLL	Chip enable output pin to PLL IC.															
54	P122/RTP2	IPM	VIDEO 3 signal detector input pin															
55	P123/RTP3	SPA	Control output pin for speaker relay A. On when high level.															
56	P124/RTP4	PROTECT	Input pin to operate the protection circuit. When this pin becomes the low level more than 20 $\mu$ sec, a protection circuit operates.															
57	P125/RTP5	VMUT	Muting control output for video signal															
58	P126/RTP6	STEREO	Input pin to detect the stereo broadcast. Low level when stereo broadcast.															
59	P127/RTP7	YSOOUT	System code output pin															
60	RESET	RESET	System reset input pin.															
61	P00/INTP0/TI00	REMIN	Remote control signal input pin															
62	P01/INTP1	SYSIN	System code input pin															
63	P02/INTP2	VSYNCOUT	Vertical synchronizing signal input pin															
64	P03/INTP3	RDSSCK	Clock input pin from RDS decoder.															
65	P04/INTP4	POFF	Detection input pin for power failure.															
66	P05/INTP5	RDSSIG	Detection input pin for RDS broadcast.															
67	P06/INTP6	RDSDATA	Data input pin from RDS decoder.															
68	VDD	VDD	Power supply pin															
69	X2	X2	Crystal connection pins for main system clock															
70	X1	X1	These pins is connected to the 5MHz ceramic oscillator.															
71	IC	IC	Internal connection pin.															
72	XT2	XT2	Crystal connection pins for sub system clock															
73	XT1/P07	XT1	Not used.															
74	AVDD	AVDD	Analog power supply pin for A/D converter.															
75	AVREF0	AVREF0	Reference voltage input pin for A/D converter.															
76	P10/ANI0	VOLP	Input pin to detect the position of master volume.															
77	P11/ANI1	AREA	Initializing input pin for band area															
78	P12/ANI2	K0	Operation key connection pin															
79	P13/ANI3	K1	Operation key connection pin															
80	P14/ANI4	K2	Operation key connection pin															

**SUB MICROPROCESSOR-CONNECTION DIAGRAM**



## TERMINAL DESCRIPTIONS

Pin No.	Terminal	Description
1-8	NC	
9	VSS	Ground terminal
10	TIME	Not used.
11-22	NC	
23	DMUT	Muting output terminal for digital section
24	VSS	Ground terminal
25	DARSTB	Output terminal to connect to the terminal RSTB of D/A converter PCM1718E.
26	NC	
27	AC-3LED	"AC-3" indicator control output terminal
28	RF CHG	Initializing input
28-32	NC	
33	DPD	Digital power down control output terminal
34	RFRST	Reset output terminal for AC-3 RF demodulator.
35	RESRT	System reset input terminal
36	RFSYNC	Synchronizing detection input pin for AC-3 RF demodulator
37	ERROR	Input terminal to connect to terminal ERROR of DIR IC LC8904Q.
38	GPI00	Input terminal to connect to terminal GPI00 of DST IC.
39	LOCK	Input terminal to connect to the terminal LOCK of clock generation IC TC9246F.
40	VDD	Power supply (5V)
41	X2	Crystal resonator connection terminals for main system.
42	X1	Connect the ceramic resonator 10MHz.
43	IC	Internal connection terminal
44	XT2	Sub system clock connection terminals.
45	XT1	Not used.
46	AVSS	Ground terminal for A/D converter
47	XMODE	Output terminal to connect to the terminal XMODE of DIR IC LC8904Q.
48	DIRCE	Chip enable output terminal to connect to the terminal CE of DIR IC LC8904Q.
49	HREQ1	Input terminal to connect to the terminal HREQ of DSP IC DSP56009.
50	SS1	Input terminal to connect to the terminal SS of DSP IC DSP56009.
51	DSRST1	Input terminal to connect to the terminal RESET of DSP IC DSP56009.
52	HREQ2	Input terminal to connect to the terminal HREQ of DSP IC DSP56004.
53	SS2	Input terminal to connect to the terminal SS of DSP IC DSP56004.
54	DSRST2	Input terminal to connect to the terminal RESET of DSP IC DSP56004.
55	AVDD	Power supply circuit for analog section
56	AVREF	Reference voltage input terminal for A/D converter
57	DPSI	Input terminal to connect to the terminal MOSI of DSP IC DSP56009.
58	DPSO	Data output terminal. Connect to the terminal MOSI of DSP ICs and the terminal DI OF DIR IC.
59	DSPSCK	Clock output terminal. Connect to the terminal SCK of DSP ICs and the terminal CL OF DIR IC.
60	SRDT	Input terminal to connect to the terminal SRDT of DIR IC.
61	BUSY	Busy signal output terminal to main microprocessor.
62	SI	Data input terminal from main microprocessor.
63	SO	Data output terminal to main microprocessor.
64	SCK	Clock input terminal for main microprocessor

## ADJUSTMENT PROCEDURES

### Preparation

#### 1. Input

FM mono: 1kHz, 75kHz devi., 60dB/ $\mu$ V

FM stereo: 1kHz, 67.5kHz devi., 60dB/ $\mu$ V

Pilot signal 19kHz 7.5kHz devi.

AM: 400Hz, 30% mod.

#### 2. Outputs

Connect the non-inductive type resistor of 8 ohms to the all speaker terminals unless otherwise noted.

### FM ADJUSTMENT

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.0MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.0MHz	DC voltmeter	L1101	$0 \pm 20\text{mV}$	FM MUTE/MODE switch: ON/AUTO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L1102	Minimum	
Stereo Distortion		Fig.3	99.0MHz Ext. mod. 65dBf(60dB)	Channel L or R 1kHz	99.0MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than $\pm 180^\circ$
Stereo Separation	1	Fig.3	99.0MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.0MHz	Channel R AC voltmeter	R1150	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.2	99.0MHz 19.2dBf(14dB)	—	99.0MHz	Oscilloscope	R1158	TUNED indicator lights on	
RDS		Fig.4	98.0MHz Ext. mod. 60dB	RDS data or 57kHz 3% devi.	98.0MHz	Oscilloscope	R1191	Maximum	

### AM ADJUSTMENT

#### 120V model

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L1105	$1.4 \pm 0.2\text{V}$
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L1105	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L1106	Maximum

#### Reference Specification

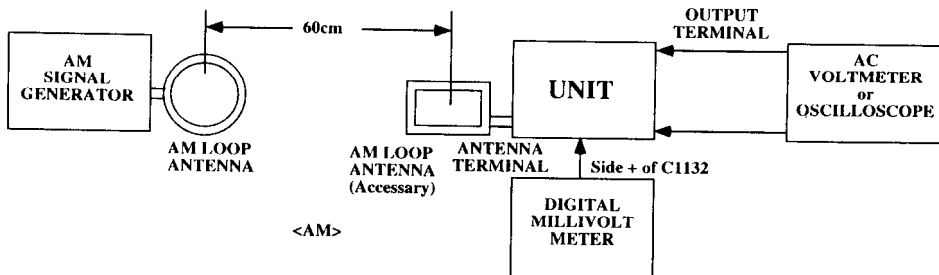
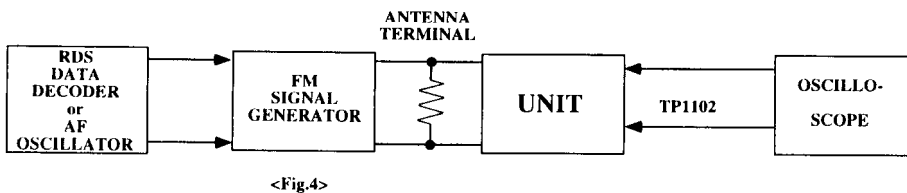
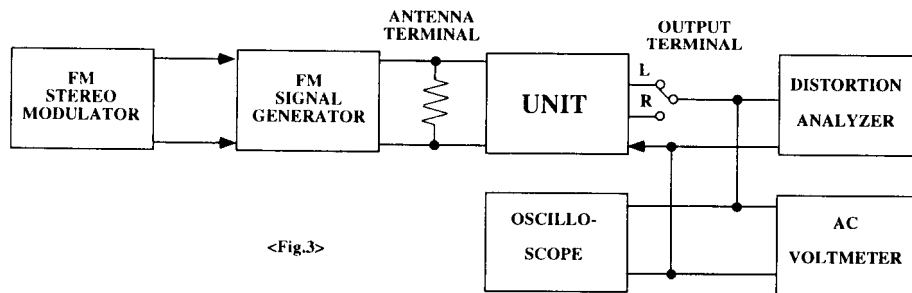
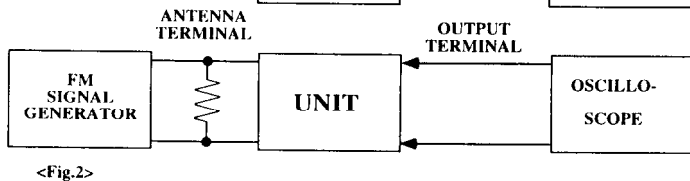
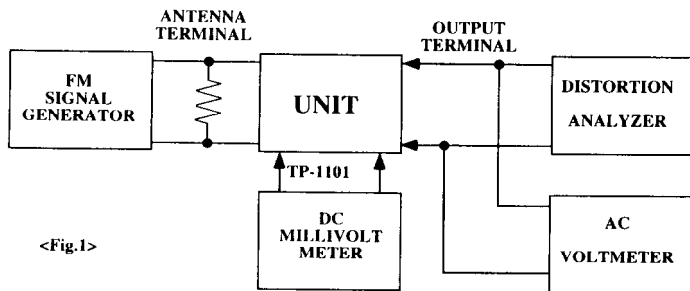
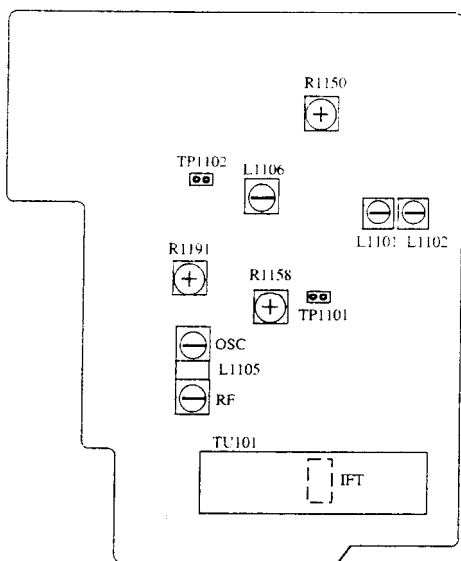
FM tuned voltage: 87.50MHz~108.00MHz  
More than 1.3V~Less than 9V  
AM tuned voltage: 530kHz~1710kHz  
 $1.4 \pm 0.4$ ~Less than 9.0V

#### 230V and Worldwde models

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L1105	$1.4 \pm 0.2\text{V}$
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L1105	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L1106	Maximum

#### Reference Specification

FM tuned voltage: 87.50MHz~108.00MHz  
More than 1.3V~Less than 9V  
AM tuned voltage: 522kHz~1611kHz  
 $1.4 \pm 0.4$ ~Less than 9.0V  
(230V model)  
AM tuned voltage: 531kHz~1602kHz  
 $1.4 \pm 0.4$ ~Less than 9.0V  
(Worldwide model)



# PM4007A (AC-3 RF Demodulator)

Pin No.	Symbol	I/O	Description	Pin No.	Symbol	I/O	Description
1	GND	-	Ground	52	VDD	-	Power supply (+5V)
2	VDD	-	Power supply (+5V)	53	GND	-	Ground
3	RESET	I	System reset. Reset when "L".	54	TH1	I	For IC testing. Normally connected to VDD.
4	OSCON	I	Oscillation control. Oscillation ON when "H".	55	VIN	I	VCX0 input.
5	DATA	I	For IC testing. Normally connected to ground (or unconnected).	56	VOUT	O	VCX0 output.
6	MCK	I	For IC testing. Normally connected to ground (or unconnected).	57	TI2	I	For IC testing. Normally connected to ground (or unconnected).
7	MLTB	I	For IC testing. Normally connected to ground (or unconnected).	58	TI3	I	For IC testing. Normally connected to ground (or unconnected).
8	IDST	O	Output for IC testing.	59	TLDB	I	For IC testing. Normally connected to ground (or unconnected).
9	IDCK	O	Output for IC testing.	60	TCK	O	Output for IC testing.
10	IDO	O	Output for IC testing.	61	TRP	O	Output for IC testing.
11	TMO	I	For IC testing. Normally connected to ground (or unconnected).	62	TDO	O	Output for IC testing.
12	ECCK	O	Output for IC testing.	63	PDO	O	Phase comparator output (3 states)
13	DEN	O	Output for IC testing.	64	TI4	I	For IC testing. Normally connected to ground (or unconnected).
14	DRY	O	Output for IC testing.	65	PDDIS	I	PDO output control input. Output ON when "L".
15	MSYC	O	Output for IC testing.	66	MUTO	O	Muting output. Muted when "H".
16	TMI	I	For IC testing. Normally connected to ground (or unconnected).	67	TI5	I	For IC testing. Normally connected to ground (or unconnected).
17	A0	O	External RAM address output. Address 0 (LSB)	68	VLDY	O	Output for IC testing.
18	A1	O	External RAM address output. Address 1	69	DASYO	O	Output for IC testing.
19	A2	O	External RAM address output. Address 2	70	SAOUT	O	Digital out output
20	A3	O	External RAM address output. Address 3	71	DAIN	I	For IC testing. Normally connected to ground (or unconnected).
21	A4	O	External RAM address output. Address 4	72	DASEL	I	Digital out select
22	A5	O	External RAM address output. Address 5	73	TI8	I	For IC testing. Normally connected to ground (or unconnected).
23	TM2	I	For IC testing. Normally connected to ground (or unconnected).	74	C2F1	O	Error status display for C2 correction.
24	TM3	I	For IC testing. Normally connected to ground (or unconnected).	75	C2F0	O	Outputs whether or not correction was accomplished.
25	XOUT	O	Output for IC testing.	76	C1F1	O	Error status display for C1 correction.
26	XIN	I	For IC testing. Normally connected to ground (or unconnected).	77	C1F0	O	Outputs whether or not correction was accomplished.
27	XETX	I	For IC testing. Normally connected to ground (or unconnected).	78	MUTI	I	Muting input. Muted when "H".
28	GND	-	Ground	79	VDD	-	Power supply (+5V)
29	VDD	-	Power supply (+5V)	80	GND	-	Ground
30	A6	O	External RAM address output. Address 6	81	AVDD	-	Power supply for analog comparator (+5V)
31	A7	O	External RAM address output. Address 7	82	CPIN	I	Analog comparator input. Plus side.
32	GND	-	Ground	83	CMIN	I	Analog comparator input. Minus side.
33	VDD	-	Power supply (+5V)	84	AGND	-	Ground for analog comparator
34	A12	O	External RAM address output. Address 12	85	TM4	I	For IC testing. Normally connected to ground (or unconnected).
35	A14	O	External RAM address output. Address 14 (MSB)	86	VDD	-	Power supply (+5V)
36	WEB	O	Write-enable signal for external RAM. Active when "L".	87	DIN	I	For IC testing. Normally connected to ground (or unconnected).
37	A13	O	External RAM address output. Address 13	88	DOUT	O	Analog comparator output
38	A8	O	External RAM address output. Address 8	89	DOUTB	O	Analog comparator reverse output
39	A9	O	External RAM address output. Address 9	90	C9M	O	9.216 MHz output.
40	GND	-	Ground	91	GND	-	Ground
41	A11	O	External RAM address output. Address 11	92	WINGT	O	For IC testing.
42	OEB	O	Output-enable signal for external RAM. Active when "L".	93	SYST0	O	For IC testing.
43	A10	O	External RAM address output. Address 10	94	SYST1	O	For IC testing.
44	DB7	I/O	External RAM data terminal. Data Bus 7	95	ADST0	O	For IC testing.
45	DB6	I/O	External RAM data terminal. Data Bus 6	96	ADST1	O	For IC testing.
46	DB5	I/O	External RAM data terminal. Data Bus 5	97	TM5	I	For IC testing. Normally connected to ground (or unconnected).
47	DB4	I/O	External RAM data terminal. Data Bus 4	98	BUNRI	I	For IC testing. Normally connected to ground (or unconnected).
48	DB3	I/O	External RAM data terminal. Data Bus 3	99	AGND	-	Ground for 46.08MHz transmitter.
49	DB2	I/O	External RAM data terminal. Data Bus 2	100	AVDD	-	Power supply for 46.08MHz transmitter.
50	DB1	I/O	External RAM data terminal. Data Bus 1				
51	DB0	I/O	External RAM data terminal. Data Bus 0				

## PRINTED CIRCUIT BOARD-PARTS LIST

## MAIN CIRCUIT PC BOARD

(NAAR-6009-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>	
Q1301	22240191	NJM4565D-D
Q1302-Q1309	22240293 or	NJM4558L-D or
Q1313	22240247	BA15218N
Q1310	22240798	TC9162AN
Q1311	22240829	TC9274N-008
Q1312	22240025	LC4966
Q1701	22241105R3 or	MPD78058GC-F01or
	22241104R3	MPD78P058GC
Q1704	22240239	TA7291S
Q921	222780125NEC	MPC78M12HF
Q922	222790125JRC	NJM79M12FA
Q923	222780078MAT	AN7707F
Q925	222780565JRC	NJM78M56FA
Q926	222790075	79M07HF
Q927	222780565JRC	NJM78M56FA
	<b>Transistors</b>	
Q1314	2213160	DTC124ES
Q1315	2215240	DTA114TS
Q1702,Q225	221282 or	DTC144ES or
	2213560	RN1204
Q1703	2213510 or or	DTA114ES or
	2214350	RN2202
Q1705,Q1706	2213290 or	DTC114ES or
	2214230	RN1202
Q1707,Q1708	2212600	DTA124ES
Q1709	2213640	DTC123JS
Q924	2211353 or	2SA949-O or
	2211354	2SA949-Y
Q928,Q929	2213640 or	DTC123JS or
	2214660	RN1205
	<b>Diodes</b>	
D1341,D1342	223163,	1SS133,
D1701-D1705	223205 or	1SS270A or
D1707,D1708	223222	WG713A
D1706	224470562	MTZJ5.6B, Zener
D241-D243	223163,	1SS133,
D938-D940	223205 or	1SS270A or
	223222	WG713A
D921-D926	22380260,	RL1N4003,
D936,D937	22380035 or	GP104003E or
	22380046	AM01Z
D935	22380260	RL1N4003 <D>
D927	224473604	MTZJ36D, Zener
D931	22380022 or	RBV402 or
	22380285	RS403M
D941	224470623	MTZJ6.2C, Zener
	<b>Choke coil</b>	
L1701	233454K220	NCH-1452
	<b>Oscillators</b>	
X1701	3010242	CST5.00MGW,Ceramic
	<b>Capacitors</b>	
C1302,C1307	354741009	10 $\mu$ F,16V,Elect.
C1304,C1404	354721019	100 $\mu$ F,6.3V,Elect.
C1305,C1405	374726824	6800pF $\pm$ 5%,50V, Plastic
C1306,C1406	374721824	1800pF $\pm$ 5%,50V, Plastic
C1308,C1408	374721015	100pF $\pm$ 10%,50V, Plastic<D>
C1308,C1408	374724714	470pF $\pm$ 5%,50V, Plastic <P/T/W/K>
C1309,C1312	354741009	10 $\mu$ F,16V,Elect.
C1315,C1318	354741009	10 $\mu$ F,16V,Elect.
C1321,C1323	354741009	10 $\mu$ F,16V,Elect.
C1325,C1327	354741009	10 $\mu$ F,16V,Elect.
C1331,C1431	354741009	10 $\mu$ F,16V,Elect.
C1341-C1343	354741009	10 $\mu$ F,16V,Elect.
C1345	354780229	2.2 $\mu$ F,50V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
P251	25045457 or	NPJ-3PDE278 or
	25045299	NPJ-3PDE158
P252	25045462 or	NPJ-4PDE283 or
	25045339	NPJ-4PDE190

S VIDEO CIRCUIT PC BOARD  
(NAVD-6028-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>	
Q201,Q202	22240373	BA7625
	<b>Transistors</b>	
Q203-Q208	2212125 or	2SA1048-GR or
	2213354	2SA933S-R
Q209	2212285 or	2SC2878-A or
	2212286	2SC2878-B
Q210,Q224	221282 or	DTC144ES or
	2213560	RN1204
Q211,Q212	2212115 or	2SC2458-GR or
	2213284	2SC1740S-R
Q213-Q215	2212285 or	2SC2878-A or
Q221-Q223	2212286	2SC2878-B
Q216,Q220	2213640 or	DTC123JS or
	2214660	RN1205
Q217	2212125 or	2SA1048-GR or
	2213354	2SA933S-R
Q218,Q219	2213510 or	DTA114ES or
	2214350	RN2202
	<b>Diodes</b>	
D201-D210	223163 or	1SS133 or
	223205	1SS270A
	<b>Capacitors</b>	
C201-C210	354780229	2.2 $\mu$ F,50V,Elect.
C211,C213	354724719	470 $\mu$ F,6.3V,Elect.
C212,C214	354780229	2.2 $\mu$ F,50V,Elect.
C215,C217	354724719	470 $\mu$ F,6.3V,Elect.
C216,C218	354780229	2.2 $\mu$ F,50V,Elect.
C219	354744709	47 $\mu$ F,16V,Elect.
C221	354780229	2.2 $\mu$ F,50V,Elect.
C222	354741009	10 $\mu$ F,16V,Elect.
C223	354724719	470 $\mu$ F,6.3V,Elect.
C227,C228	354721019	100 $\mu$ F,6.3V,Elect.
C233	354721019	100 $\mu$ F,6.3V,Elect.
	<b>Sockets</b>	
P201	25051568	NSCT-12P1355
P202	25051748	NSCT-8P1535
P203	25051748	NSCT-8P1535
	<b>Plug</b>	
P211a	25055135	NPLG-5P119

DIGITAL INPUT TERMINAL PC BOARD  
(NAETC-6029-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>IC</b>	
Q181	222740045R10	TC74HCU04AF
	<b>Photo coupler</b>	
U121	24120037	TORX178A
	<b>Diode</b>	
D191	223163 or	1SS133 or
	223205	1SS270A
	<b>Capacitors</b>	
C1183,C1189	374724724	4700pF $\pm$ 5%,50V, Plastic <P>
C1184	374722234	0.022 $\mu$ F $\pm$ 5%,50V, Plastic
C1185	374724734	0.047 $\mu$ F $\pm$ 5%,50V, Plastic
C1186	354780229	2.2 $\mu$ F,50V,Elect.
C1187,C1188	374723324	3300pF $\pm$ 5%,50V, Plastic <P>
C1190	354721019	100 $\mu$ F,6.3V,Elect.
C181,C191	375524744	0.47 $\mu$ F $\pm$ 5%,50V, Plastic

**CAUTION:** Replacement of the transistor of mark \*, if necessary, must be made from the same beta group (HFE) as the original type.

**CIRCUIT NO. PART NO. DESCRIPTION**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q1458,Q1460	2213090	DTA114S
Q1461	221281	DTC114S
<b>Diodes</b>		
D1451-D1453	223163	1SS133
<b>Capacitors</b>		
C1361,C1381	354741009	10 $\mu$ F,16V,Elect.
C1364,C1365	374721044	0.1 $\mu$ F $\pm$ 5%,50V, Plastic
C1367,C1387	354744709	47 $\mu$ F,16V,Elect.
C1368	374721534	0.015 $\mu$ F $\pm$ 5%,50V, Plastic
C1370	374721044	0.1 $\mu$ F $\pm$ 5%,50V, Plastic
C1384,C1385	374721044	0.1 $\mu$ F $\pm$ 5%,50V, Plastic
C1388,C1468	374721534	0.015 $\mu$ F $\pm$ 5%,50V, Plastic
C1451,C1452	354780479	4.7 $\mu$ F,50V,Elect.
C1461	354741009	10 $\mu$ F,16V,Elect.
C1464,C1465	374721044	0.1 $\mu$ F $\pm$ 5%,50V, Plastic
C1467	354744709	47 $\mu$ F,16V,Elect.
<b>Sockets</b>		
JL351a	25051096	NSCT-12P883
P1351a	25051238	NSCT-13P1028
P1352a	25051526	NSCT-4P1313

**VOLUME CIRCUIT PC BOARD (NAAF-6011-1A/1B/1C/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
C1373,C1393	374721534	0.015 $\mu$ F $\pm$ 5%,50V Plastic capacitor
C1473	374721534	0.015 $\mu$ F $\pm$ 5%,50V, Plastic capacitor
JL351b	25051096	NSCT-12P883, Socket
R1451,R1453	5104405	N9RTL100KWT20F, Variable resistor

**SURROUND SPEAKER TERMINAL PC BOARD (NAETC-6012-1A/1B/1C/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
P551	25060246	NTM-4PDMN166, Speaker terminal
JL552a	25051108	NSCT-4P895, Socket

**PREOUT TERMINAL PC BOARD (NAAF-6024-1A/1B/1C/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
C301-C308	374723324	3300pF $\pm$ 5%,50V, Plastic capacitor <P>
	374721015	100pF $\pm$ 10%,50V, Plastic capacitor <T/W/K>
JL381b	25055630	NPLG-9P592,Plug
JL382b	25055629	NPLG-8P591,Plug
P301	25045456	NPJ-2PDBL277 or NPJ-2PDBL157,Pin jack
P302	25045458	NPJ-6PDBL279 or NPJ-6PDBL159,Pin jack

**FRONT/CENTER POWER AMPLIFIER PC BOARD (NAAF-6014-1A/1B/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q1501,Q1518	2211732 or 2211733	* 2SC1845-F or * 2SC1845-E
Q1502,Q1516	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q1503	2212115 or 2213284	2SC2458-GR or 2SC1740S-R
Q1504-Q1506	2211353 or 2211354	2SA949-O or 2SA949-Y
Q1507,Q1512	2211633 or 2211634	2SC2229-O or 2SC2229-Y

**CIRCUIT NO. PART NO. DESCRIPTION**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q1509	2203010	2SC5171
Q1510	2203000	2SA1930
Q1519	2211634	2SC2229-Y
Q1520	2213354	2SA933S-R
Q501,Q518	2211732 or 2211733	* 2SC1845-F * 2SC1845-E
Q601,Q618	2211732 or 2211733	2SC1845-F 2SC1845-E
Q502,Q516	2211732 or 2211733	2SC1845-F 2SC1845-E
Q504-Q506	2211353 or 2211354	2SA949-O or 2SA949-Y
Q511	2211633 or 2211634	2SC2229-Y or 2SC2229-Y
Q507,Q512	2211634	2SC2229-Y
Q517	2212654 or 2211653	2SC3241- or 2SC3241-O
Q1508	2203010	2SC5171
Q508,Q608	2203000	2SA1930
Q509,Q609	2203113 or 2203112	* 2SA1986-O or * 2SA1986-R
Q510,Q610	2203123 or 2203122	* 2SC5358-O or * 2SC5358-R
Q1513	2213354	2SA933S-R
Q513,Q613	2211634	2SC2229-
Q1514	2212115 or 2213284	2SC2458-GR or 2SC1740S-R
Q514,Q614	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q520,Q620	2213284 or 2212115	2SC1740S-R or 2SC2458-GR
Q541,Q542	2211353 or 2211354	2SA949-O or 2SA949-Y
Q602,Q616	2211633 or 2211634	2SC2229-O or 2SC2229-Y
Q603	2211353 or 2211354	2SA949-O or 2SA949-Y
Q604 Q606	2211634	2SC2229-Y
Q607,Q612	2211792 or 2211793	2SA992-F or 2SA992-E
Q617	2213640	DTC123JS
Q611	2211353 or 2211354	2SA949-O or 2SA949-Y
Q619	2211634	2SC2229-Y
Q961	2211792 or 2211793	2SA992-F or 2SA992-E
Q991,Q992	2213640	DTC123JS
<b>Diodes</b>		
D501,D502	22380260,	RL1N4003,
D601,D602	22380032 or 22380035	1SR139-100 or GP104003E
D911	22380273	$\Delta$ RS804M
D991,D992	223163 or 223205	1SS133 or 1SS270A
<b>Capacitors</b>		
C1502	354782209	22 $\mu$ F,50V,Elect.
C1505	354742219	220 $\mu$ F,16V,Elect.
C1514	354764709	47 $\mu$ F,35V,Elect.
C1515	354744709	47 $\mu$ F,16V,Elect.
C1517	374721044	0.1 $\mu$ F $\pm$ 5%,50V, Plastic
C1521	354741019	100 $\mu$ F,16V,Elect.
C1523	354722219	220 $\mu$ F,6.3V,Elect.
C1533-C1536	354771009	10 $\mu$ F,63V,Elect.
C502,C602	354782209	22 $\mu$ F,50V,Elect.
C505,C605	354742219	220 $\mu$ F,16V,Elect.
C514,C614	354764709	47 $\mu$ F,35V,Elect.
C515,C615	354744709	47 $\mu$ F,16V,Elect.
C517,C617	374721044	0.1 $\mu$ F $\pm$ 5%,50V, Plastic
C521,C522	354774719	470 $\mu$ F,63V,Elect.
C523,C623	354722219	220 $\mu$ F,6.3V,Elect.
C541	354721019	100 $\mu$ F,6.3V,Elect.
C542	354780229	2.2 $\mu$ F,50V,Elect.
C596	374722234	0.022 $\mu$ F $\pm$ 5%,50V, Plastic
C621,C622	354774719	470 $\mu$ F,63V,Elect.
C913,C914	3504305Y	$\Delta$ 12000 $\mu$ F,63V,Elect.



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

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Resistors</b>	
R1506	443526834	68k $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1513	443525614	$\Delta$ 560 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1514, R1517	443528204	$\Delta$ 82 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1515	443526804	68 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1516	443524714	$\Delta$ 470 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1523	4500116	RNU1/6WCF820, Metal
R1524	443521014	100 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1529, R1530	453530224	2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R1535, R1536	443525614	$\Delta$ 560 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1538	4000132	RGC55 0.22 Ohm, Metal plate
R1540	453630824	8.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R506, R606	443526834	68k $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R513, R613	443525614	$\Delta$ 560 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R514, R517	443528204	$\Delta$ 82 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R515, R615	443526804	68 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R516, R616	443524714	470 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R522, R523	4500116	RNU1/6WCF820, Metal
R524, R624	443521014	100 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R529, R530	453530224	$\Delta$ 2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R535, R536	443525614	$\Delta$ 560 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R538, R638	4000132	RGC55 0.22 Ohm, Metal plate
R540, R640	453630824	8.2 $\Omega$ $\pm$ 5%, 1W, Metal
R545, R546	453530224	$\Delta$ 2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R547, R647	443623914	390 $\Omega$ $\pm$ 5%, 1W, Metal oxide
R614, R617	443528204	$\Delta$ 82 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R622, R623	4500116	RNU1/6WCF820, Metal
R629, R630	453530224	$\Delta$ 2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R635, R636	443525614	$\Delta$ 560 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R645, R646	453530224	$\Delta$ 2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
	<b>Relais</b>	
RL501, RL502	25065517	NRL-2P5A-DC24-098
	<b>Sockets</b>	
JL941b	25050270	NSCT-6P98
JL532a	25051110	NSCT-6P897
JL501b, JL552b	25050268	NSCT-4P96
	<b>Plugs</b>	
JL503b	25055626	NPLG-5P588
JL942b	25055624	NPLG-3P586
TP1544	25055038	NPLG-2P29
TP544, TP644	25055038	NPLG-2P29

#### SURROUND POWER AMPLIFIER PC BOARD (NAAF-6015-1A/1B/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Transistors</b>	
Q551, Q552	2211733 or *	2SC1845-E or
Q651, Q652	2211732 *	2SC1845-F
Q553	2211733 or	2SC1845-E or
Q653	2211732	2SC1845-F
Q554, Q594	2213284 or	2SC1740S-R or
Q654	2212115	2SC2458-GR
Q555-Q557	2211354 or	2SA949-Y or
Q655-Q657	2211353	2SA949-O
Q558, Q568	2211634 or	2SC2229-Y or
	2211633	2SC2229-O
Q559	2211634	2SC2229-Y
Q561, Q661	2203010	2SC5171
Q562, Q662	2203000	2SA1930
Q563, Q663	2203043 or $\Delta$	* 2SC5197-O or
	2203042 $\Delta$	* 2SC5197-R
Q564, Q664	2203033 or $\Delta$	* 2SA1940-O or
	2203032 $\Delta$	* 2SA1940-R
Q565, Q665	2211633 or	2SC2229-O or
	2211634	2SC2229-Y
Q566, Q666	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q569, Q669	2213354	2SA933S-R

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Transistors</b>	
Q593	2212445	2SK365-GR
Q595	2212644	2SA1358-Y
Q658, Q659	2211634	2SC2229-Y
	<b>Diodes</b>	
D551, D552	22380260	RL1N4003
	22380032	1SR139-100
	22380035	GP104003E
D591	223163,	1SS133,
	223205 or	1SS270A or
	223222	WG713A
D915	22380021 $\Delta$	RS403L
	<b>Capacitors</b>	
C552, C652	354742209	22 $\mu$ F, 16V, Elect.
C555, C655	354741019	100 $\mu$ F, 16V, Elect.
C557, C558	354781009	10 $\mu$ F, 50V, Elect.
C564, C664	354764709	47 $\mu$ F, 35V, Elect.
C565, C665	354744709	47 $\mu$ F, 16V, Elect.
C566, C666	374721044	0.1 $\mu$ F $\pm$ 5%, 50V, Plastic
C571, C572	354784719	470 $\mu$ F, 50V, Elect.
C573, C673	354722219	220 $\mu$ F, 6.3V, Elect.
C575, C576	354781009	10 $\mu$ F, 50V, Elect.
C593	354764709	47 $\mu$ F, 35V, Elect.
C594	354780229	2.2 $\mu$ F, 50V, Elect.
C595	374722234	0.022 $\mu$ F $\pm$ 5%, 50V, Plastic
C597	354781009	10 $\mu$ F, 50V, Elect.
C917, C918	3504304Y $\Delta$	6800 $\mu$ F, 50V, Elect.

	<b>Resistors</b>	
R1569	443525614	560 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1572	443521024	1k $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R1574	443725604	56 $\Omega$ $\pm$ 5%, 2W, Metal oxide
R556, R656	443525634	56k $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R563, R564	443526804 $\Delta$	68 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R565, R566	443525604 $\Delta$	56 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R567, R667	443526804 $\Delta$	68 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R571, R671	4500116	RNU1/6WCF820, Metal plate
R572, R672	4500116	RNU1/6WCF820, Metal plate
R573, R673	443521014	100 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R574, R575	453530224 $\Delta$	2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R576, R676	453630824	8.2 $\Omega$ $\pm$ 5%, 1W, Metal
R582, R682	4800045	RGC55 0.1 Ohm*2, Metal plate
R588, R589	453530224	2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
R663, R664	443526804 $\Delta$	68 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R665, R666	443525604 $\Delta$	56 $\Omega$ $\pm$ 5%, 1/2W, Metal oxide
R674, R675	453530224 $\Delta$	2.2 $\Omega$ $\pm$ 5%, 1/2W, Metal
	<b>Sockets</b>	
JL501a, JL912a	25051108	NSCT-4P895
	<b>Plugs</b>	
JL560b, JL660b	25055624	NPLG-3P586
TP578, TP678	25055038	NPLG-2P29

#### POWER SUPPL CIRCUIT PC BOARD (NAPS-6016-1A/1B/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>	
C901	3500191	DE7150F-103M
C952	354744719	470 $\mu$ F, 16V, Elect.
	<b>Diodes</b>	
D951-D954	22380260,	RL1N4003,
	22380032 or	1SR139-100 or
	22380035	GP104003E
D955	223163 or	1SS133 or
	223205	1SS270A
	<b>Fuses</b>	
F901	252198 $\Delta$	8A-UL/T-237 <D/W>
F902	252077 $\Delta$	4A-SE-EAK <P/T/W/K>
F903	252166 $\Delta$	6.3A-UL/T-237 <D>
	252075 $\Delta$	2.5A-SE-EAK <P/T>

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Fuseholders</b>		
F901a	25050065	△ SH403T <D/W>
F902a	25050065	△ SH403T <P/T/W/K>
F903a	25050065	△ SH403T <D/P/T>
<b>Fuse labels</b>		
F903b	29361747	T2.5AL250V, Fuse label <P/T>
F903b	29361747	T2.5AL250V
F916b	29361681	Label F <P/T/W/K>
<b>Terminal</b>		
P501	25060248	NTM-8PDMN168
<b>Plug</b>		
P901a	25055675	NPLG-2P631
<b>Resistors</b>		
R901	431533355	△ RC1/2GFKUL3.3M
R951	453530824	8.2Ω ± 5%, 1/2W, Metal
<b>Relaies</b>		
RL901	25065248 or	△ NRL-1P15-DC12-29 or
	25065516	△ NRL-1P10A-DC12-097 <D/W>
	25065515 or	△ NRL-1P15A-DC12-096 or
	25065508	△ NRL-1P10A-DC12-093 <P/T/K>
<b>Switch</b>		
S901	25065437	△ NSS-22157P <W>
<b>Power transformer</b>		
T902	2301258 or	△ NPT-1294D or
	2300670A	△ NPT-1111D <D>
	2300671A	△ NPT-1111P <P/T>
	2300672A	△ NPT-1111DG <W/K>

**SECONDAR CIRCUIT PC BOARD  
(NAETC-6018-1A/1B/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
C921-C928	374721044	0.1 μ F ± 5%, 50V, Plastic capacitor
F915, F916	252166	△ 6.3A-UL/T237, Fuse <D>
	252079	△ 6.3A-SE-EAK, Fuse <P/T/W/K>
F915a, F916a	25050065	△ SH403T, Fuseholder
F916b	29361681	Fuse label <P/T/W/K>
JL912b	25050268	NSCT-4P96, Socket
JL921b	25050271	NSCT-7P99, Socket
R921, R922	453532294	△ 0.22Ω ± 5%, 1/2W, Metal resistor
R929, R930	453532294	△ 0.22Ω ± 5%, 1/2W, Metal resistor

**SPEAKER TERMINAL PC BOARD  
(NAETC-6020-1A/1B/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
JL532b	25050270	NSCT-6P97, Socket
P502	25060247	NTM-2PDMN167, Terminal
P504a	25055135	NPLG-5P119, Plug

**POWER SWITCH PC BOARD (NAETC-6021-1B/1D/1E)**

Except 120V Model

CIRCUIT NO.	PART NO.	DESCRIPTION
C902	3500191	△ DE7150F-103M, IS capacitor
C902a	27301216	△ SB1925A, Capacitor cover
S902	25035550	△ NPS-111-L512P, Power switch

**THERMAL DET. TRANSISTOR PC BOARD  
(NAETC-6128-1A/1B/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
Q560	2212654	2SC3421-, transistor
JL560a	25051087	NSCT-3P874, Socket

**THERMAL DET. TRANSISTOR PC BOARD  
(NAETC-6129-1A/1B/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
Q660	2212654	2SC3421-, transostor
JL660a	25051087	NSCT-3P874, Socket
P904a	25055600	NPLG-2P568, Plug

**AC OUTLET PC BOARD (NAETC-6037-1A/6017-1B/1D)**

CIRCUIT NO.	PART NO.	DESCRIPTION
P511	2009990382	NSAS-10P0519, Socket
P522a	25055133	NPLG-3P117, Plug
P561	2009990241A	NSAS-6P0346, Socket
P902	25051220	△ NSCT-6P1010, AC outlet <D>
P903	25051125	△ NSCT-4P912, AC outlet <P/T/W>

**DISPLAY CIRCUIT PC BOARD (NADIS-6022-1A/1B/1C)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>FL tube</b>		
Q701	212160Y	16-ST-11GK
<b>Remote sensor</b>		
U701	24130011	PIC-12043TE2
<b>IC</b>		
Q702	22240685R9	M66004FP
<b>Transistors</b>		
Q704, Q705	2212115 or	2SC2458-GR or
	2213284	2SC1740S-R
Q706, Q707	2212600	DTA124ES
Q708-Q713	2215410R2	RN1441
Q714	2214530R2	RN2402
<b>Diodes</b>		
D701, D702	225291D	SEL4910D-D
D703, D711	223234R2	1SS352
D706-D709	225290	SEL4110R
	223234R2	1SS352
D712	224481302R2 or	DTZ13B or
	224491300R2	UDZ13B
D713-D715	223234R2	1SS352
<b>Capacitors</b>		
C702	355741009	10 μ F, 16V, Elect.
C714	375524744	0.47 μ F ± 5%, 50V, Plastic
C716	355781009	10 μ F, 50V, Elect.
C717	355721019	100 μ F, 6.3V, Elect.
C718	375524744	0.47 μ F ± 5%, 50V, Plastic
<b>Resistor</b>		
R705	49163103415	RM1/10I10k*15, Array
<b>Switches</b>		
S701-S727	25035652	NPS-111-S604
S728	25035652	NPS-111-S604 <P>
S729-S734	25035652	NPS-111-S604
<b>Rotar encoder</b>		
S737	25065528Y	REB161PVB
<b>Sockets</b>		
JL701b	25050945 or	NSCT-39P732 or
	25051883	NSCT-39P1670
JL801a, JL802a	25051113	NSCT-9P900
<b>Holder</b>		
Q701a	27191001Y	

**ELECTRO VOLUME PC BOARD (NAAF-6023-1A/1B/1C)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q331, Q342	22240581R1	NJM4565M
Q340	22240943R2	TC9163AF
Q343, Q402	22240581R1	NJM4565M
Q405-Q408	22240944R2	TC9212F
Q409-Q416	22240581R1	NJM4565M
<b>Transistors</b>		
Q333-Q335	2215196	2SK364-BL
Q337-Q339	2215410R2	RN1441
Q344, Q345	2214540R2	RN2403
Q346	2214480R2	RN1403
Q419-Q434	2215410R2	RN1441
Q435-Q442	2214530R2	RN2402
Q443-Q450	2215410R2	RN1441

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
D301-D303	223234R2	1SS352	P1403	25050986	NSCT-14P773
D401-D408	223234R2	1SS352	P1404	25051238	NSCT-13P1028
	<b>Capacitors</b>		JL803a	25051111	NSCT-7P898
C319,C320	374721044	0.1 $\mu$ F $\pm$ 5%, 50V, Plastic	<b>TUNER CIRCUIT PC BOARD</b>		
C352,C354	374721244	0.12 $\mu$ F $\pm$ 5%, 50V, Plastic	<b>(NARF-6026-1A/1B/1C/1D/1E)</b>		
C356,C358	374721244	0.12 $\mu$ F $\pm$ 5%, 50V, Plastic	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
C360,C362	374721244	0.12 $\mu$ F $\pm$ 5%, 50V, Plastic		<b>Front end</b>	
C401-C404	374722234	0.022 $\mu$ F $\pm$ 5%, 50V, Plastic	TU101	240089	FE415-G11<P/T/W/K>
C411-C418	354741009	10 $\mu$ F, 16V, Elect.		240098	ENV172D1G1 <D>
C419-C426	354782209	22 $\mu$ F, 50V, Elect.		<b>ICs</b>	
C435-C442	354741009	10 $\mu$ F, 16V, Elect.	Q1121	22241076	LM7001J
C443-C450	354782209	22 $\mu$ F, 50V, Elect.	Q1141	22240983	LA1851N-F
C459-C466	354744709	47 $\mu$ F, 16V, Elect.	Q1176	22240293 or	NJM4558L-D or
C467-C474	354780229	2.2 $\mu$ F, 50V, Elect.		22240247	BA15218N
C483,C484	354741009	10 $\mu$ F, 16V, Elect.	Q1181	22240679	$\mu$ PC1346CS <P>
	<b>Resistor</b>			<b>Transistors</b>	
R391	5142017	N16RGL20KB25F, Variable	Q1101,Q1102	2215063	2SC2669-O
	<b>Sockets</b>		Q1103,Q1104	2215063	2SC2669-O <P/T/W/K>
JL381a	25051093	NSCT-9P880	Q1122,Q1142	2213510 or	DTA114ES
JL382a	25051092	NSCT-8P879		2214350	RN2202
P1401	25050985	NSCT-12P772	Q1123	2212445	2SK365-GR
	<b>Plugs</b>		Q1124	2213284 or	2SC1740S-R or
P511b	25055236	NPLG-5P220		2212115	2SC2458-GR
P561b	25055234	NPLG-3P218	Q1143	221282 or	DTC144ES or
				2213560	RN1204
<b>HEADPHONE TERMINAL PC BOARD</b>			Q1144	2213640 or	DTC123JS or
<b>(NAAF-6025-1A/1B/1C)</b>				2214660	RN1205
<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	Q1171,Q1172	2213284 or	2SC1740S-R or
JL503a	25051089	NSCT-5P876, Socket		2212115	2SC2458-GR
P503	25045502Y or	J6315-03-090 or	Q1173,Q1174	2215024	2SD1468S-R
	25045514Y	KB26-5005, Headphone	Q1175	2213510 or	DTA114ES or
		terminal <D/P>		2214350	RN2202
	25045385	KB26-5153, Headphone	Q1182	2212115 or	2SC2458-GR or
		terminal <T/W/K>		2213284	2SC1740S-R <P>
<b>AC-3 CIRCUIT PC BOARD (NADG-6035-1B/1C)</b>				<b>Diode</b>	
Except 120V model			D1165	224470512	MTZJ5.1B
<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>		<b>Ceramic filters</b>	
	<b>ICs</b>		X1101	3010071	SFE10.7MA5
Q102	22240976R1	MC14577C	X1102	3010071	SFE10.7MA5 <P/T/W/K>
Q108	22240581R1	NJM4565M	X1103	3010071	SFE10.7MA5 <D>
Q110	22241107R3	PM4007A	X1103	3010130	SFE10.7M22A <P/T/K/W>
Q112	22240985R3 or	TC55257DFL-85L or	X1104	3010268	CSB456F23
	22241036R9	M5M5256CFP-70LL	X1105	3010123	SFZ-450JL
Q893	222790053JRC	NJM79L05A		<b>Oscillators</b>	
Q894	222780055JRC	NJM78M05FA	X1121	3010141	XTL-7.2M
			X1181	3010203	AF6146CG <P>
	<b>Transistors</b>			<b>Coils &amp; Transformers</b>	
Q101,Q103	2213143R2	2SC2712-O	L1101	233457	NFIF-4081
Q104,Q109	2214373R2	2SA1162-O	L1102	233458	NFIF-4082
Q106,Q107	2213143R2	2SC2712-O	L1103	233471	NMC-6084 <P/T/W/K>
	<b>Diodes</b>		L1104	233454M022	NCH-1452 022M
D101	223236R2	KV1851-TL	L1105	232174	NMRF-5077
	<b>Coils</b>		L1106	232139	NMIF-4062
L101	233493K680	NCH-1487	L1107,L1108	233484	NMC-4085
L102-L105	231237K470R2	NCH-1479		<b>Capacitors</b>	
	<b>Oscillators</b>		C1101,C1133	354741019	100 $\mu$ F, 16V, Elect.
X101	3010263	SBP-4930	C1127	354721019	100 $\mu$ F, 6.3V, Elect.
X102	3010279	XTL-18.432M	C1130,C1159	354780229	2.2 $\mu$ F, 50V, Elect.
	<b>Capacitors</b>		C1131	374722234	0.022 $\mu$ F $\pm$ 5%, 50V, Plastic
C107	355721019	100 $\mu$ F, 6.3V, Elect.	C1132,C1153	354783399	0.33 $\mu$ F, 50V, Elect.
C108,C116	355744709	47 $\mu$ F, 16V, Elect.	C1142	354741019	100 $\mu$ F, 16V, Elect.
C123,C124	355744709	47 $\mu$ F, 16V, Elect.	C1145,C1149	354780479	4.7 $\mu$ F, 50V, Elect.
C129	355721019	100 $\mu$ F, 6.3V, Elect.	C1146	374723324	3300pF $\pm$ 5%, 50V, Plastic
C130	355744709	47 $\mu$ F, 16V, Elect.	C1147	374721034	0.01 $\mu$ F $\pm$ 5%, 50V, Plastic
C891,C892	354742219	220 $\mu$ F, 16V, Elect.			<P/T/W/K>
C898,C899	354741019	100 $\mu$ F, 6.3V, Elect.	C1147	374721534	0.015 $\mu$ F $\pm$ 5%, 50V, Plastic <D>

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Capacitors</b>		
C1151,C1152	354780109	1 $\mu$ F,50V,Elect.
C1154,C1166	354741009	10 $\mu$ F,16V,Elect.
C1155,C1156	374721134	0.011 $\mu$ F $\pm$ 5%,50V, Plastic <D>
C1155,C1156	374724324	4300pF $\pm$ 5%,50V, Plastic <P/T/W/K>
C1160	354784799	0.47 $\mu$ F,50V,Elect.
C1162	353741009	10 $\mu$ F,16V,Elect.
C1168	374724734	0.047 $\mu$ F $\pm$ 5%,50V, Plastic
C1171,C1172	354741009	10 $\mu$ F,16V,Elect.
C1173,C1174	374722724	2700pF $\pm$ 5%,50V, Plastic
C1175,C1176	354741009	10 $\mu$ F,16V,Elect.
C1177	354780229	2.2 $\mu$ F,50V,Elect.
C1178,C1179	354741009	10 $\mu$ F,16V,Elect.
<b>Resistors</b>		
R1150	5210261	N06HR5KBC, Trimming
R1158	5210264	N06HR30KBC, Trimming
R1191	5210265	N06HR50KBC, Trimming <P>
<b>Switch</b>		
S1101	25065286	NSS-22112 <W/K>
<b>Plug</b>		
TP1101	25055038	NPLG-2P29
<b>Terminals</b>		
P1101	25060222 or 25060117	NTM-2PDML144 NTM-2PDML051 <P/T/W/K>
<b>Sockets</b>		
P1102b	25050985	NSCT-12P772 <T>
P1102b	25050986	NSCT-14P773 <W/K>
P1102b	25050987	NSCT-16P774 <P>
<b>Shield plate</b>		
TU101a	27150397	<P/T/W/K>

**VIDEO CIRCUIT PC BOARD (NAVD-6027-1A/1B/1C/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q251	22240373	BA7625
Q271	22241037	LC74761-9189
<b>Transistors</b>		
Q252-Q254	2212125 or	2SA1048-GR or
Q273-Q275	2213354	2SA933S-R
Q272	2213284	2SC1740S-R
<b>Oscillators</b>		
X271	3010167	XTL-14.32M
X272	3010238	XTL-17.73M <P/T/W>
<b>Capacitors</b>		
C251-C255	354780229	2.2 $\mu$ F,50V,Elect.
C256-C259	354724719	470 $\mu$ F,6.3V,Elect.
C262,C282	354721019	100 $\mu$ F,6.3V,Elect.
C269	354741009	10 $\mu$ F,16V,Elect.
C271,C277	354784799	0.47 $\mu$ F,50V,Elect.
C274	374722234	0.022 $\mu$ F $\pm$ 5%,50V, Plastic
C275,C296	354780109	1 $\mu$ F,50V,Elect.
C280,C297	354744709	47 $\mu$ F,16V,Elect.
C284,C291	375524744	0.47 $\mu$ F $\pm$ 5%,50V, Plastic
C289,C298	354721019	100 $\mu$ F,6.3V,Elect.
<b>Diodes</b>		
D251,D252	223163 or	1SS133 or
D271	223205	1SS270A
<b>Socket</b>		
JL251a	25051094	NSCT-10P881
<b>Coils</b>		
L271	233454K056	NCH-1452
L272,L273	233454K220	NCH-1452
<b>Resistor</b>		
R263	453530154	1.5 $\Omega$ $\pm$ 5%,1/2W,Metal

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Terminals</b>		
P251	25045457 or 25045299	NPJ-3PDE278 or NPJ-3PDE158
P252	25045462 or 25045339	NPJ-4PDE283 or NPJ-4PDE190

**S VIDEO CIRCUIT PC BOARD (NAVD-6028-1A/1B/1C/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>ICs</b>		
Q201,Q202	22240373	BA7625
<b>Transistors</b>		
Q203-Q208	2212125 or 2213354	2SA1048-GR or 2SA933S-R
Q209	2212285 or 2212286	2SC2878-A or 2SC2878-B
Q210,Q224	221282 or 2213560	DTC144ES or RN1204
Q211,Q212	2212115 or 2213284	2SC2458-GR or 2SC1740S-R
Q213-Q215	2212285 or	2SC2878-A or
Q221-Q223	2212286	2SC2878-B
Q216,Q220	2213640 or 2214660	DTC123JS or RN1205
Q217	2212125 or 2213354	2SA1048-GR or 2SA933S-R
Q218,Q219	2213510 or 2214350	DTA114ES or RN2202
<b>Diodes</b>		
D201-D210	223163 or 223205	1SS133 or 1SS270A
<b>Capacitors</b>		
C201-C210	354780229	2.2 $\mu$ F,50V,Elect.
C211,C213	354724719	470 $\mu$ F,6.3V,Elect.
C212,C214	354780229	2.2 $\mu$ F,50V,Elect.
C215,C217	354724719	470 $\mu$ F,6.3V,Elect.
C216,C218	354780229	2.2 $\mu$ F,50V,Elect.
C219	354744709	47 $\mu$ F,16V,Elect.
C221	354780229	2.2 $\mu$ F,50V,Elect.
C222	354741009	10 $\mu$ F,16V,Elect.
C223	354724719	470 $\mu$ F,6.3V,Elect.
C227,C228	354721019	100 $\mu$ F,6.3V,Elect.
C233	354721019	100 $\mu$ F,6.3V,Elect.
<b>Sockets</b>		
P201	25051568	NSCT-12P1355
P202	25051748	NSCT-8P1535
P203	25051748	NSCT-8P1535
<b>Plug</b>		
P211a	25055135	NPLG-5P119

**DIGITAL INPUT TERMINAL PC BOARD (NAETC-6029-1A/1B/1C/1D/1E)**

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>IC</b>		
Q181	222740045R10	TC74HCU04AF
<b>Photo coupler</b>		
U121	24120037	TORX178A
<b>Diode</b>		
D191	223163 or 223205	1SS133 or 1SS270A
<b>Capacitors</b>		
C1183,C1189	374724724	4700pF $\pm$ 5%,50V, Plastic <P>
C1184	374722234	0.022 $\mu$ F $\pm$ 5%,50V, Plastic
C1185	374724734	0.047 $\mu$ F $\pm$ 5%,50V, Plastic
C1186	354780229	2.2 $\mu$ F,50V,Elect.
C1187,C1188	374723324	3300pF $\pm$ 5%,50V, Plastic <P>
C1190	354721019	100 $\mu$ F,6.3V,Elect.
C181,C191	375524744	0.47 $\mu$ F $\pm$ 5%,50V, Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Capacitors</b>			<b>Diodes</b>	
C184	374721044	0.1 $\mu$ F $\pm$ 5%, 50V, Plastic	D131, D132	223234R2	1SS352
C185	374721044	0.1 $\mu$ F $\pm$ 5%, 50V, Plastic <D>		<b>Coils</b>	
C193	374721044	0.1 $\mu$ F $\pm$ 5%, 50V, Plastic	L147	231237K470R2	NCH-1479
C194	374721044	0.1 $\mu$ F $\pm$ 5%, 50V, Plastic <D>	L761, L762	231237M022R2	NCH-1471 022M
	<b>Terminals</b>			<b>Oscillators</b>	
P101	25045473	NPJ-1PDBL291 <D>	X131	3010266	XTL-18.432M, Crstal
		NPJ-1PDBL317 <P/T/W/K>	X791	3010239T	CST10.0MWT, Ceramic
P102	25045473	NPJ-1PDBL291		<b>Capacitors</b>	
	<b>Socket</b>		C133	354744709	47 $\mu$ F, 16V, Elect.
P804	2009990434UL	NSAS-10P0578	C135	374721034	0.01 $\mu$ F $\pm$ 5%, 50V, Plastic
			C763, C773	374724734	0.047 $\mu$ F $\pm$ 5%, 50V, Plastic
			C766, C781	354744709	47 $\mu$ F, 16V, Elect.
			C776, C789	355744709	47 $\mu$ F, 16V, Elect.
			C793, C811	354744709	47 $\mu$ F, 16V, Elect.
			C801, C808	354741009	10 $\mu$ F, 16V, Elect.
			C803-C805	354741009	10 $\mu$ F, 16V, Elect.
			C817-C822	354744709	47 $\mu$ F, 16V, Elect.
			C831-C836	354780229	2.2 $\mu$ F, 50V, Elect.
			C837-C842	374722724	2700pF $\pm$ 5%, 50V, Plastic
			C843-C848	374721524	1500pF $\pm$ 5%, 50V, Plastic
			C849-C854	374721224	1200pF $\pm$ 5%, 50V, Plastic
			C855-C860	354782209	22 $\mu$ F, 50V, Elect.
			C861, C862	354741019	100 $\mu$ F, 16V, Elect.
			C893, C894	354741019	100 $\mu$ F, 16V, Elect.
			C896	354742219	220 $\mu$ F, 16V, Elect.
				<b>Sockets</b>	
			JL801b, JL802b	25050286	NSCT-9P114
			JL803b	25050284	NSCT-7P112 <P/T/W/K>
				<b>Plug</b>	
			P804b	25055135	NPLG-5P119

#### RI/MR TERMINAL PC BOARD (NADG-6030-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Photo coupler</b>	
Q983	24120043	ON3131 <D>
	<b>Transistors</b>	
Q981, Q982	221282 or 2213560	DTC144ES or RN1204
Q984	2213510 or 2214350	DTA114ES or RN2202 <D>
Q985	2213284 or 2212115	2SC1740S-R or 2SC2458-GR <D>
	<b>Diodes</b>	
D981, D982	223205 or 223163	1SS270A or 1SS133 <P/T/W/K>
D983	223205 or 223163	1SS270A or 1SS133
D984	223205 or 223163	1SS270A or 1SS133 <D>
	<b>Capacitors</b>	
C981	374724724	4700pF $\pm$ 5%, 50V, Plastic
C982	354741009	10 $\mu$ F, 16V, Elect.
C983	354741009	10 $\mu$ F, 16V, Elect. <D>
	<b>Terminals</b>	
P981	25045433	HSJ-1003-01-013 <D>
		HSJ-1003-01-12 <P/T/W/K>
P982	25045172	HSJ-1003-01-020
	<b>Plug</b>	
JL943b	25055625	NPLG-4P587

NOTE: <D>: 120V Model only  
<P>: 230V Model only  
<T>: Asian Model only  
<W>: Taiwanese Model only  
<K>: Korean Model only

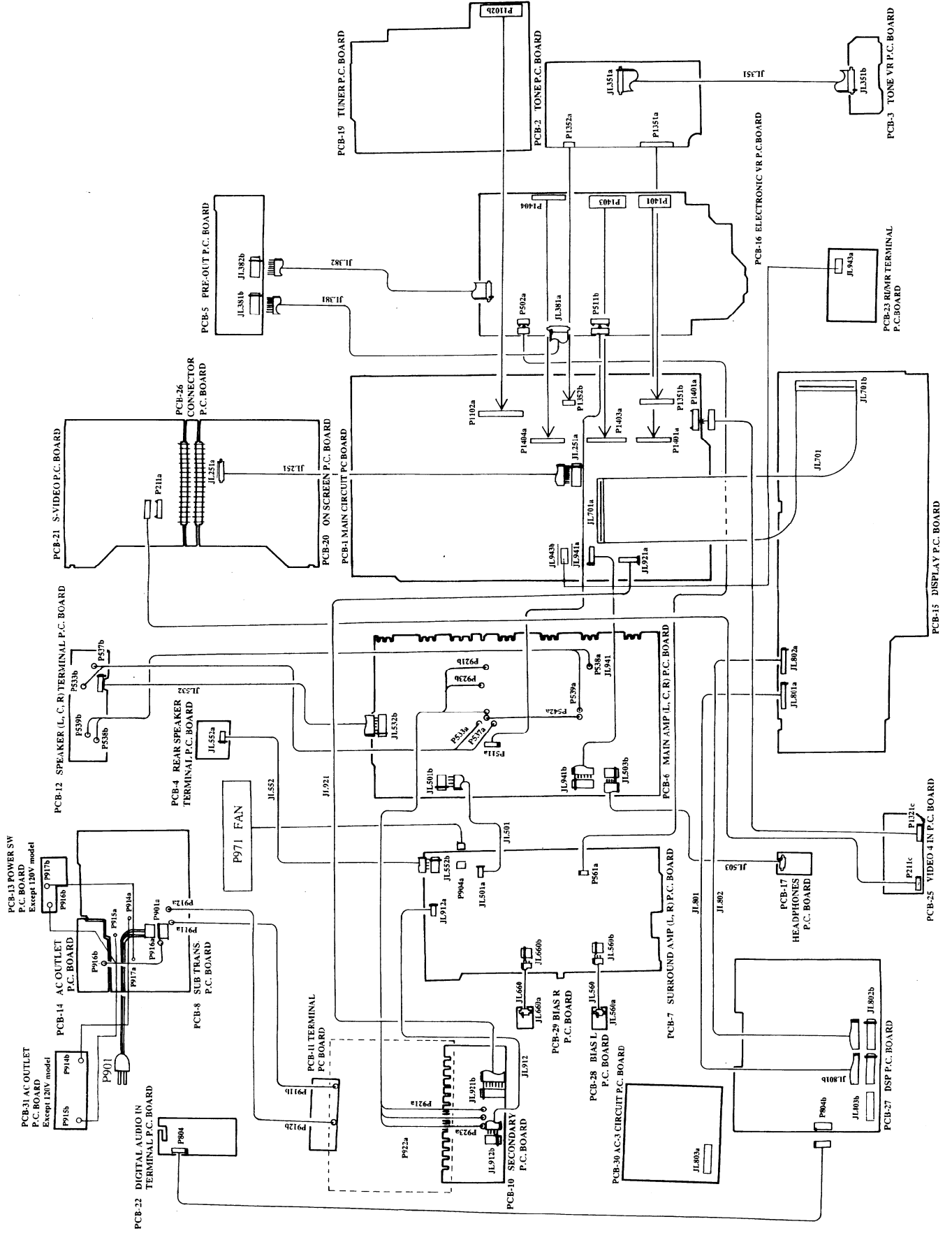
#### FRONT VIDEO TERMINAL PC BOARD (NAETC-6031-1A/1B/1C/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
P1305, P1306	25045500	NPJ-1PDBL316 <D/P>
	25045479A	NPJ-1PDBL297 <T/W/K>
P1321	2009990457BUL	NSAS-12P0611
P204	25051913	NSCT-4P1700 <D/P>
	25051749	NSCT-4P1536 <T/W/K>
P211	2009990433UL	NSAS-10P0577
P254	25045500	NPJ-1PDBL316 <D/P>
	25045479A	NPJ-1PDBL297 <T/W/K>

#### DSP CIRUCIT PC BOARD (NADG-6034-1A/1B/1C)

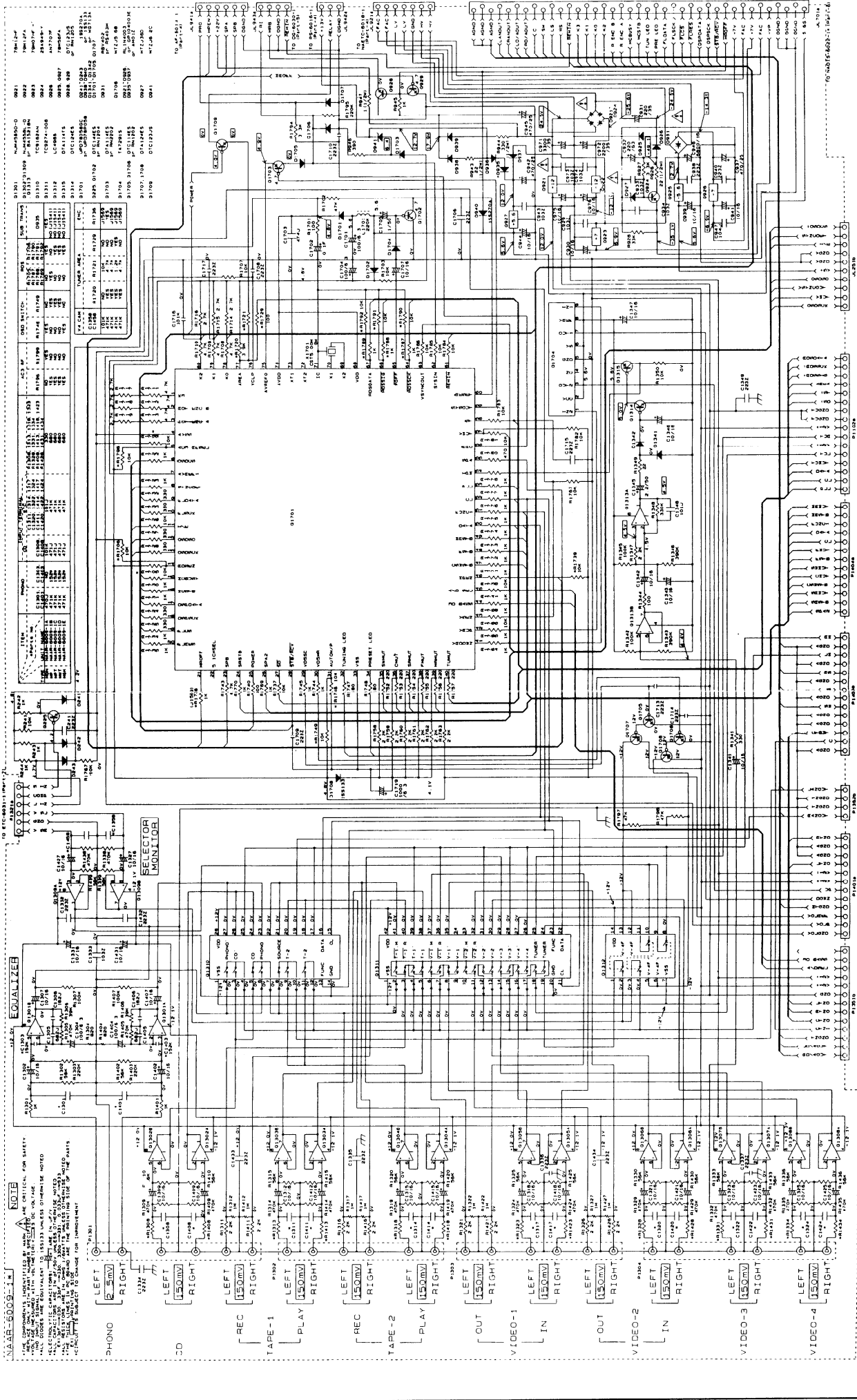
CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>ICs</b>	
Q131	22240915R3	LC8904Q
Q761	22240972R3	DSPF56009FJ81
Q762	22240940R3	DSP56004FJ66
Q763	22241101R2	LC32464M-80
Q764	22240928R2	TC9246F
Q791	22241102R3	MPD78014FGC-557, Mask
	22241103R3	MPD78P014GC, One time
Q801	22241100R2	PCM3001E
Q802, Q803	22241099R2	PCM1718E
Q821-Q823	22240581R1	NJM4565M
Q891, Q892	222780055JRC	NJM78M05FA

# PC BOARDS-CONNECTION DIAGRAM



A | B | C | D | E | F | G

# SCHEMATIC DIAGRAM



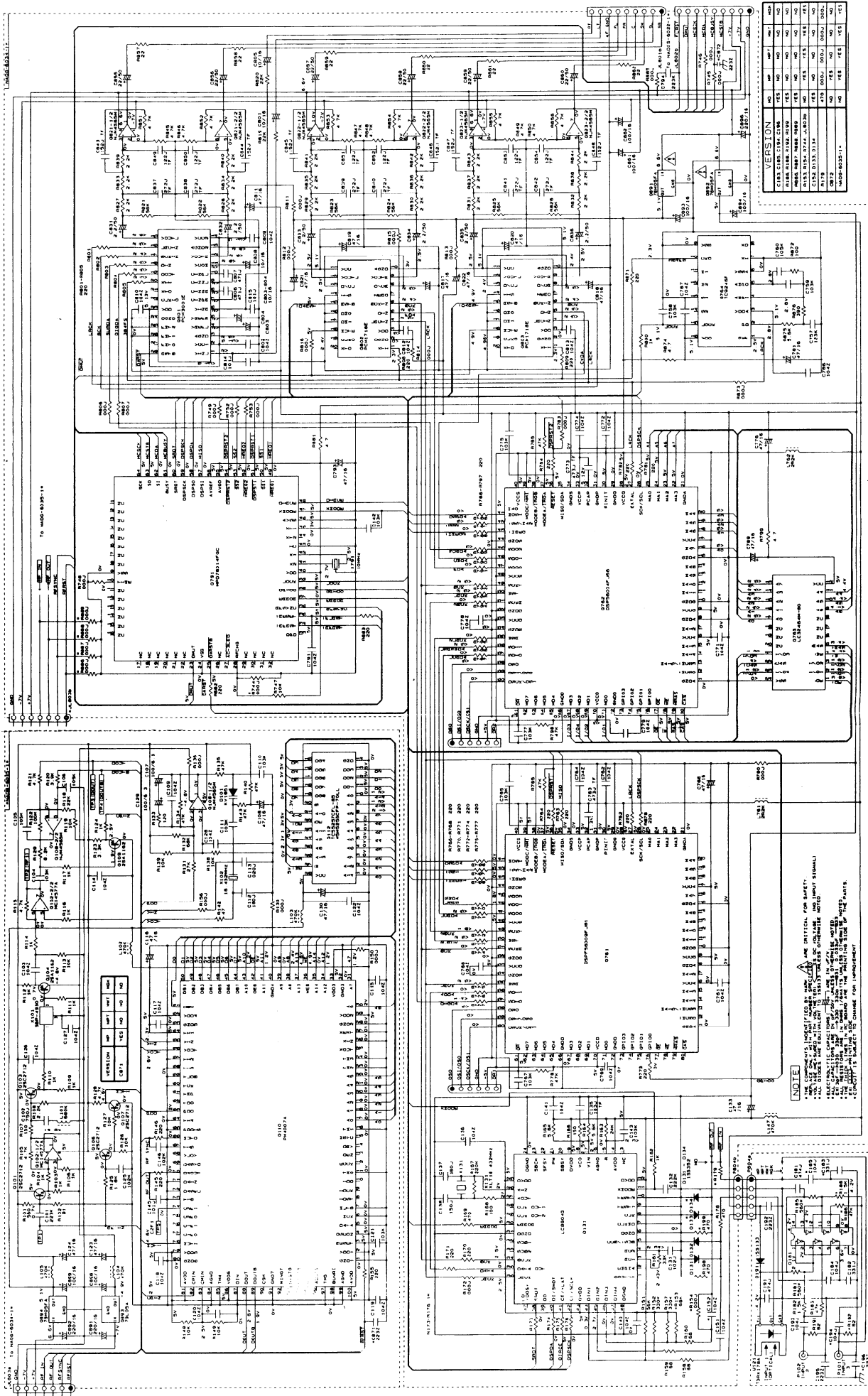
**NOTE**  
 1. COMPONENTS IDENTIFIED BY A SQUARE ARE CRITICAL FOR SAFETY.  
 2. ALWAYS USE THE CORRECT WIRE GAUGE AND WIRE COLOR.  
 3. ALWAYS USE THE CORRECT WIRE GAUGE AND WIRE COLOR.  
 4. ALWAYS USE THE CORRECT WIRE GAUGE AND WIRE COLOR.  
 5. ALWAYS USE THE CORRECT WIRE GAUGE AND WIRE COLOR.  
 6. ALWAYS USE THE CORRECT WIRE GAUGE AND WIRE COLOR.  
 7. ALWAYS USE THE CORRECT WIRE GAUGE AND WIRE COLOR.





A B C D E F G

SCHEMATIC DIAGRAM



**NOTE**

1. ALL COMPONENTS MUST BE USED AS SHOWN UNLESS OTHERWISE SPECIFIED.

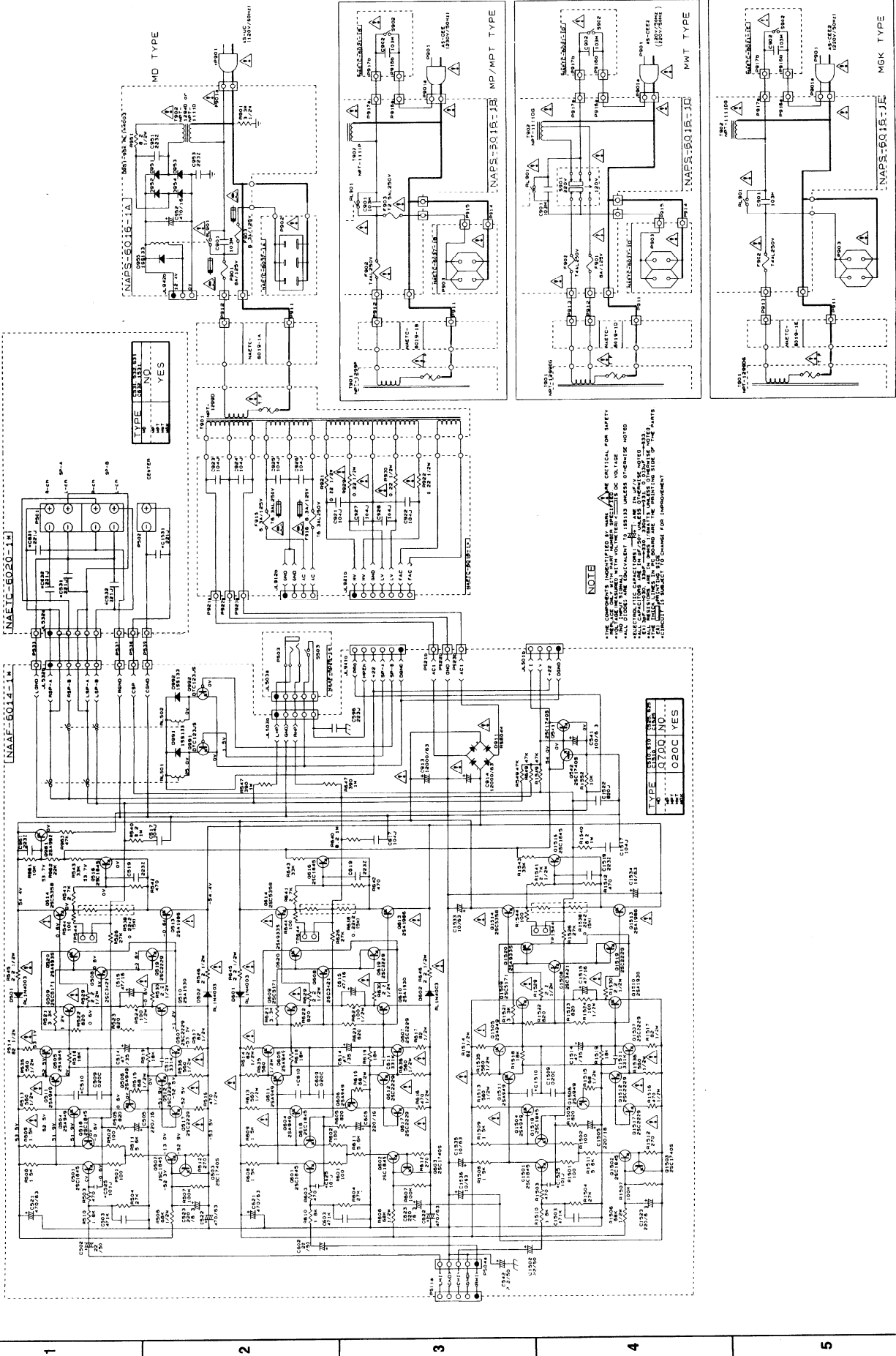
2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

3. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.

4. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.

5. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.

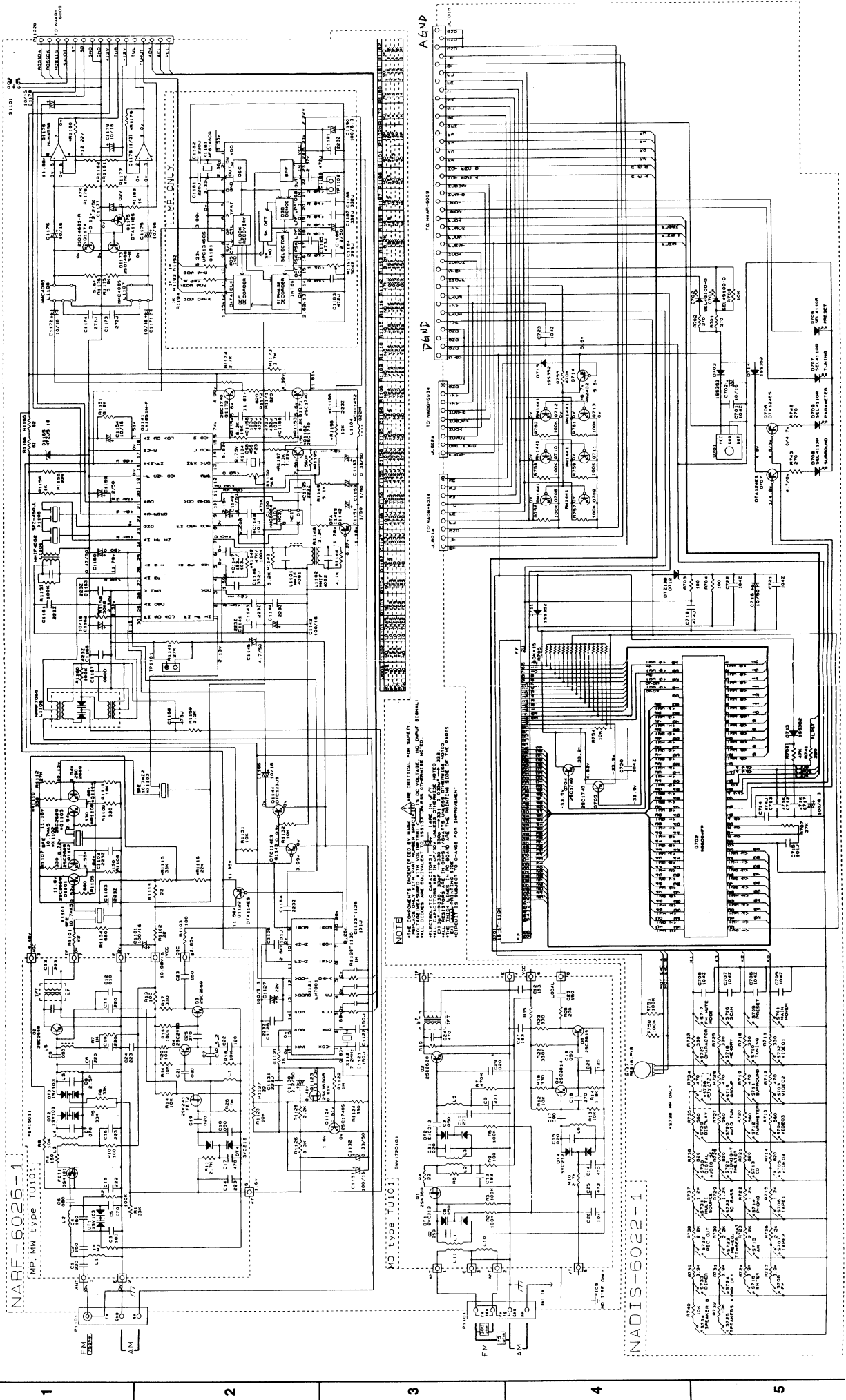
SCHEMATIC DIAGRAM





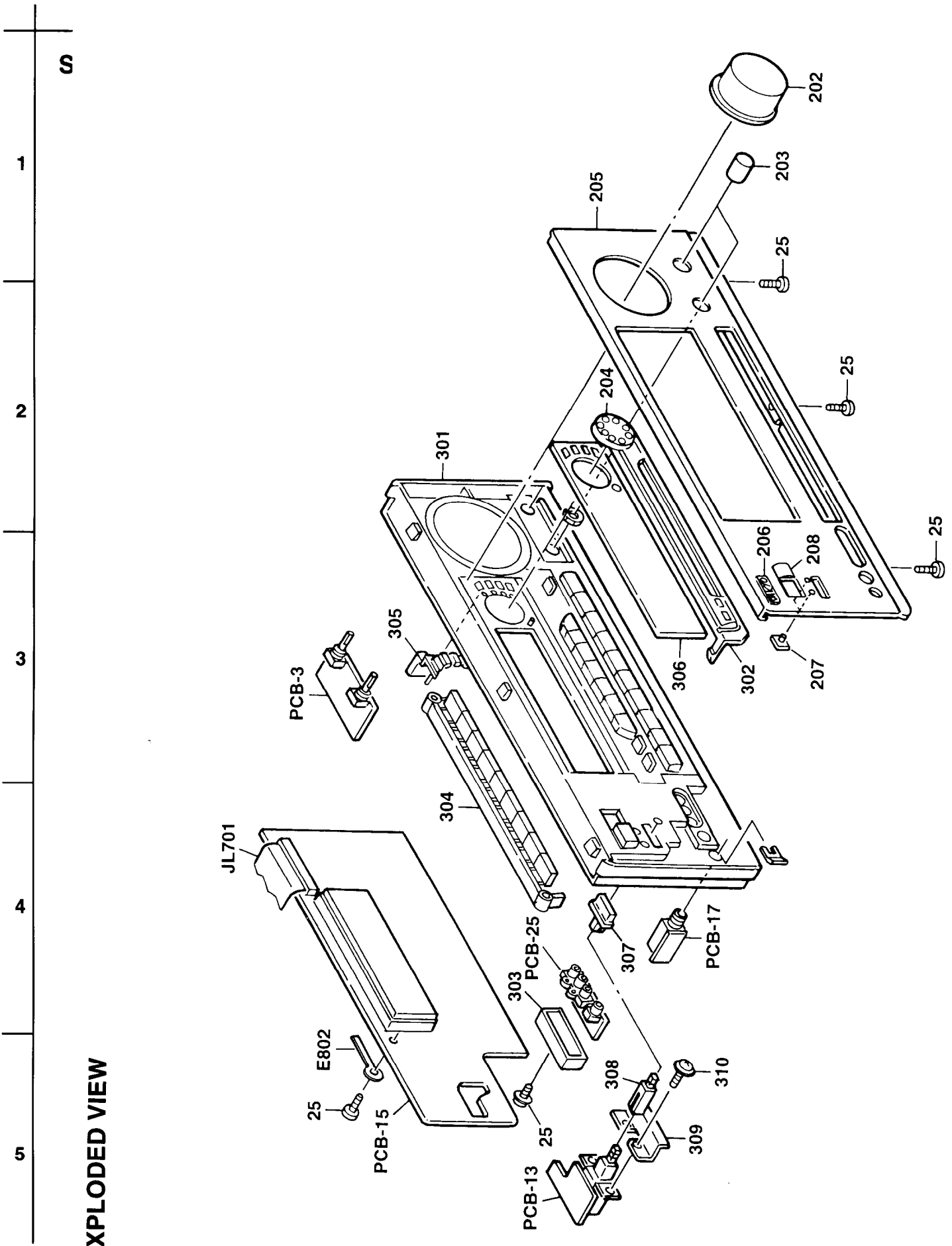
A B C D E F G

SCHEMATIC DIAGRAM





**EXPLODED VIEW**





# EXPLODED VIEW-PARTS LIST

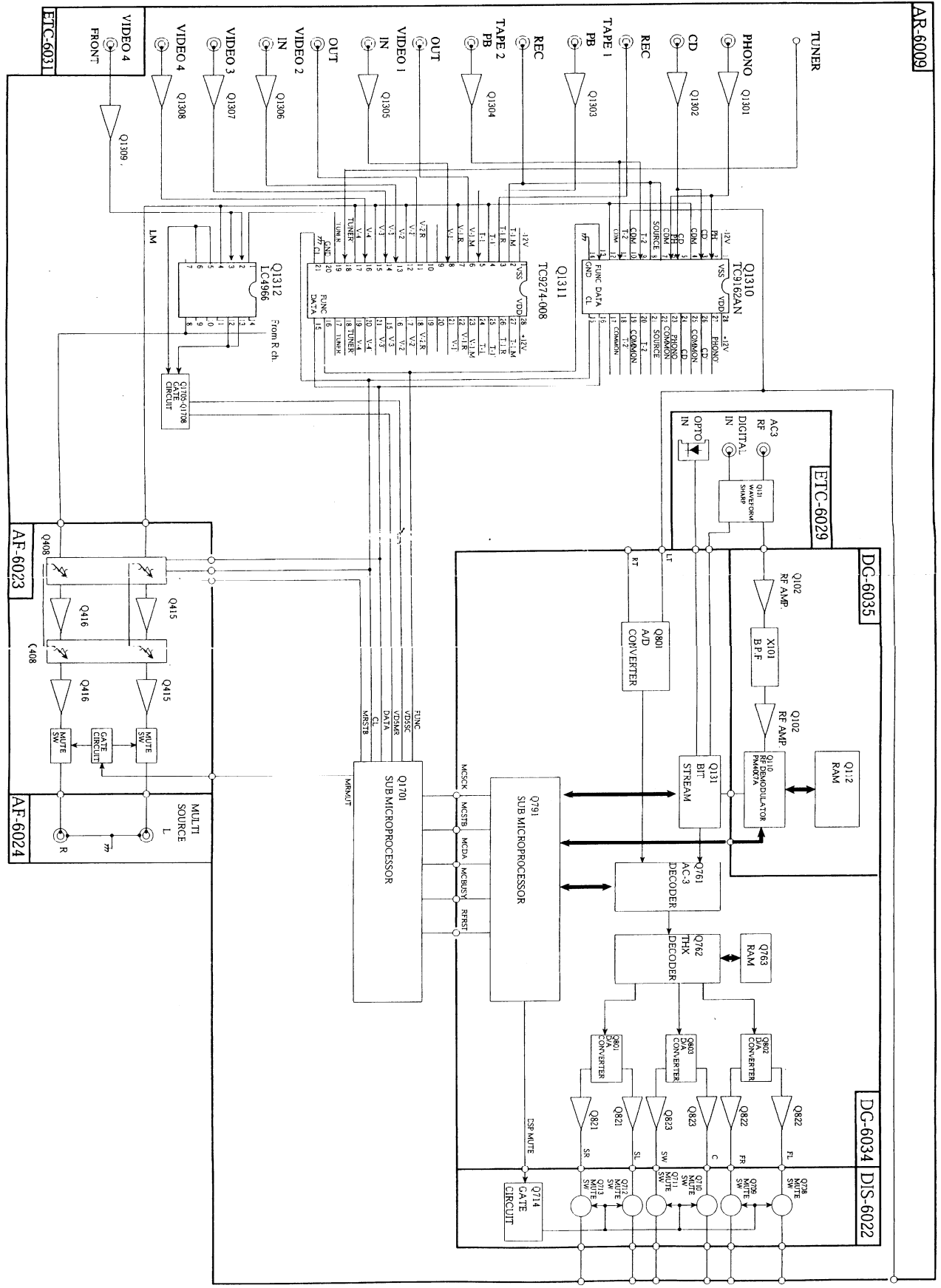
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
18	27100328A	Chassis	404	27122331Y	Rear panel <D>
19	27190503A	KGLS-8RF,Holder		27122332Y	Rear panel <P>
20	27190428A	KGLS-10RF,Holder		27122333Y	Rear panel <W>
21	27190772	KGLS-22RF,Holder		27122334Y	Rear panel <T>
22	27190062	KGLS-12S,Holder		27122335Y	Rear panel <K>
25	838130088	3TTB+8B,Self-tapping screw	409	87643010Y	W3X10F(BC), Washer
30	838150108	5TTB+10B,Self-tapping screw	410	838230088Y	3TTB+8B(NI), Nickel screw
36	830440089	4TTC+8C(BC),Self-tapping screw	414	27160384Y	Radiator
38	27300750	#2271, Bushing cord	415	801433	3SMS8W,SW+14B(BC),Special screw
40	27141684A	Retainer AC	416	27141681Y	Retainer
44	27191016	GROMMT2315,Holder	419	27141682Y	Retainer, rear
46	27150408	Shield plate	420	27141683Y	Retainer, front
48	27270374	Spacer	423	27160385Y	Radiator S
202	28325509	Knob, volume <B>	D911	22380273	RS804M,Diode
	28325511	Knob, volume <G>	E801	260208	Wire tie
203	28325405Y	Knob, tone <B>	E802	27255004	CS-1U, Clip
	28325407Y	Knob, tone <G>	E803	27301779	Clamp
204	28325500Y	Knob, jog <B>	E812	223024	AC238, Isolation sheet
	28325502Y	Knob, jog <G>	E895	880009	NRP-345,Plastic rivet <P/T/W/K>
205	27211917	Front panel <D>	F901	252198Y	8A-UL/T-237,Fuse <D/W>
	27211918	Front panel <P>	F902	252077	4A-SE-EAK,Fuse <P/T/W/K>
	27211920	Front panel <G>	F903	252166Y	6.3A-UL/T-237,Fuse <D>
	27211921	Front panel <B/BW>	F915,F916	252075	2.5A-SE-EAK,Fuse <P/T/K>
206	28135244Y	Badge <B>		252079	6.3A-UL/T-237,Fuse <D>
	28135245Y	Badge <S>	JL701	2047392012Y	NCFC7-392012,Flexible flat cable
207	28198778Y	Facet	L901	230910	ESD-R-25DB,Core
208	28191738Y	Clear plate	P19	25136063	NCETC-6063,Holder
210	28184683Y	Top cover <B>	P901	253244HIT	AS-UC-6#18,Power supply cord <D>
	28184685Y	Top cover <G>		253247WSE	AS-KS,Power supply cord <K>
213	838430088	3TTB+8B(BC),Self-tapping screw <B>		253245HIT	AS-CEE,Power supply cord <P/T>
	838230088	3TTB+8B(NI), Nickel screw <G>	P904	253246KAW	AS-CEE-2,Power supply cord <W>
219	28141235Y	Leg	P971	25051266	NSCT-2P1056, AC outlet <K>
223	27175319A	Cushion	PCB-1	24502284Y	KD2409PTB2,Fan
224	28141332Y	3TTW+8B(BC), Self-tapping screw		1A739509-1AY	NAAR-6009-1A,Main circuit pc board <D>
226	831430088	Front bracket <B>		1A739509-1BY	NAAR-6009-1B,Main circuit pc board <D>
301	27110997	Front bracket <G>		1A739509-1CY	NAAR-6009-1C,Main circuit pc board <T>
	27110999A	Decorative frame <B>		1A739509-1DY	NAAR-6009-1D,Main circuit pc board <W>
302	27215276	Decorative frame <G>		1A739509-1EY	NAAR-6009-1E,Main circuit pc board <K>
303	27215277	Holder	PCB-2	1A739510-1AY	NAAF-6010-1A,Tone amplifier pc board ass'y <D>
304	28325503	Knob, mode <B>		1A739510-1BY	NAAF-6010-1B,Tone amplifier pc board ass'y <D>
	28325505	Knob, mode <G>		1A739510-1CY	NAAF-6010-1C,Tone amplifier pc board ass'y <T>
305	28325506	Knob, tuning <D/BT/BW>		1A739510-1DY	NAAF-6010-1D,Tone amplifier pc board ass'y <W>
	28325508A	Knob, tuning <G>		1A739510-1EY	NAAF-6010-1E,Tone amplifier pc board ass'y <K>
306	28325522	Knob, tuning <P>	PCB-3	1A739511-1AY	NAAF-6011-1A,Volume circuit pc board ass'y <D>
	28191782A	Clear plate <B>		1A739511-1BY	NAAF-6011-1B,Volume circuit pc board ass'y <D>
	28191783	Clear plate <G>		1A739511-1CY	NAAF-6011-1C,Volume circuit pc board ass'y <P>
307	28325497A	Knob, power <P/BT/BW>		1A739511-1DY	NAAF-6011-1D,Volume circuit pc board ass'y <T>
	28325499A	Knob, power <G>		1A739511-1EY	NAAF-6011-1E,Volume circuit pc board ass'y <W>
308	27273164Y	Joint <P/T/W/K>	PCB-4	1A739512-1AY	NAETC-6012-1A,Surround speaker terminal pc board ass'y <D>
309	27141686A	Retainer, power <P/T/W/K>		1A739512-1BY	NAETC-6012-1B,Surround speaker terminal pc board ass'y <P>
310	838430107	3TTB+10S(BC),Self-tapping screw <P/T/W/K>		1A739512-1CY	NAETC-6012-1C,Surround speaker terminal pc board ass'y <T>
				1A739512-1DY	NAETC-6012-1D,Surround speaker terminal pc board ass'y <W>
				1A739512-1EY	NAETC-6012-1E,Surround speaker terminal pc board ass'y <K>



REF.NO.	PART NO.	DESCRIPTION	DESCRIPTION
PCB-5	IA739524-1AY	NAAF-6024-1A,Pre. output pc board ass'y <D>	NAVD-6028-1A,S video circuit pc board ass'y <D>
	IA739524-1BY	NAAF-6024-1B,Pre. output pc board ass'y <P>	NAVD-6028-1B,S video circuit pc board ass'y <P>
	IA739524-1CY	NAAF-6024-1C,Pre. output pc board ass'y <T>	NAVD-6028-1C,S video circuit pc board ass'y <T>
	IA739524-1DY	NAAF-6024-1D,Pre. output pc board ass'y <W>	NAVD-6028-1D,S video circuit pc board ass'y <W>
PCB-6	IA739524-1EY	NAAF-6024-1E,Pre. output pc board ass'y <K>	NAVD-6028-1E,S video circuit pc board ass'y <K>
	IA739514-1AY	NAAF-6014-1A,Front and center power amplifier pc board ass'y <D>	NAETC-6029-1A,Digital input terminal pc board ass'y <D>
	IA739514-1BY	NAAF-6014-1B,Front and center power amplifier pc board ass'y <P>	NAETC-6029-1B,Digital input terminal pc board ass'y <P>
	IA739514-1DY	NAAF-6014-1D,Front and center power amplifier pc board ass'y <W>	NAETC-6029-1D,Digital input terminal pc board ass'y <W>
PCB-7	IA739514-1EY	NAAF-6014-1E,Front and center power amplifier pc board ass'y <K>	NAETC-6029-1E,Digital input terminal pc board ass'y <K>
	IA739515-1AY	NAAF-6015-1A,Surround power amplifier pc board ass'y <D>	NADG-6030-1A,R/IMR terminal pc board ass'y <D>
	IA739515-1DY	NAAF-6015-1D,Surround power amplifier pc board ass'y <W>	NADG-6030-1B,R/IMR terminal pc board ass'y <P>
	IA739515-1EY	NAAF-6015-1E,Surround power amplifier pc board ass'y <K>	NADG-6030-1C,R/IMR terminal pc board ass'y <T>
PCB-8	IA739516-1AY	NAPS-6016-1A,Power supply circuit pc board ass'y <D>	NADG-6030-1D,R/IMR terminal pc board ass'y <W>
	IA739516-1BY	NAPS-6016-1B,Power supply circuit pc board ass'y <P>	NADG-6030-1E,R/IMR terminal pc board ass'y <K>
	IA739516-1DY	NAPS-6016-1D,Power supply circuit pc board ass'y <W>	NAETC-6031-1A,Front terminal pc board ass'y <D>
	IA739516-1EY	NAPS-6016-1E,Power supply circuit pc board ass'y <K>	NAETC-6031-1B,Front terminal pc board ass'y <P>
PCB-10	IA739518-1AY	NAETC-6018-1A,Secondary circuit pc board ass'y <D>	NAETC-6031-1C,Front terminal pc board ass'y <T>
	IA739518-1BY	NAETC-6018-1B,Secondary circuit pc board ass'y <P>	NAETC-6031-1D,Front terminal pc board ass'y <W>
	IA739518-1DY	NAETC-6018-1D,Secondary circuit pc board ass'y <W>	NAETC-6031-1E,Front terminal pc board ass'y <K>
	IA739518-1EY	NAETC-6018-1E,Secondary circuit pc board ass'y <K>	NAETC-6033-1A,Terminal pc board ass'y <D>
PCB-11	IA739519-1AY	NAETC-6019-1A,Terminal pc board ass'y <D>	NAETC-6033-1B,Terminal pc board ass'y <P>
	IA739519-1BY	NAETC-6019-1B,Terminal pc board ass'y <P>	NAETC-6033-1C,Terminal pc board ass'y <T>
	IA739519-1DY	NAETC-6019-1D,Terminal pc board ass'y <W>	NAETC-6033-1D,Terminal pc board ass'y <W>
	IA739519-1EY	NAETC-6019-1E,Terminal pc board ass'y <K>	NAETC-6033-1E,Terminal pc board ass'y <K>
PCB-12	IA739520-1AY	NAETC-6020-1A,Speaker terminal pc board ass'y <D>	NADG-6034-1A,DSP circuit pc board ass'y <T/W/K>
	IA739520-1BY	NAETC-6020-1B,Speaker terminal pc board ass'y <P>	NADG-6034-1B,DSP circuit pc board ass'y <D>
	IA739520-1DY	NAETC-6020-1D,Speaker terminal pc board ass'y <W>	NADG-6034-1C,DSP circuit pc board ass'y <P>
	IA739520-1EY	NAETC-6020-1E,Speaker terminal pc board ass'y <K>	NAETC-6128-1A,Thermal det. pc board ass'y <D>
PCB-13	IA739521-1BY	NCETC-6021-1B,Power switch pc board ass'y <P>	NAETC-6128-1B,Thermal det. pc board ass'y <P/T>
	IA739521-1DY	NCETC-6021-1D,Power switch pc board ass'y <W>	NAETC-6128-1D,Thermal det. pc board ass'y <W>
	IA739521-1EY	NCETC-6021-1E,Power switch pc board ass'y <K>	NAETC-6128-1E,Thermal det. pc board ass'y <K>
	IA739521-1AY	NCETC-6021-1A,AC outlet terminal pc board ass'y <D>	NAETC-6129-1A,Thermal det. pc board ass'y <D>
PCB-14	IA739522-1AY	NADIS-6022-1A,Display circuit pc board ass'y <D>	NAETC-6129-1B,Thermal det. pc board ass'y <P/T>
	IA739522-1BY	NADIS-6022-1B,Display circuit pc board ass'y <P>	NAETC-6129-1D,Thermal det. pc board ass'y <W>
	IA739522-1DY	NADIS-6022-1D,Display circuit pc board ass'y <W>	NAETC-6129-1E,Thermal det. pc board ass'y <K>
	IA739522-1EY	NADIS-6022-1E,Display circuit pc board ass'y <K>	NADG-6035-1B,AC-3 circuit pc board ass'y <K>
PCB-15	IA739523-1AY	NAAF-6023-1A,Electronic volume pc board ass'y <D>	NADG-6035-1A,AC-3 circuit pc board ass'y <P/T>
	IA739523-1BY	NAAF-6023-1B,Electronic volume pc board ass'y <P>	NCETC-6017-1D,AC outlet terminal pc board ass'y <P/T>
	IA739523-1DY	NAAF-6023-1D,Electronic volume pc board ass'y <W>	2SC3421-Y or
	IA739523-1EY	NAAF-6023-1E,Electronic volume pc board ass'y <K>	2SC3421-O,Transistor
PCB-16	IA739524-1AY	NARF-6026-1A,Tuner circuit pc board <D>	* 2SA1986-O or
	IA739524-1BY	NARF-6026-1B,Tuner circuit pc board <P>	* 2SA1986-R,Transistor
	IA739524-1DY	NARF-6026-1D,Tuner circuit pc board <W>	* 2SC5358-R or
	IA739524-1EY	NARF-6026-1E,Tuner circuit pc board <K>	* 2SC5358-R,Transistor
PCB-17	IA739525-1AY	NAVD-6027-1A,Video circuit pc board ass'y <D>	* 2SC5197-O or
	IA739525-1BY	NAVD-6027-1B,Video circuit pc board ass'y <P>	* 2SC5197-R,Transistor
	IA739525-1DY	NAVD-6027-1D,Video circuit pc board ass'y <W>	* 2SA1940-O or
	IA739525-1EY	NAVD-6027-1E,Video circuit pc board ass'y <K>	* 2SA1940-R,Transistor
PCB-19	IA739527-1AY	NAVD-6027-1A,Video circuit pc board ass'y <D>	NPT-1299D,Power transformer <D>
	IA739527-1BY	NAVD-6027-1B,Video circuit pc board ass'y <P>	NPT-1299P,Power transformer <P/T>
	IA739527-1DY	NAVD-6027-1D,Video circuit pc board ass'y <W>	NPT-1299DG,Power transformer <W/K>
	IA739527-1EY	NAVD-6027-1E,Video circuit pc board ass'y <K>	

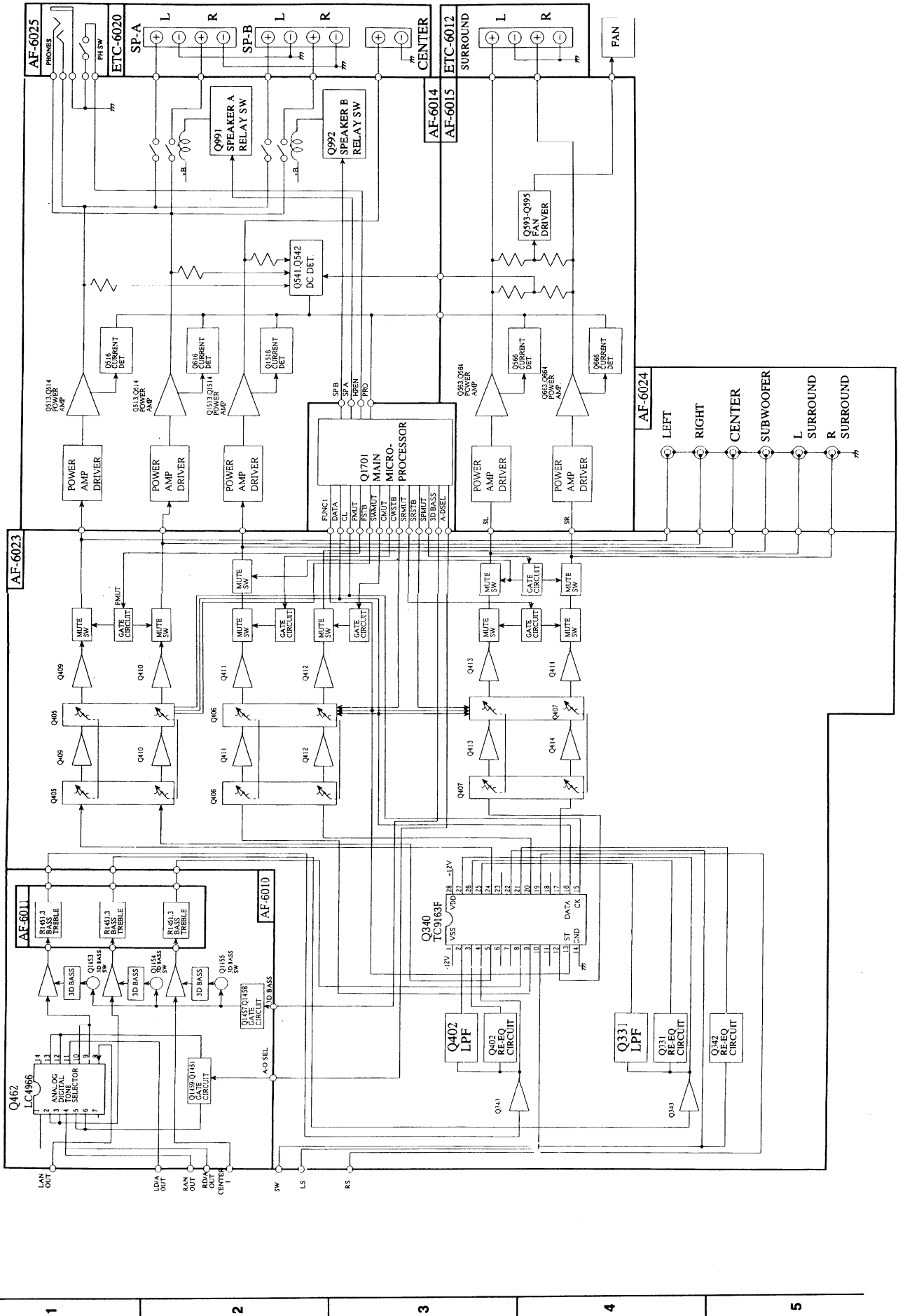
**NOTE:**  
 <D>:120V Model only  
 <P>:230V Model only  
 <T>:Asian Model only  
 <W>:Worldwide Model only  
 <K>:Korean Model only  
 <B>:Black Model only  
 <G>:Golden Model only

BLOCK DIAGRAMS

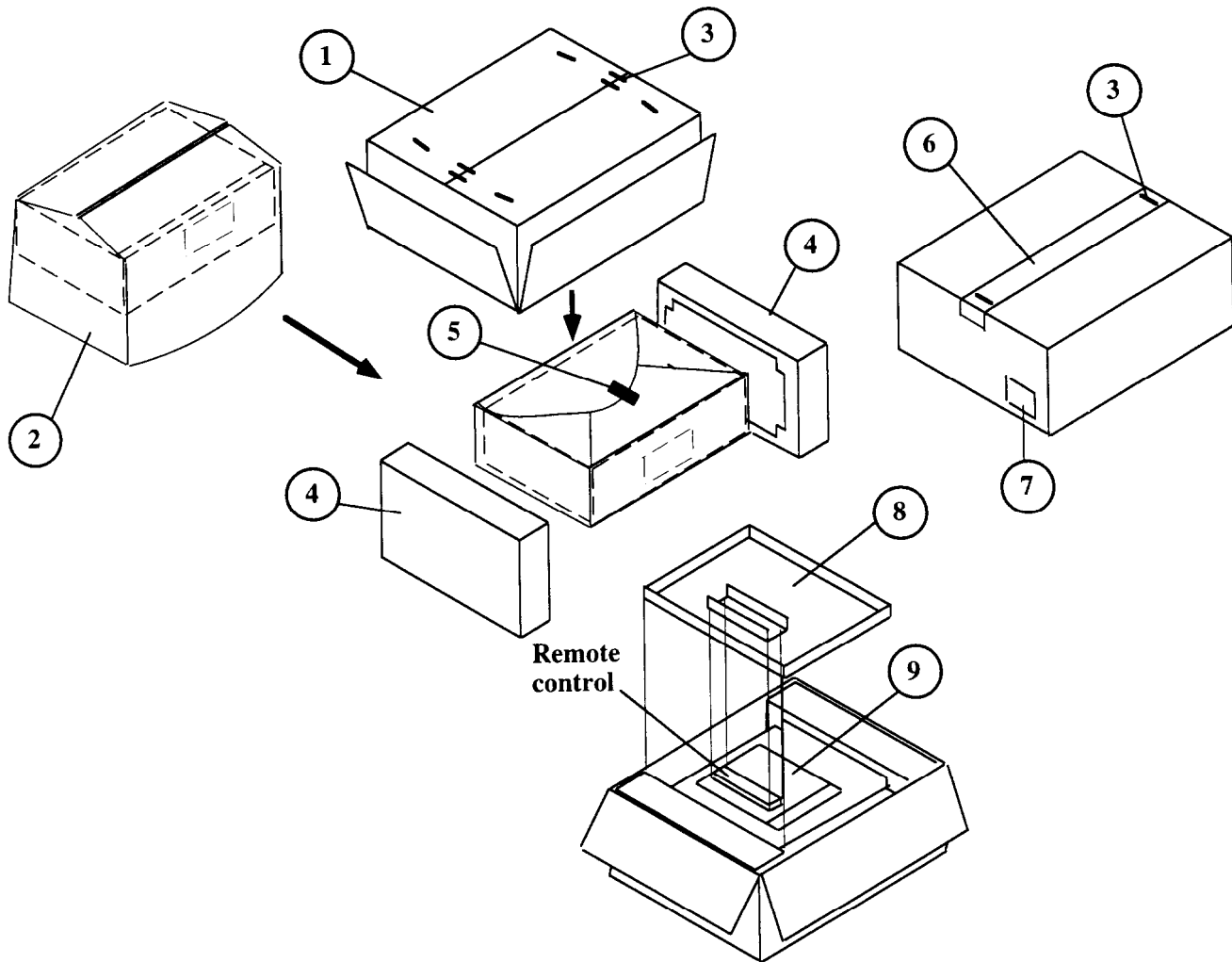


A B C D E F G

BLOCK DIAGRAMS



## PACKING VIEW



## PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	29053154Y	Carton box <D>	9	Accessary bag ass'y	
	29053155Y	Carton box <P>	3010054	UM-3, Battery	
	29053157Y	Carton box <BT/BW>	25065462	YAE21-0237,FM adaptor <W/K>	
	29053158Y	Carton box <G>	232140	NMA-3057,AM loop antenna	
2	29100034-1AY	850X650, Poly bag	24140036	RC-P101S,Remote control <D>	
3	282301Y	Staple	24140037	RC-P201S,Remote control <P/T/W/K>	
4	29091777Y	Pad assembly	25055018	CV-K-1,Conversion plug <W>	
5	261504Y	W=30,Paper tape	29100097-1AY	350X250, Poly bag	
6	29110071Y	W=50, PP tape	292111	FM antenna <D>	
7	29362142Y	Label UPC <D>	292112	FM antenna <P/T/W/K>	
	29362143Y	Label EAN <P/T/W>	29342353	U8(RC-P101S),Instruction manual	
	29362144Y	Label EAN <G>	29342438AY	Instruction manual E	
8	29095802	Sheet	29342439Y	Instruction manual FSI <P>	
			29342440Y	Instruction manual GSwD <P>	
			29342441Y	Instruction manual T <T/W>	
			29355221Y	Instruction sheet	
			29358002K	SS list <D>	
			29365019B	Warranty card <D>	

NOTE:

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