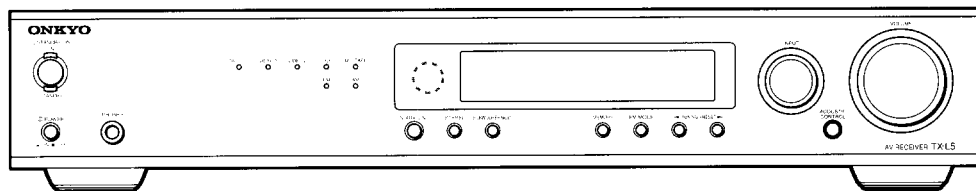


# ONKYO® SERVICE MANUAL

Schematic diagram & Printed circuit board view only

## AV RECEIVER MODEL TX-L5



### Silver and Titan models

SMDD,SMDT	120 V AC, 60 Hz
TMPP,SMPP	230-240 V AC, 50 Hz
SMGT,SMGR	220-230 V AC, 50 Hz

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK.

REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN 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


<b>AMPLIFIER SECTION</b>		
<b>Power Output (FTC)</b>	All channels 22 watts per channel min. RMS. into 6 ohms two channel driven, 1,000 Hz with no more than 0.6 % total harmonic distortion.	<b>Output Level and Impedance</b>
<b>Continuous power output (DIN)</b>	All channels 22 watts per channel min. RMS. into 6 ohms two channel driven, 1,000 Hz	REC OUT (VIDEO 1, TAPE/MD, HD) 150 mV, 2.2 kohms
<b>Maximun power output (EIAJ)</b>	5 x 28 watts at 6 ohms	SUB WOOFER PRE OUT 1 V, 2.2 kohms
<b>Dynamic power output</b>	2 x 26 watts at 6 ohms 2 x 22 watts at 8 ohms	Composite (MON OUT, VIDEO 1) 1 Vp-p, 75 ohms
<b>Total Harmonic Distortion</b>	0.6 % at rated power	S-VIDEO (MON OUT, VIDEO 1) Y: 1 Vp-p, 75 ohms C: 0.28 Vp-p, 75 ohms
<b>IM Distortion</b>	0.6 % at rated power	<b>Frequency Response</b> 10 to 70,000 Hz : +/- 1.5 dB
<b>Damping Factor</b>	40 at 8 ohms	<b>Acoustic Control</b> 1: +6 dB at 40 Hz 2: +10 dB at 40 Hz +7 dB at 10,000 Hz
<b>Input Sensitivity and Impedance</b>		<b>Signal-to-noise Ratio</b> 100 dB (IHF)
DIGITAL INPUT DVD, HD (OPTICAL)	0.5 Vp-p, 75 ohms	<b>Muting</b> -∞dB
DIGITAL INPUT VIDEO 2 (COAXIAL)	0.5 Vp-p, 75 ohms	
LINE (DVD/CD, VIDEO 1, 2, HD, TAPE/MD)	150 mV/50 kohms	
Composite (DVD/CD, VIDEO 1, 2)	1 Vp-p, 75 ohms	
S-VIDEO (DVD/CD, VIDEO 1, 2)	Y: 1 Vp-p, 75 ohms C: 0.28 Vp-p, 75 ohms	
<b>TUNER SECTION</b>		
<b>Tuning Range</b>	FM: 87.50 to 108.00 MHz (50 kHz steps)	
	AM: (USA and Canadian models) 530 to 1710 kHz (10 kHz steps)	(Other models) 522 to 1611 kHz (9 kHz steps)
<b>Usable Sensitivity</b>	FM: Mono 11.2 dBf, 1.0 μV (75 ohms IHF) 0.9 μV (75 ohms DIN)	
	Stereo 17.2 dBf, 2.0 μV (75 ohms IHF) 23 μV (75 ohms DIN)	
<b>50 dB Quieting Sensitivity</b>	AM: 30 μV	
	FM: Mono 17.2 dBf, 2.0 μV (75 ohms)	
	Stereo 37.2 dBf, 20.0 μV (75 ohms)	
<b>Capture Ratio</b>	FM: 2.0 dB	
<b>Image Rejection Ratio</b>	FM: (USA and Canadian models) 40 dB	(Other models) 85 dB
	AM: 40 dB	
<b>IF Rejection Ratio</b>	FM: 90 dB	
	AM: 40 dB	
<b>Signal-to-noise Ratio</b>	FM: Mono 76 dB, IHF	
	Stereo 70 dB, IHF	
	AM: 40 dB	
<b>Alternate Channel Att. (+/- 400 kHz)</b>	FM: Mono 55 dB, IHF	
<b>Selectivity</b>	FM: 50 dB, DIN	
<b>AM Suppression Ratio</b>	FM: 50 dB	
<b>Harmonic Distortion</b>	FM: Mono 0.2 %	
	Stereo 0.3 %	
	AM: 0.7 %	
<b>Frequency response</b>	FM: 30 to 15,000 Hz (+/- 1.0 dB)	
<b>Stereo Separation</b>	FM: 45 dB at 1,000 Hz 30 dB at 100 to 10,000 Hz	
<b>Stereo Threshold</b>	FM: 17.2 dBf, 20 μV (75 ohms)	
<b>GENERAL</b>		
<b>Power Supply Rating and Power Consumption</b>	(USA and Canadian models) AC 120 V, 60Hz 120W (Some Asian models) AC 220-230 V, 50/60Hz 105W (Other models) AC 230-240 V, 50Hz 105W	<b>Dimensions (W x H x D)</b> 435 x 81 x 377 mm (17 <sup>-1/8</sup> x 3 <sup>-9/16</sup> x 14 <sup>-13/16</sup> ins.) <b>Weight</b> 6.1 kg (13.4 lb.)

Specifications and features are subject to change without notice.

## SERVICE PROCEDURES

### 1. Replacing the fuses

 This symbol located near the fuses 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 fusibles de meme type. Ce dernier est la qu le present symbol est appse.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252084 or	0.63 A-SE-EAWK or
	252235	630 mA-SE-TL250 V <O>
F902	252159 or	2 A-UL/T-237 or
	252253	2 A-T/UL-ST2 <D>
F931	252160 or	2.5 A-UL/T-237 or
	252254	2.5 A-T/UL-ST2 <D>
	252075 or	2.5 A-SE-EAK or
	252241	2.5 A-SE-TL250 V <O>

Note: <D>: 120 V model only  
<O>: Other models 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 the STANDBY ON button to turn on the unit.
2. Press and hold down the SW MODE button, then press the STANDBY/ON button.
3. After "clear" is displayed, the preset memory and each mode stored in the memory, such as surround, are initialized and will return to the factory setting.
4. Unplug the power supply cord.

### 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 screw on the back panel.

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

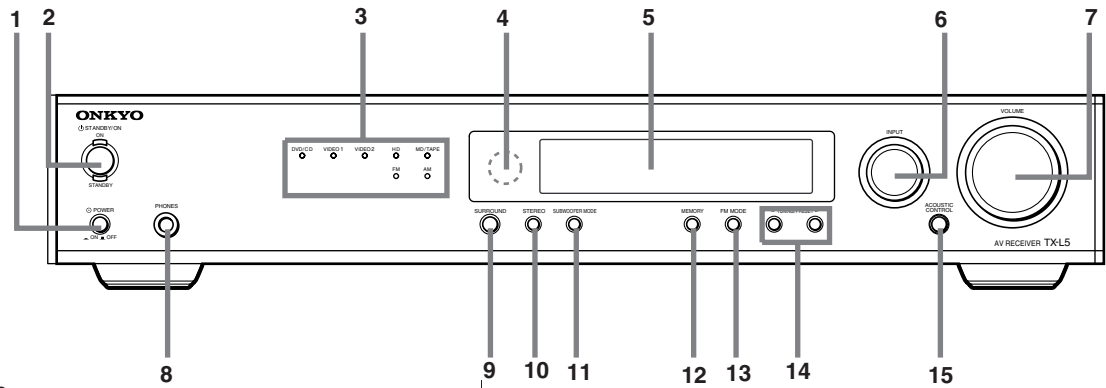
### 4. Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in order to charge the back-up system.

The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time the unit has been unplugged. This period is shorter when the unit is exposed to a highly humid climate.

## PANEL VIEWS

### Front Panel



#### 1 POWER switch

Turns on the main power supply for the TX-L5. The TX-L5 enters standby state and the STANDBY indicator lights up. Pressing the switch again to the off position (OFF) shuts down the main power supply into the TX-L5.

#### 2 STANDBY/ON button, ON indicator, STANDBY indicator

When STANDBY/ON button is pressed to ON while the POWER switch is set to ON, the display will light to show the current volume setting for about 5 seconds then show the current sound input source and listening mode. Pressing the button again returns the TX-L5 to the standby state. This state turns off the display, disables control functions.

#### 3 Source indicators

One of these indicators lights to show the current source.

#### 4 Remote control sensor

This sensor receives the control signals from the remote controller.

#### 5 Display

#### 6 INPUT dial

The INPUT dial is used to select the input source.

#### 7 VOLUME dial

The VOLUME dial is used to control the volume level. Turn the dial clockwise to increase the volume level and counterclockwise to decrease it.

#### 8 PHONES jack

This is a standard stereo jack for connecting stereo headphones. The audio for the front right and left speakers are sent to the headphone speakers. When the headphones are plugged in, the listening mode automatically changes to STEREO and sounds are not output from the speakers.

#### 9 SURROUND button

Press this button to select a surround mode for current input source.

#### 10 STEREO button

Press this button to change the sound to stereo.

#### 11 SUBWOOFER MODE button

Press to select the subwoofer mode.

#### 12 MEMORY button

This button is used to assign the radio station that is currently tuned in to a preset channel or delete a previously preset station.

#### 13 FM MODE button

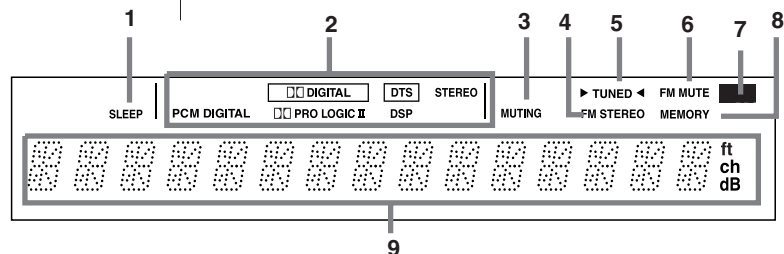
Press to switch the reception mode between stereo and monaural. If audio is interrupted or noise interferes with audio during FM stereo broadcasting, press this button to switch to the monaural reception mode.

#### 14 TUNING/PRESET ◀/▶ button

Use these buttons to change the tuner frequency. The tuner frequency is displayed in the front display and it can be changed in 50 kHz increments for FM and 10 kHz (or 9 kHz) increments for AM. Also, These buttons make it possible to store desired radio stations under the desired preset numbers and recall them with an easy operation.

#### 15 ACOUSTIC CONTROL button/indicator

Press to change the acoustic mode to enjoy more dynamic sounds by boosting the super bass/high frequency sounds.



#### 1 SLEEP indicator

Lights up when the sleep timer is active.

#### 2 Source/Listening mode indicators

One of these indicators lights to show the format of the current source as "PCM DIGITAL", "DIGITAL" or "DTS". In addition, one of the listening mode indicators "PRO LOGIC II", "DSP" and "STEREO" lights according to the current listening mode.

#### 3 MUTING indicator

Flashes when the mute function is active.

#### 4 FM STEREO indicator

Lights up when an FM stereo broadcast station is received.

#### 5 TUNED indicator

Lights up when a radio station is received.

#### 6 FM MUTE indicator

Lights up to indicate FM muting. It extinguishes when the monaural reception mode is started by pressing the FM MODE button.

#### 7 RDS indicator (European models only)

Lights up when a RDS station is received.

#### 8 MEMORY indicator

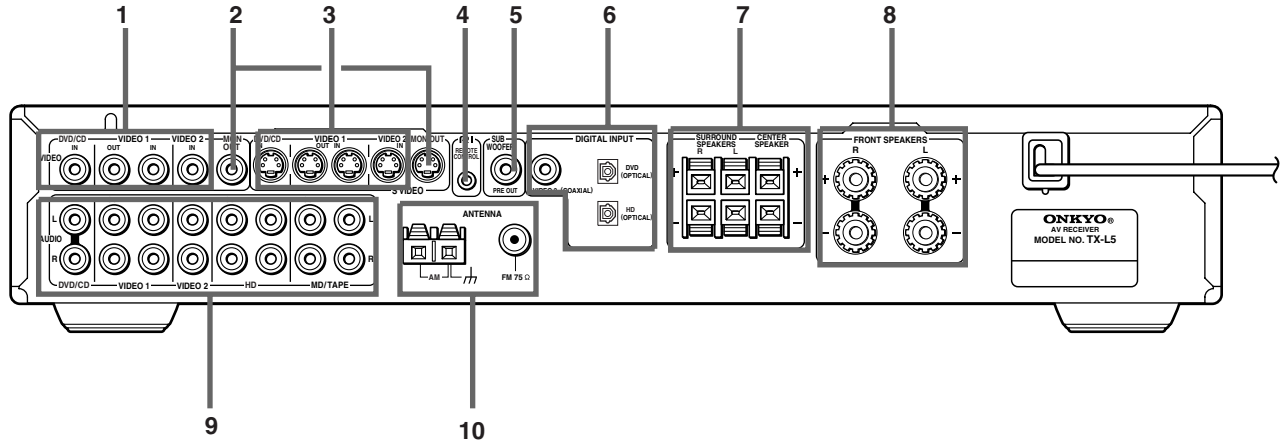
Lights up when the MEMORY button is pressed in the radio station preset operation.

#### 9 Multi function display

In usual operation, shows the current input source and volume. When the FM or AM input is selected, it shows the frequency and preset number. When the DISPLAY button is pressed, it shows the listening mode and input source format. However, it does not show the source format when the input source signal is analog, or when the FM or AM source is selected.

## PANEL VIEWS

### Rear Panel



#### 1. VIDEO (DVD/CD IN / VIDEO 1 OUT/IN / VIDEO 2 IN)

There are 3 video inputs and 1 output. Connect DVD players, LD players, VCRs or other video components to the video inputs. The video output channel can be used to be connected to video tape recorder for making recordings.

#### 2. MON OUT

The monitor output includes both RCA type and S video configurations. This output is for connecting television monitors or projectors.

#### 3. S VIDEO (DVD/CD IN / VIDEO 1 OUT/IN / VIDEO 2 IN)

There are 3 video inputs and 1 output. Connect DVD players, LD players, VCRs or other video components to the video inputs. The video output channel can be used to be connected to video tape recorder for making recordings.

#### 4. RI (REMOTE CONTROL)

Connect the Onkyo components that have connectors such as a CD player, and cassette tape deck using the cables provided with them. When these components are interconnected, they can be controlled from the remote controller provided with the TX-L5. After connecting the connectors, check the operation of the remote controller buttons for use in controlling other components.

- The connectors are only effective if they are used in conjunction with an Onkyo amplifier with an connector. Do not connect to a component other than Onkyo component with an connector. Doing so may damage the TX-L5.
- Connecting cable only does not make the system operational. You must also connect the audio cables as well.
- If the connected component has two connectors, you can use either one to connect to the TX-L5. The other one can be used to daisy chain with another component.

#### 5. SUB WOOFER PRE OUT

This terminal is for connecting an active subwoofer.

#### 6. DIGITAL INPUT (DVD, HD (OPTICAL), VIDEO 2 (COAXIAL))

These are the digital audio inputs. There are 2 digital inputs with optical jacks and 1 with a coaxial jack. The inputs accept digital audio signals from DVD players, hard disk recorders, CD players, or other digital source component.

#### 7. SURROUND SPEAKERS L/R, CENTER SPEAKER

Speaker terminals are provided for the center, surround left and surround right speakers.

#### 8. FRONT SPEAKERS L/R

Speaker terminals are provided for the front left, front right speakers. Speaker outputs are compatible with banana plug connectors (other than European models).

#### 9. AUDIO L/R (DVD/CD IN / VIDEO 1 OUT/IN / VIDEO 2 IN / HD OUT/IN / MD/TAPE OUT/IN)

These are the analog audio inputs and outputs. There are 5 audio inputs and 3 audio outputs. The audio inputs and outputs require RCA type connectors.

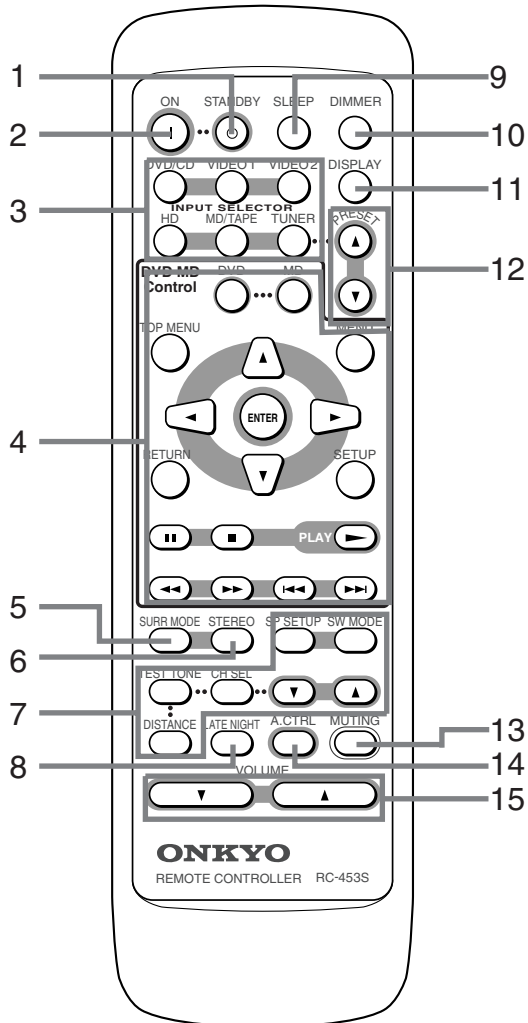
When connecting a VCR or other video component, make sure you connect the audio and video leads together (i.e., both to VIDEO 1).

#### 10. ANTENNA

These terminals are for connecting the FM antenna and AM antenna.

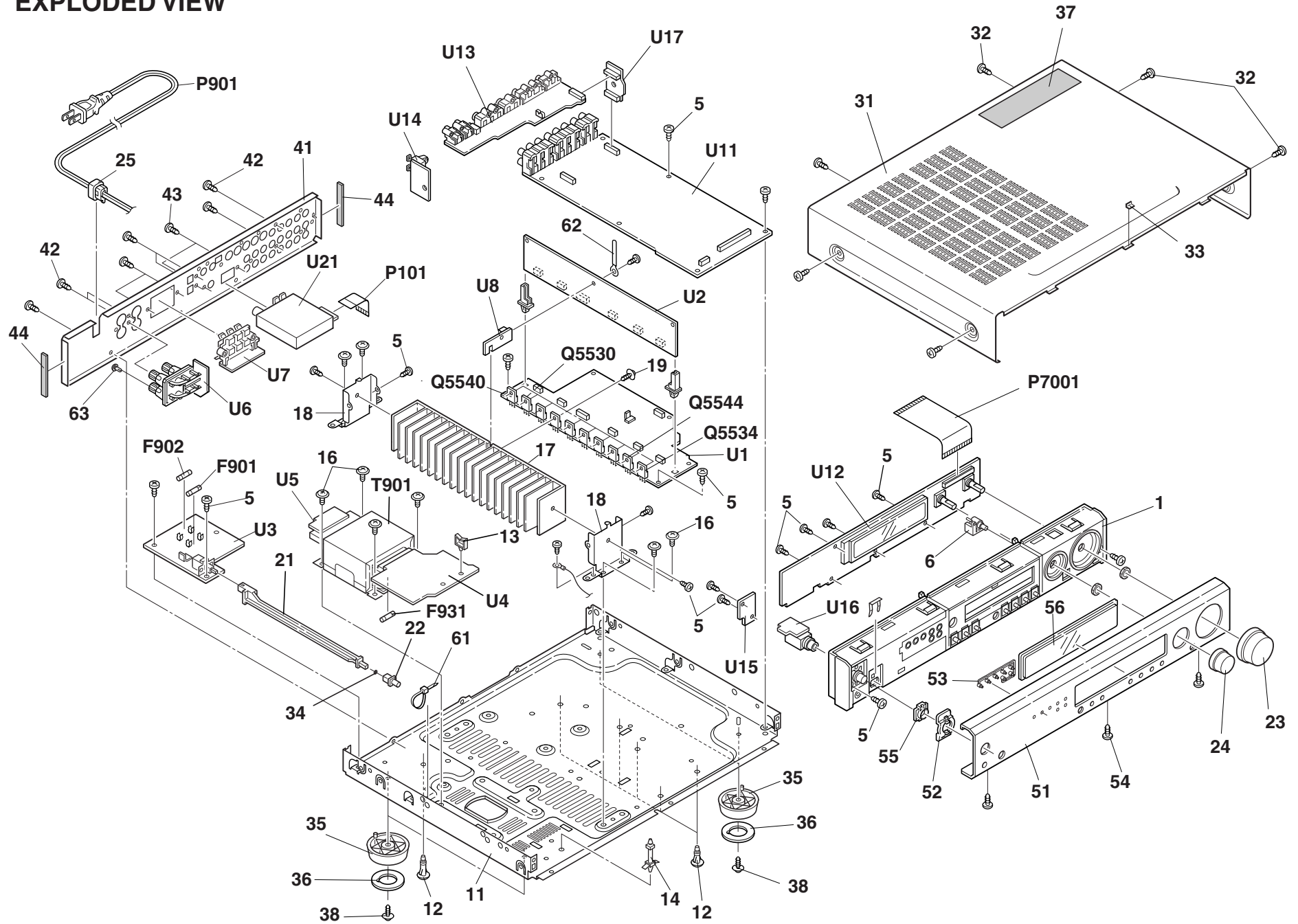
## PANEL VIEWS

### Remote controller




- 1 **STANDBY button**  
Put the TX-L5 in standby.
- 2 **ON button**  
Turns on the TX-L5.
- 3 **INPUT SELECTOR buttons**  
For selecting the input source.
- 4 **DVD•MD Control buttons**  
For operating -connected Onkyo components connected to the TX-L5.
- 5 **SURR MODE button**  
Press to select the surround mode.
- 6 **STEREO button**  
Press to change the listening mode to stereo.
- 7 **SP SETUP/SW MODE/TEST TONE/CH SEL/DISTANCE/▼ / ▲ buttons**  
For setting the output levels for each speaker.  
These buttons are provided only on the remote controller.
- 8 **LATE NIGHT button**  
Press to change the late night setting.  
This button is provided only on the remote controller.
- 9 **SLEEP button**  
For setting the sleep timer.  
This button is provided only on the remote controller.
- 10 **DIMMER button**  
For adjusting the brightness of the front display.  
This button is provided only on the remote controller.
- 11 **DISPLAY button**  
For changing the display.
- 12 **PRESET ▼ / ▲ button**  
For selecting a tuner preset channel.
- 13 **MUTING button**  
Activates the mute function.  
This button is provided only on the remote controller.
- 14 **A.CTRL button**  
Press to change the acoustic mode to boost the super bass/high frequency sounds.
- 15 **VOLUME ▼ / ▲ button**  
For adjusting the volume.

# EXPLODED VIEW



## EXPLODED VIEW-PARTS LIST 2

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
U3	1A908562-1A	NAPS-7162-1A,Primary circuit PC board ass'y <D>	U12	1A908572-1A	NADIS-7172-1A,Display circuit PC board ass'y <D>
	1A908562-1B	NAPS-7162-1B,Primary circuit PC board ass'y <P/A>		1A908572-1B	NADIS-7172-1B,Display circuit PC board ass'y <P>
	1A908562-1D	NAPS-7162-1D,Primary circuit PC board ass'y <DT>		1A908572-1C	NADIS-7172-1C,Display circuit PC board ass'y <A>
	1A908562-1E	NAPS-7162-1E,Primary circuit PC board ass'y <GT/R>		1A908572-1D	NADIS-7172-1D,Display circuit PC board ass'y <DT/GT/R>
U4	1A908563-1A	NAPS-7163-1A,Power supply PC board ass'y <D>	U13	1A908573-1A	NAVD-7173-1A,Video terminal PC board ass'y <D>
	1A908563-1B	NAPS-7163-1B,Power supply PC board ass'y <P/A>		1A908573-1B	NAVD-7173-1B,Video terminal PC board ass'y <P>
	1A908563-1D	NAPS-7163-1D,Power supply PC board ass'y <DT>		1A908573-1C	NAVD-7173-1C,Video terminal PC board ass'y <A>
	1A908563-1E	NAPS-7163-1E,Power supply PC board ass'y <GT/R>		1A908573-1D	NAVD-7173-1D,Video terminal PC board ass'y <DT/GT/R>
U5	1A908564-1A	NAPS-7164-1A, Terminal PC board ass'y <D>	U14	1A908574-1A	NADG-7174-1A, Opt. Input terminal PC board ass'y <D>
	1A908564-1B	NAPS-7164-1B, Terminal PC board ass'y <P/A>		1A908574-1B	NADG-7174-1B, Opt. Input terminal PC board ass'y <P>
	1A908564-1D	NAPS-7164-1D, Terminal PC board ass'y <DT>		1A908574-1C	NADG-7174-1C, Opt. Input terminal PC board ass'y <A>
	1A908564-1E	NAPS-7164-1E, Terminal PC board ass'y <GT/R>		1A908574-1D	NADG-7174-1D, Opt. Input terminal PC board ass'y <DT/GT/R>
U6	1A908565-1A	NAETC-7165-1A,Front Speaker terminal PC board ass'y <D>	U15	1A908575-1A	NASW-7175-1A,Standby switch PC board ass'y <D>
	1A908565-1B	NAETC-7165-1B,Front Speaker terminal PC board ass'y <P/A>		1A908575-1B	NASW-7175-1B,Standby switch PC board ass'y <P>
	1A908565-1D	NAETC-7165-1D,Front Speaker terminal PC board ass'y <DT>		1A908575-1C	NASW-7175-1C,Standby switch PC board ass'y <A>
	1A908565-1E	NAETC-7165-1E,Front Speaker terminal PC board ass'y <GT/R>		1A908575-1D	NASW-7175-1D,Standby switch PC board ass'y <DT/GT/R>
U7	1A908566-1A	NAETC-7166-1A,Surround speaker terminal PC board ass'y <D>	U16	1A908576-1A	NAETC-7176-1A,Headphone PC board ass'y <D>
	1A908566-1B	NAETC-7166-1B,Surround speaker terminal PC board ass'y <P/A>		1A908576-1B	NAETC-7176-1B,Headphone PC board ass'y <P>
	1A908566-1D	NAETC-7166-1D,Surround speaker terminal PC board ass'y <DT>		1A908576-1C	NAETC-7176-1C,Headphone PC board ass'y <A>
	1A908566-1E	NAETC-7166-1E,Surround speaker terminal PC board ass'y <GT/R>		1A908576-1D	NAETC-7176-1D,Headphone PC board ass'y <DT/GT/R>
U8	1A908567-1A	NAETC-7167-1A,Holder PC board ass'y <D>	U17	1A908577-1A	NAETC-7177-1A,Connector PC board ass'y <D>
	1A908567-1B	NAETC-7167-1B,Holder PC board ass'y <P/A>		1A908577-1B	NAETC-7177-1B,Connector PC board ass'y <P>
	1A908567-1D	NAETC-7167-1D,Holder PC board ass'y <DT>		1A908577-1C	NAETC-7177-1C,Connector PC board ass'y <A>
	1A908567-1E	NAETC-7167-1E,Holder PC board ass'y <GT/R>		1A908577-1D	NAETC-7177-1D,Connector PC board ass'y <DT/GT/R>
U11	1A908571-1A	NAAR-7171-1A,Preamplifier PC board ass'y <D>	U21	240138 or	ENG06501Q or
	1A908571-1B	NAAR-7171-1B,Preamplifier PC board ass'y <P>		240134	TFCE1U114A, Tuner block <D>
	1A908571-1C	NAAR-7171-1C,Preamplifier PC board ass'y <A>		240139 or	ENG07501Q or
	1A908571-1D	NAAR-7171-1D,Preamplifier PC board ass'y <DT/GT/R>		240135	TFCE1E512A, Tuner block <P/A/GT/DT/R>

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

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

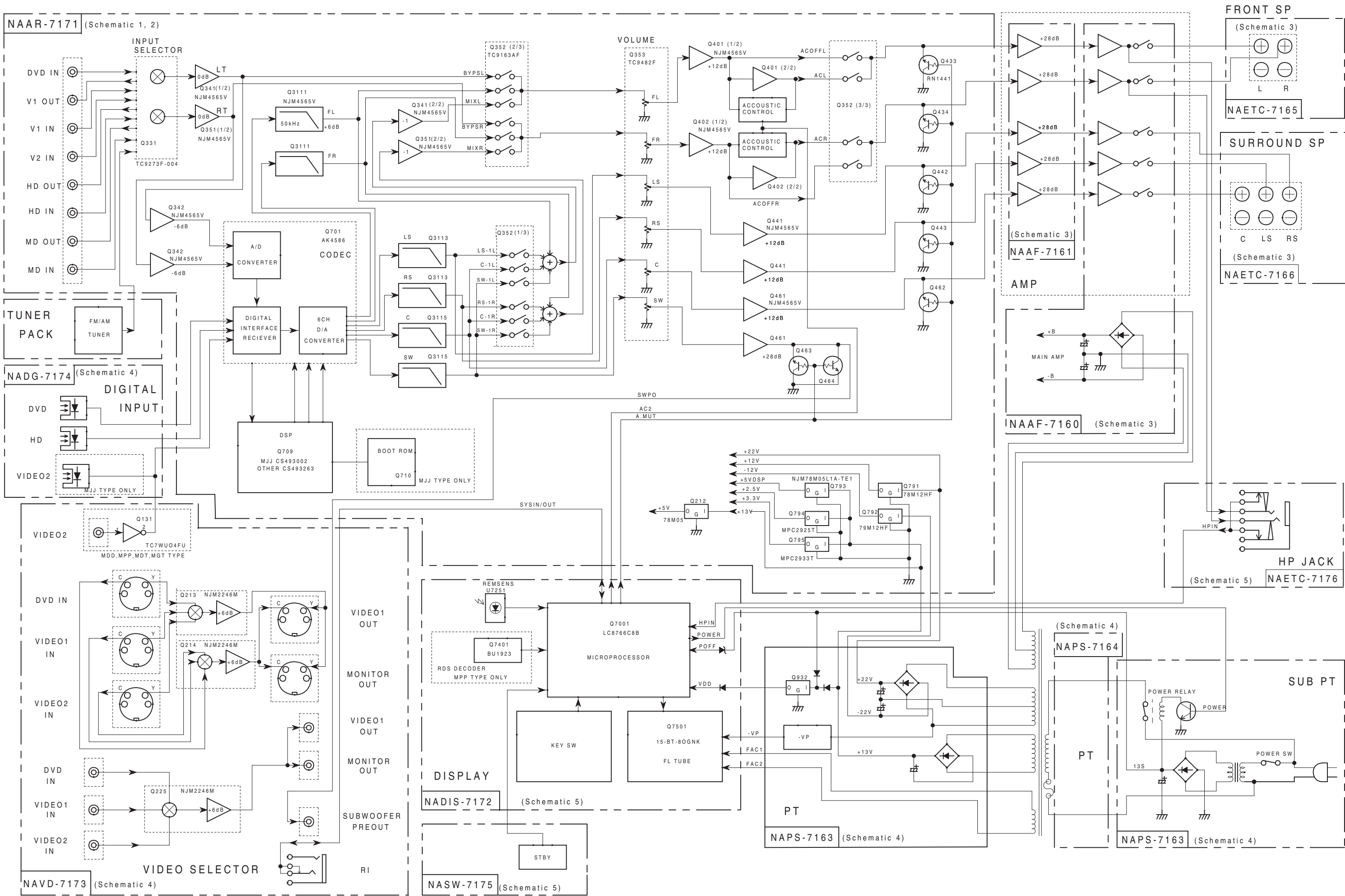
NOTE: <D>:120V model only  
<P>: European model only  
<A>:Australian model only  
<DT>: Asian model only for 120V.  
<GT>: Asian model only for 220-230V.  
<R>: Chinese model only



## EXPLODED VIEW-PARTS LIST 1

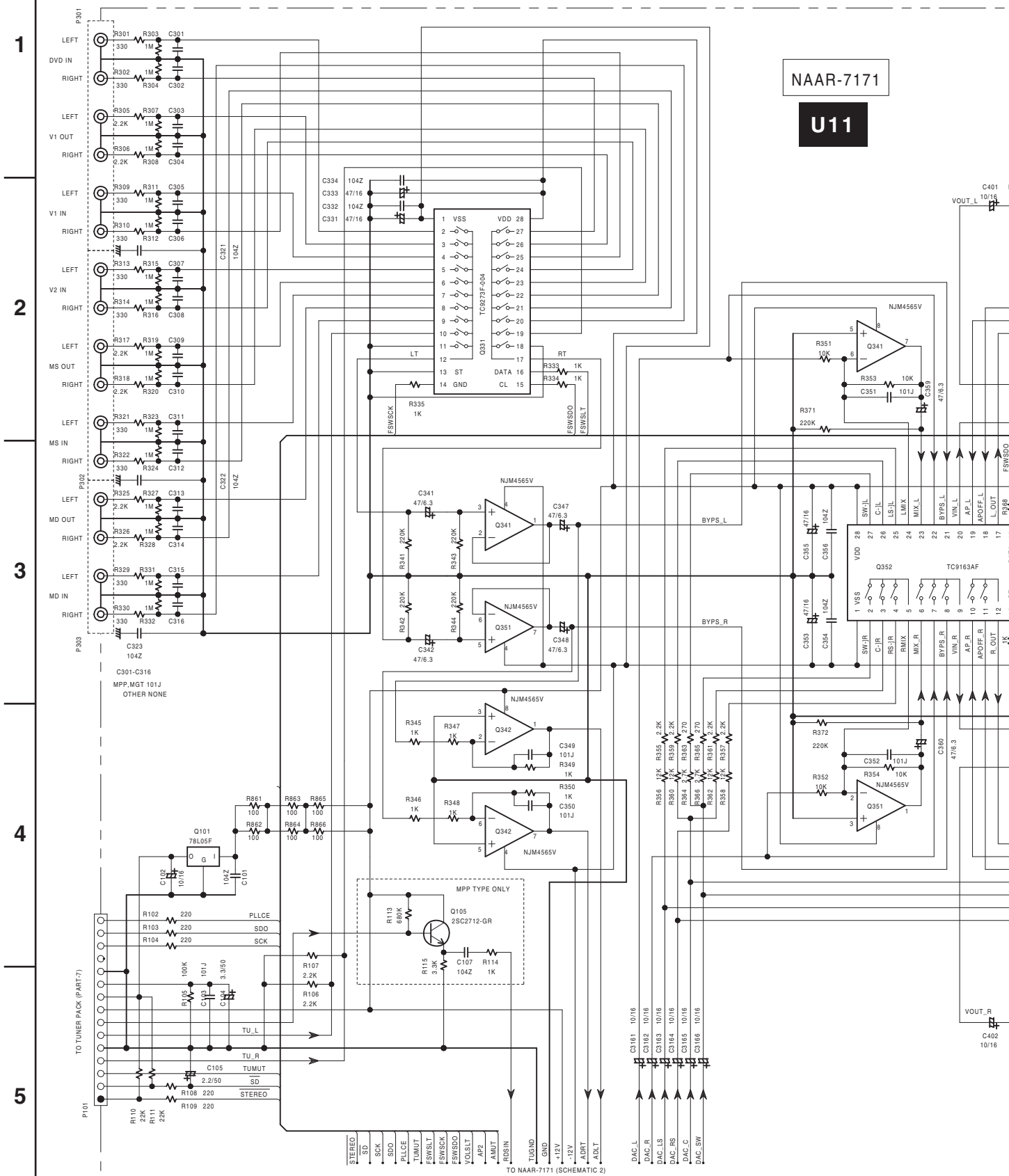
REF.	NO.	PART NO.	DESCRIPTION	REF.	NO.	PART NO.	DESCRIPTION
	1	27111234	Front bracket <S>	F901	252084 or	⚠ 0.63A-SE-EAWK or	
		27111235	Front bracket <T>		252235	⚠ 630MA-SE-TL250V,Fuse <P/GT/R/A>	
	5	838130088	3TTB+8B, Self-tapping screw	F902	252159 or	⚠ 2A-UL/T-237 or	
	6	28325947A	Knob ACC		252253	⚠ 2A-T/UL-ST2,Fuse <D/DT>	
	11	27100405	Chassis	F931	252160 or	⚠ 2.5A-UL/T-237 or	
	12	27190428A	KGLS-10RF,Holder		252254	⚠ 2.5A-T/UL-ST2,Fuse <D/DT>	
	13	27190369	Holder		252075 or	⚠ 2.5A-SE-EAK or	
	14	27190524	KGLS-14RF,Holder		252241	⚠ 2.5A-SE-TL250V, Fuse <P/GT/R/A>	
	16	830440069	4TTC+6C(BC),Self-tapping screw	P101	2047150512	NCFC7-150512,Flexible cable	
	17	27160488	Heatsink	P7001	2047381012	NCFC7-381012,Flexible cable	
	18	27141795	Retainer HT	P901	253279HIT or	⚠ AS-UC-2#18 or	
	19	801433	3SMS8W.SW+14B(BC), Self-tapping screw		253280VOL	⚠ AS-UC-2#18,Power supply cord <D/DT>	
					253285HIT or	⚠ AS-CCEE or	
	21	27273191	Joint, power		253286VOL	⚠ AS-CCEE, Power supply cord <R>	
	22	28325867	Knob, power <S>		253193HIT or	⚠ AS-CEE or	
		28325868	Knob, power <T>		253195MAR	⚠ AS CEE, Power supply cord <P/GT>	
	23	28325856	Knob, volume		253197HIT	⚠ AS-SAA, Power supply cord <A>	
	24	28325957	Knob, input	Q5530-	2202063,	* 2SC4511-O,	
	25	27300750	⚠ Bushing, cord	Q5534	2202064 or	* 2SC4511-Y or	
	31	28184820	Top cover		2202066	* 2SC4511-P,Transistor	
	32	838930088	3TTB+8B(UN),Self-tapping screw	Q5540-	2202053,	* 2SA1725-O,	
	33	28141390	Cushion	Q5544	2202054 or	* 2SA1725-Y or	
	34	27270203	Spacer		2202056	* 2SA1725-P,Transistor	
	35	27175316B	Leg	T901	2301520	⚠ NPT-1416D,Power transformer <D/DT>	
	36	28141332	Cushion		2301521A	⚠ NPT-1416P,Power transformer <P/PT>	
	37	29362918	Label		2301522A	⚠ NPT-1416G,Power transformer <GT/R>	
	38	831430088	3TTW+8B(BC), Self-tapping screw	U1	1A908560-1A	NAAF-7160-1A,Power amplifier PC board ass'y <D>	
	41	27122882	Rear panel <D>		1A908560-1B	NAAF-7160-1B,Power amplifier PC board ass'y <P/A>	
		27122883	Rear panel <P/A>		1A908560-1D	NAAF-7160-1D,Power amplifier PC board ass'y <DT>	
		27122886	Rear panel <DT>		1A908560-1E	NAAF-7160-1E,Power amplifier PC board ass'y <GT/R>	
		27122885	Rear panel <GT>		1A908561-1A	NAAF-7161-1A,Driver circuit PC board ass'y <D>	
		27122884	Rear panel <R>		1A908561-1B	NAAF-7161-1B,Driver circuit PC board ass'y <P/A>	
	42	838430088	3TTB+8B(BC), Self-tapping screw		1A908561-1D	NAAF-7161-1D,Driver circuit PC board ass'y <DT>	
	43	838430068	3TTB+6B(BC),Self-tapping screw		1A908561-1E	NAAF-7161-1E,Driver circuit PC board ass'y <GT/R>	
	44	28141467	Cushion	U2	1A908561-1A	NAAF-7161-1A,Driver circuit PC board ass'y <D>	
	51	27212333	Front panel <S>		1A908561-1B	NAAF-7161-1B,Driver circuit PC board ass'y <P/A>	
		27212334	Front panel <T>		1A908561-1D	NAAF-7161-1D,Driver circuit PC board ass'y <DT>	
	52	28198930	Facet		1A908561-1E	NAAF-7161-1E,Driver circuit PC board ass'y <GT/R>	
	53	28198932	Facet 7				
	54	838430088	3TTB+8B(BC),Self-tapping screw				
	55	27268047	Guide, standby <S>				
		27268048	Guide, standby <T>				
	56	28191932	Clear plate <S>				
		28191933	Clear plate <T>				
	61	260208	Wire tie				
	62	27255004	CS-1U,Clip				
	63	880048	P-3055B-8L,Plastic rivet <P/GT/R/A>				

# BLOCK DIAGRAM



# SCHEMATIC DIAGRAM 1-1

## Preamplifier section



NAAR-7171

U11

1

2

3

4

5

TO TUNER PACK (PART-7)

P101

STEREO  
SD  
SCK  
SDO  
PLLCE  
TUMUT  
FSWSCL  
FSWSDO  
COLSLT  
AF2  
AMUT  
RDSIN  
LUGND  
GND  
+12V  
-12V  
ADRT  
ADLT  
TO NAAR-7171 (SCHEMATIC 2)

C3161 10/16  
C3162 10/16  
C3163 10/16  
C3164 10/16  
C3165 10/16  
C3166 10/16  
DAC\_L  
DAC\_R  
DAC\_LS  
DAC\_RS  
DAC\_C  
DAC\_SW

C401 10/16  
VOUT\_L

VOUT\_R  
C402 10/16

C301-C316  
MPP.MGT 101J  
OTHER NONE

MPP TYPE ONLY  
Q105 2SC2712-GR  
R113 50K  
R114 1K  
R115 33K  
C107 104Z

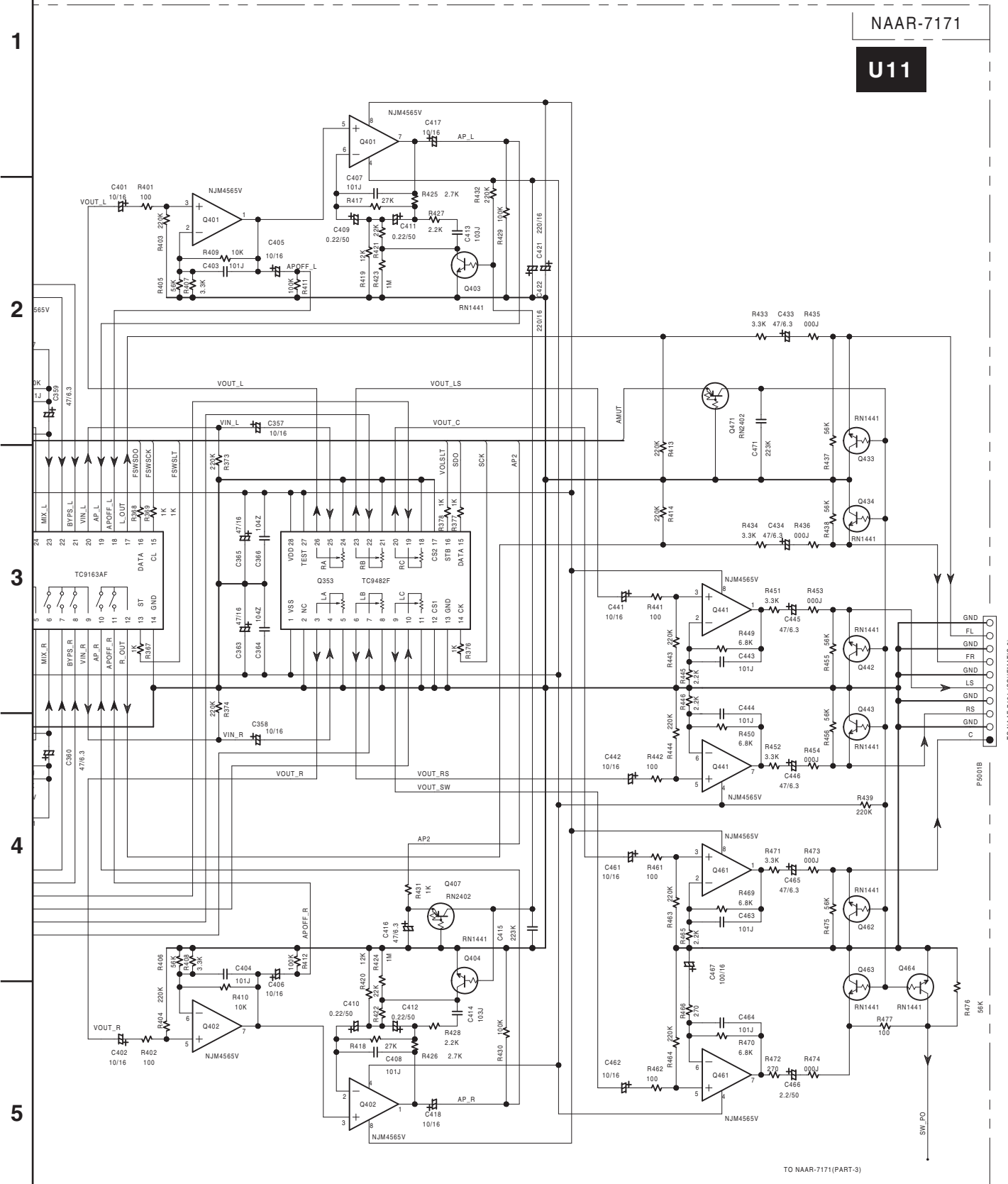
NJM4565V  
Q341  
R351 10K  
R353 10K  
C351 101J  
C359 47/6.3  
R371 220K

NJM4565V  
Q347  
R341 220K  
R343 220K  
C347 47/6.3  
C348 47/6.3  
BYPS\_L  
BYPS\_R  
C353 47/16  
C354 104Z  
C355 47/16  
C356 104Z

NJM4565V  
Q342  
R345 1K  
R347 1K  
C349 101J  
R349 1K  
R350 1K  
C350 101J  
R372 220K  
R352 10K  
C352 101J  
R354 10K  
Q351  
C360 47/6.3

NJM4565V  
Q352  
R336 1K  
R335 2.2K  
R360 1K  
R359 2.2K  
R364 2.2K  
R363 270  
R366 1K  
R367 270  
R382 1K  
R383 2K  
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R1000 2K

**SCHEMATIC DIAGRAM 1-2**  
Preamplifier section

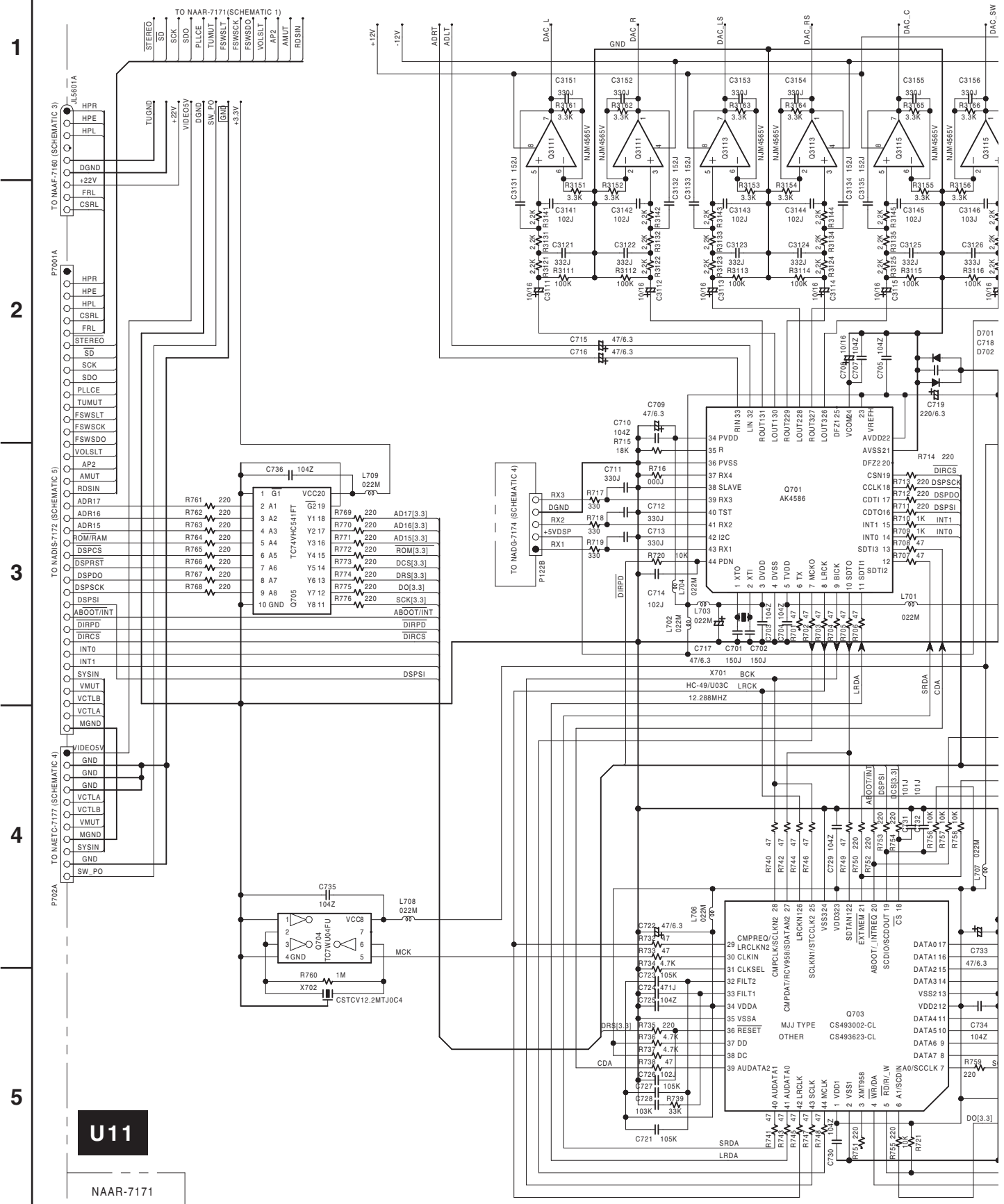


TO NAAR-7171(PART-3)

TO NAAF-7161 (SCHEMATIC 3)

# SCHEMATIC DIAGRAM 2-1

## DSP section



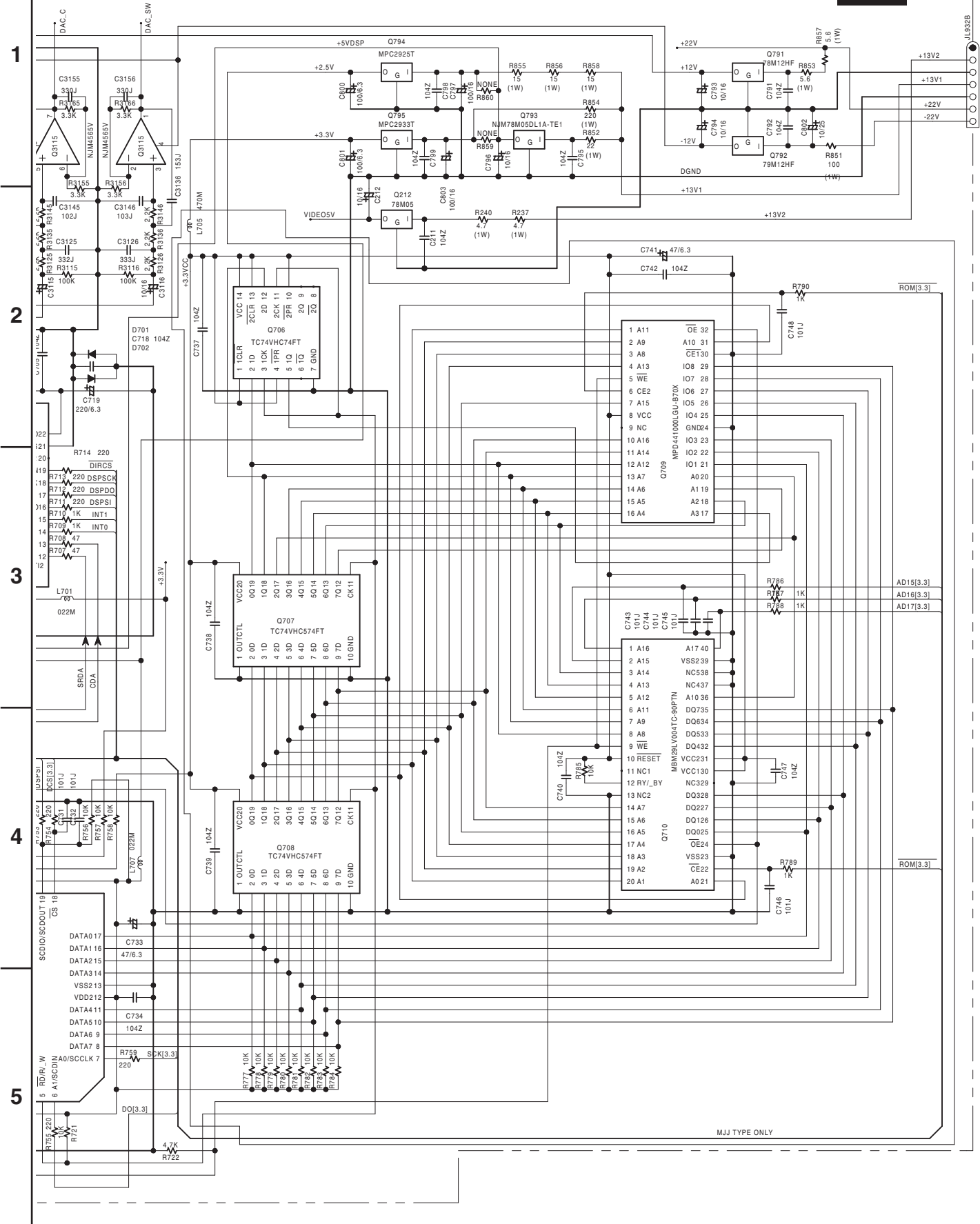
**U11**

NAAR-7171

# SCHEMATIC DIAGRAM 2-2

## DSP section

U11



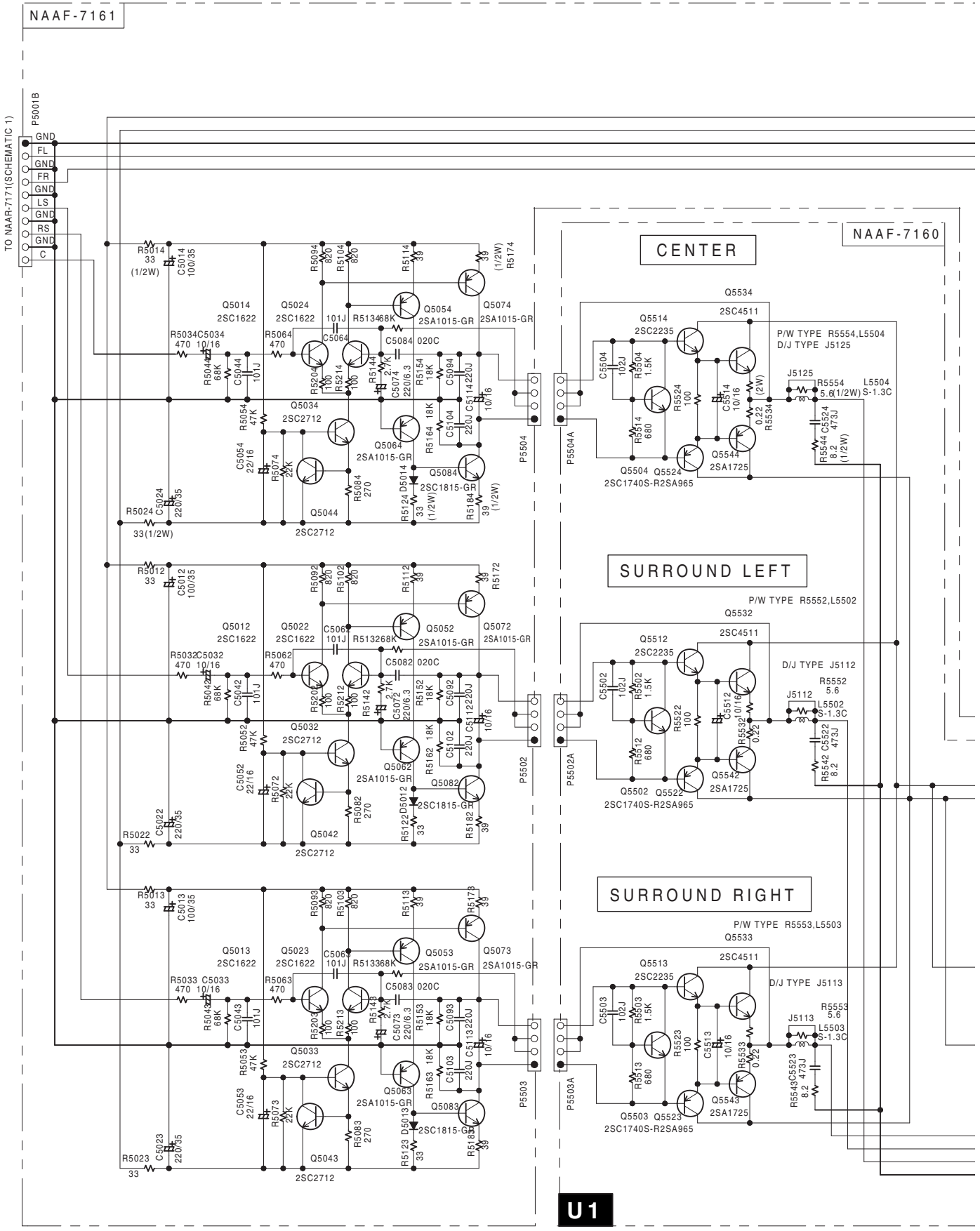
TO NAFS-7183 (SCHEMATIC 4)

MJJ TYPE ONLY

A B C D

# SCHEMATIC DIAGRAM 3-1 Power amp. section

1  
2  
3  
4  
5



U1

A B C D

# SCHEMATIC DIAGRAM 3-2 Power amp. section

1

2

3

4

5

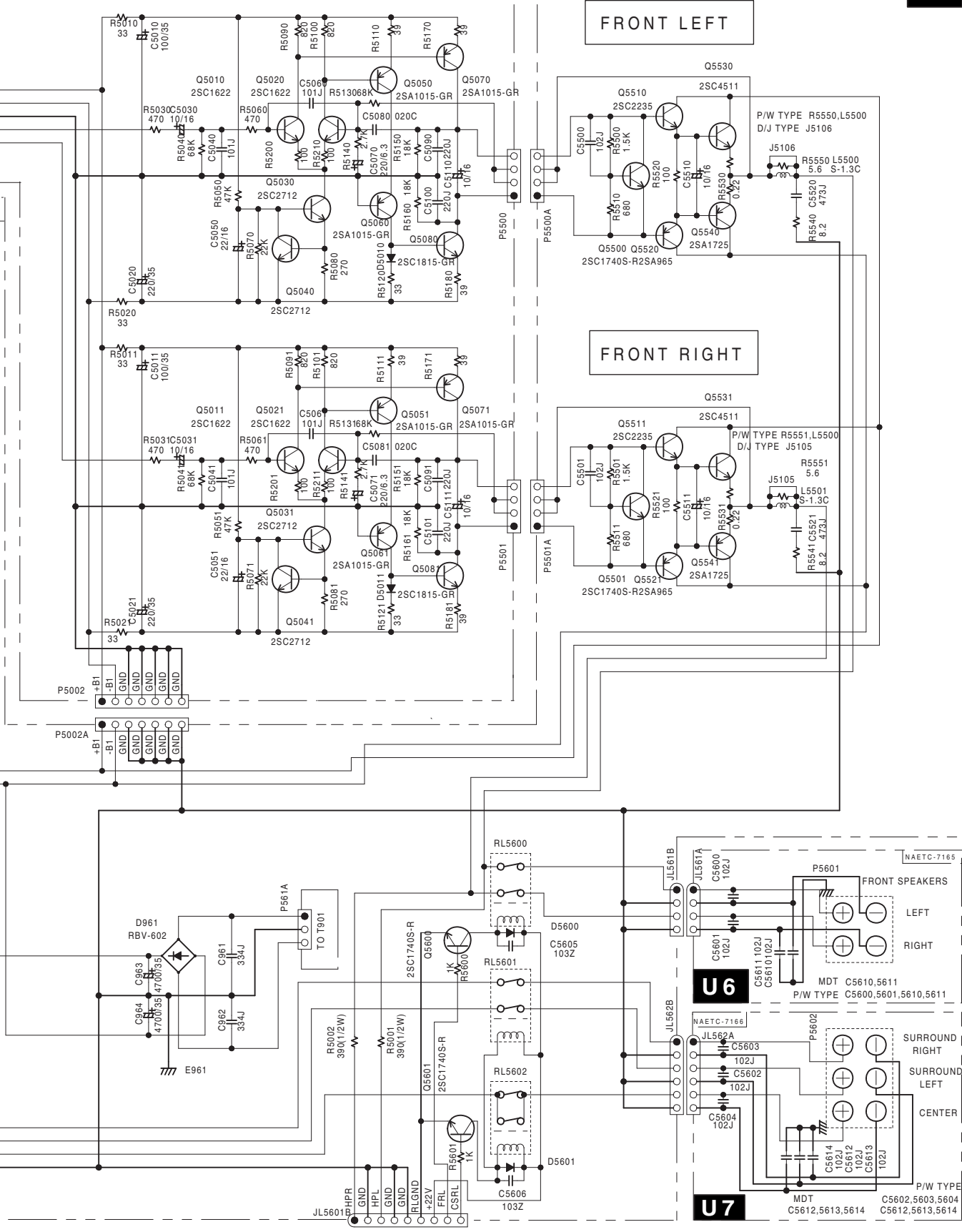
U2

FRONT LEFT

FRONT RIGHT

U6

U7





A

B

C

D

# SCHEMATIC DIAGRAM 4-1

## Power supply and Video section

JL931B

1



**CAUTION**  
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH FUSE OF SAME TYPE AND RATING INDICATED.

	J TYPE	D TYPE	P TYPE	G TYPE
F901	NONE	NONE	T630MAL250V	T630MAL250V
F902	2A/125V	2A/125V	NONE	NONE
F931	2.5A/125V	2.5A/125V	T2.5AL250V	T2.5AL250V

2



**ATTENTION**  
AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE ET CALIBRATION COMME INDIQUE.

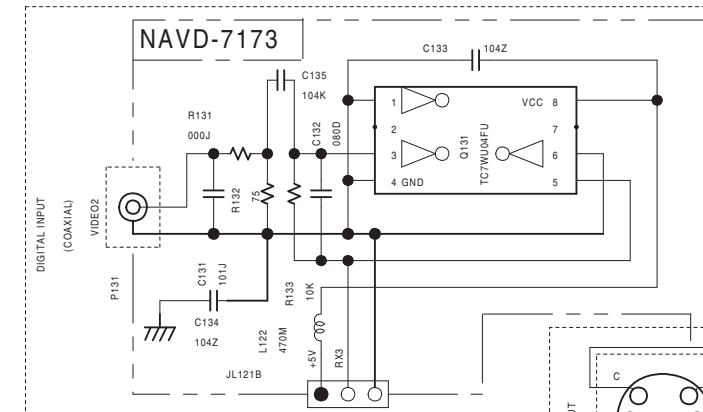


THIS SYMBOL LOCATED NEAR THE FUSE INDICATES THAT THE FUSE USED IS SLOW OPERATING TYPE FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE WITH SAME TYPE FUSE. FOR FUSE RATING REFER TO THE MAKING ADJACENT TO THE SYMBOL.

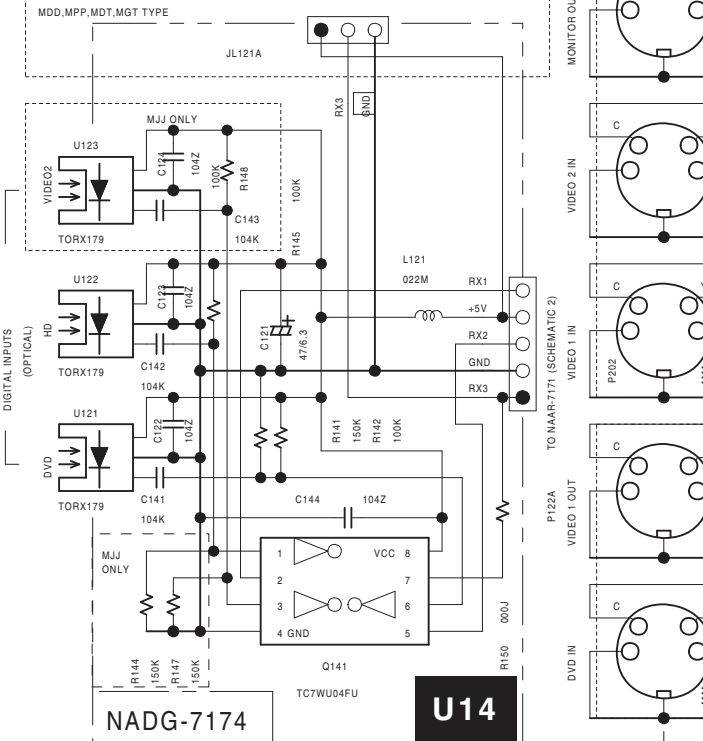


CE SYMBOLE INDIQUE QUE LE FUSIBLE UTILISE EST A LENT, E POUR UNE PROTECTION PERMANENTE, N'UTILISER QUE DES FUSIBLES DE MEME TYPE. CE DERNIER EST INDIQUE LA QU LE PRESENT SYMBOLE EST APPOSE.

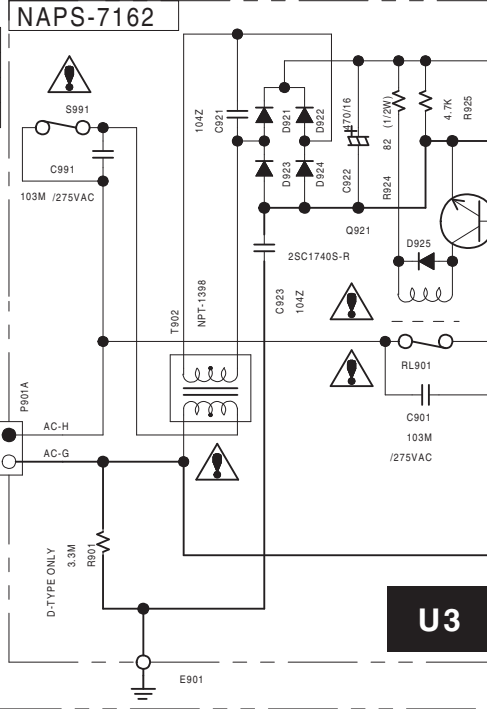
3



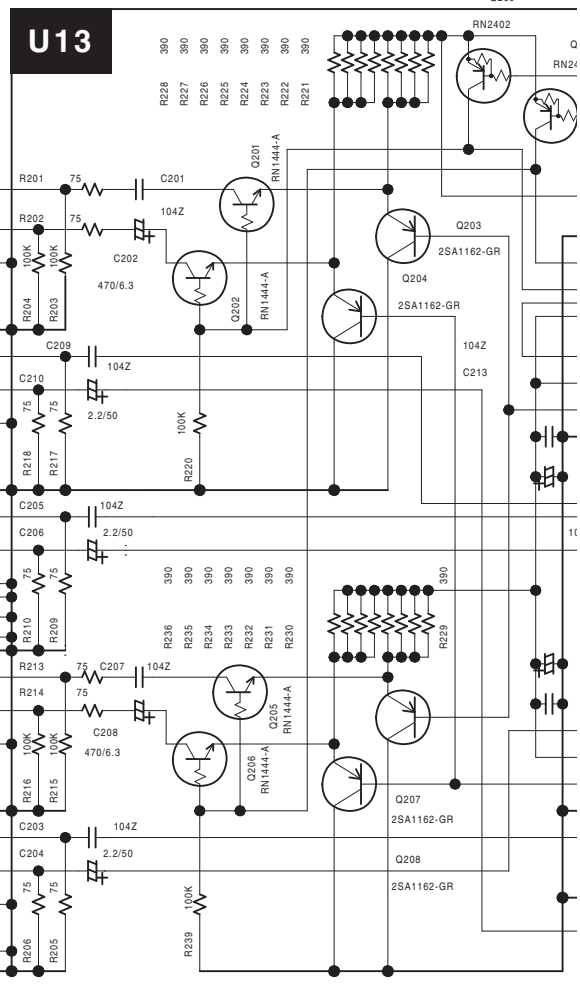
4



5



**U3**



**U13**

**U14**

A

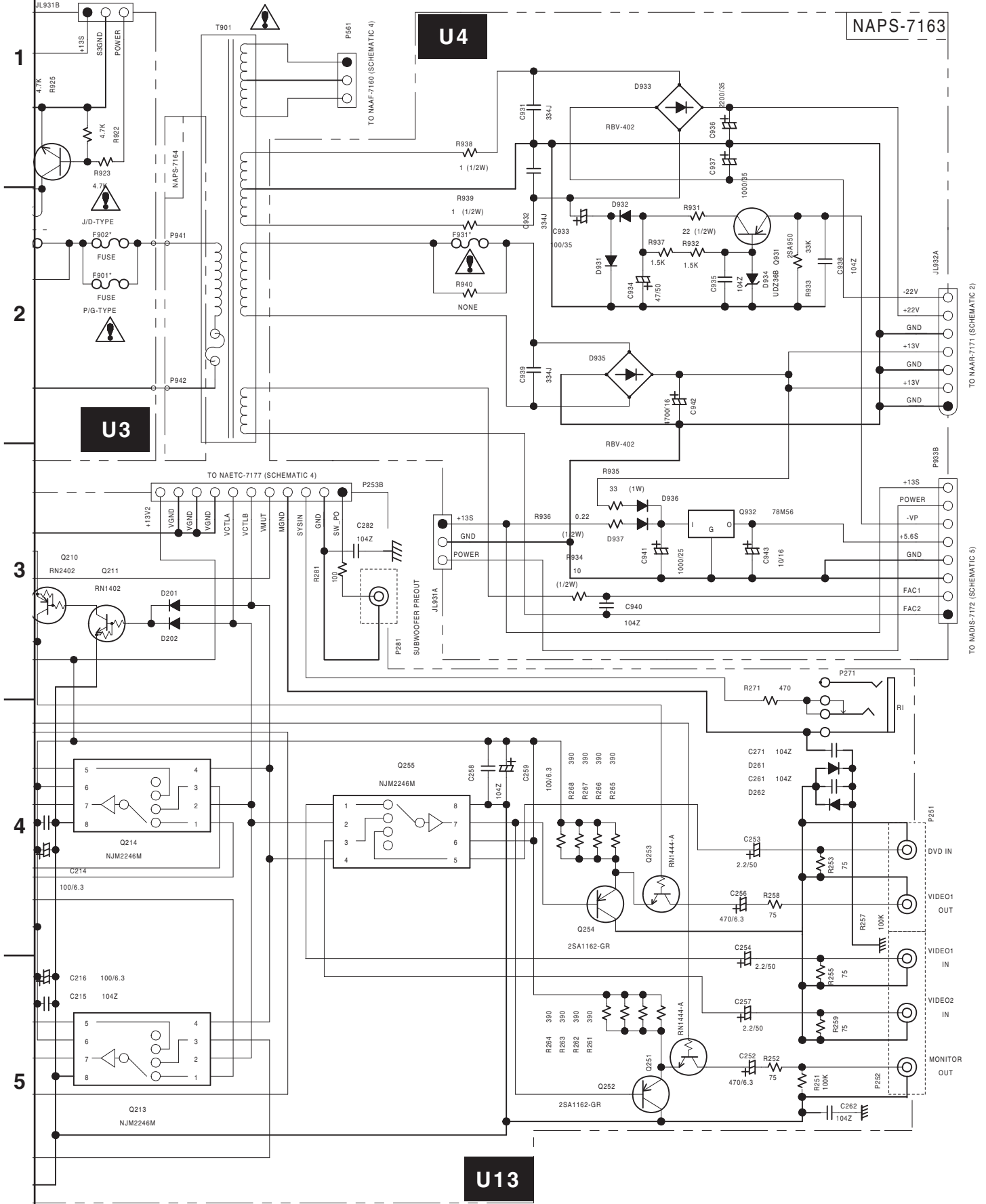
B

C

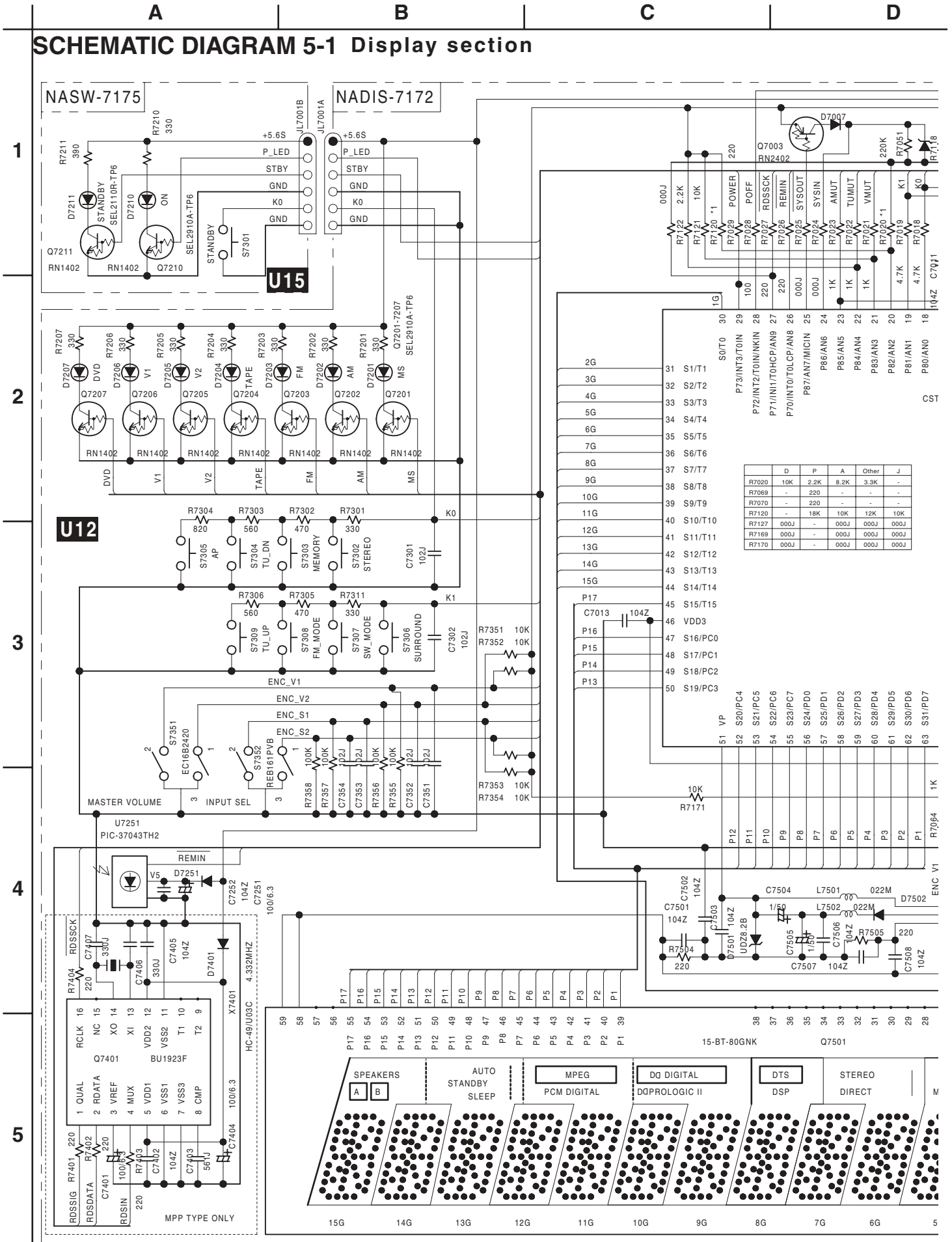
D

# SCHEMATIC DIAGRAM 4-2

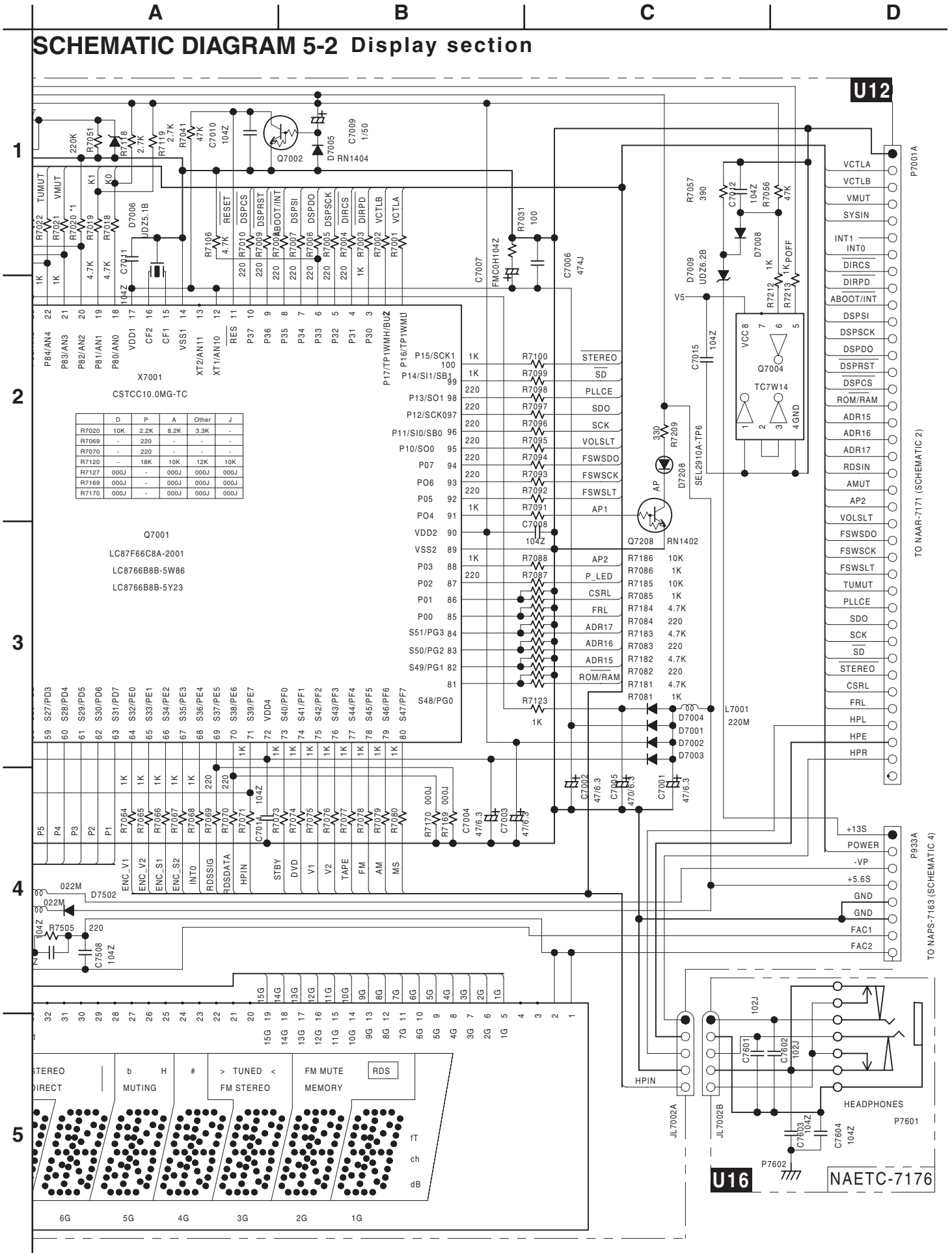
## Power supply and Video section



# SCHEMATIC DIAGRAM 5-1 Display section



# SCHEMATIC DIAGRAM 5-2 Display section



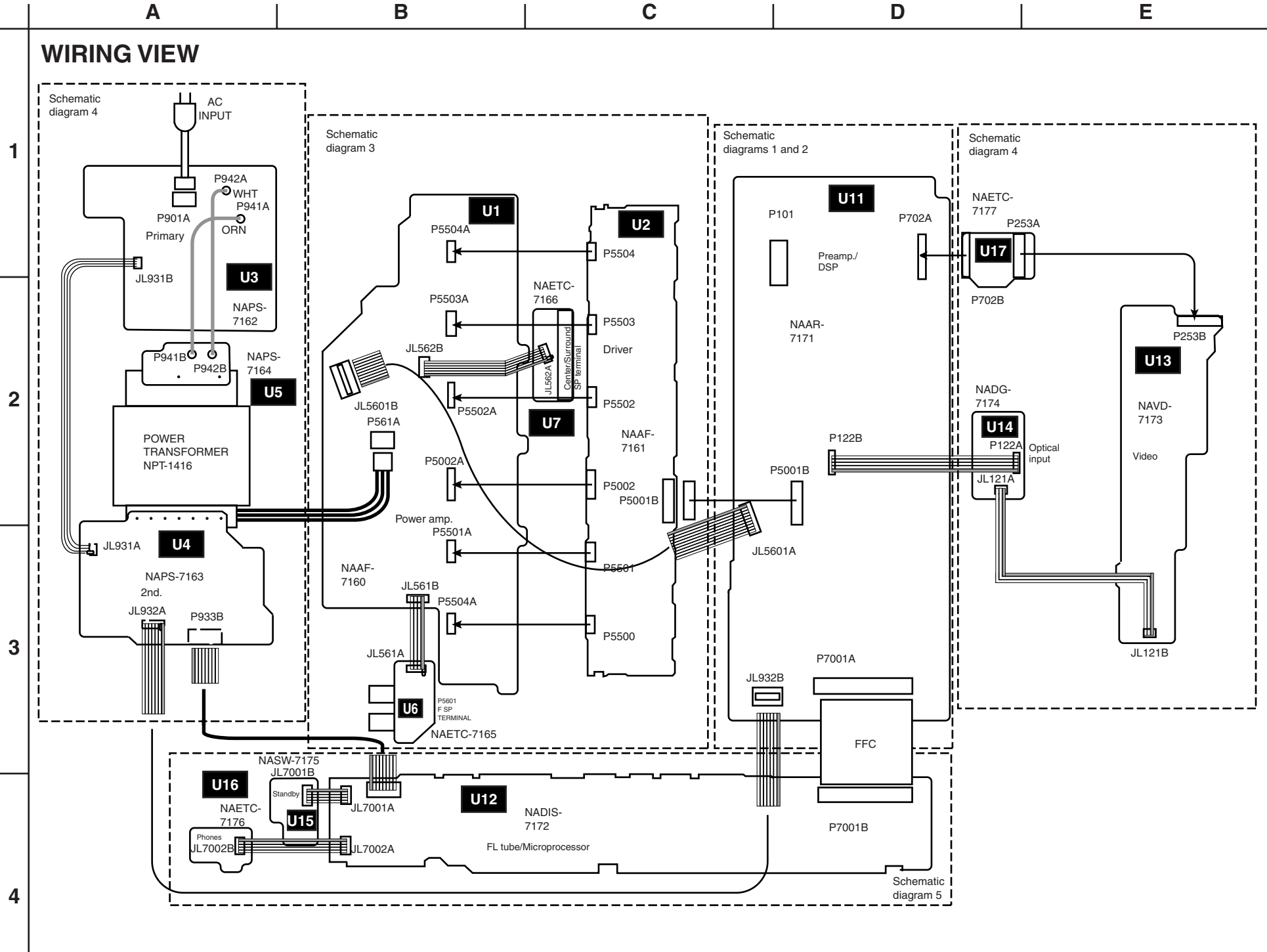
	D	P	A	Other	J
R7020	10K	2.2K	8.2K	3.3K	-
R7069	-	220	-	-	-
R7070	-	220	-	-	-
R7120	-	18K	10K	12K	10K
R7127	000J	-	000J	000J	000J
R7169	000J	-	000J	000J	000J
R7170	000J	-	000J	000J	000J

Q7001  
LC87F66C8A-2001  
LC8766B8B-5W86  
LC8766B8B-5Y23

P7001A  
TO NAAR-7171 (SCHEMATIC 2)  
P933A  
TO NAPS-7163 (SCHEMATIC 4)

U16  
P7602  
P7601  
HEADPHONES  
NAETC-7176

# WIRING VIEW



## PRINTED CIRCUIT BOARD-PARTS LIST 4

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Capacitors</b>			<b>Capacitors</b>		
C7001-C7004	356724709R2	47uF,6.3V,Elect.	C254,C257	356780229R2	2.2uF,50V,Elect.
C7005	354724719	470uF,6.3V,Elect.	C259	356721019R2	100uF,6.3V,Elect.
C7006	375524744	0.47uF+/-5%,50V,Plastic	<b>Terminals</b>		
C7007	3000120	FMC0H104Z,Super	P131	25045473	NPJ-1PDBL291
C7009	356780109R2	1uF,50V,Elect.	P251	25045569	NPJ-2PDYE384
C7251	356721019R2	100uF,6.3V,Elect.	P252	25045299	NPJ-3PDYE158
C7401, C7404	356721019R2	100uF,6.3V,Elect. <P>	P271	25045581R2	HSJ1501-011010
C7504,C7505	356780109R2	1uF,50V,Elect.	P281	25045567	NPJ-1PDBL382
<b>Switches</b>			<b>Sockets</b>		
S7302-S7309	25035713R2	NPS-111-S676	JL121B	25051087	NSCT-3P874
S7351	25065606	EC16B2420	P201	25051748	NSCT-8P1535
S7352	25065534	REB161PVB	P202	25051568	NSCT-12P1355
<b>Sockets</b>			P253B	25051236	NSCT-11P1026
JL7001A	25051090	NSCT-6P877	<b>OPTICAL INPUT TERMINAL PC BOARD (NADG-7174-1A/1B/1C/1D)</b>		
JL7002A	25051089	NSCT-5P876	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
P7001B	25052271	NSCT-38P2168	Q141	22240935R2	TC7WU04FU,IC
P933A	2002E391610UL	NSAS-16P0992	U121,U122	24120095	TORX179,Photo coupler
<b>Holder</b>			L121	231237M022R2	NCH-1471,Coil
Q7501A	27191129	(FL)	C121	356724709R2	47uF,6.3V,Elect.
<b>VIDEO TERMINAL PC BOARD (NAVD-7173-1A/1B/1C/1D)</b>			JL121A	25051087	NSCT-3P874,Socket
<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	P122A	2009990662UL	NSAS-10P0922,Socket
<b>ICs</b>			<b>STANDBY SWITCH PC BOARD (NASW-7175-1A/1B/1C/1D)</b>		
Q131	22240935R2	TC7WU04FU	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
Q213,Q214	22241615R2	NJM2246M	Q7210,Q7211	2214470R2 or	RN1402 or
Q255	22241615R2	NJM2246M		2216190R2	KRC102S,Transistor
<b>Transistors</b>			D7210	225390	SEL2910A-TP6,LED
Q201,Q202	2216031R2 or	RN1444-A or	D7211	225389	SEL2110R-TP6,LED
Q205,Q206	2216032R2	RN1444-B	S7301	25035713R2	NPS-111-S676,Switch
Q203,Q204	2214375R2 or	2SA1162-GR or	JL7001B	25051090	NSCT-6P877,Socket
Q207,Q208	2216185R2	KTA1504-GR	<b>HEADPHONE PC BOARD (NAETC-7176-1A/1B/1C/1D)</b>		
Q209,Q210	2214530R2 or	RN2402 or	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
	2216220R2	KRA102S	P7601	25045514	YKB26-5005,Hedphone
Q211	2214470R2 or	RN1402 or	JL7002B	25051089	NSCT-5P876,Socket
	2216190R2	KRC102S	<b>CONNECTOR PC BOARD (NAETC-7177-1A/1B/1C/1D)</b>		
Q251,Q253	2216031R2 or	RN1444-A or	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
	2216032R2	RN1444-B	P253A	25055707	NPLG-11P663,Plug
Q252,Q254	2214375R2 or	2SA1162-GR or	P702B	25051236	NSCT-11P1026,Socket
	2216185R2	KTA1504-GR	<b>Diodes</b>		
D201,D202	223234R2 or	1SS352 or	<b>Coil</b>		
D241,D242	223269R2	1SS355	L122	231237K470R2	NCH-1479
D261,D262	223234R2 or	1SS352 or	<b>Capacitors</b>		
	223269R2	1SS355	C202,C208	354724719	470uF,6.3V,Elect.
<b>Coil</b>			C204,C206	356780229R2	2.2uF,50V,Elect.
<b>Capacitors</b>			C210,C253	356780229R2	2.2uF,50V,Elect.
C214,C216	356721019R2	100uF,6.3V,Elect.	C252,C256	354724719	470uF,6.3V,Elect.

NOTE: <D>:120V model only

<P>: European model only

<A>:Australian model only

<DT>: Asian model only for 120V.

<GT>: Asian model only for 220-230V.

<R>: Chinese model only

## PRINTED CIRCUIT BOARD-PARTS LIST 3

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
D701,D702	223234R2 or 223269R2	1SS352 or 1SS355	P301,P302 P303	25045571 25045575	NPJ-6PDRW386 NPJ-4PDRW389
X702	3010324R2	CSTCV12.2MTJ0C4	JL932B P702A	25055628 25055707	NPLG-7P590 NPLG-11P663
L701-L704 L706-L709	231237M022R2 231237M022R2	NCH-1471 NCH-1471	JL5601A P101	25051093 25052211	NSCT-9P880 NSCT-15P2108
C102,C212 C104 C105	356741009R2 356780339R2 356780229R2	10uF,16V,Elect. 3.3uF,50V,Elect. 2.2uF,50V,Elect.	P5001A P7001A	2009990673UL 25052234	NSAS-20P0936 NSCT-38P2131
C3111-C3116 C3161-C3166 C331,C333 C341,C342 C347,C348 C353,C355 C357,C358 C359,C360 C363,C365 C401,C402 C405,C406 C409-C4112 C416 C417 ,C418 C421,C422 C433,C434 C441,C442 C445,C446 C461,C462 C465 C466 C467 C708 C709 C715-C717 C719 C722,C733 C793,C794 C796 C797 C800,C801 C802 C803	356741009R2 356741009R2 356744709R2 356724709R2 356724709R2 356741009R2 356724709R2 356741009R2 356741009R2 356741009R2 356782299R2 356724709R2 356741009R2 354742219 356724709R2 356741009R2 356724709R2 356741009R2 356780229R2 356741019R2 356741009R2 356724709R2 354722219 356724709R2 356741009R2 356741009R2 356741019R2 356721019R2 356751009R2 356741019R2	10uF,16V,Elect. 3.3uF,50V,Elect. 2.2uF,50V,Elect. 10uF,16V,Elect. 10uF,16V,Elect. 47uF,16V,Elect. 47uF,6.3V,Elect. 47uF,6.3V,Elect. 47uF,16V,Elect. 10uF,16V,Elect. 0.22uF,50V,Elect. 47uF,6.3V,Elect. 10uF,16V,Elect. 220uF,16V,Elect. 47uF,6.3V,Elect. 10uF,16V,Elect. 47uF,6.3V,Elect. 10uF,16V,Elect. 47uF,6.3V,Elect. 10uF,16V,Elect. 2.2uF,50V,Elect. 100uF,16V,Elect. 10uF,16V,Elect. 47uF,6.3V,Elect. 220uF,6.3V,Elect. 47uF,6.3V,Elect. 10uF,16V,Elect. 10uF,16V,Elect. 100uF,16V,Elect. 100uF,6.3V,Elect. 10uF,25V,Elect. 100uF,16V,Elect.	Q791A Q212A  Q212B Q791B,Q792B	27160391 27160179  838430107 838430107	Heat sinks  Screws  3TTB+10S(BC) 3TTB+10S(BC)
<b>DISPLAY CIRCUIT PC BOARD (NADIS-7172-1A/1B/1C/1D)</b>					
			<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
			Q7501	212218	15-BT-80GNK
			Q7001 Q7004 Q7401	22241823R3 22241161R2 22241297R2	LC8766B5z-54 TC7W14FU BU1923F <P>
			U7251	241336	PIC-37043TH2
			Q7002	2214490R2 or 2216210R2	RN1404 or KRC104S
			Q7003	2214530R2 or 2216220R2	RN2402 or KRA102S
			Q7201-Q7208	2214470R2 or 2216190R2	RN1402 or KRC102S
			D7001-D7005 D7007,D7008 D7006 D7009 D7010,D7251 D7502 D7201-D7208 D7401  D7501	223234R2 or 223269R2 224490510R2 224490560R2 223234R2 or 223269R2 225390 223234R2 or 223269R2 224490910R2	1SS352 or 1SS355 UDZ5.1B UDZ5.6B 1SS352 or 1SS355 SEL2910A-TP6 1SS352 or 1SS355 <P> UDZ9.1B
R237,R240 R851 R852 R853,R857 R854 R855,R856 R858	453630474 443621014 443622204 453630564 443622214 443621504 443621504	4.7ohm+/-5%,1W,Metal 100ohm+/-5%,1W,Metal oxide 22ohm+/-5%,1W,Metal oxide 5.6ohm+/-5%,1W,Metal 220ohm+/-5%,1W,Metal oxide 15ohm+/-5%,1W,Metal oxide 15ohm+/-5%,1W,Metal oxide	X7001 X701 X7401  L7001 L7501,L7502	3010333R2 3010323R2 3010332R2  231237M022R2 231237M022R2	CSTCC10.0MG-TC HC-49/U03C 12.288MHz HC-49/U03C4.332MHz <P>  NCH-1471 NCH-1471

NOTE: &lt;D&gt;:120V model only

&lt;P&gt;: European model only

&lt;A&gt;:Australian model only

&lt;DT&gt;: Asian model only for 120V.

&lt;GT&gt;: Asian model only for 220-230V.

&lt;R&gt;: Chinese model only

## PRINTED CIRCUIT BOARD-PARTS LIST 2

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	<b>Power transformer</b>			<b>Label</b>	
T902	2301464	⚠ NPT-1398D <D/DT>	F931C	29361747	T2.5AL250V,Fuse <P/A/GT/R>
	2301465	⚠ NPT-1398G <GT/R>		<b>Plug</b>	
	2301539	⚠ NPT-1398P <P/A>	P933B	25055372	NPLG-8P355
	<b>Resistors</b>			<b>Sockets</b>	
R901	431533355	⚠ 3.3Mohm,1/2W,Solid <D/DT>	JL931A	25051087	NSCT-3P874
R924	443528204	82ohm+/-5%,1/2W,Metal oxide	JL932A	25051091	NSCT-7P878
	<b>Relay</b>			<b>FRONT SPEAKER TERMINAL PC BOARD (NAETC-7165-1A/1B/1D/1E)</b>	
RL901	25065603 or	⚠ NRL-1P5A-DC9-152 or	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
	25065601	⚠ NRL-1P5A-DC9-150	P5601	25060298	NTM-4PDMN229,Terminal
	<b>Switch</b>		JL561A	25051108	NSCT-4P895,Socket
S991	25035702	⚠ NPS-121-L665P		<b>SURROUND SPEAKER TERMINAL PC BOARD (NAETC-7166-1A/1B/1D/1E)</b>	
	<b>Fuse holders</b>		<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
F901A,F901B	25052133	⚠ NSCT-1P2031 <P/A/GT/R>	P5602	25060287	NTM-6PDML218,Terminal
F902A,F902B	25052133	⚠ NSCT-1P2031 <D/DT>	JL562A	25051090	NSCT-6P877,Socket
	<b>Socket</b>			<b>PREAMPLIFIER PC BOARD (NAAR-7171-1A/1B/1C/1D)</b>	
JL931B	25051087	NSCT-3P874	<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
	<b>Plug</b>			<b>ICs</b>	
P901A	25055675	⚠ NPLG-2P631	Q101	222780053R2	TA78L05F
	<b>POWER SUPPLY PC BOARD (NAPS-7163-1A/1B/1D/1E)</b>		Q212	222780055JRC	NJM78M05FA
<b>CIRCUIT NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	Q3111,Q3113	22241554R2	NJM4565V
Q932	222780565	78M56	Q3115,Q341	22241554R2	NJM4565V
	<b>Transistor</b>		Q331	22241619R2	TC9273F-004
Q931	2211504 or	2SA950-Y or	Q342,Q351	22241554R2	NJM4565V
	2211503	2SA950-O	Q352	22240943R2	TC9163AF
	<b>Diodes</b>		Q353	22241444R2	TC9482F
D931,D932	22380260,	RL1N4003,	Q401,Q402	22241554R2	NJM4565V
D936,D937	22380032 or	1SR139-100 or	Q441,Q461	22241554R2	NJM4565V
	22380035	GP104003E	Q701	22241620R3	AK4586
D933,D935	22380022,	RBV402,	Q703	22241715R9	CS493263-CL(PL2)
	22380271 or	D3SBA20 or	Q704	22240935R2	TC7WU04FU
	22380285	RS403M	Q705	22274541ER2TO	TC74VHC541FT
D934	224493600R2	UDZ36B	Q791	222780125NEC	MPC78M12HF
	<b>Capacitors</b>		Q792	222790125	79M12HF
C931,C932	374723344	0.33uF+/-5%,50V,Plastic	Q793	222780055R2JR	NJM78M05DL1A-TE1
C933	354761019	100uF,35V,Elect.	Q794	22278025DR2NE	MPC2925T
C934	354784709	47uF,50V,Elect.	Q795	22278033DR2NE	MPC2933T
C936	394062227	2200uF,35V,Elect.		<b>Transistors</b>	
C937	354761029	1000uF,35V,Elect.	Q105	2213145R2 or	2SC2712-GR or
C939	374723344	0.33uF+/-5%,50V,Plastic		2216175R2	KTC3875-GR
C941	354751029	1000uF,25V,Elect.	Q403,Q404	2215410R2 or	RN1441 or
C942	354744729	4700uF,16V,Elect.		2215410R2	RN1441
C943	354741009	10uF,16V,Elect.	Q407	2214530R2 or	RN2402 or
	<b>Resistors</b>			2216220R2	KRA102S
R931	443522204	22ohm+/-5%,1/2W,Metal oxide	Q433,Q434	2215410R2	RN1441
R934	443521004	10ohm+/-5%,1/2W,Metal oxide	Q442,Q443	2215410R2	RN1441
R935	443623304	33ohm+/-5%,1W,Metal oxide	Q462-Q464	2215410R2	RN1441
R936	453532294	0.22ohm+/-5%,1/2W,Metal	Q471	2214530R2 or	RN2402
R938,R939	453530104	1ohm+/-5%,1/2W,Metal		2216220R2	
	<b>Fuse holders</b>				
F931A,F931B	25052133	⚠ NSCT-1P2031			

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


NOTE: <D>:120V model only  
 <P>: European model only  
 <A>:Australian model only  
 <DT>: Asian model only for 120V.  
 <GT>: Asian model only for 220-230V.  
 <R>: Chinese model only



# PRINTED CIRCUIT BOARD-PARTS LIST 1

## POWER AMPLIFIER PC BOARD (NAAF-7160-1A/1B/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q5500-Q5504	2213284 or 2215864	2SC1740S-R or KTC3199-GR
Q5510-Q5514	2211653 or	2SC2235-O or
Q5511-Q5514	2211654	2SC2235-Y
Q5520-Q5524	2211643 or 2211644	2SA965-O or 2SA965-Y
Q5530-Q5534	2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P
Q5540-Q5544	2202053, 2202054 or 2202056	* 2SA1725-O, * 2SA1725-Y or * 2SA1725-P
Q5600,Q5601	2213284, 2213285 or 2215864	2SC1740S-R, 2SC1740S-S or KTC3199-GR
<b>Diodes</b>		
D5600,D5601	223234R2 or 223269R2	1SS352 or 1SS355
D961	22380038, 22380130 or 22380274	RBV602, D5SBA20 or RS603M
<b>Coils</b>		
L5500-L5504	231176S	S-1.3C <P/A/GT/R>
<b>Capacitors</b>		
C5510-C5514	354741009	10uF,16V,Elect.
C5520-C5524	374724734	0.047uF+/-5%,50V,Plastic
C961,C962	374723344	0.33uF+/-5%,50V,Plastic
C963,C964	3504377	4700uF,35V,Elect.
<b>Resistors</b>		
R5001,R5002	443523914	390ohm+/-5%,1/2W,Metal oxide
R5520-R5524	443521014	100ohm+/-5%,1/2W,Metal oxide
R5530-R5534	4800071 or 4500027	RSS2WK-0.22 or MPC708-2WK-0.22,Metal plate
R5540-R5544	453530824	8.2ohm+/-5%,1/2W,Metal
R5550-R5554	453530564	5.6ohm+/-5%,1/2W,Metal <P/A/GT/R>
<b>Relays</b>		
RL5600-RL560	25065563	NRL-2P5A-DC24-129
<b>Plugs</b>		
JL5601B	25055630	NPLG-9P592
P5002A	25055703	NPLG-7P659
P5500A,P5504	25055804	NPLG-4P760
P5501A-P5503	25056009	NPLG-4P0959
P561A	25055166	NPLG-3P150
<b>Sockets</b>		
JL561B	25051108	NSCT-4P895
JL562B	25051090	NSCT-6P877
<b>Heat sink</b>		
D961A	27160271	RAD-083
<b>Screw</b>		
D961B	82143010	3P+10FN(BC),Pan head


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

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

## DRIVER CIRCUIT PC BOARD (NAAF-7161-1A/1B/1D/1E)

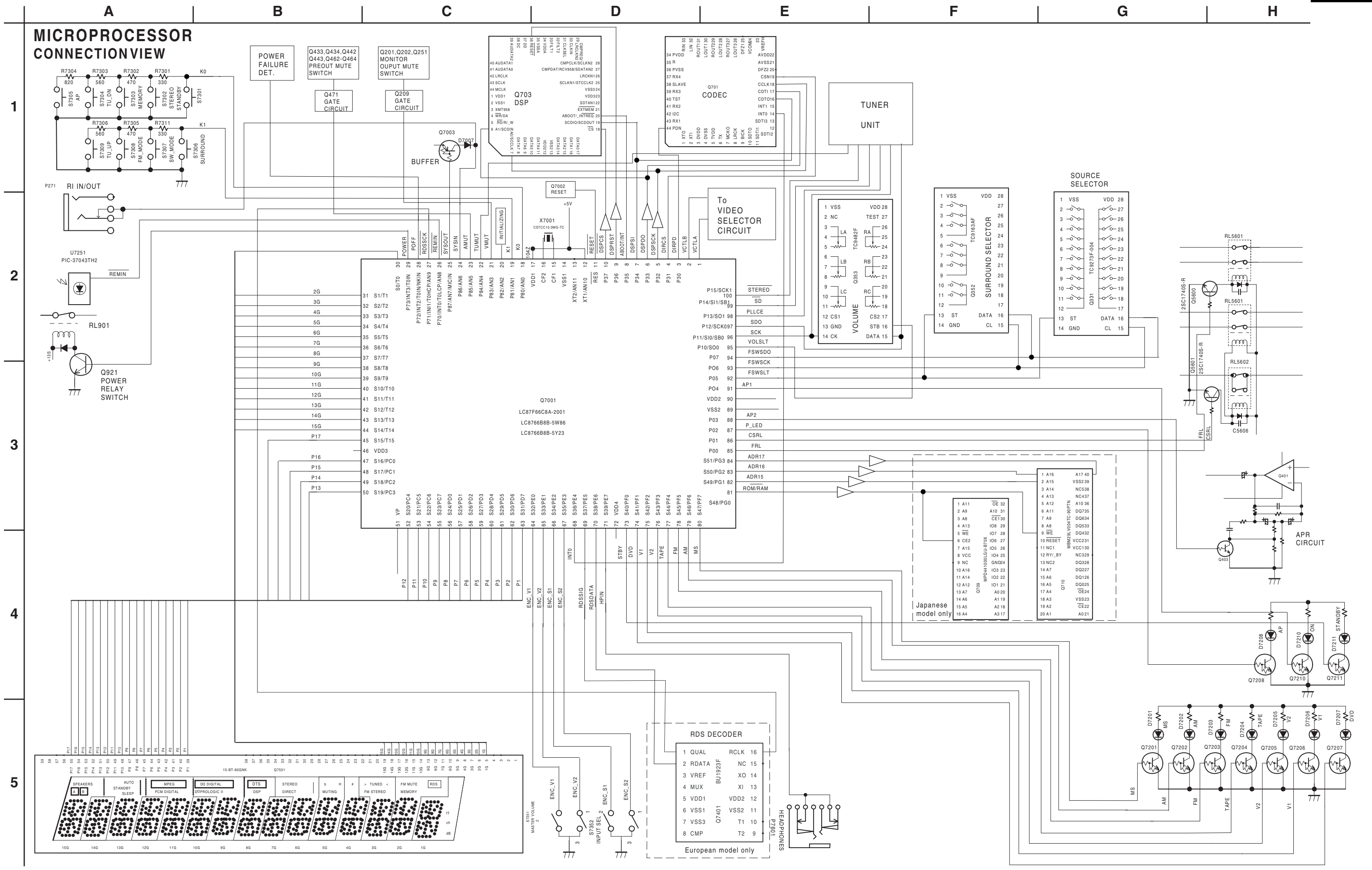
CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistors</b>		
Q5010-Q5014	2216154R2 or	2SC1622A(D18) or
Q5020-Q5024	2216296R2	KTC3911-BL
Q5030-Q5034	2213145R2 or	2SC2712-GR or
Q5040-Q5044	2216175R2	KTC3875-GR
Q5050-Q5054	2211455 or	2SA1015-GR or
Q5060-Q5064	2215975	KTA1266-GR
Q5070-Q5074	2211455 or 2215975	2SA1015-GR or KTA1266-GR
Q5080-Q5084	2211255 or 2215985	2SC1815-GR or KTC3198-GR
<b>Diodes</b>		
D5010-D5014	223234R2 or 223269R2	1SS352 or 1SS355
<b>Capacitors</b>		
C5010-C5014	354761019	100uF,35V,Elect.
C5020-C5024	354762219	220uF,35V,Elect.
C5030-C5034	354741009	10uF,16V,Elect.
C5050-C5054	354742209	22uF,16V,Elect.
C5070-C5074	354722219	220uF,6.3V,Elect.
C5110-C5114	354741009	10uF,16V,Elect.
<b>Resistors</b>		
R5010-R5014	443523304	33ohm+/-5%,1/2W,Metal oxide
R5020-R5024	443523304	33ohm+/-5%,1/2W,Metal oxide
R5110-R5114	443523904	39ohm+/-5%,1/2W,Metal oxide
R5120-R5124	443523304	33ohm+/-5%,1/2W,Metal oxide
R5170-R5174	443523904	39ohm+/-5%,1/2W,Metal oxide
R5180-R5184	443523904	39ohm+/-5%,1/2W,Metal oxide
<b>Plug</b>		
P5001B	25055154	NPLG-10P138
<b>Sockets</b>		
P5002	25051232	NSCT-7P1022
P5500,P5504	25051526	NSCT-4P1313
P5501-P5503	25052287	NSCT-4P2184

## PRIMARY CIRCUIT PC BOARD (NAPS-7162-1A/1B/1D/1E)

CIRCUIT NO.	PART NO.	DESCRIPTION
<b>Transistor</b>		
Q921	2213284 or 2215864	2SC1740S-R or KTC3199-GR
<b>Diodes</b>		
D921-D924	22380260, 22380032 or 22380035	RL1N4003, 1SR139-100 or GP104003E
D925	223234R2 or 223269R2	1SS352 or 1SS355
<b>Capacitors</b>		
C901,C991	3500196S 	RE275V-103M
C922	354744719	470uF,16V,Elect.

NOTE: <D>:120V model only  
 <P>: European model only  
 <A>:Australian model only  
 <DT>: Asian model only for 120V.  
 <GT>: Asian model only for 220-230V.  
 <R>: Chinese model only

# MICROPROCESSOR CONNECTION VIEW



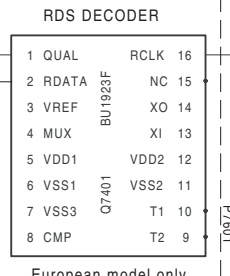
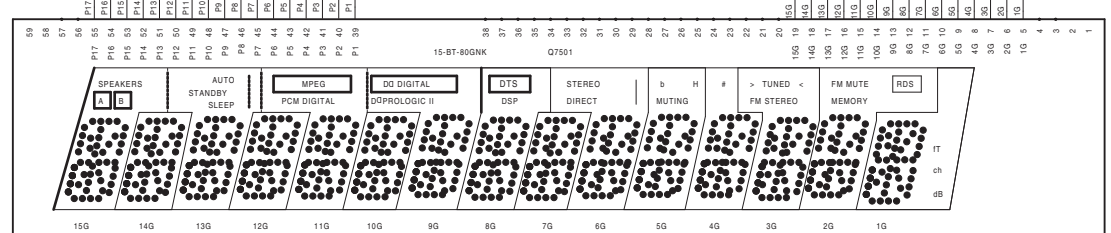
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Japanese model only

European model only

## MICROPROCESSOR TERMINAL DESCRIPTION

No.	Symbol	I/O	Act.	Description	No.	Symbol	I/O	Act.	Description
1	VCTRLA	O	H	Video control output pin A	65	ENCV2	I	EDGE	Pulse signal input pin from rotary encoder for volume
2	VCTRLB	O	H	Video control output pin B	66	ENCS1	I	EDGE	Pulse signal input pin from rotary encoder for input selector
3	~DIRPD	O	H	Power down output pin to CODEC IC AK4586.	67	ENCS2	I	EDGE	Pulse signal input pin from rotary encoder for input selector
4	~DIRCS	O	H	Chip select output pin to CODEC IC.	68	DIRINT0	I	H	Interrupt signal input pin from CODEC IC
5	DSPSCK	O	H	Serial clock output pin to CODEC IC and DSP IC CS493263.	69	RDSSIG	I	H/-	Quality check input pin for RDS signal.
6	DSPSDO	O	H	Serial data output pin to CODEC IC and DSP IC.	70	RDSDATA	I	H/-	Data input pin from RDS decoder
7	DSPSDI	I	H	Serial data input pin from CODEC IC and DSP IC.	71	HPIN	I	H	Headphone insertion detection input pin
8	~ABOOT/~INT	I/O	H	Auto boot/Interrupt request input/output pin	72	VDD4		+	Power supply pin. 5V
9	~DSRST	O	H	Reset signal output pin to DSP IC.	73	STBY	O	L	STANDBY indicator control output pin
10	~DSPCS	O	H	Chip select output pin to DSP IC.	74	DVD	O	L	DVD indicator control output pin
11	~RESET	I	L	System reset input pin	75	VIDEO1	O	L	VIDEO 1 indicator control output pin
12	XT1	I	CLK	Not used. Connect to VDD.	76	VIDEO2	O	L	VIDEO 2 indicator control output pin
13	XT2	O	CLK	Not used. Open	77	TAPE	O	L	TAPE indicator control output pin
14	VSS1		-	Ground pin	78	FM	O	L	FM indicator control output pin
15	CF1	I	CLK	Input pin to connect the ceramic resonator 10MHz.	79	AM	O	L	AM indicator control output pin
16	CF2	O	CLK	Output pin to connect the ceramic resonator 10MHz.	80	MS	O	L	CD indicator control output pin
17	VDD1		+	Power supply pin. 5V	81	~ROM/RAM	O	L/H	Not used.
18	K0	I	A/D	Operation key connection pin.	82	ADR15	O	H	Not used.
19	K1	I	A/D	Operation key connection pin.	83	ADR16	O	H	Not used.
20	MODE	I	A/D	Initializing input pin of region, model etc.	84	ADR17	O	H	Not used.
21	VMUT	O	H	Video muting control output pin	85	FRL	O	H	Front speaker relay control output pin
22	TUMUT	O	H	Tuner muting control output pin	86	CSRL	O	H	Center/surround speaker relay control pin
23	AMUT	O	H	Audio muting control output pin	87	PLED	O	H	POWER indicator control output pin
24	SYSIN	I	H	System code input pin	88	AP2	O	H	Acoustic presence control output pin
25	~SYSOUT	O	L	System code output pin	89	VSS2		-	Ground pin
26	~REMIN	I	L	Remote control signal input pin	90	VDD2		+	Power supply pin. 5V
27	~RDSSCK	I	CLK L	Clock input pin from RDS decoder.	91	AP1	O	H	ACOUSTIC PRESENCE indicator control output pin
28	~POFF	I	L	Power failure detection input pin	92	FSWSLT	O	H	Serial latch output pin to function switch ICs
29	POWER	O	H	Power source control output pin	93	FSWSCK	O	CLK	Serial clock output pin to function switch ICs
30-44	1G-15G	O	H	Grid output pins	94	FSWSDO	O	H	Serial data output pin to function switch ICs
45	P17	O	H	Segment output pin 17	95	VOLSLT	O	H	Serial latch output pin to electric volume IC
46	VDD3		+	Power supply pin. 5V	96	SCK	O	CLK	Serial clock output pin to electric volume IC and PLL IC
47-50	P16-P13	O	H	Segment output pins	97	SDO	O	H	Serial data output pin to electric volume IC and PLL IC
51	VP		-	FIP controller power supply pin	98	PLLCE	O	H	Chip enable output pin to PLL IC
52-63	P12-P1	O	H	Segment output pins	99	~SD	I	L	Broadcast detection input pin
64	ENCV1	I	EDGE	Pulse signal input pin from rotary encoder for volume	100	~STEREO	I	L	Stereo broadcast detection input pin

<b>REF. NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
71	29091997A	Pad
72	29100141A	700*600,Polybag
73	29110098	PP tape
74	282301	Staple
75	29095909	Sheet, accessaory
76	29053771A	Carton box <D>
	29053772A	Carton box <P>
	29053791A	Carton boax <A/DT/GT>
	29053792	Carton box <GR>
77	29362911A	Label UPC <D>
	29362912A	Label EAN <A/DT/GT/R>
	29362913A	Label EAN <P>
81	29100097-1A	350*250,Polybag
82	29365090	Warranty card <D>
83	29343138	Instruction manual E
84	29343140	Instruction manual FSI <P>
85	29343141	Instruction manual GDSw <P>
86	29343142	Instruction manual CTCS <DT/GT/R>
87	24140453	RC-453S<remote controller
88	3010054	UM-3, Two batteries
89	232140	NMA-3057, AM loop antenna
90	292142	FM antenna <D>
	292115	FM antenna <P/DT/GT/A/R>
91	25065462	YAE21-0237, FM antenna adaptor <DT/GT/A/R>

A

B

C

D

# PC BOARD VIEW

**U11**

**MAIN CIRCUIT PC BOARD**

**PARTS SIDE A  
PCB SIDE A**

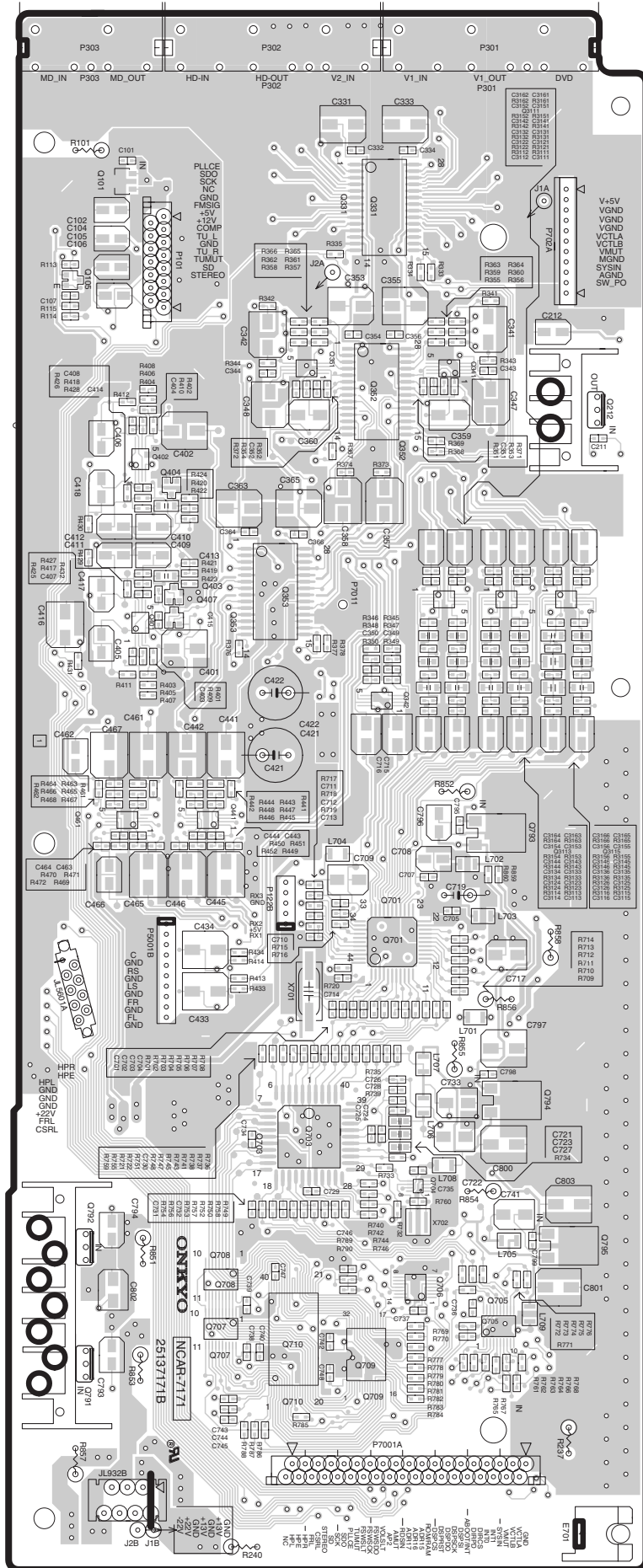
1

2

3

4

5







A

B

C

D

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 2-1

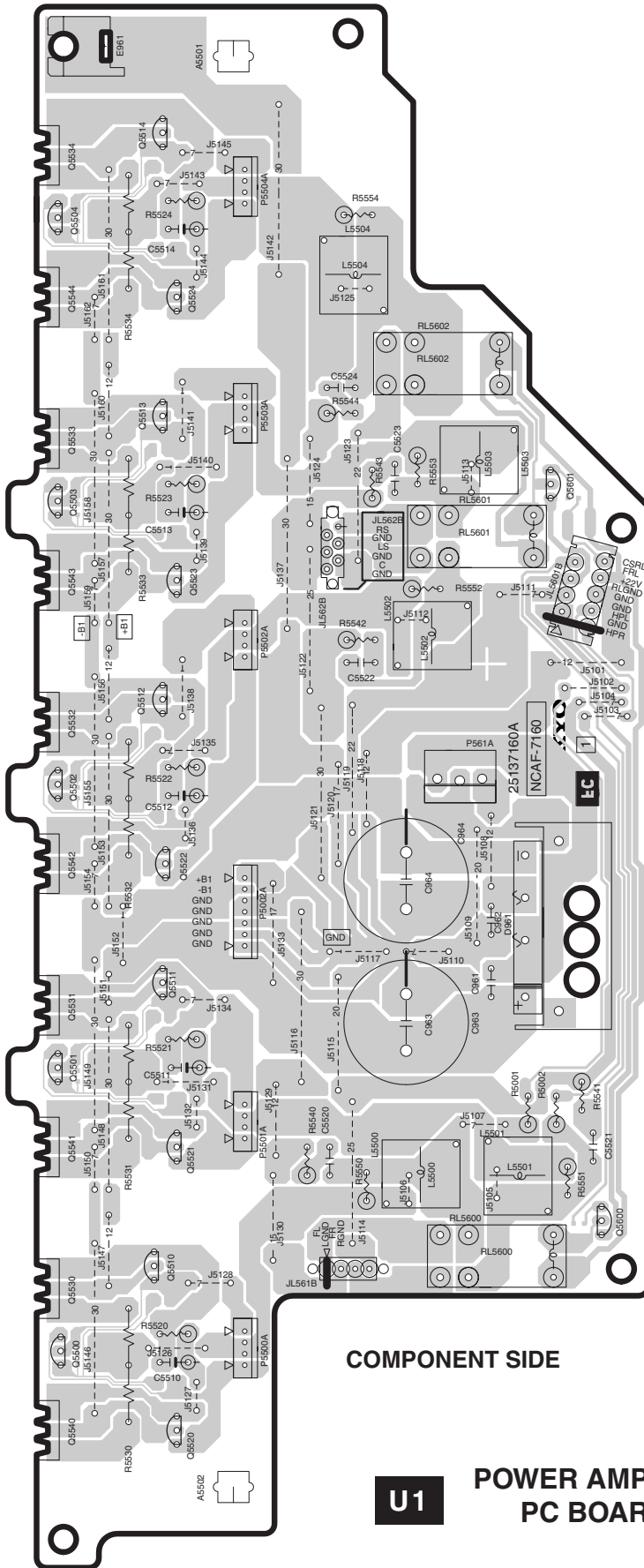
1

2

3

4

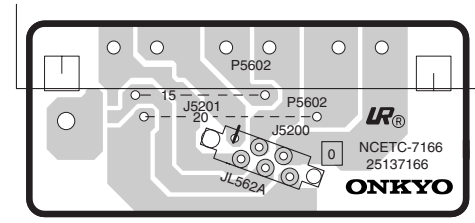
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COMPONENT SIDE

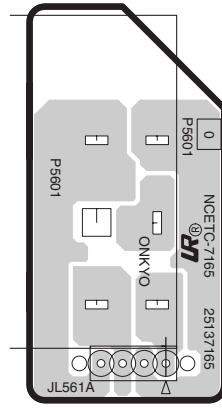
U1

POWER AMPLIFIER PC BOARD



U7

COMPONENT SIDE SURROUND SPEAKER TERMINAL PC BOARD



U6

COMPONENT SIDE FRONT SPEAKER TERMINAL PC BOARD



A

B

C

D

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 2-2

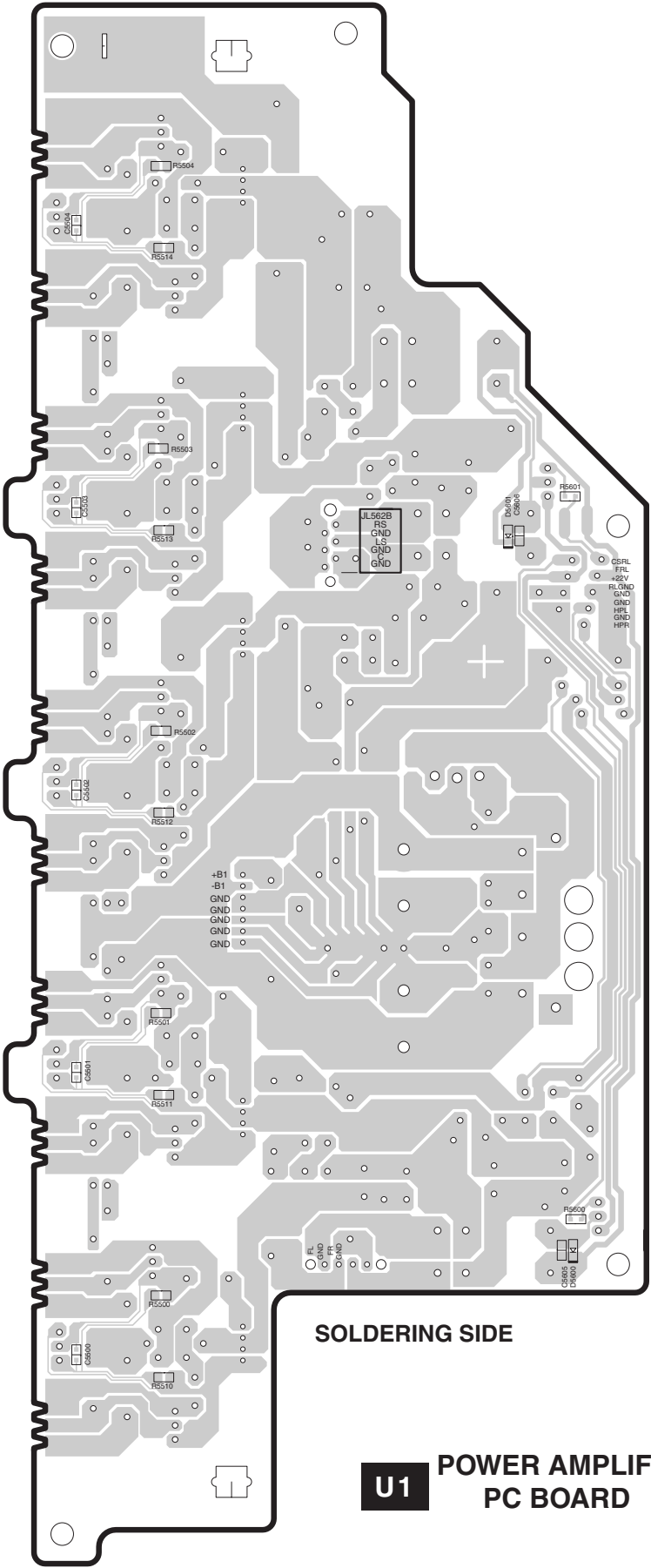
1

2

3

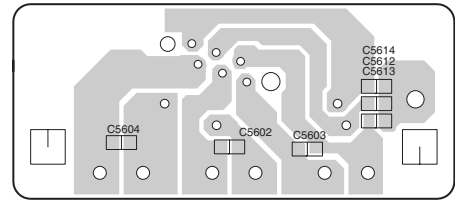
4

5

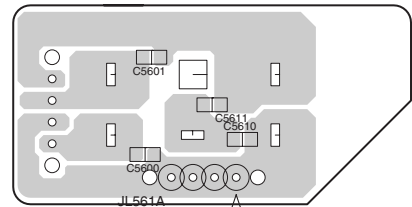


SOLDERING SIDE

**U1** POWER AMPLIFIER PC BOARD



**U7** SOLDERING SIDE SURROUND SPEAKER TERMINAL PC BOARD



**U6** SOLDERING SIDE FRONT SPEAKER TERMINAL PC BOARD

**A B C D**

**PC BOARD VIEW 2-3  
FROM SOLDERING  
SIDE**

1

2

3

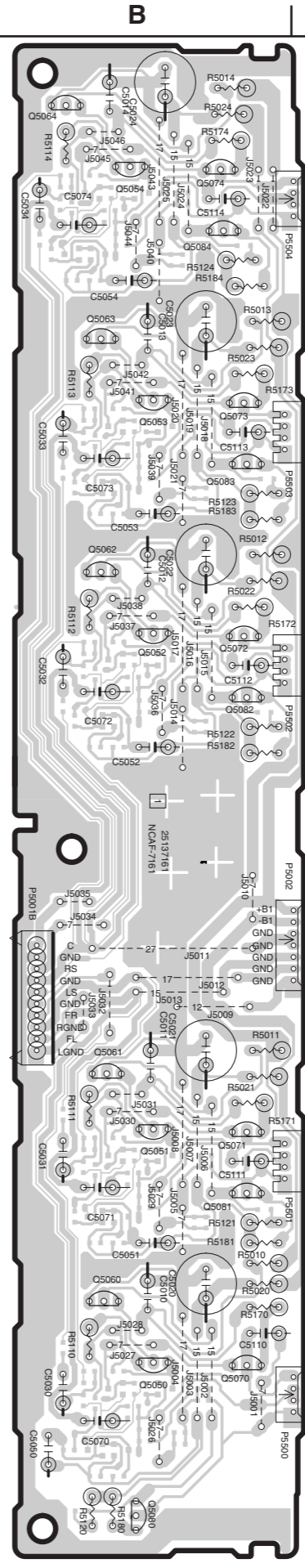
4

5

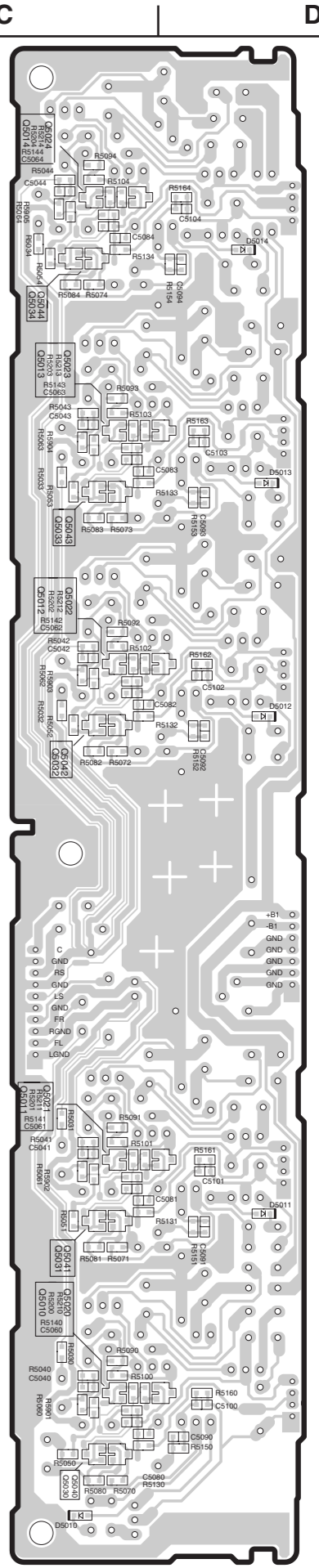
**U2**

**DRIVER CIRCUIT  
PC BOARD**

**COMPONENT SIDE**



**SOLDERING  
SIDE**



PRINTED CIRCUIT BOARD VIEW 3-3

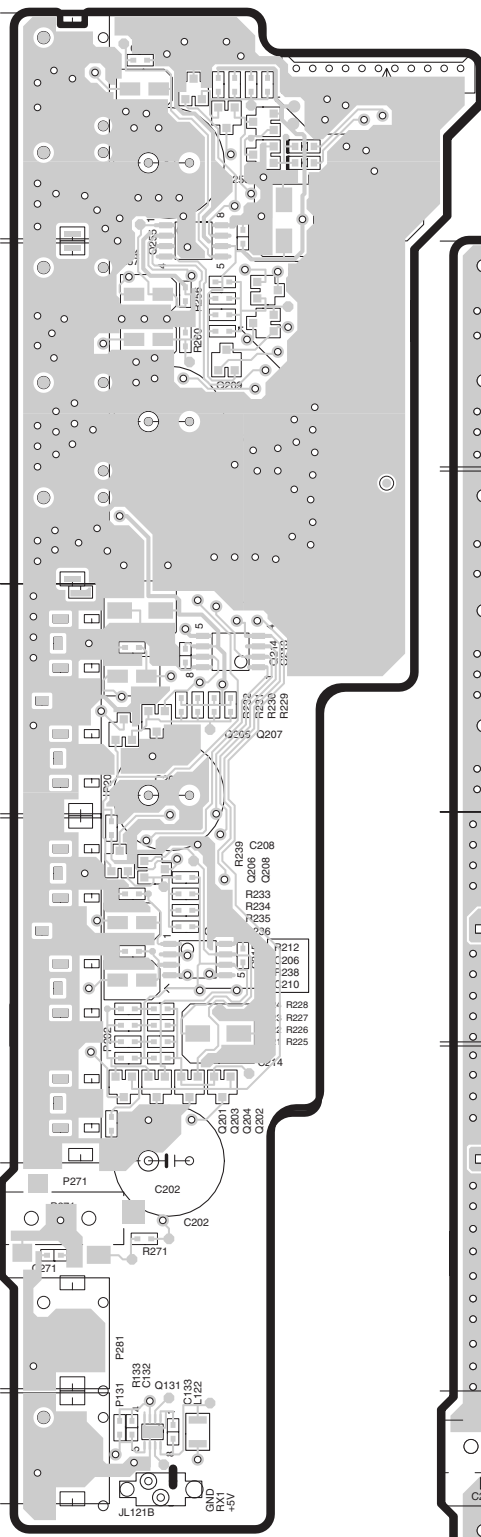
1

2

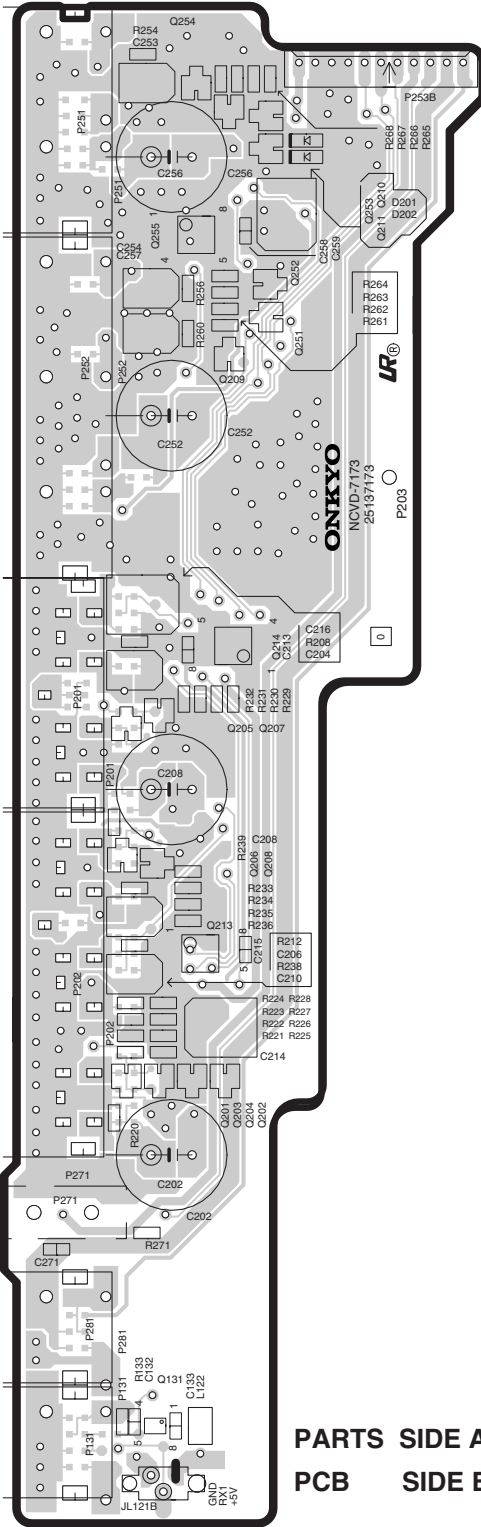
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4

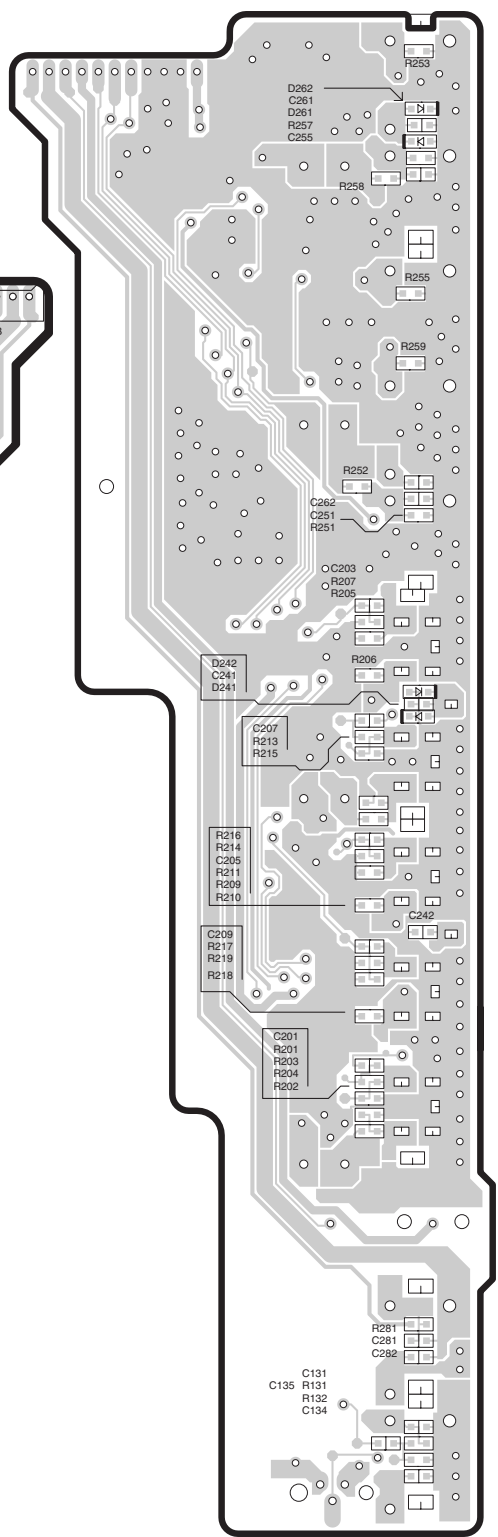
5



PARTS SIDE A  
PCB SIDE A



PARTS SIDE A  
PCB SIDE B



PARTS SIDE B  
PCB SIDE B

**U13** VIDEO TERMINAL  
PC BOARD

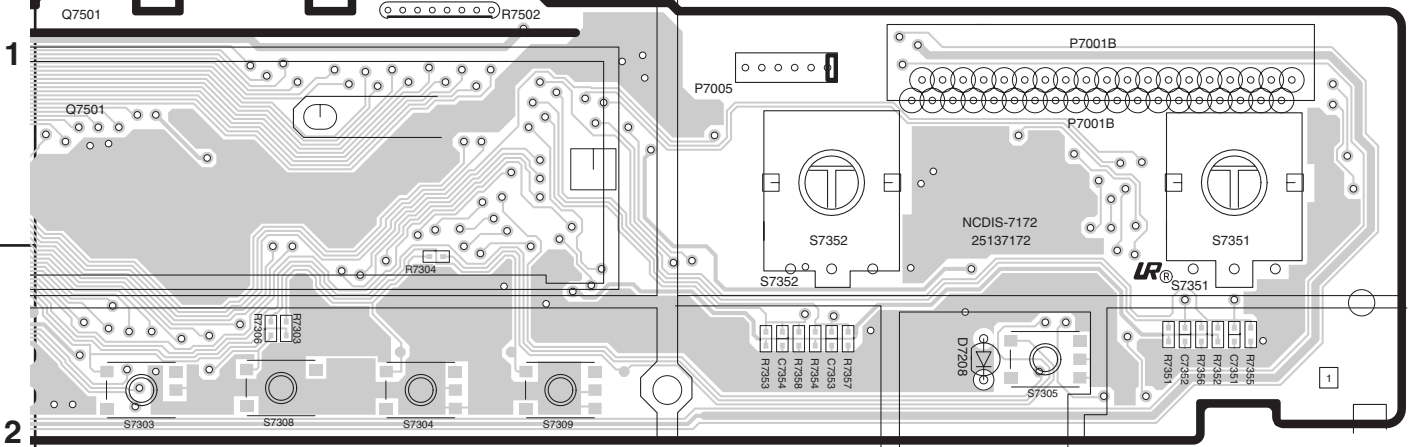
A

B

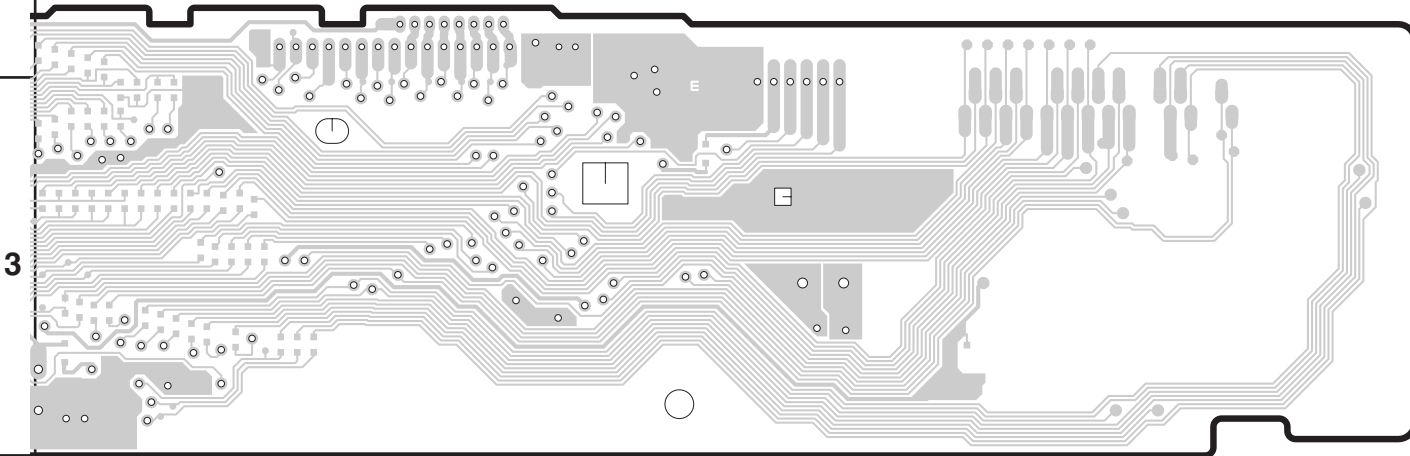
C

D

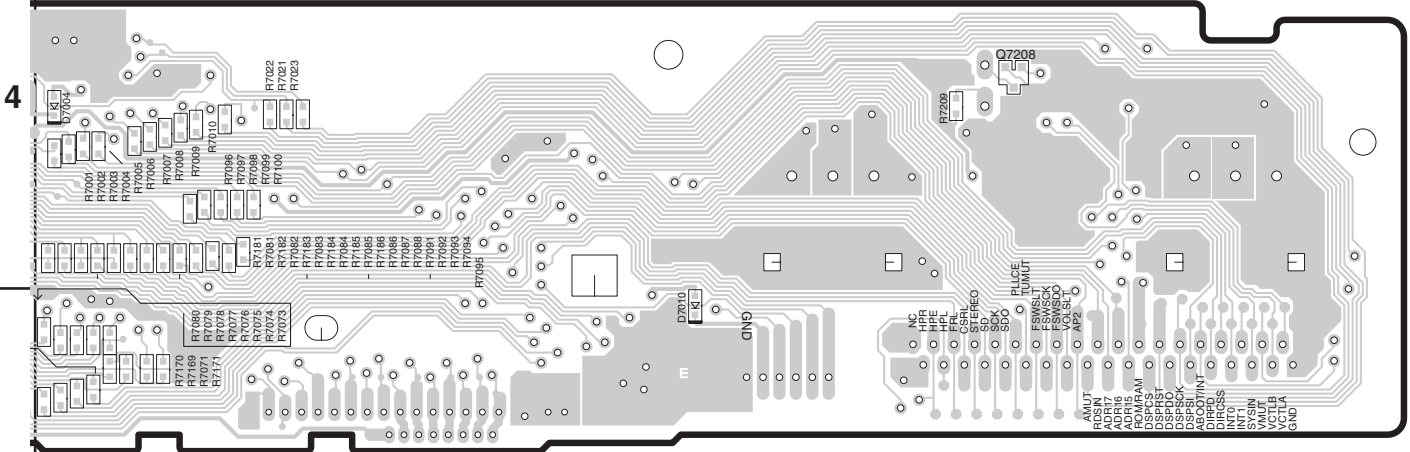
# PRINTED CIRCUIT BOARD VIEW 4-2



PARTS SIDE A PCB SIDE A



PARTS SIDE A PCB SIDE B



PARTS SIDE B PCB SIDE B

A

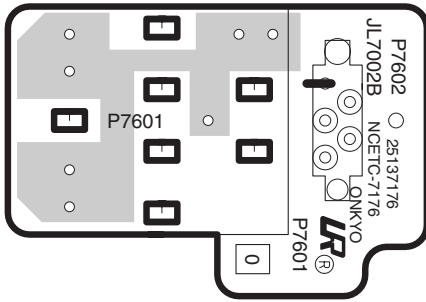
B

C

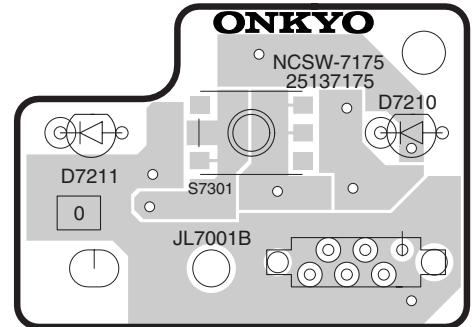
D

PRINTED CIRCUIT BOARD VIEW 4-3

1



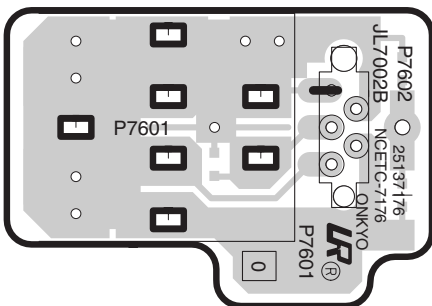
PARTS SIDE A PCB SIDE A



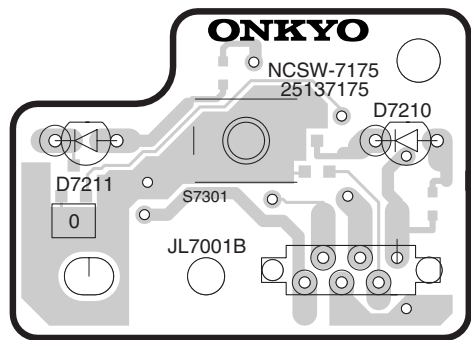
PARTS SIDE A PCB SIDE A

2

3

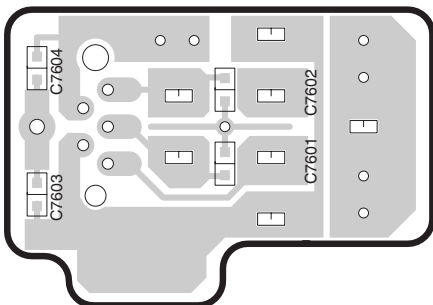


PARTS SIDE A PCB SIDE B

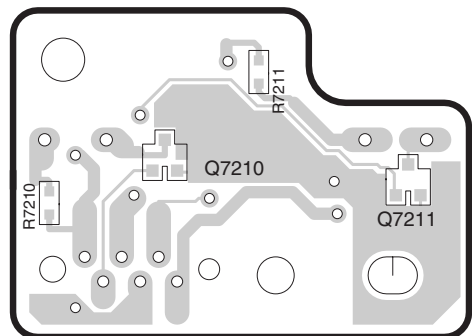


PARTS SIDE A PCB SIDE B

4



PARTS SIDE B PCB SIDE B



PARTS SIDE B PCB SIDE B

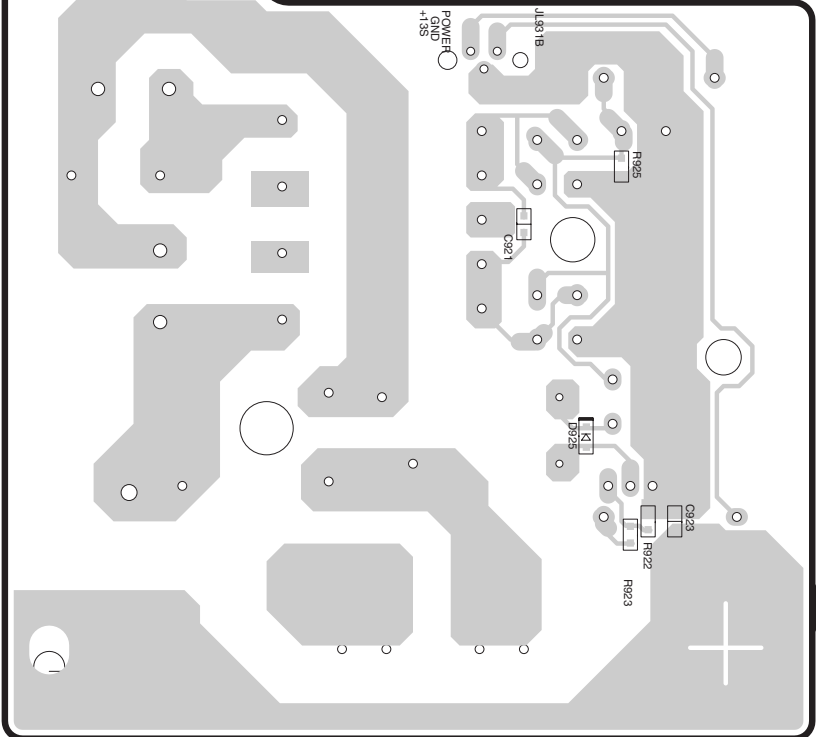
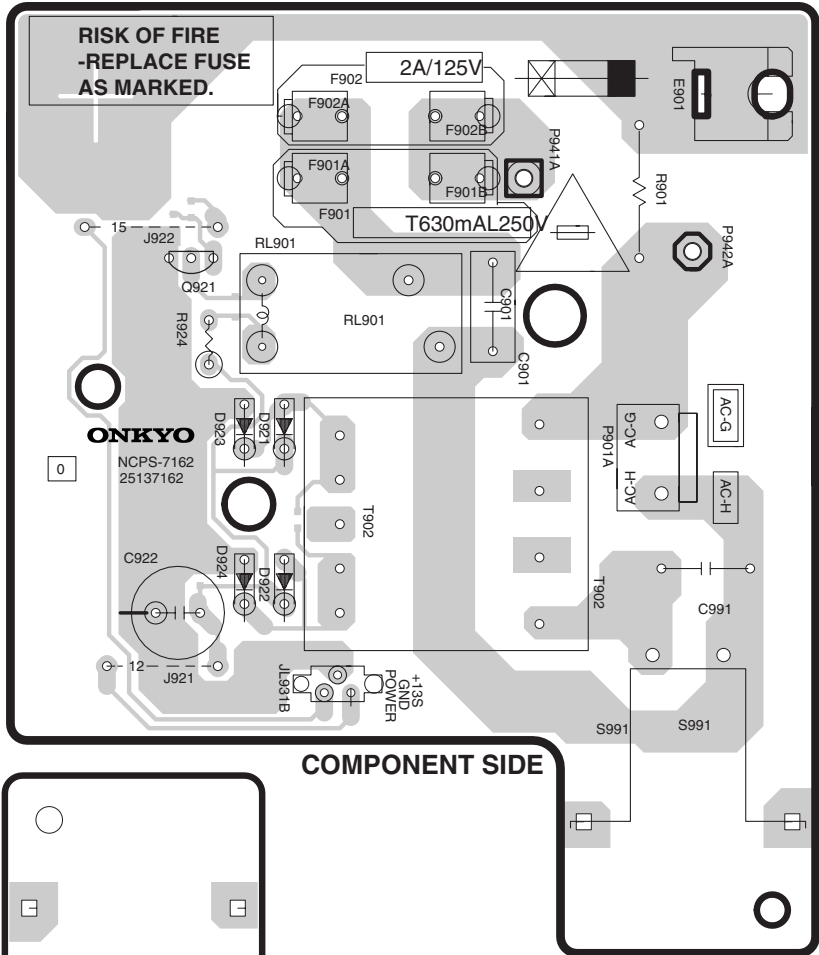
5

U16 HEADPHONE PC BOARD

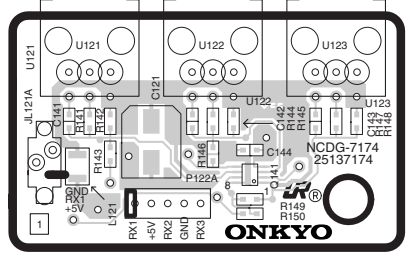
U14 STANDBY SWITCH PC BOARD

PRINTED CIRCUIT BOARD VIEW 3-1

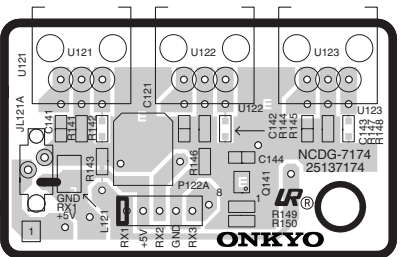
1  
2  
3  
4  
5



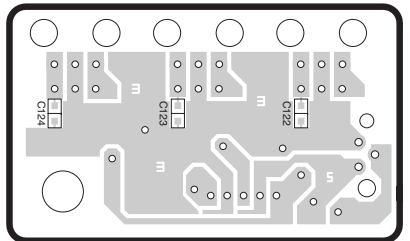
**U3** PRIMARY CIRUCIT PC BOARD SOLDERING SIDE



**PARTS SIDE A  
PCB SIDE A**



**PARTS SIDE A  
PCB SIDE B**



**PARTS SIDE B  
PCB SIDE B**

**U14** OPTICAL INPUT TERMINAL PC BOARD

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