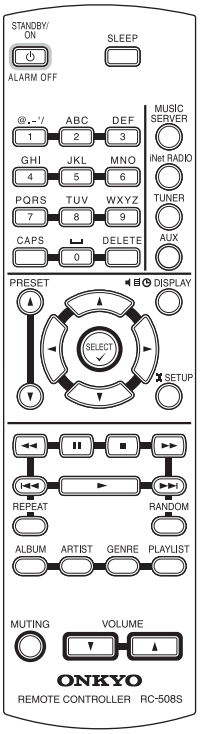
Ref. No. 3751
112002

ONKYO SERVICE MANUAL

Audio Network Receiver
MODEL NC-500



Silver model only

TUDD	120V AC, 60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

Restoring the factory default settings:
To reset all the stored settings to the factory default conditions, while the power to the NC-500 is on, press and hold down the STOP button on the unit, and press STANDBY/ON button.

ONKYO®
IMAGINATIVE SIGHT & SOUND

Specifications

Amplifier Section

Power output

FTC **15 watts per channel, min RMS, at 8 ohms, both channels driven 1 kHz, with no more than 0.1%**

DIN 2 × 17 watts at 6 Ω, 1 kHz
2 × 15 watts at 8 Ω, 1 kHz

Dynamic power output

2 × 27 watts at 6 Ω
2 × 24 watts at 8 Ω

Total harmonic distortion

0.1% at rated power

IM distortion

0.6% at rated power

Damping factor

30 at 8 Ω

Input Sensitivity and Impedance

TAPE/MD PLAY: 150 mV, 50 kΩ
LINE IN: 150 mV, 50 kΩ

Frequency and response

10 to 50,000 Hz +0 /–3 dB

Signal to noise ratio

100 dB (IHF-A)

Muting

–60 dB

Tuner Section

Tuning range

FM: 87.50–108.00 MHz (100 kHz steps)
(U.S. & Canadian models)
87.5–108.00 MHz (50 kHz steps)
(Other area models)
AM: 530–1710 kHz (10 kHz steps)
(U.S. & Canadian models)
522–1611 kHz (9 kHz steps)
(Other area models)

Usable sensitivity

FM: Mono 11.2 dBf,
1.0 µV (75 Ω IHF)
0.9 µV (75 Ω DIN)
Stereo 17.2 dBf,
2.0 µV (75 Ω IHF)
23.0 µV (75 Ω DIN)
AM: 30 µV

50 dB Quieting sensitivity

FM: Mono 17.2 dBf, 2.0 µV (75 Ω)
Stereo 37.2 dBf, 20.0 µV (75 Ω)

Capture ratio

FM: 2.0 dB

Image rejection ratio

FM: 40 dB (U.S. & Canadian models)
85 dB (Other area models)
AM: 40 dB

IF rejection ratio

FM: 90 dB
AM: 40 dB

Signal to noise ratio

FM: Mono 73 dB, IHF
Stereo 67 dB, IHF
AM: 40 dB

Selectivity

FM: 50 dB DIN
(±300 kHz at 40 kHz Devi.)

AM Suppression Ratio

50 dB

Harmonic distortion

FM: Mono 0.2%
Stereo 0.3%
AM: 0.7 %

Frequency response

FM: 30–15,000 Hz (±1.5 dB)

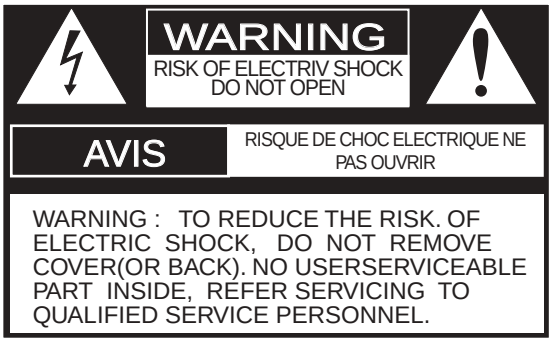
Stereo separation

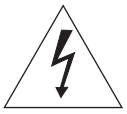
FM: 45 dB at 1,000 Hz
30 dB at 100 to 10,000 Hz

Stereo threshold

FM: 17.2 dBf, 2.0 µV (75 Ω)

OPERATING INSTRUCTIONS
SAFETY PRECAUTIONS





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING : TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION : TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION : POUR EVITER LES CHOCS ELECTRIQUE, INTRODUIRE LA LAME LA PLUS LARGE DA LA FICHE DANS LA BORNE CORRESPONDANTE DA LA PRISE ET POUSSER JUSQU' AU FOND.

PRECAUTIONS

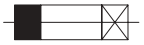
1. Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

CIRCUIT No.	PART No.	DESCRIPTION
F911 <UD>	252166	6.3A-UL/T-237

CAUTION

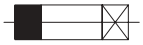
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH FUSE OF SAME TYPE AND RATING INDICATED.



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 MARKING ADJACENT TO THE SYMBOL

ATTENTION

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



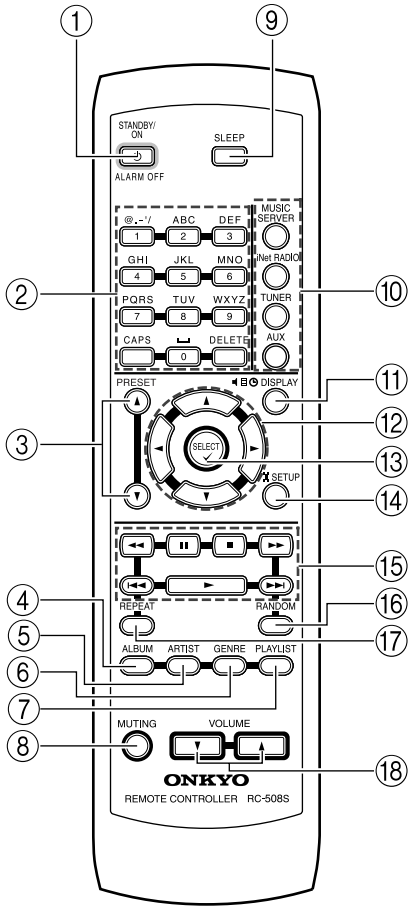
CE SYMBOLE INDIQUE QUE LE FUSIBLE UTLISE EST E LENT. POUR UNE PROTECTION PERMANENTE,N'UTILISER QUE DES FUSIBLES DE MEME TYPE. CE DARNIER EST INDIQUE LA QU LE PRESENT SYMBOL EST APPOSE.

2. 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: 3.3Mohm+/-10% at 500V.

Remote Controller



① **STANDBY/ON button**

Turns on the NC-500 or place it in standby mode. When the NC-500 is in standby mode, you can use this button to turn off the alarm.

② **Numeric keys**

Press to select one of the preset stations or the track you want to play. When entering text, you use these buttons to type in letters and special characters.

③ **PRESET Up/Down buttons**

Press to navigate through preset stations for Internet radio or FM/AM radio.

④ **ALBUM button**

Press to invoke the Album selection menu when working with the Net-Tune Central.

⑤ **ARTIST button**

Press to invoke the Artist selection menu when working with the Net-Tune Central.

⑥ **GENRE button**

Press to invoke the Genre selection menu when working with the Net-Tune Central.

⑦ **PLAYLIST button**

Press to invoke the Playlist selection menu when working with the Net-Tune Central.

⑧ **MUTING button**

Press to activate the mute function. Press the button again to disable the mute function.

⑨ **SLEEP button**

Press to set the sleep function.

⑩ **MUSIC SERVER/iNetRADIO/TUNER/ AUX buttons**

Press to select an input source. The TUNER button toggles between FM and AM.

⑪ **DISPLAY button**

Press to change the display mode.

Index parts and facilities

⑫ **Cursor ▲/▼/◄/► buttons**

Press to locate your selection.

⑬ **SELECT button**

Press to save a new setting.

⑭ **SETUP button**

Press to set up the NC-500.

⑮ **Operation buttons**

◄◄, ►► (FR/FF) buttons
Press to fast-rewind or fast-forward the current track.

❚❚ (Pause) button
Press to pause the playback.

► (Play) button
Press to start playback.

■ (Stop) button
Press to stop the playback.

I◄◄, ►►I B/F-Skip buttons
Press to move to the previous or next track.

⑯ **RANDOM button**

Press to play the selected track list at random.

⑰ **REPEAT button**

Press to repeat the selected single track or track list.

⑱ **VOLUME ▲/▼ buttons**

Press to adjust the volume.

Changing the remote controller mode

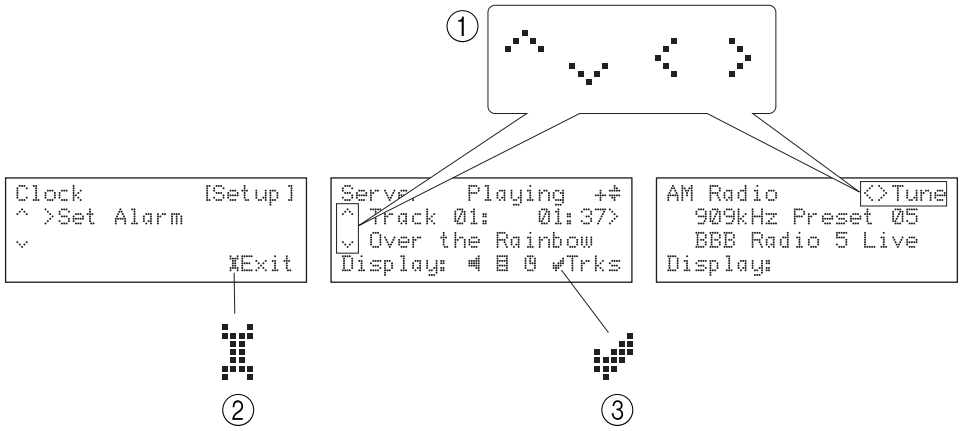
When you use any Onkyo products other than the NC-500 in the same room, the operations made with the NC-500's remote controller may also cause the other Onkyo products to operate. To avoid this, you can change the remote controller mode both for the NC-500 and its remote controller choosing from three modes (1, 2 or 3).

To change the remote controller mode for the remote controller, hold the STANDBY button on the remote controller and press the SELECT button, then release these buttons simultaneously. Within 5 seconds after releasing the buttons, enter the appropriate mode (1, 2 or 3) using the numeric keys. The default mode is 1 for both the remote controller and NC-500.

After changing the remote controller mode, make sure that the remote control code on the NC-500 is set to the same mode as the remote controller. (see Page 63)

Index parts and facilities

(2) Operation guide icons



① **Up Arrow/ /Down Arrow/Left Arrow/Right Arrow**

These icons are displayed to indicate that the corresponding cursor buttons are enabled to perform specific actions.
Example: "< >Tune" indicates that you can use the Cursor Left and Right buttons to perform tuning when the FM/AM radio feature is selected.

② **Setup**

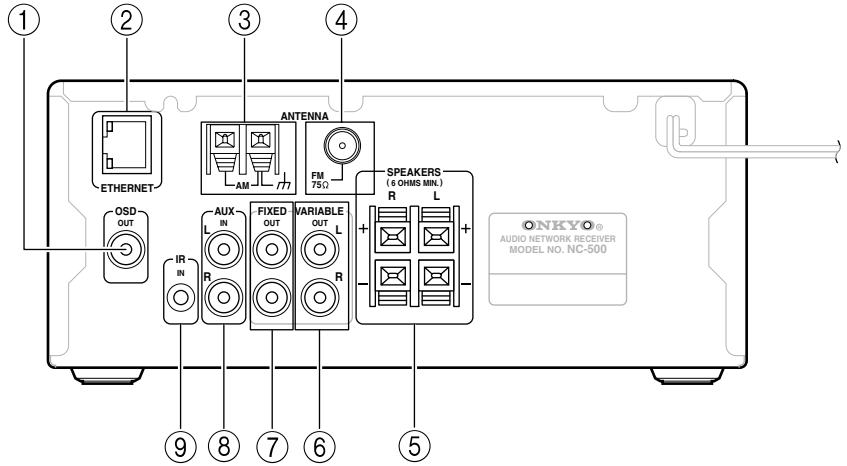
This icon is immediately followed by the command you can execute by pressing the SETUP button.
Example: When the Setup icon is immediately followed by "EXIT", you can press the SETUP button to exit from the current menu.

③ **Select**

This icon is immediately followed by the command you can execute by pressing the SELECT button.

Index parts and facilities

Rear Panel



① **OSD OUT**

This port can be used to redirect screen output from the front panel display to a television screen for quick and easy large-screen viewing.

② **ETHERNET**

This port connects to a broadband mode, router, hub, etc.

③ **AM**

This port connects to the AM radio antenna.

④ **FM**

This port connects to the FM radio antenna.

⑤ **SPEAKERS**

The terminals connect to the speakers.

⑥ **VARIABLE OUTPUT**

This port connects to an amplifier without volume control.

⑦ **FIXED OUT**

This port connects to the input port of a receiver with volume control.

⑧ **AUX**

This port connects to an auxiliary device.

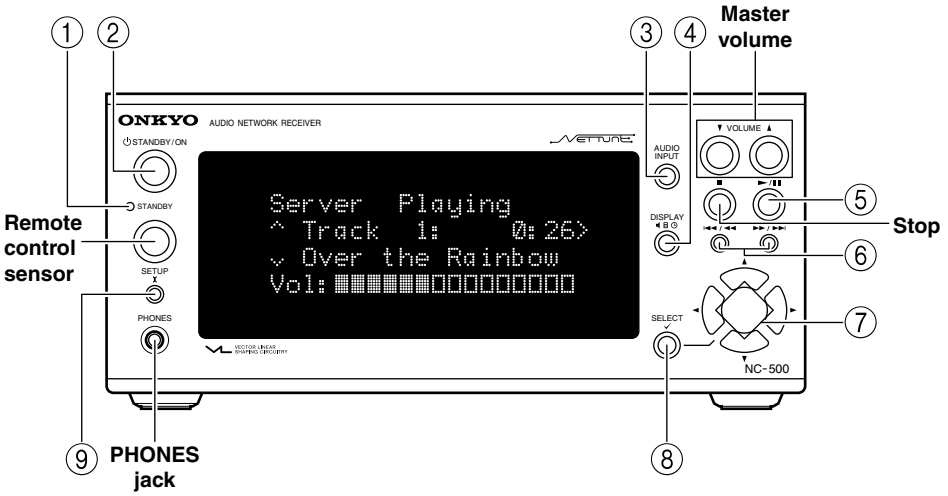
⑨ **IR IN**

If the NC-500 is located inside a rack or a cabinet that will not allow infrared beams to reach its IR sensor, you will need to relay beams with an external sensor.
Connect the external sensor to IR IN input. Then, place the sensor in an unblocked location at which you can easily point with the remote controller.

NC-500

Index parts and facilities

Front Panel



① **STANDBY indicator**

Lights when the NC-500 is in the Standby mode.

② **STANDBY/ON button**

Switches the power mode between Standby and On.

③ **AUDIO INPUT button**

Changes the playback source.

④ **DISPLAY button**

Changes the screen content.

⑤ **Play/Pause button**

Starts or pauses playback.

⑥ **F/B-Skip buttons**

Moves to the previous or next track. Holding down the either button fast-forwards or fast-rewinds the current track.

⑦ **Cursor Up/Down/Right/Left buttons**

Use these buttons when navigating through various settings, change a value, or move to another menu.

⑧ **SELECT button**

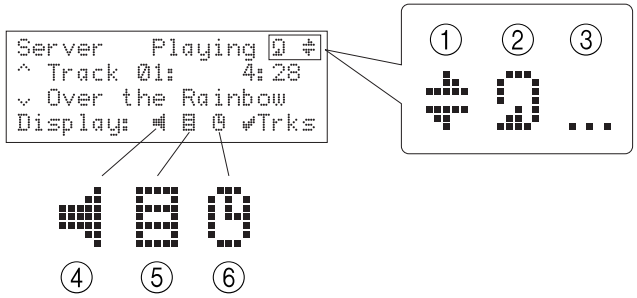
Saves a new setting.

⑨ **SETUP button**

Activates Setup/Menu mode.

Display

(1) Status display icons



① **Random**

This icon is displayed to indicate that the NC-500 is in random playback mode.

② **Repeat**

This icon is displayed to indicate that the NC-500 is in repeat mode.

③ **Ellipsis**

Indicates that the text continues.

④ **Status**

This icon is enclosed in square brackets to indicate that the NC-500 is in normal mode.

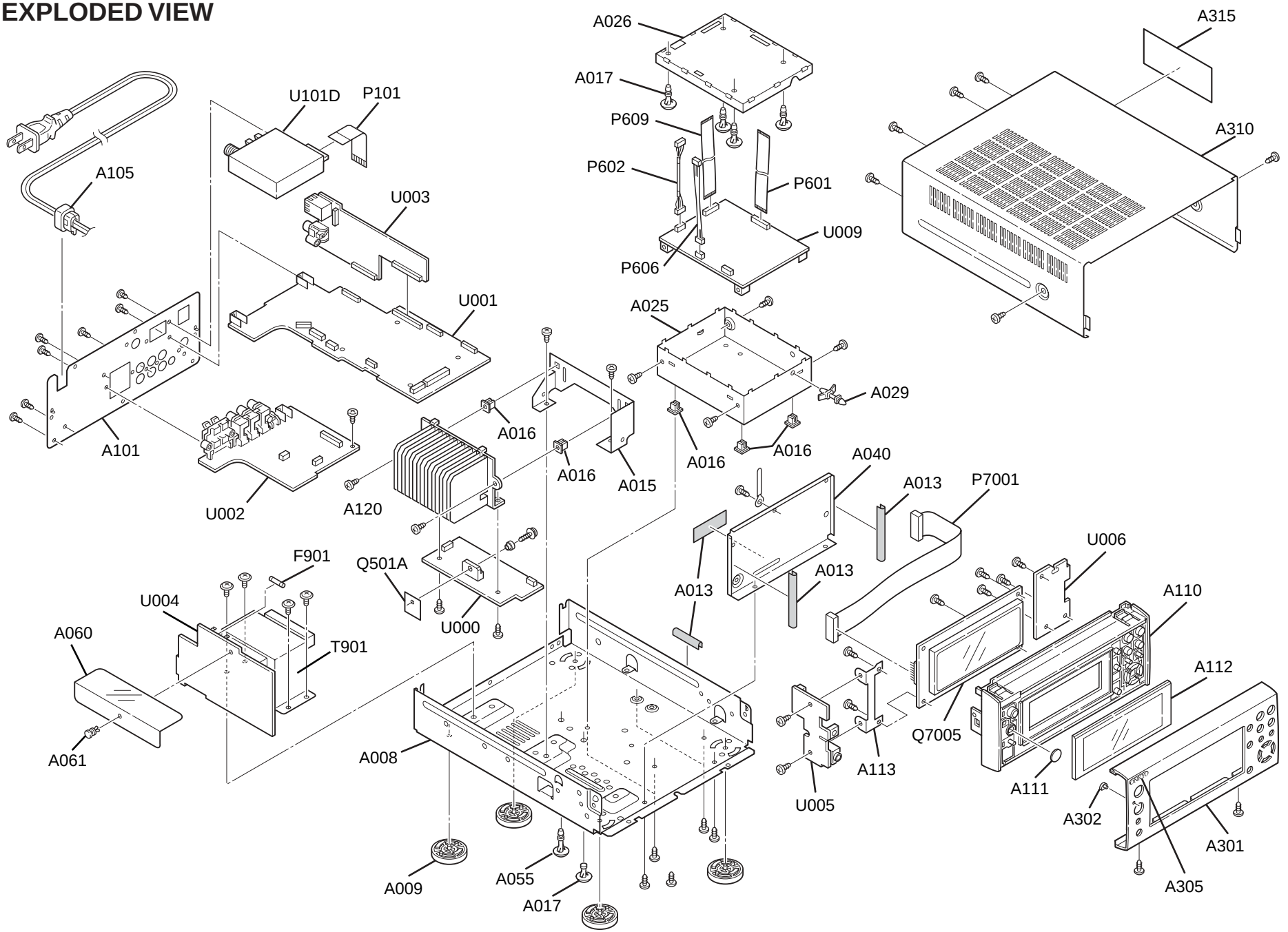
⑤ **Browse**

This icon is enclosed in square brackets to indicate that the NC-500 is in browse (title selection) mode.

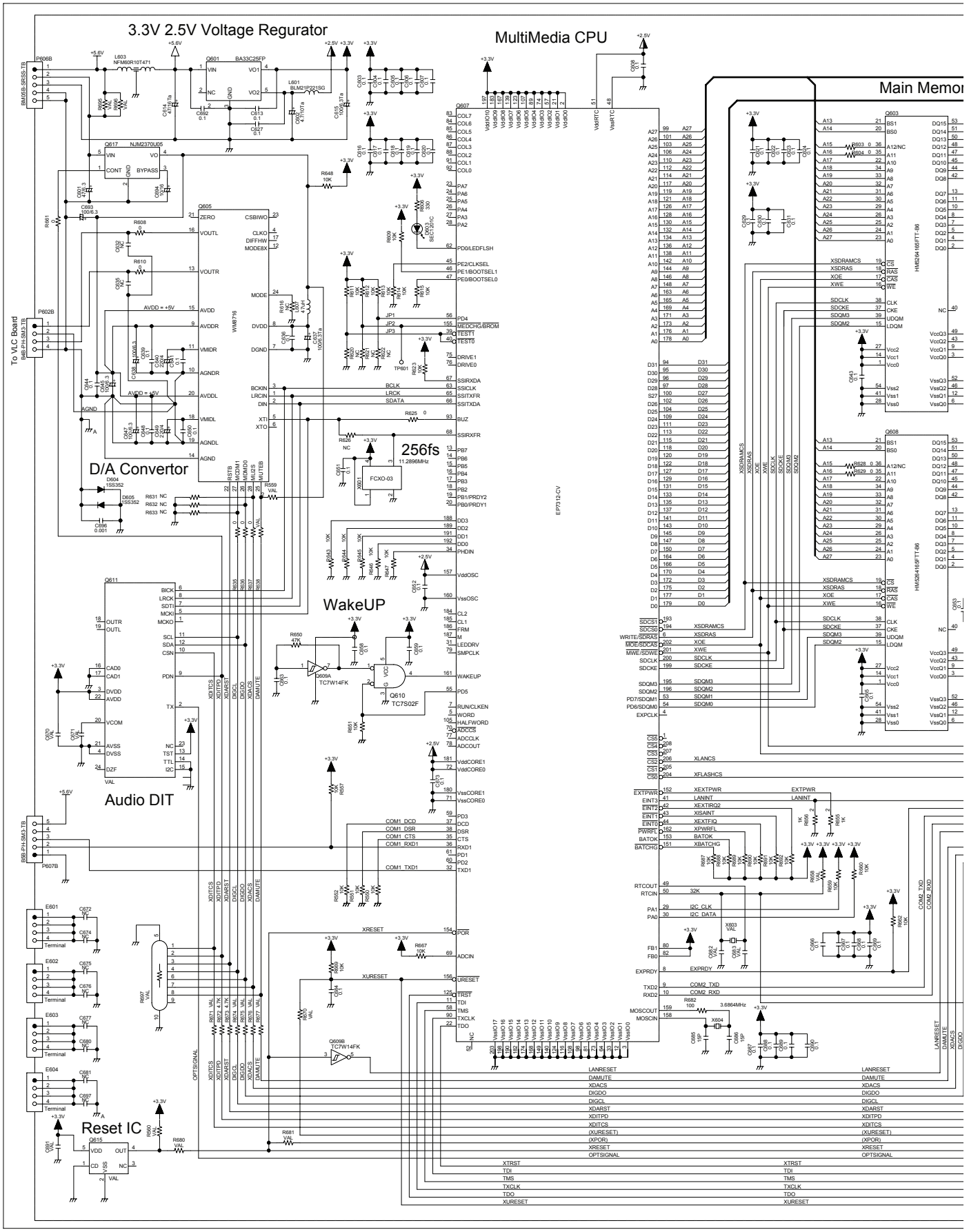
⑥ **Clock**

This icon is enclosed in square brackets to indicate that the NC-500 is in clock display mode.

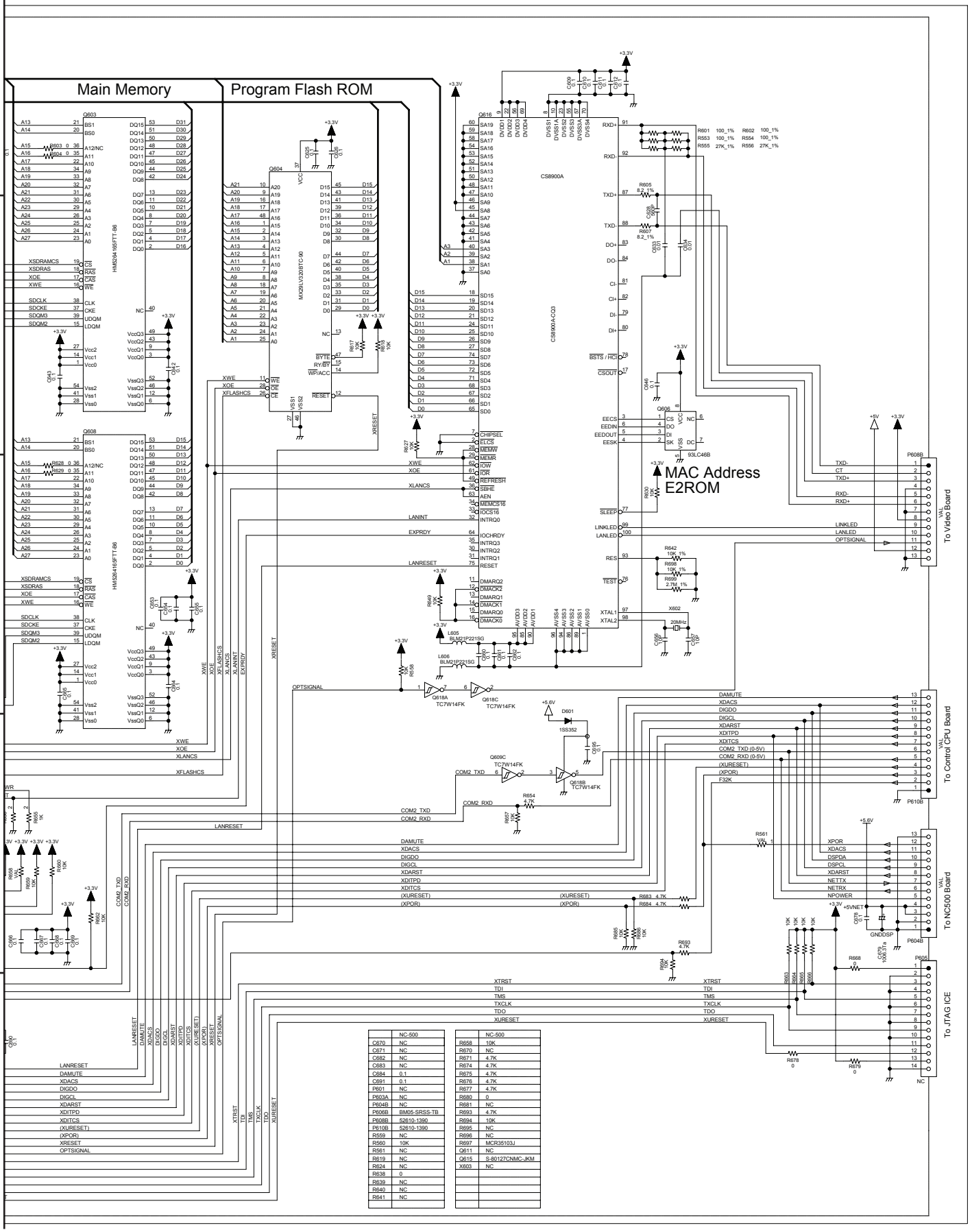
EXPLODED VIEW



SCHEMATIC DIAGRAMS
Network Circuit Section - 1/2



SCHEMATIC DIAGRAMS
Network Circuit Section - 2/2

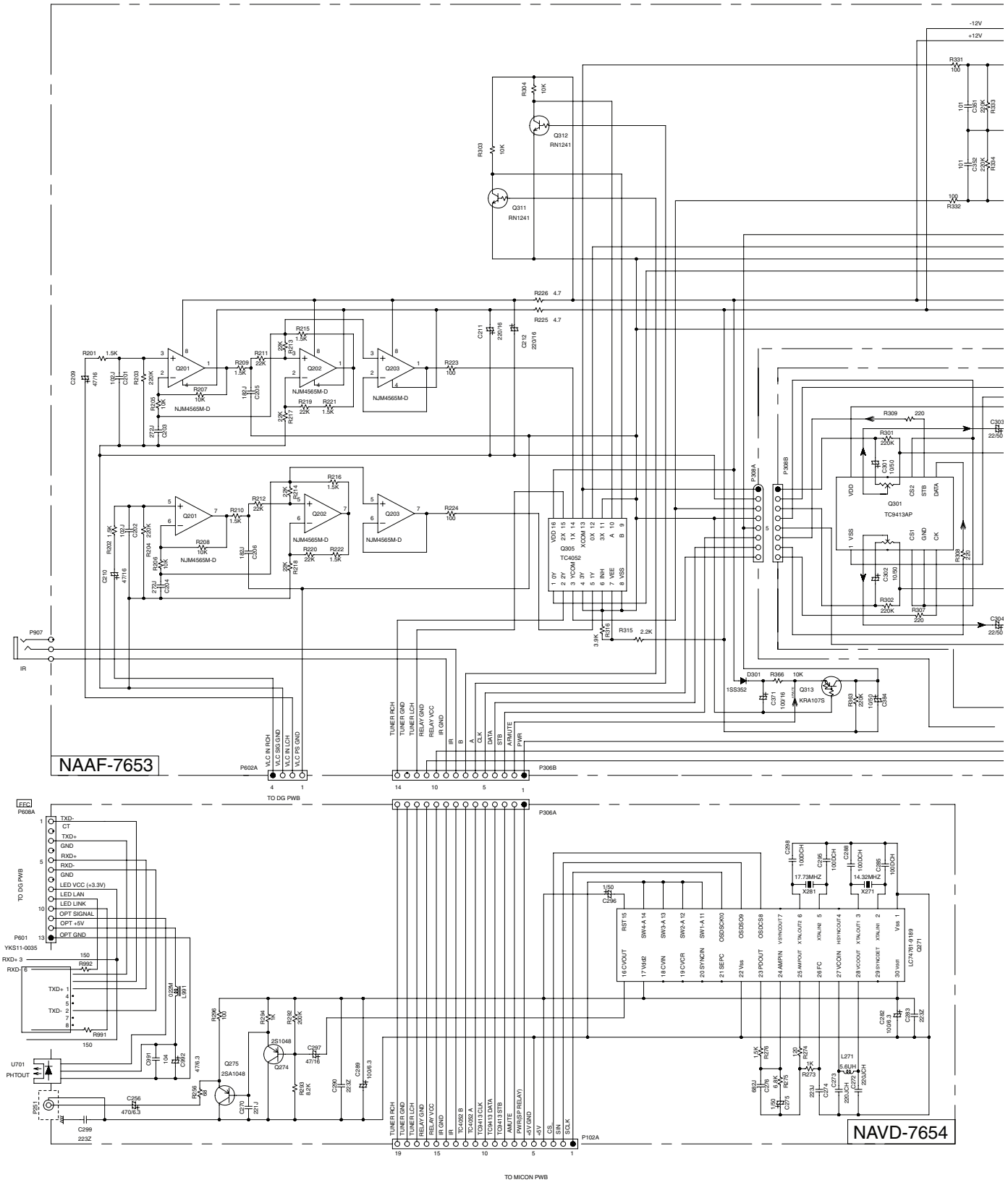


	NC-500
C670	NC
C671	NC
C682	NC
C683	NC
C684	0.1
C691	0.1
D601	NC
P603A	NC
P604B	NC
P606B	BM05-SRSS-TB
P608B	52610-1390
P610B	52610-1390
R559	NC
R560	10K
R561	NC
R619	NC
R624	NC
R638	0
R639	NC
R640	NC
R641	NC

	NC-500
R658	10K
R670	NC
R671	4.7K
R674	4.7K
R675	4.7K
R676	4.7K
R677	4.7K
R680	0
R681	NC
R693	4.7K
R694	10K
R695	NC
R696	NC
R697	MCR35103J
Q611	NC
Q615	S-80127CNMC-JKM
X603	NC

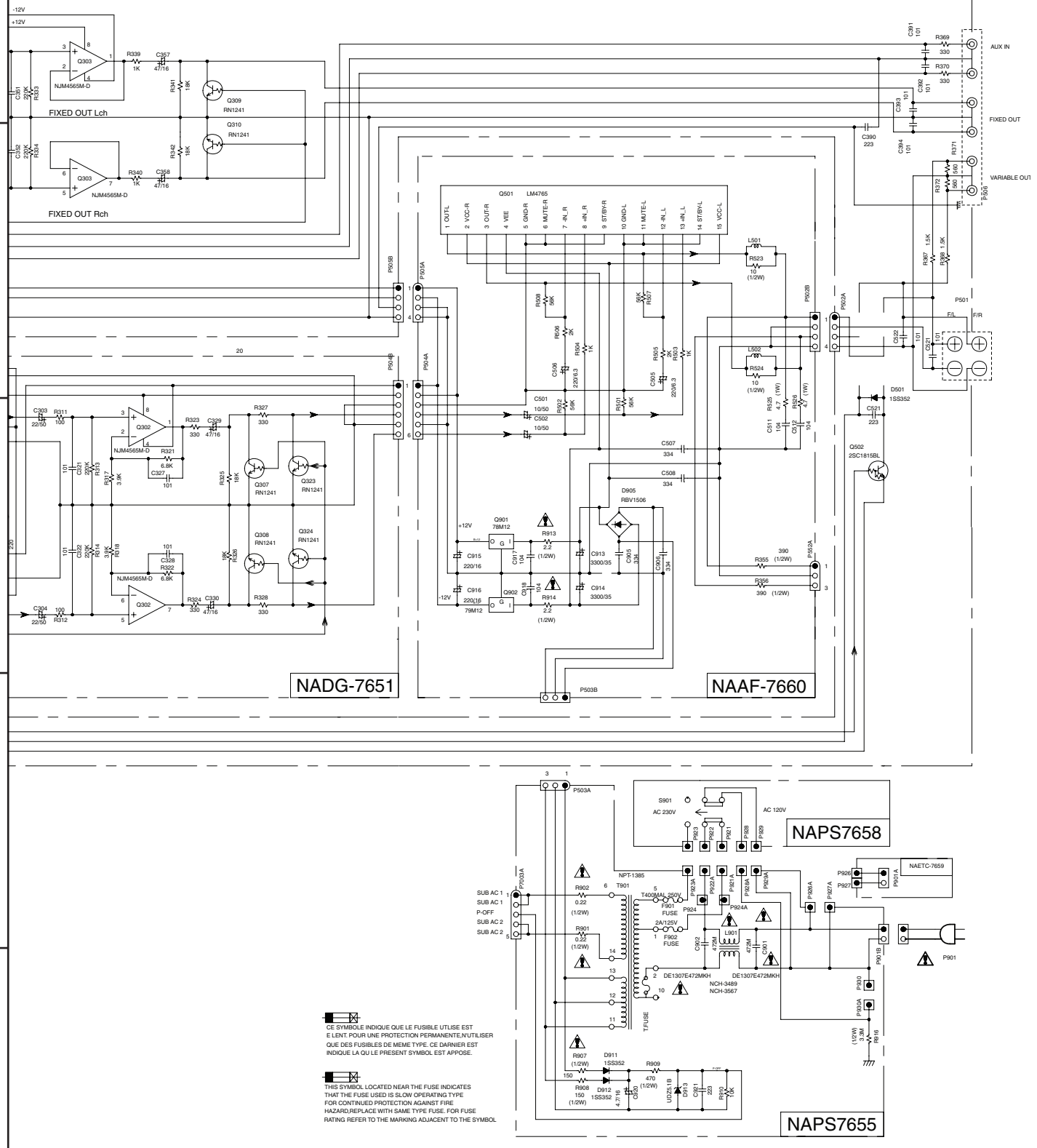
A B C D

SCHEMATIC DIAGRAM - 1

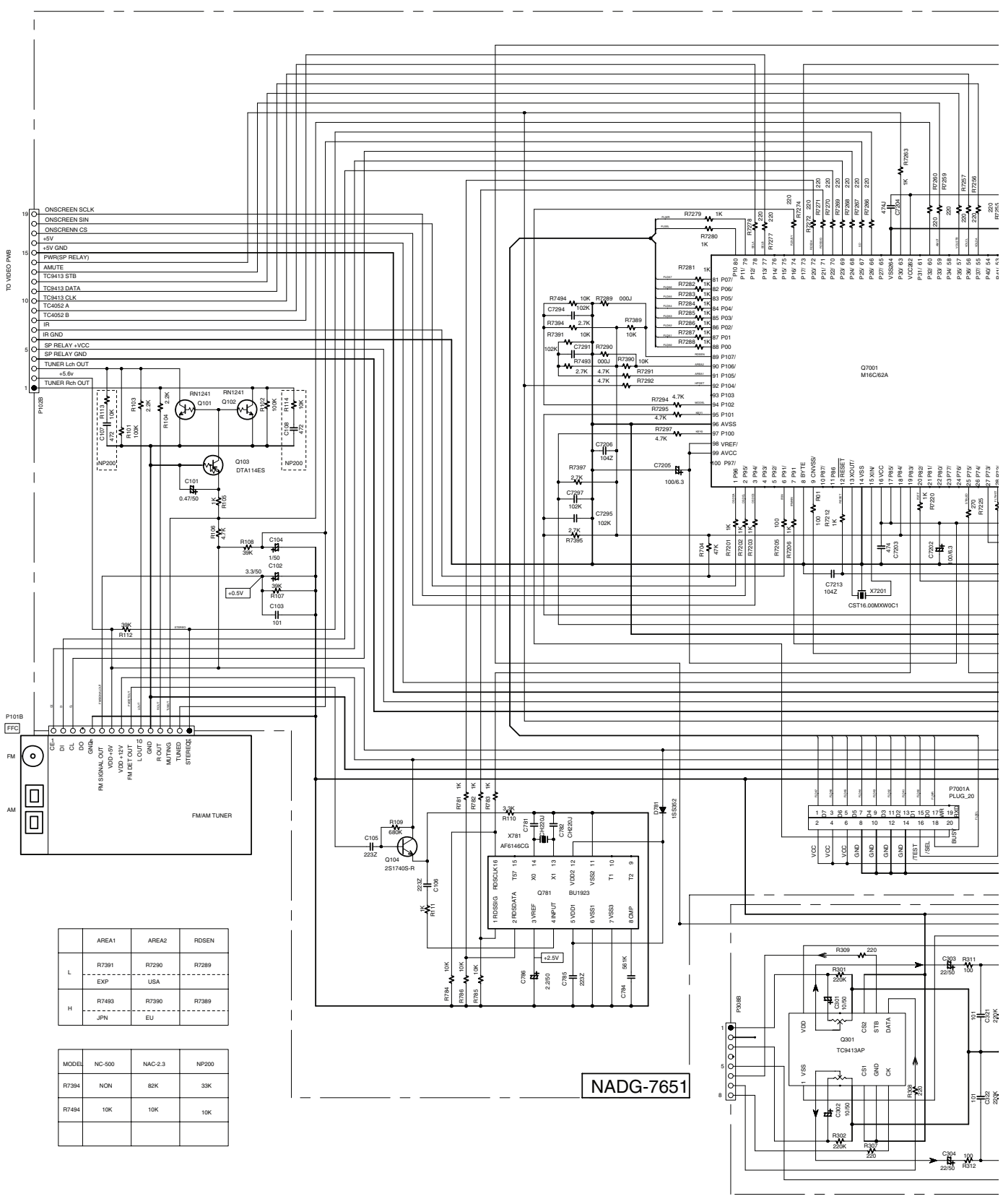


A B C D

SCHEMATIC DIAGRAM - 2



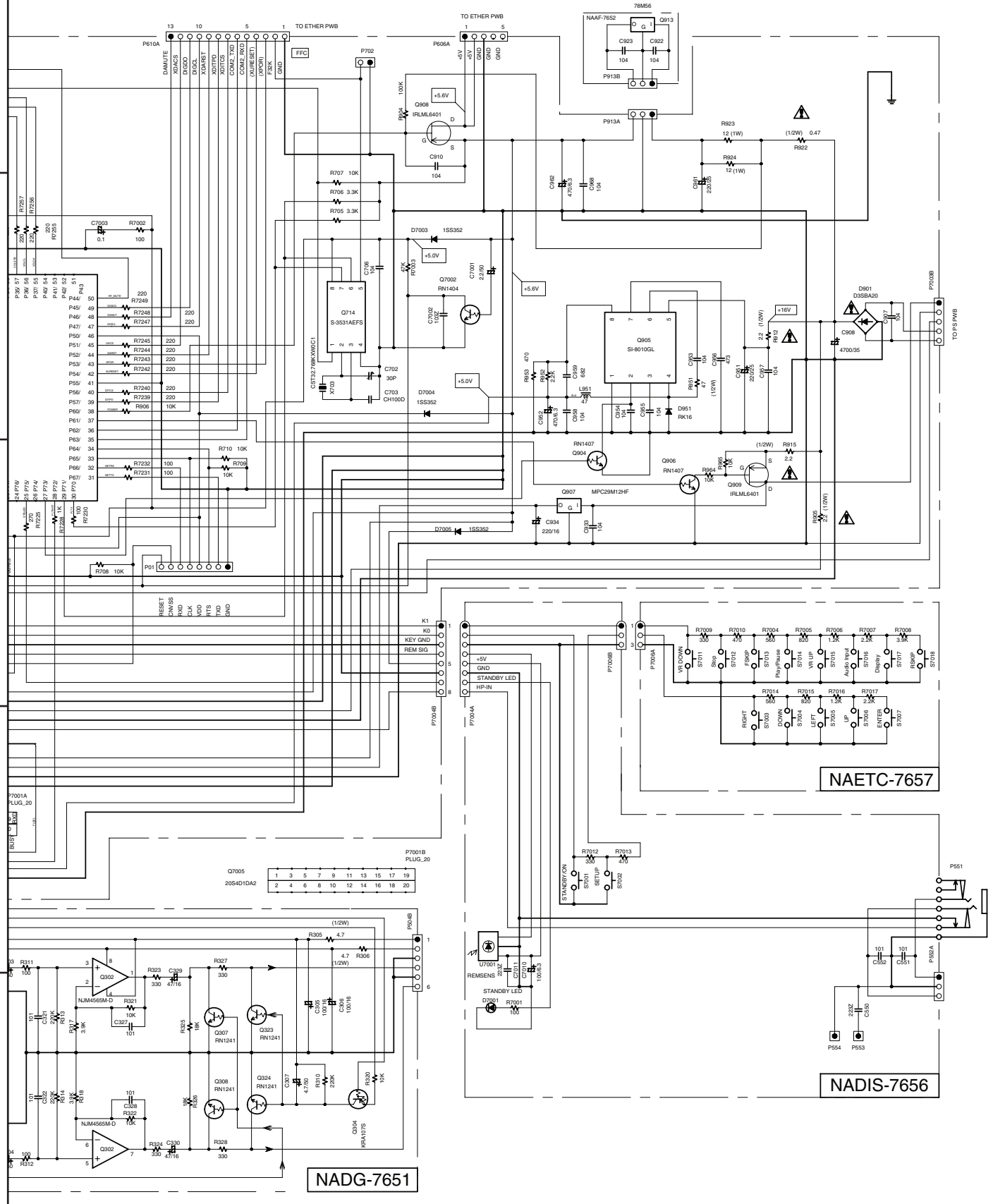
SCHEMATIC DIAGRAM - 3



	AREA1	AREA2	RDSEN
L	R7391	R7290	R7289
	EXP	USA	
H	R7493	R7390	R7389
	JPN	EU	

MODEL	NC-500	NAC-2.3	NP200
R7394	NON	82K	33K
R7494	10K	10K	10K

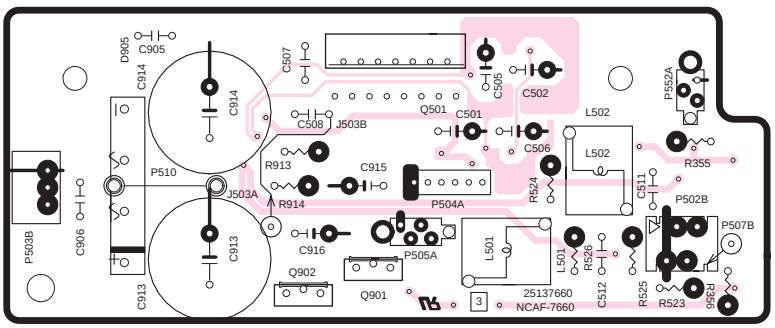
SCHEMATIC DIAGRAM - 4



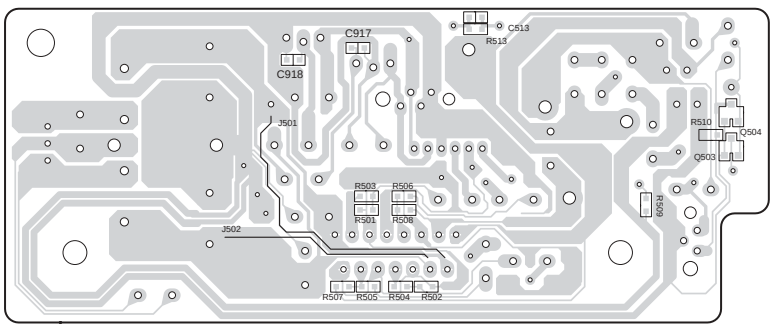
PRINTED CIRCUIT BOARD VIEW - 1

U000:AF-7660

Component side

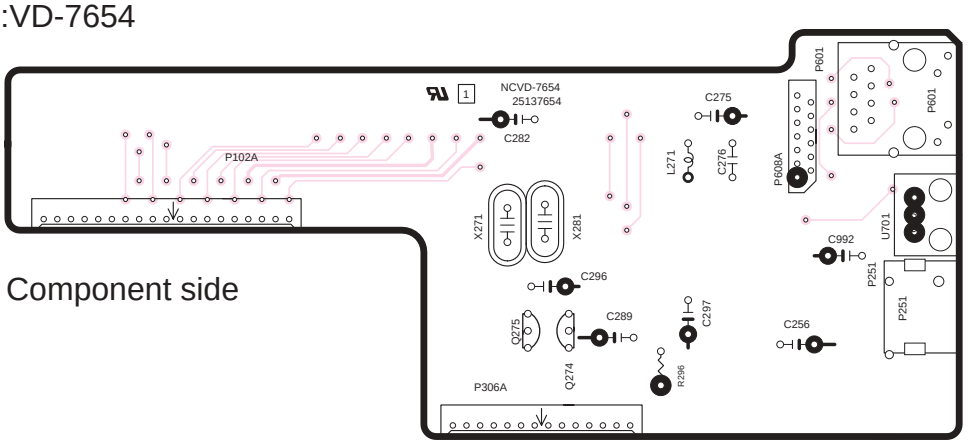


Soldering side

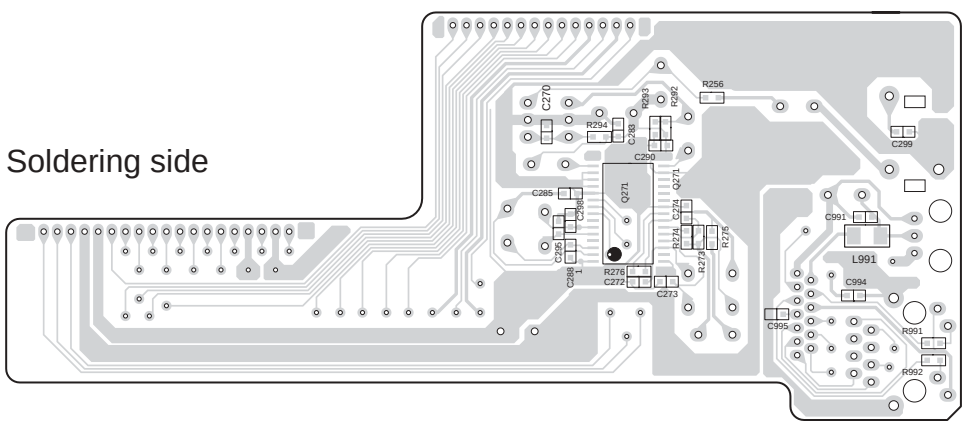


U003:VD-7654

Component side

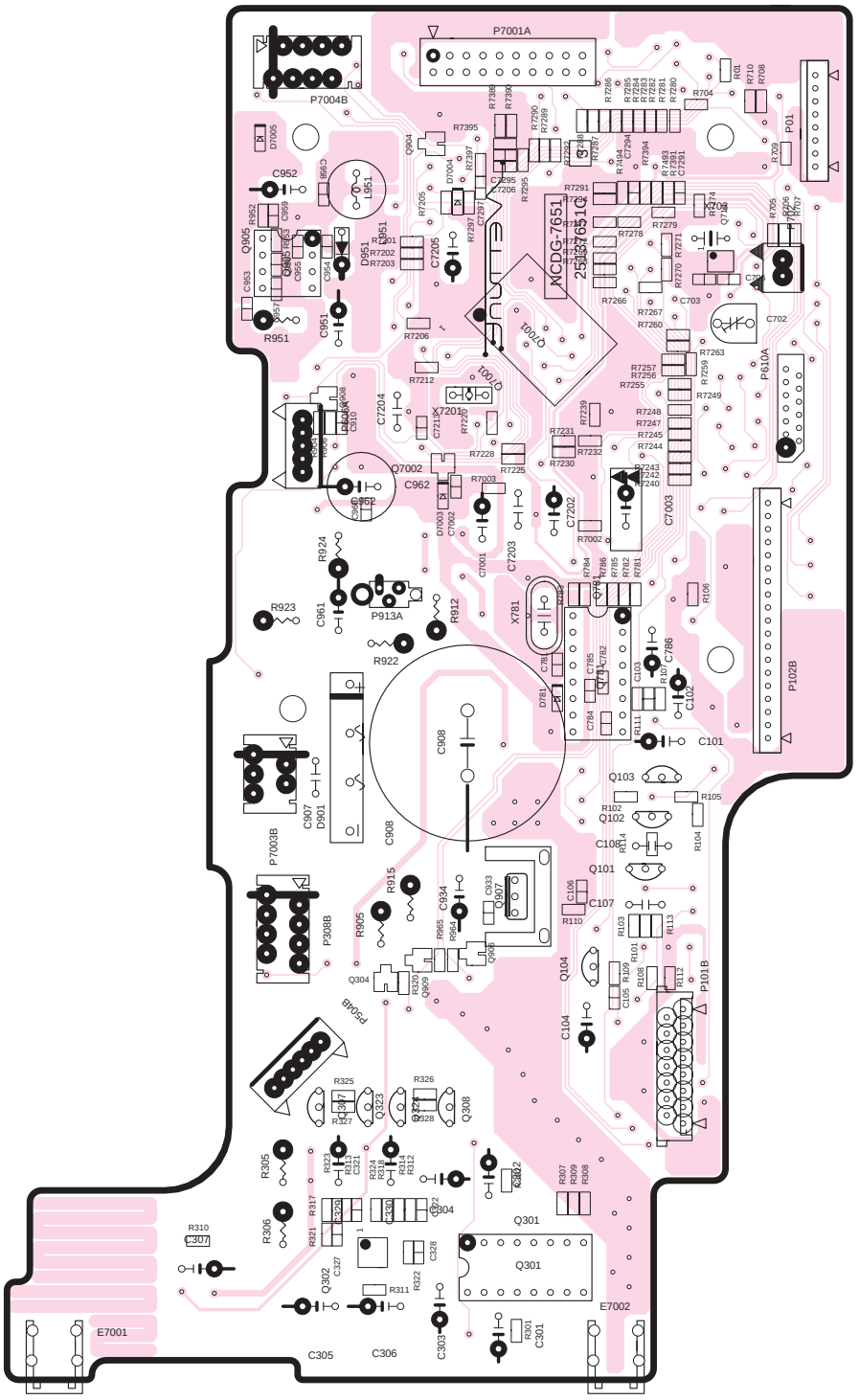


Soldering side



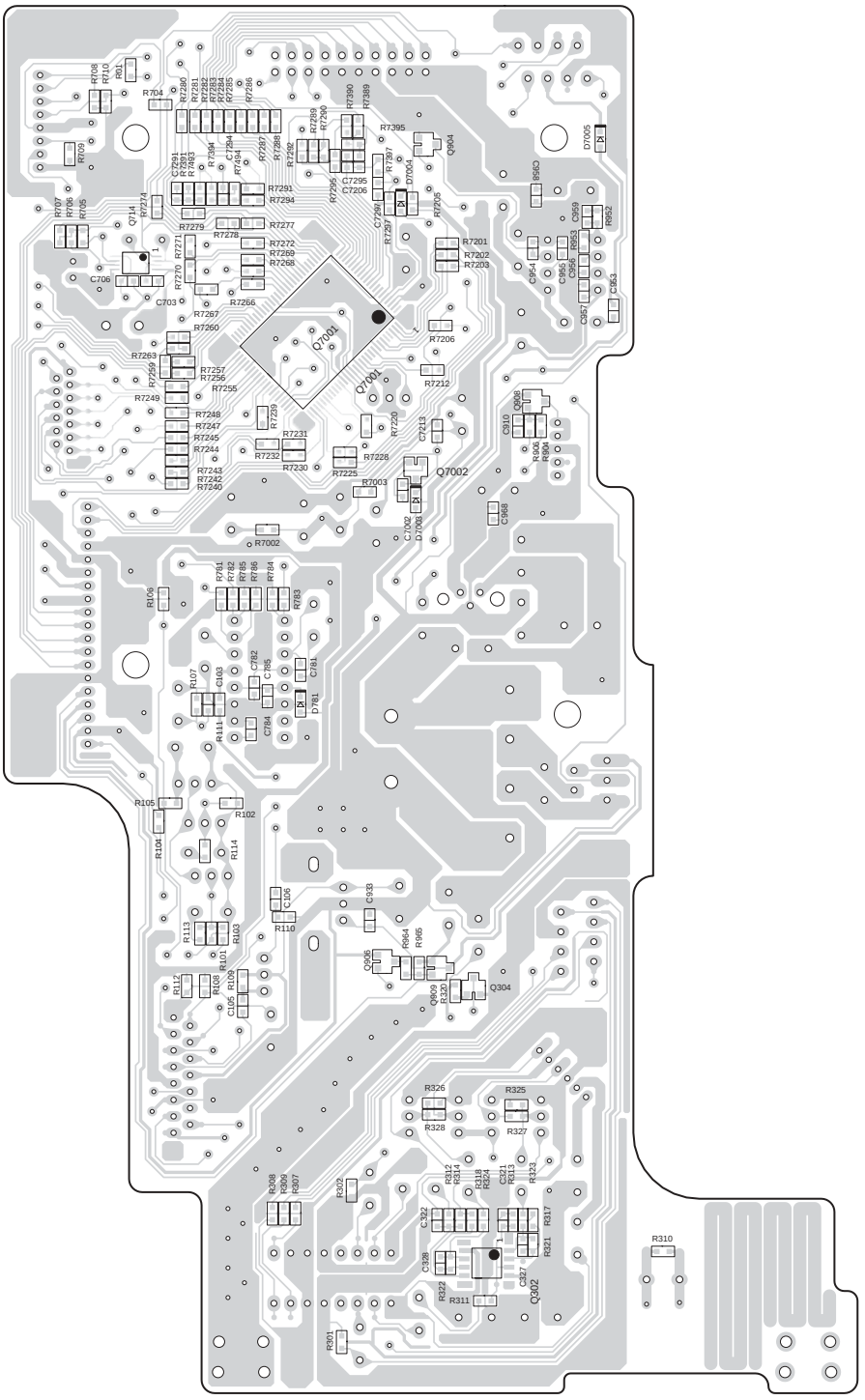
PRINTED CIRCIT BOARD VIEW - 2-1

U001:DG7651
Component side



PRINTED CIRCUIT VIEW 2 - 2

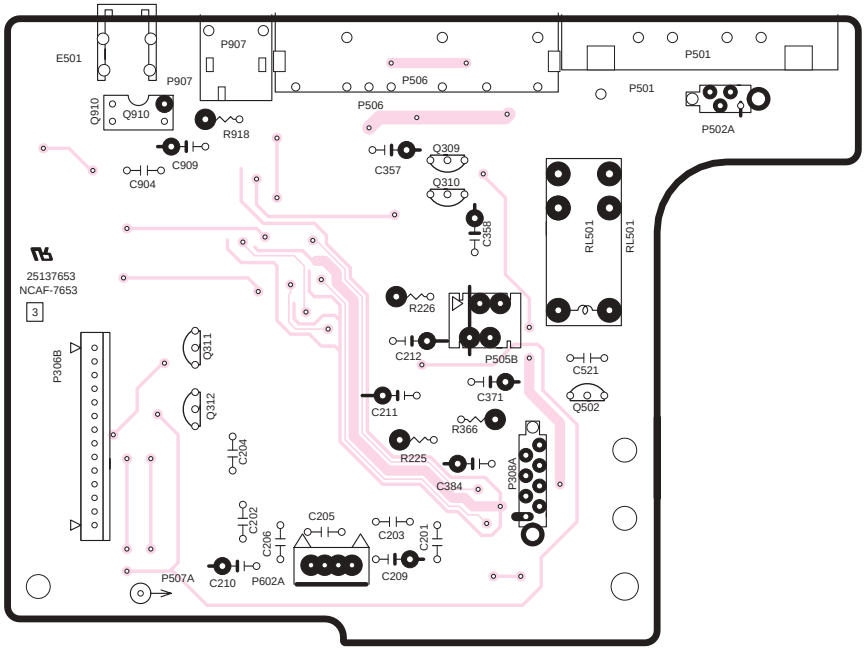
U001:DG-7651
Soldering side



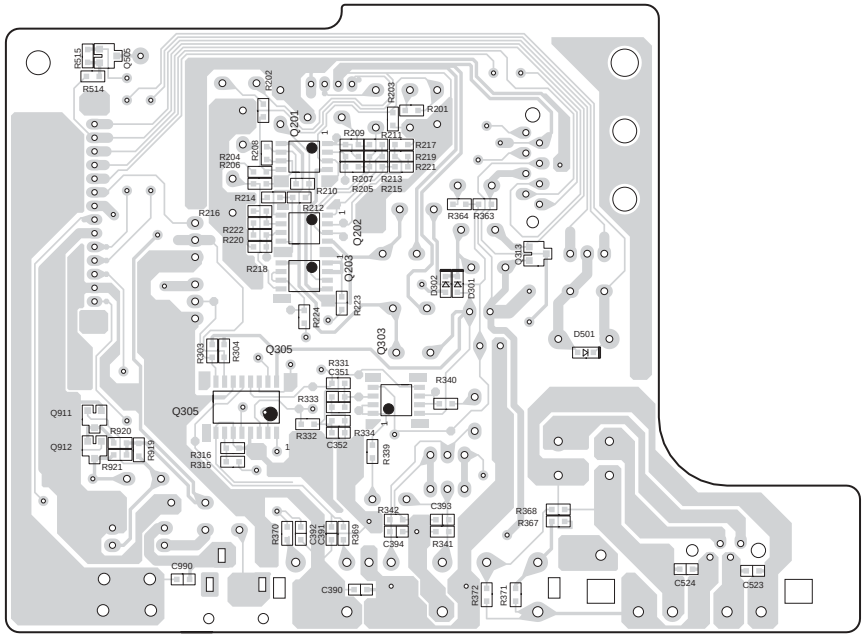
PRINTED CIRCUIT BOARD VIEW - 3

U002:AF-7653

Component side



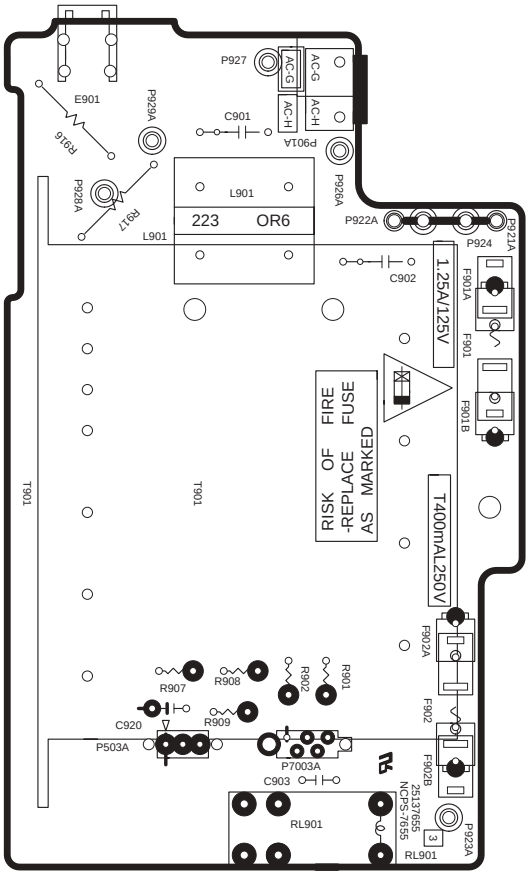
Soldering side



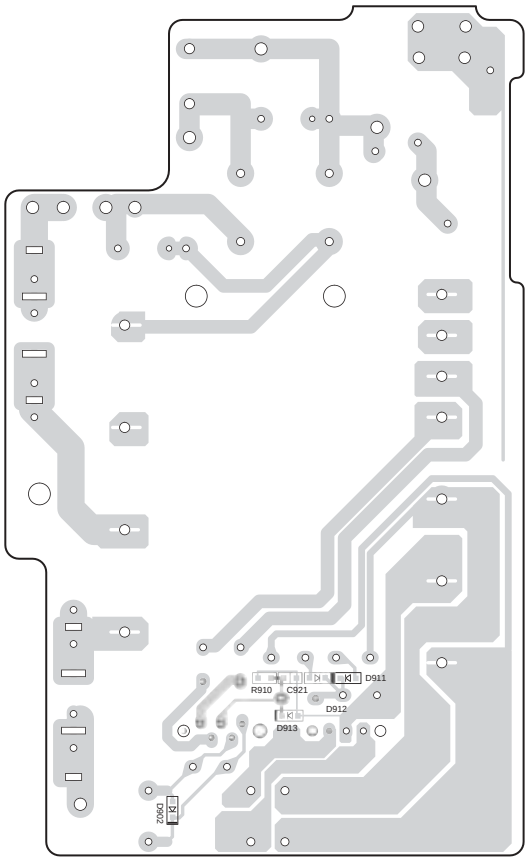
PRINTED CIRCUIT BOARD VIEW - 4

U004:PS-7655

Component side

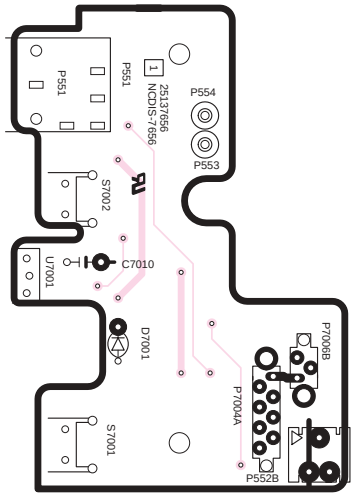


Soldering side

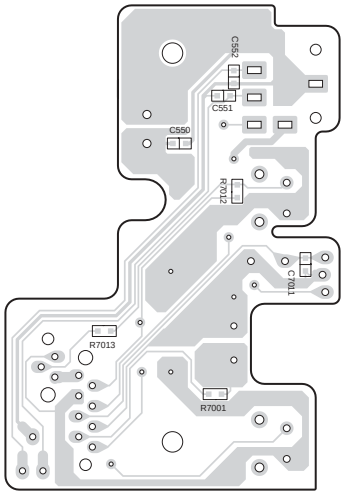


U005:DIS-7656

Component side



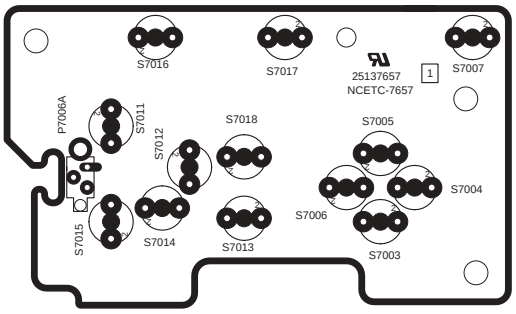
Soldering side



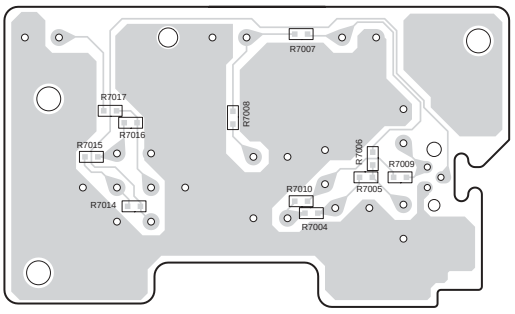
PRINTED CIRCUIT BOARD VIEW - 5

U006:ETC-7657

Component side

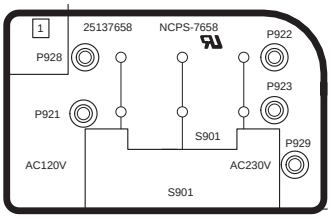


Soldering side



U007:PS-7658

Component side



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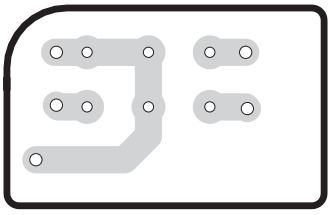

U008:ETC-7659

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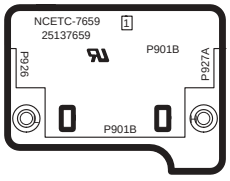
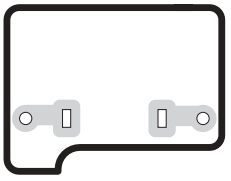
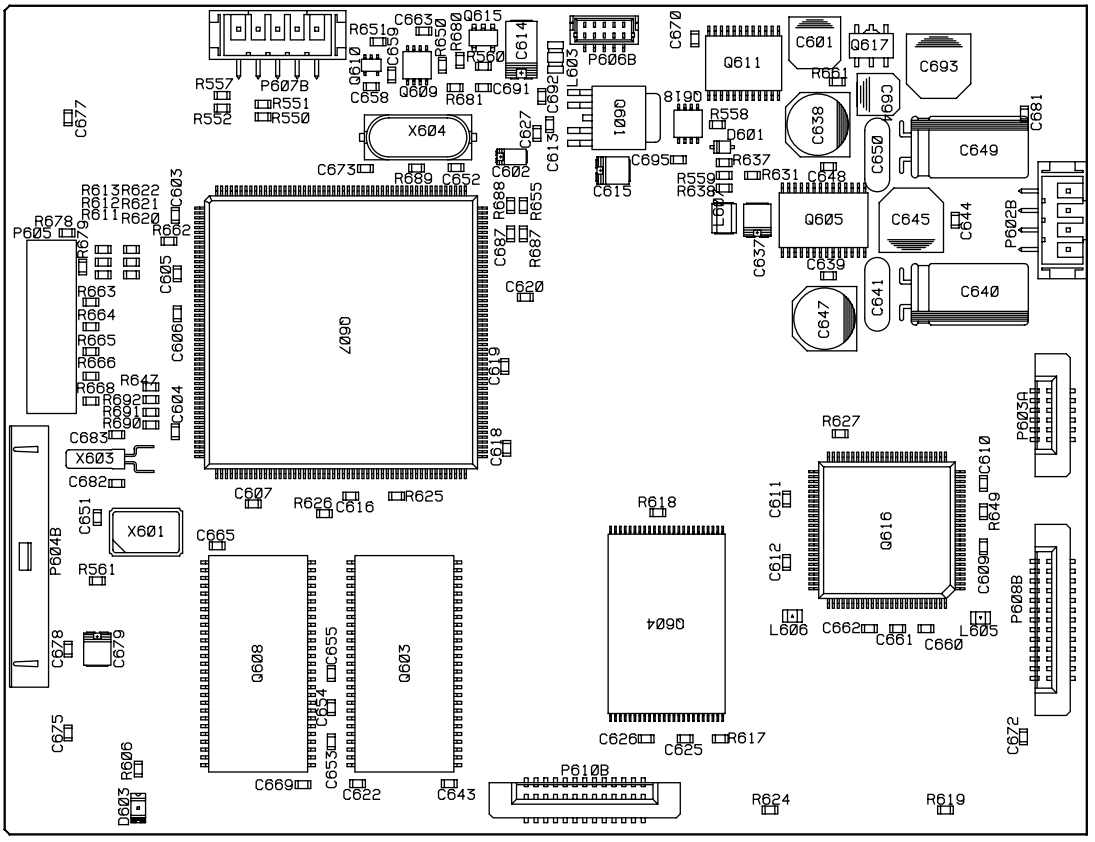


Soldering side



PRINTED CIRCUIT BOARD VIEW - 6

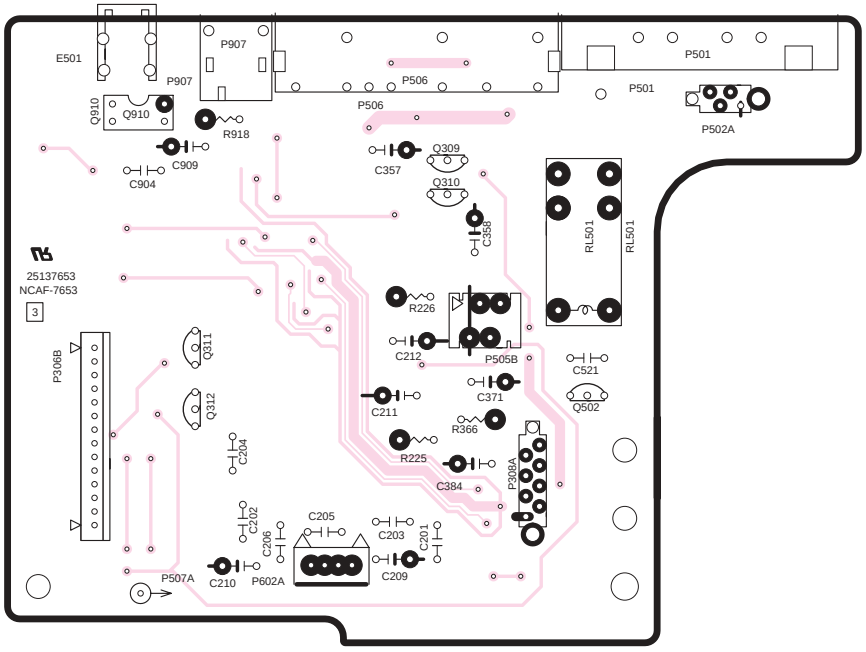
U009:DG-7662, Network Circuit



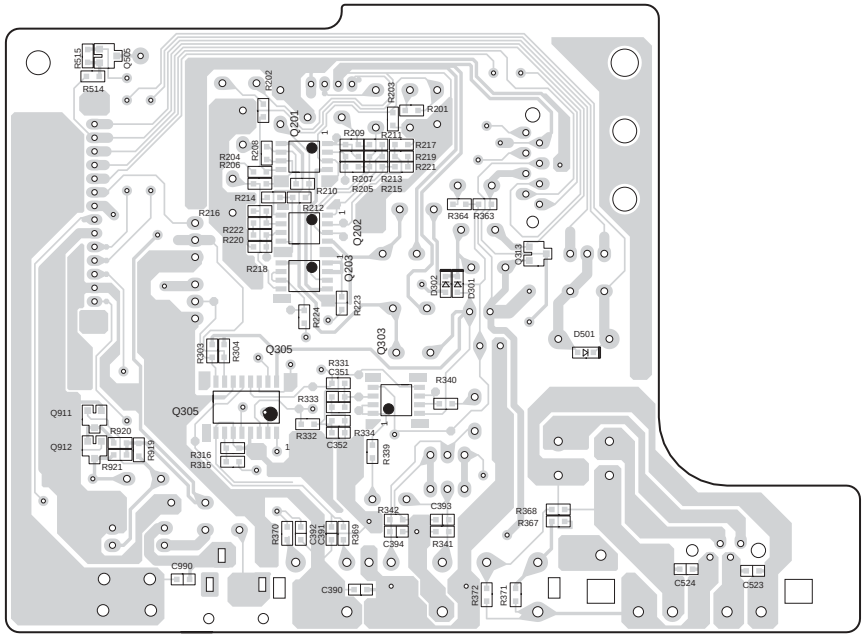
PRINTED CIRCUIT BOARD VIEW - 3

U002:AF-7653

Component side



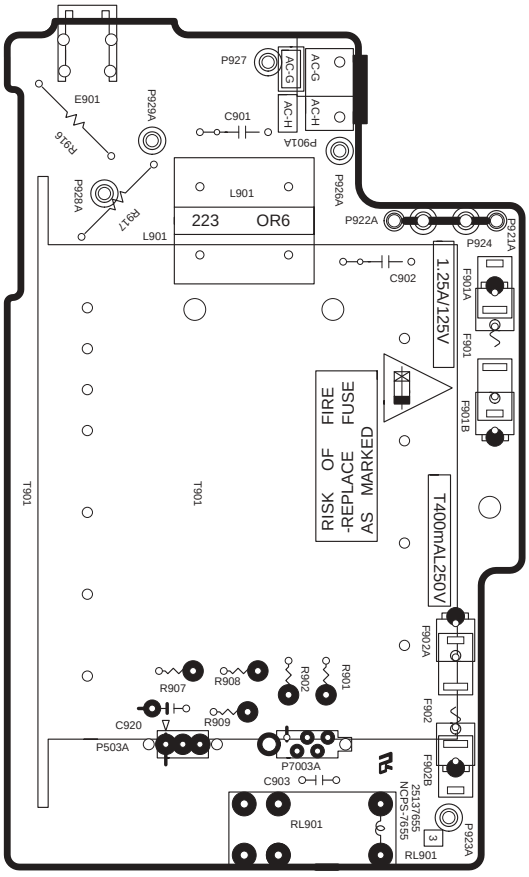
Soldering side



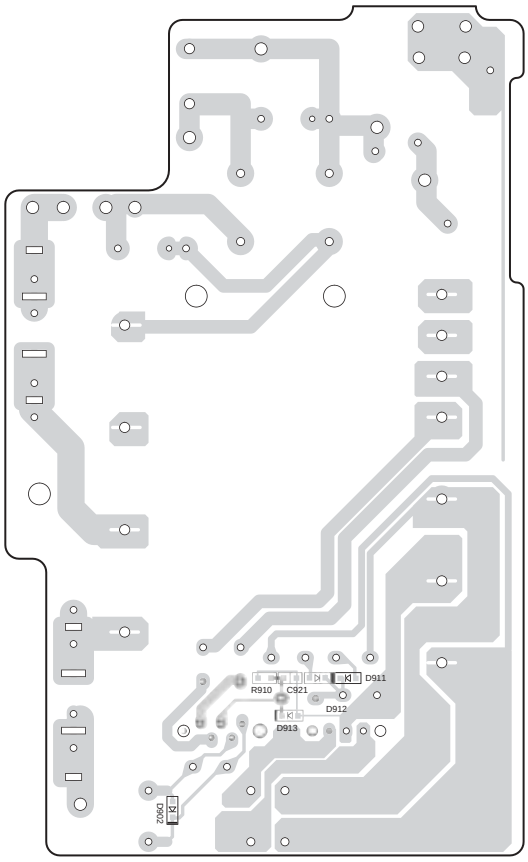
PRINTED CIRCUIT BOARD VIEW - 4

U004:PS-7655

Component side

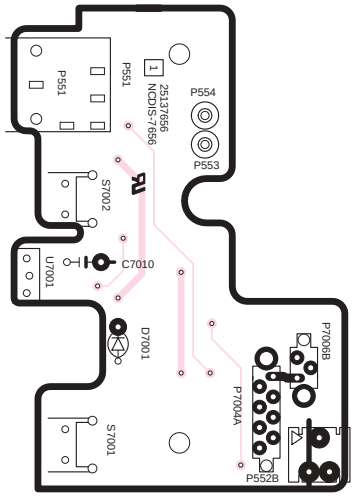


Soldering side

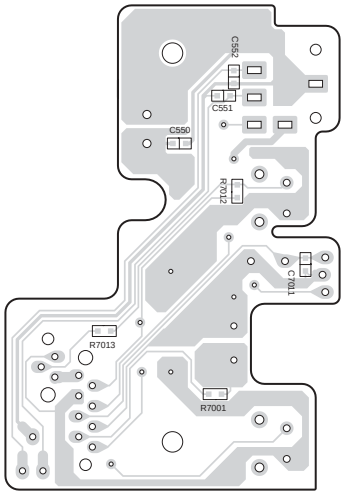


U005:DIS-7656

Component side



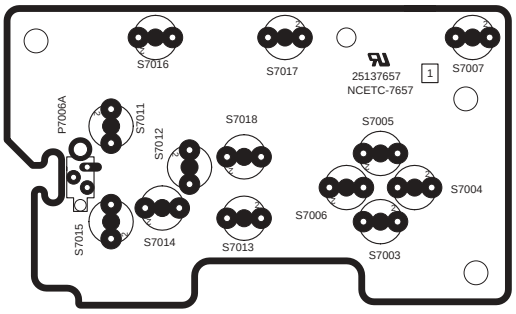
Soldering side



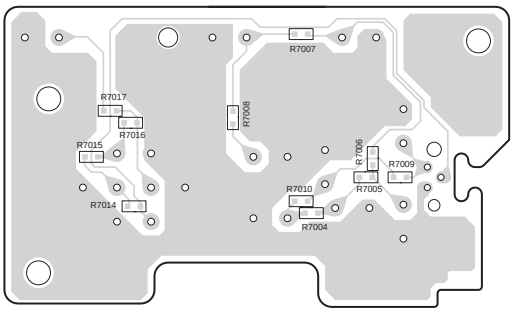
PRINTED CIRCUIT BOARD VIEW - 5

U006:ETC-7657

Component side

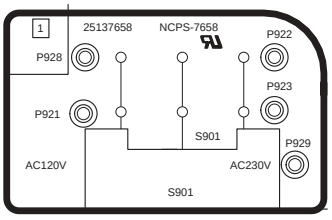


Soldering side

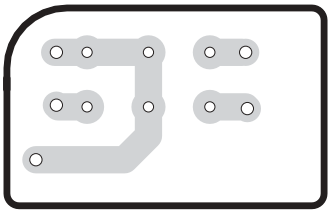


U007:PS-7658

Component side

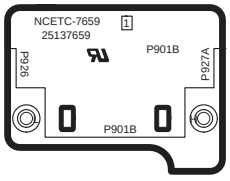


Soldering side

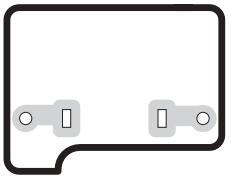


U008:ETC-7659

Component side

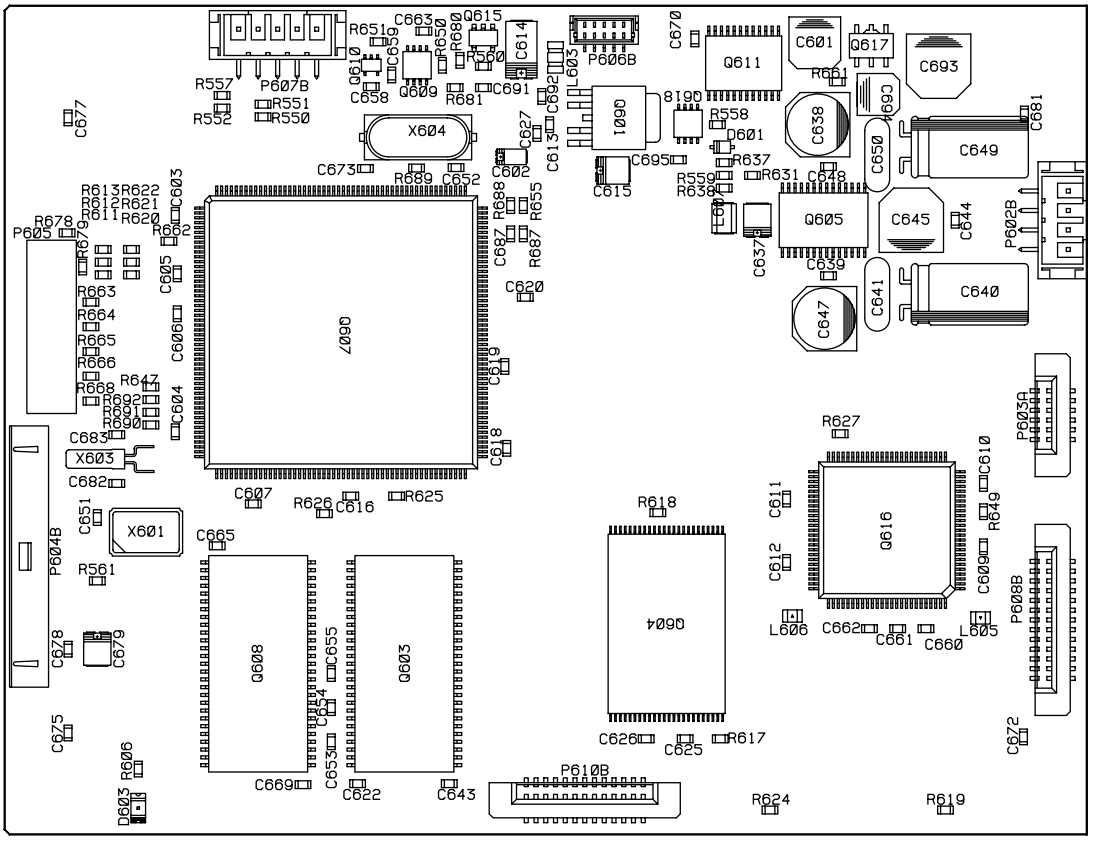


Soldering side



PRINTED CIRCUIT BOARD VIEW - 6

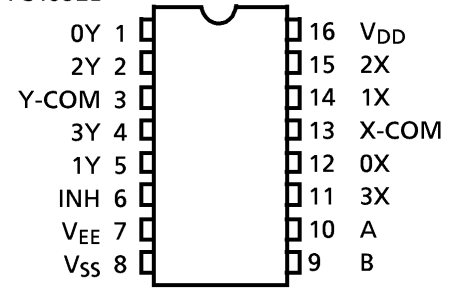
U009:DG-7662, Network Circuit



BLOCK DIAGRAM AND DESCRIPTION OF IC - 1

Q305:TC4052B
ANALOG SWITCH

TC4052B



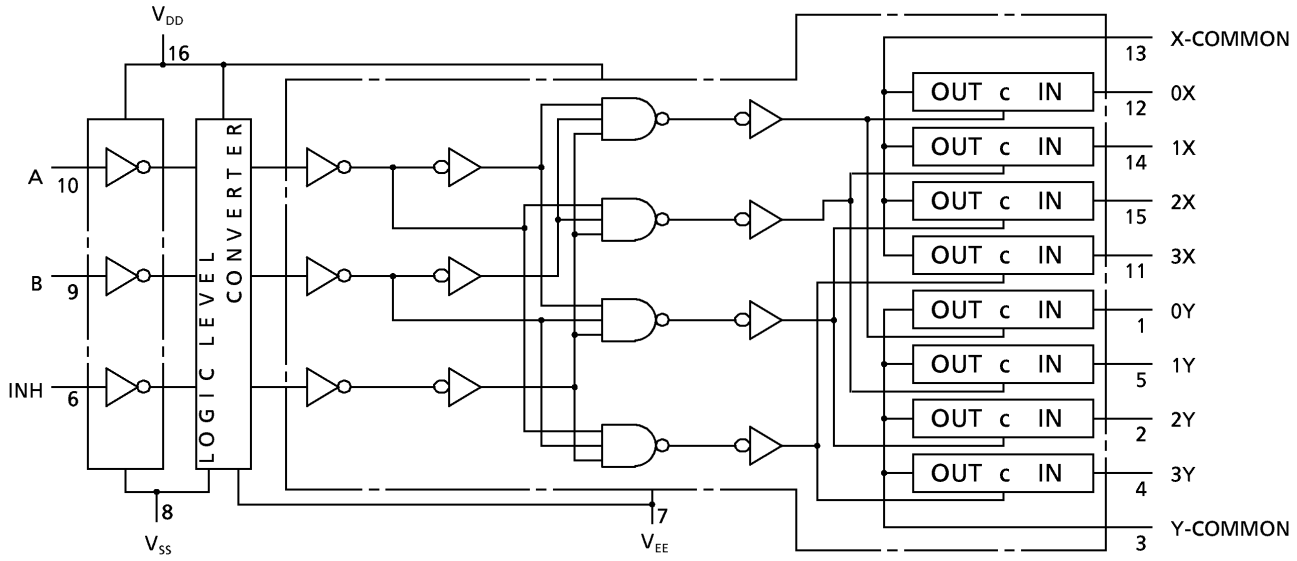
~SELB	~SELA	INPUT
H	H	NO USE
H	L	NETWORK
L	H	TUNER
L	L	AUX

TRUTH TABLE

CONTROL INPUTS				"ON" CHANNEL		
INHIBIT	C△	B	A	TC4051B	TC4052B	TC4053B
L	L	L	L	0	0X, 0Y	0X, 0Y, 0Z
L	L	L	H	1	1X, 1Y	1X, 0Y, 0Z
L	L	H	L	2	2X, 2Y	0X, 1Y, 0Z
L	L	H	H	3	3X, 3Y	1X, 1Y, 0Z
L	H	L	L	4	—	0X, 0Y, 1Z
L	H	L	H	5	—	1X, 0Y, 1Z
L	H	H	L	6	—	0X, 1Y, 1Z
L	H	H	H	7	—	1X, 1Y, 1Z
H	*	*	*	NONE	NONE	NONE

* : Don't Care △ Except TC4052B

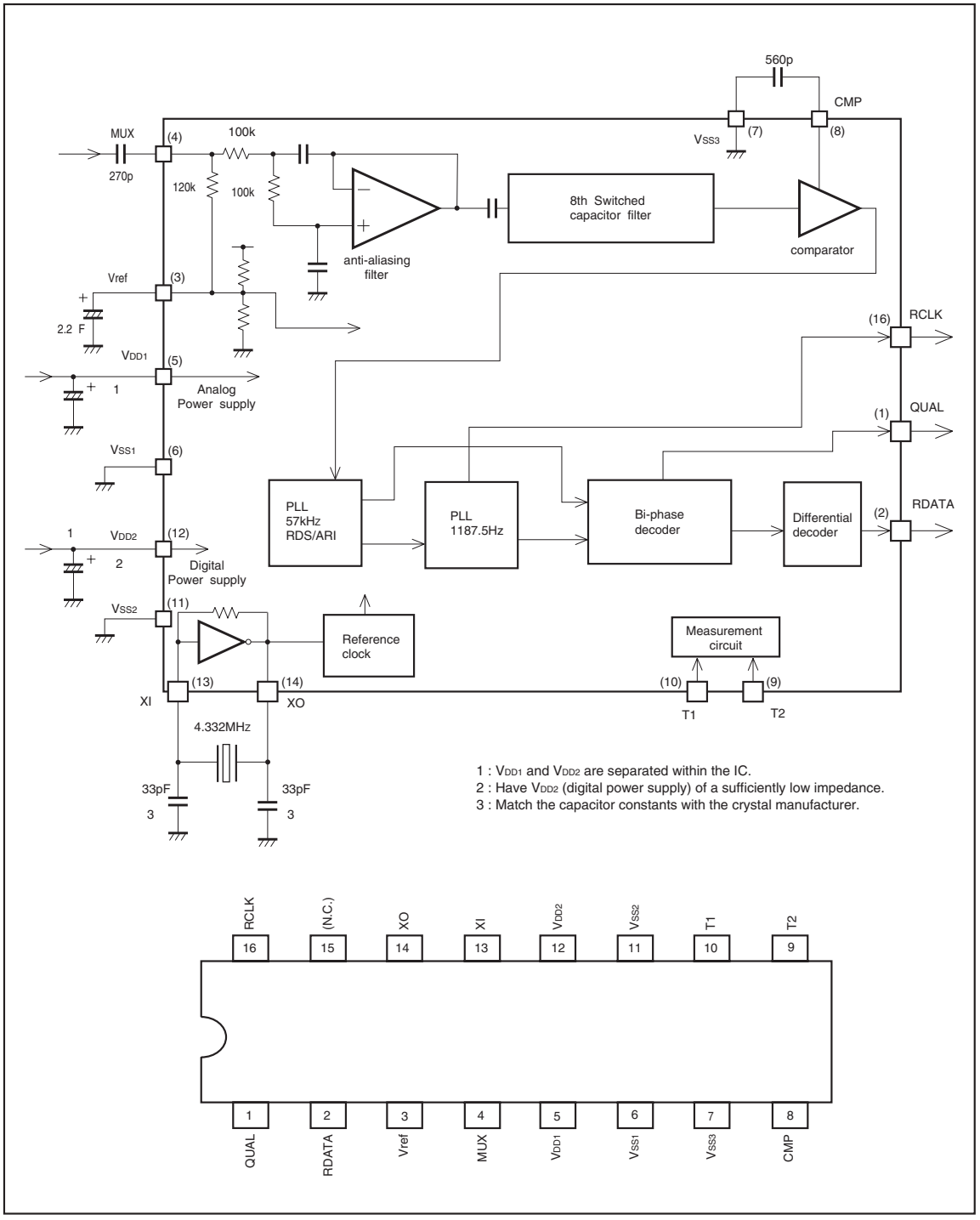
TC4052B



BLOCK DIAGRAM AND DESCRIPTION OF IC - 6

Q781:BU1923
RDS DECODER

Block diagram



BLOCK DIAGRAM AND DESCRIPTION OF IC - 6

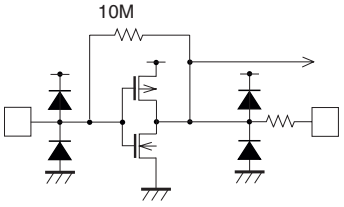
Q781:BU1923
RDS DECODER

Pin descriptions

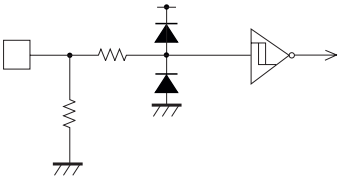
Pin No.	Symbol	Pin name	Functions	Input/Output type
1	QUAL	Demodulator quality	Good data : High, bad data : Low	Type C
2	RDATA	Demodulator data	Refer to output data timing	
3	Vref	Reference voltage	1/2 V_{DD1} (refer to input/output circuits)	Type E
4	MUX	Input	Composite signal input (refer to input/output circuits)	Type D
5	V_{DD1}	Analog power supply	4.5V to 5.5V	
6	V_{SS1}			
7	V_{SS3}	GND		
8	CMP	Comparator input	C-junction (refer to input/output circuits)	Type D
9	T2	Test input	Open or connected to ground	Type B
10	T1			
11	V_{SS2}	Digital power supply	4.5V to 5.5V	
12	V_{DD2}			
13	XI	Crystal oscillator	Connects to 4.332MHz oscillator (refer to input/output circuits)	Type A
14	XO			
15	(N.C.)			
16	RCLK	Demodulator clock	1187.5Hz clock (refer to the timing diagram)	Type C

Input / Output circuits

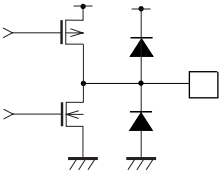
Type A



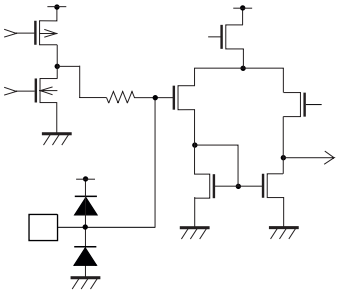
Type B



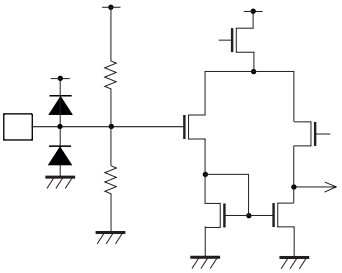
Type C



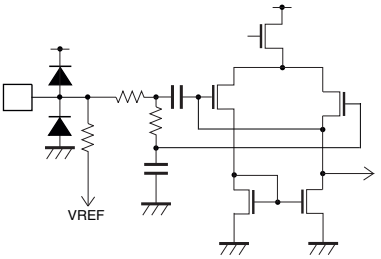
Type D



Type E



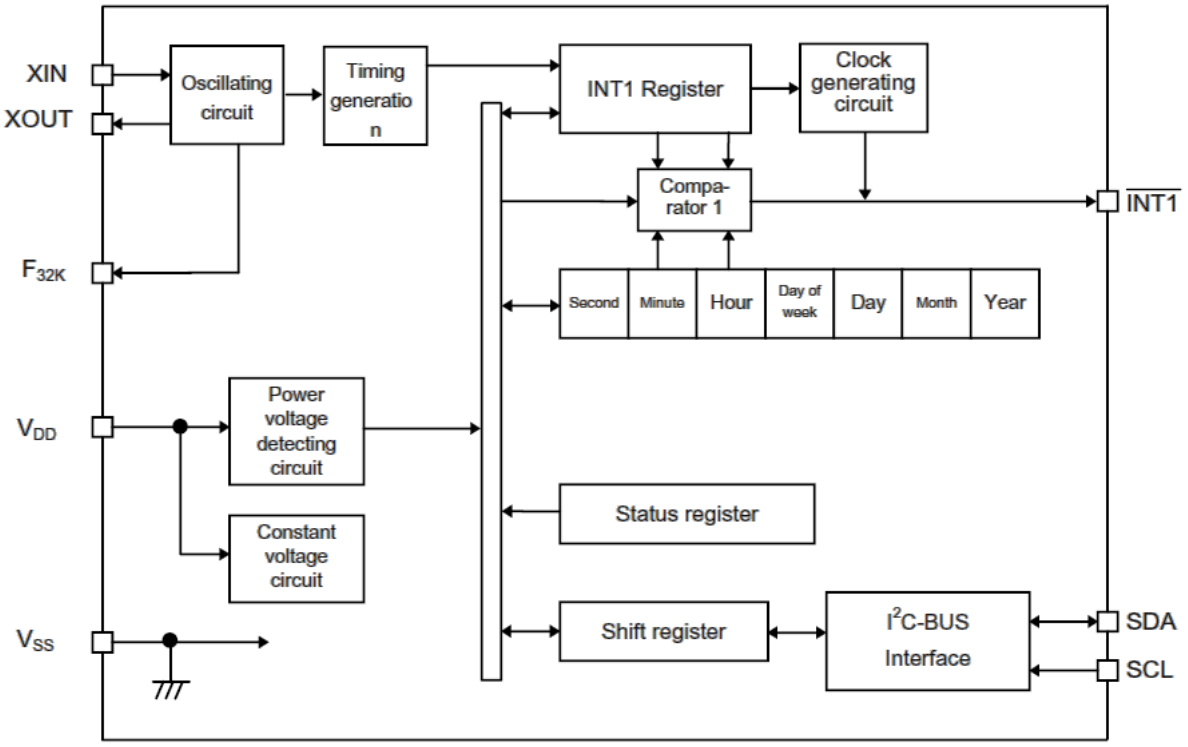
Type F



BLOCK DIAGRAM AND DESCRIPTION OF IC - 5

Q714:S-3531A
REAL-TIME CLOCK

■ Block Diagram



■ Pin Assignment

(1) Package : S-3531AEFS

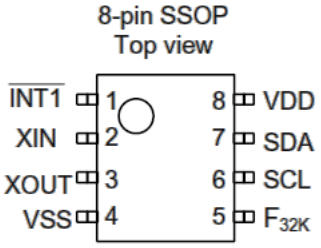
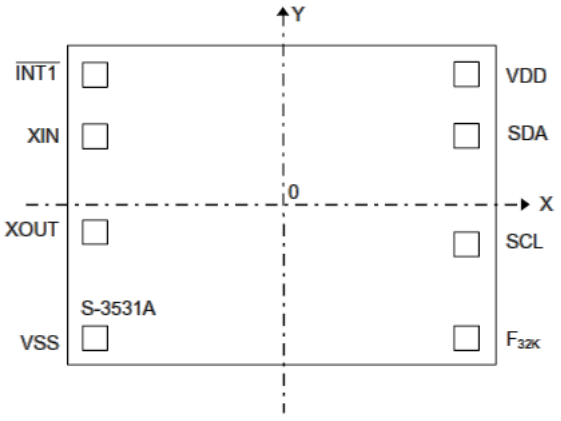


Figure 2 Pin assignment

(2) Die : S-3531AECA



BLOCK DIAGRAM AND DESCRIPTION OF IC - 5

Q714:S-3531A
REAL-TIME CLOCK

■ Description of Pins

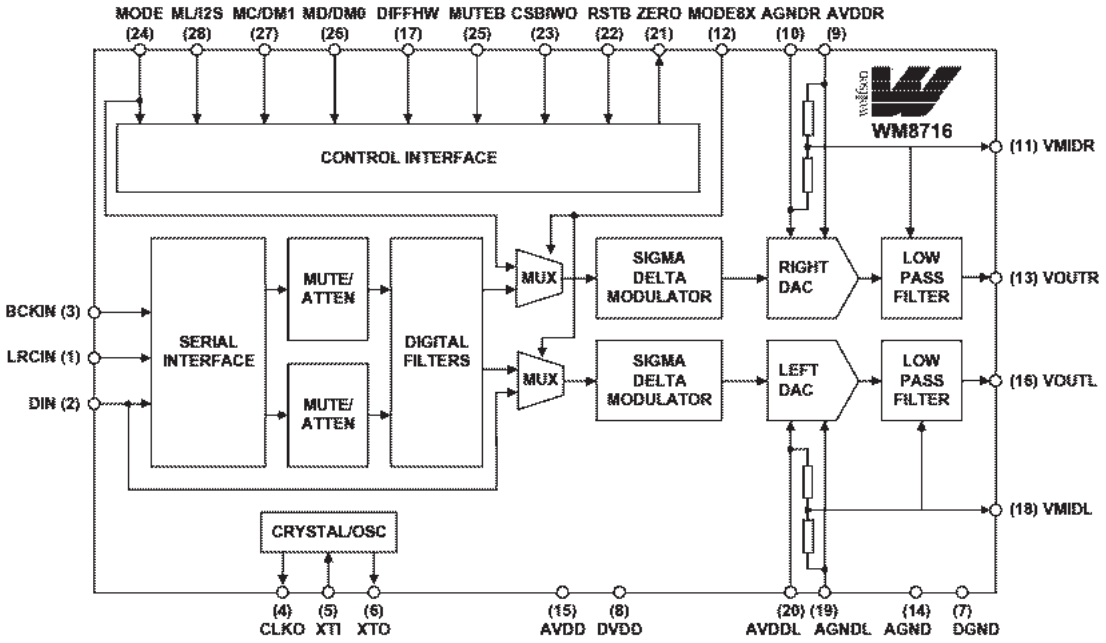
Table 1 Description of pins

Pin No.	Symbol	Description	Configuration
1	$\overline{INT1}$	Alarm interrupt 1 output pin. Depending on the mode set by the $\overline{INT1}$ register and status register, it outputs low or Clock when time is reached. It is disabled by rewriting the status register.	N-channel open drain output (No protective diode on the side of VDD)
2	XIN	Crystal oscillator connect pin (32,768 Hz)	—
3	XOUT	(Internal Cd, External Cg)	
4	VSS	Negative power supply pin (GND)	—
5	F_{32K}	32,768 Hz clock output pin. This clock is always being output and cannot be controlled by command.	N-channel open drain output (No protective diode on the side of VDD)
6	SCL	Serial clock input pin. Follow the specification with great care to the rising/falling time of the SCL signal because the signal is treated at its rising/falling edge.	CMOS input (No protective diode on the side of VDD)
7	SDA	Serial data input/output pin. This pin is usually pulled up to VDD via a resistor, and connected to other open-drain or open-collector output devices in wired OR configuration.	N-channel open drain output (No protective diode on the side of VDD) CMOS input
8	VDD	Positive power supply pin.	—

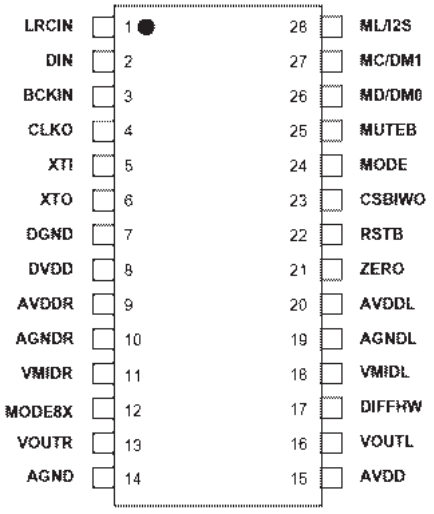
BLOCK DIAGRAM AND DESCRIPTION OF IC - 4

Q605:WM8716
DAC

BLOCK DIAGRAM



PIN CONFIGURATION



BLOCK DIAGRAM AND DESCRIPTION OF IC - 4

Q605:WM8716
DAC

PIN DESCRIPTION

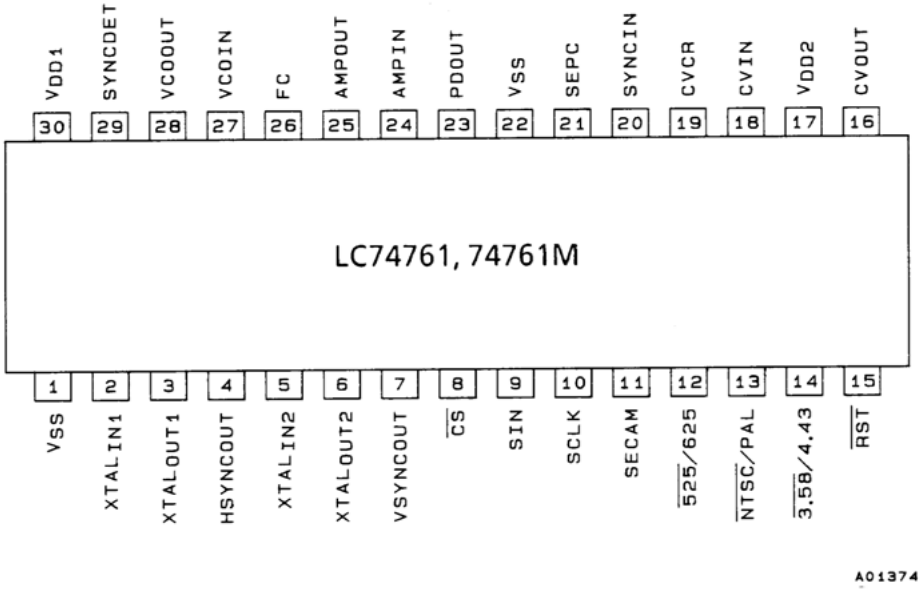
PIN	NAME	TYPE	DESCRIPTION			
			Hardware Mode			Software Mode
			Normal Mode	Differential Mode	8X Mode	
1	LRCIN	Digital input	Sample rate clock input.			
2	DIN	Digital input	Audio data serial input		DINL	Audio data serial input
3	BCKIN	Digital input	Audio data bit clock input.			
4	CLKO	Digital output	Oscillator buffered output (system clock).			
5	XTI	Analogue input	Oscillator input.			
6	XTO	Analogue output	Oscillator output.			
7	DGND	Supply	Digital ground supply.			
8	DVDD	Supply	Digital positive supply.			
9	AVDDR	Supply	Analogue positive supply.			
10	AGNDR	Supply	Analogue ground supply.			
11	VMIDR	Analogue output	Mid rail right channel.			
12	MODE8X	Digital input	Internal pull-down, active high, 8 x fs mode.			
13	VOUTR	Analogue output	Right channel DAC output.			
14	AGND	Supply	Analogue ground supply.			
15	AVDD	Supply	Analogue positive supply.			
16	VOUTL	Analogue output	Left channel DAC output.			
17	DIFFHW	Digital input	Internal pull-down, active high, differential mono mode			
18	VMIDL	Analogue output	Mid rail left channel.			
19	AGNDL	Supply	Analogue ground supply.			
20	AVDDL	Supply	Analogue positive supply.			
21	ZERO	Digital output	Infinite zero detect – active low. Open drain type output with active pull-down.			
22	RSTB	Digital input	Reset input – active low. Internal pull-up.			
23	CSB/WO	Digital input Internal pull-down	Wordlength: Low for 16-bit data. High for 20-bit (normal) or 24-bit I^2S data.	Wordlength: Low for 16-bit data. High for 20-bit (normal) or 24-bit I^2S data.	Wordlength: Low for 20-bit data. High for 24-bit data.	Low for serial interface operation.
24	MODE	Digital input Internal pull-up	Low for hardware mode.	Low for left mono mode. High for right mono mode	DINR	High for software mode.
25	MUTEB	Digital input Internal pull-up	Low to soft mute. High for normal operation. Z for automute.	Low to soft mute. High for normal operation. Z for automute.	Low to soft mute. High for normal operation. Z for automute.	Low to soft mute. High for normal operation. Z for automute.
26	MD/DM0	Digital input Internal pull-up	De-emphasis mode select bit 0.	Low for no de-emphasis. High for 44.1kHz de-emphasis.	LRP – LRCLK polarity select.	Control serial interface data signal.
27	MC/DM1	Digital input Internal pull-up	De-emphasis mode select bit 1.	Low for normal filter operation. High for filter slow roll-off.	Unused. Leave unconnected.	Control serial interface clock signal.
28	ML/I2S	Digital input Internal pull-up	Audio serial format: Low – right justified. High – I^2S.	Audio serial format: Low – right justified. High – I^2S.	Input data format: Low – right justified. High – left justified.	Control serial interface load signal.

Note: Digital input pins have Schmitt trigger input buffers except Pin 12 and Pin 17.

BLOCK DIAGRAM AND DESCRIPTION - 3

Q271:LC74761M-9845
ON-SCREEN DISPLAY LSI

Pin Assignment



Top view

BLOCK DIAGRAM AND DESCRIPTION OF IC - 3

Q271:LC74761M-9845
ON-SCREEN DISPLAY LSI

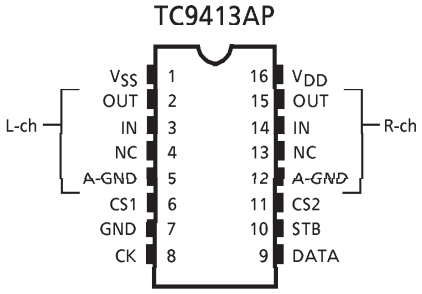
Pin Functions

Pin No.	Symbol	Function	Description
1	V_{SS}	Ground	Ground connection
2	$Xtal_{IN1}$	Crystal oscillator connection	Connection for the crystal and capacitor used to form the crystal oscillator that generates the internal synchronization signal. The oscillator can be selected with a command switch.
3	$Xtal_{OUT1}$		
4	$HSYNC_{OUT}$	Horizontal synchronization output	Outputs the horizontal synchronization signal (AFC). The output polarity can be selected (metal option). Also functions as general output port (command switch).
5	$Xtal_{IN2}$	Crystal oscillator connection	Connection for the crystal and capacitor used to form the crystal oscillator that generates the internal synchronization signal.
6	$Xtal_{OUT2}$		
7	$VSYNC_{OUT}$	Vertical synchronization output	Outputs the vertical synchronization signal. The output polarity can be selected (metal option). Also functions as general output port (command switch).
8	$\overline{CS}$	Enable input	Enables/disables serial data input. Serial data is enabled when this pin is low (hysteresis input). Pull-up resistor built in (metal option).
9	SIN	Data input	Serial data input (hysteresis input). Pull-up resistor built in (metal option).
10	SCLK	Clock input	Clock input for serial data input (hysteresis input). Pull-up resistor built in (metal option).
11	SECAM	SECAM mode switch input/ output (command switch)	During input, switches between SECAM and other modes. During output, functions as general output port or internal V output (command switch). Low = other modes, high = SECAM mode
12	$\overline{525}$/625	525/625 switch input/output (command switch)	During input, switches between 525 scan lines and 625 scan lines. During output, functions as general output port or character data output (command switch). Low = 525 lines, high = 625 lines
13	$\overline{NTSC}$/PAL	NTSC/PAL switch input/output (command switch)	Switches the color mode between NTSC and PAL. During output, functions as general output port or frame data output (command switch). Low = NTSC, high = PAL
14	$\overline{3.58}$/4.43	3.58/4.43 switch input/output (command switch)	Switch FSC between 3.58 MHz and 4.43 MHz. During output, functions as general output port or half-tone output (command switch). Low = 3.58, high = 4.43
15	$\overline{RST}$	Reset input	System reset input pin, low is active (hysteresis input). Pull-up resistor built in (metal option).
16	CV_{OUT}	Video signal output	Composite video output
17	V_{DD2}	Power supply connection	Power supply connection for composite video signal level generation
18	CV_{IN}	Video signal input	Composite video input
19	CV_{CR}	Video signal input	SECAM chroma signal input
20	$SYNC_{IN}$	Sync separator circuit input	Built-in sync separator circuit video signal input
21	SEP_C	Sync separator circuit	Built-in sync separator circuit
22	V_{SS}	Ground	Ground connection
23	PD_{OUT}	Control voltage output	AFC control voltage output
24	AMP_{IN}	AFC filter connection	Filter connection
25	AMP_{OUT}		
26	FC	Control voltage input	AFC control voltage input
27	VCO_{IN}	LC oscillator connection	VCO LC oscillator circuit coil and capacitor connection
28	VCO_{OUT}		
29	$SYNC_{DET}$	External synchronization signal detection output	Outputs the exclusive NOR of the horizontal synchronization signal (AFC) and CSYNC (sync separator). The output polarity can be selected (metal option). Also functions as general output port (command switch).
30	V_{DD1}	Power supply connection	Power supply connection (+5 V: digital system power supply)

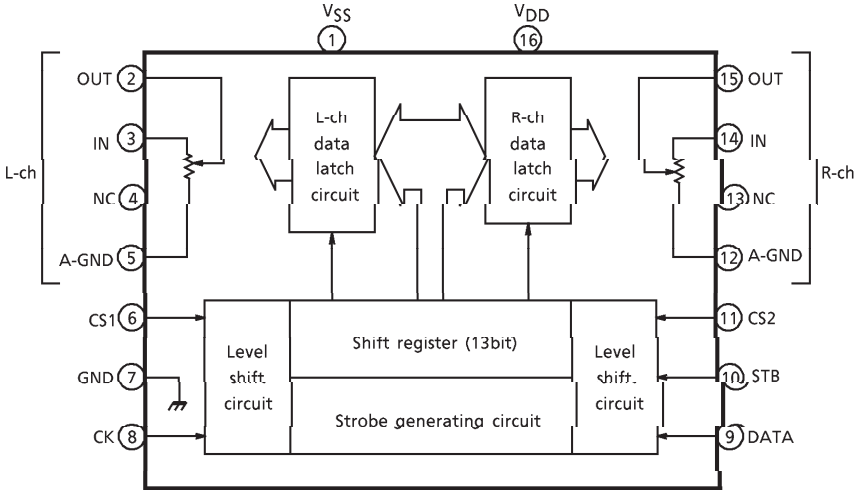
BLOCK DIAGRAM AND DESCRIPTION OF IC - 2

Q301:TC9413AP
ELECTRONIC VOLUME CONTROL

PIN CONNECTIONS



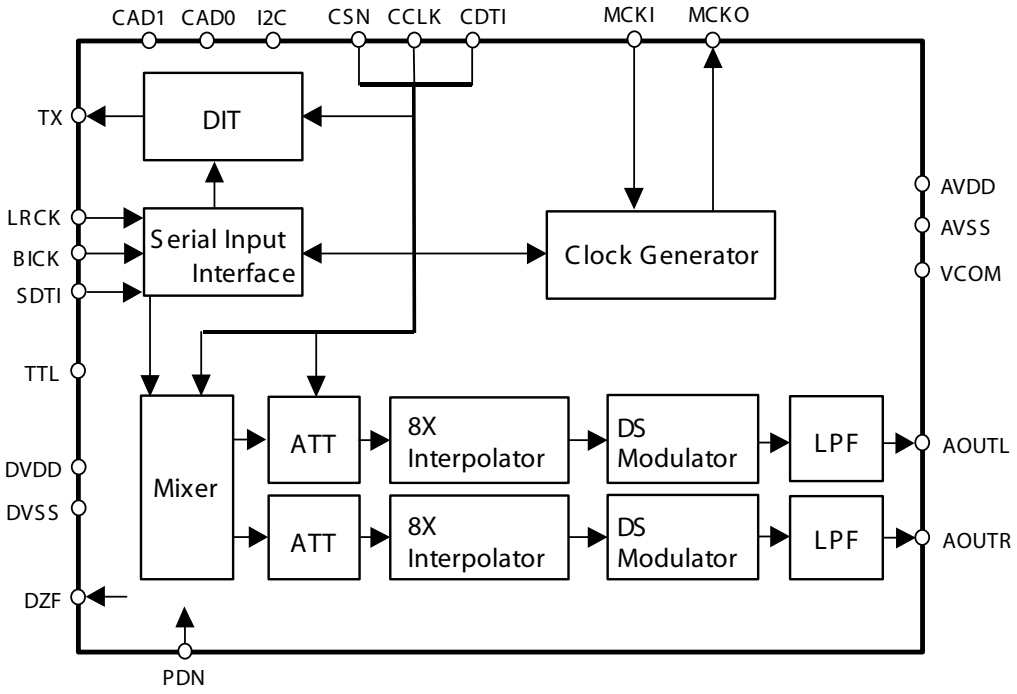
BLOCK DIAGRAM (TC9413AP)



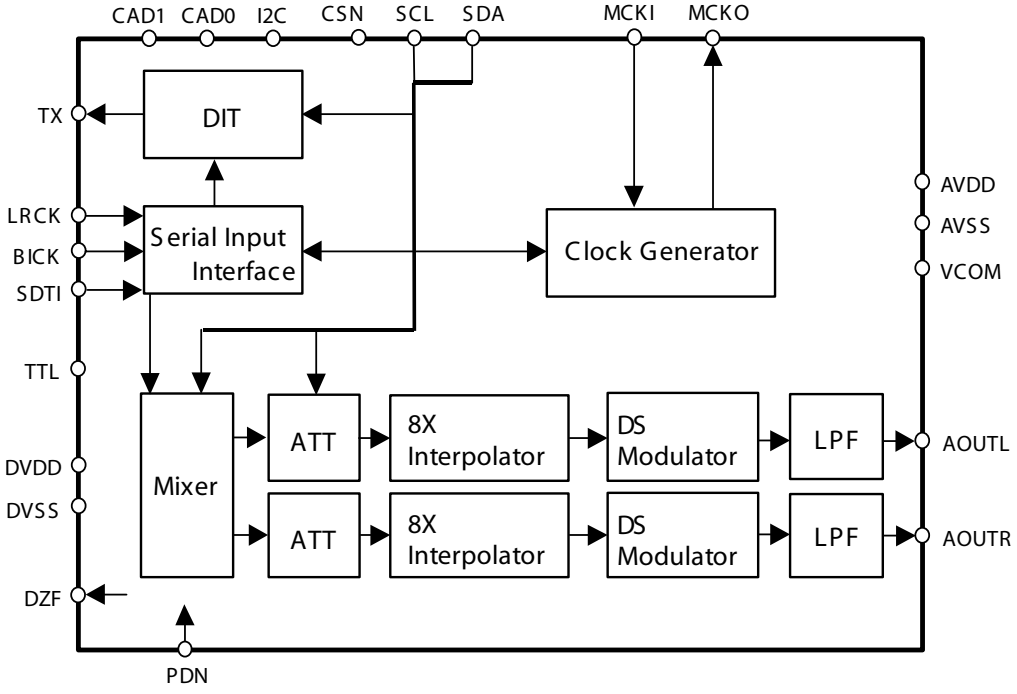
BLOCK DIAGRAM AND PIN DESCRIPTION OF IC - 7

Q611:AK4353
DAC WITH DIT

Block Diagram



3-wire Serial Control Mode (I2C = " L")

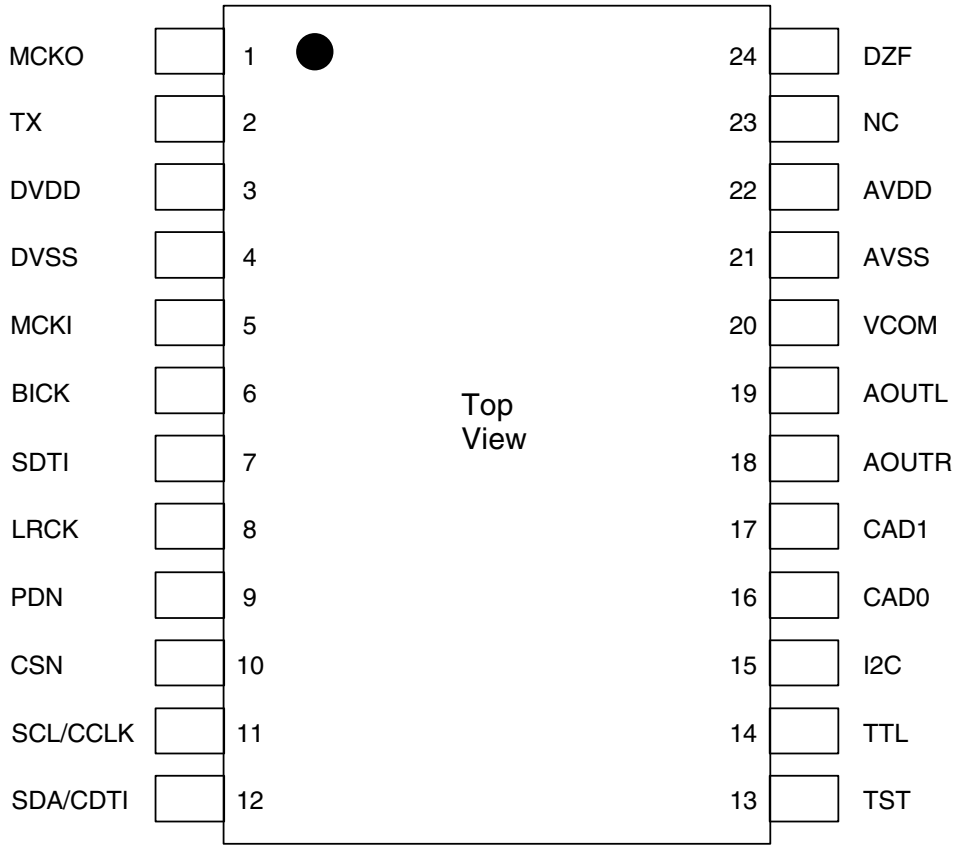


I^2C Bus Control Mode (I2C = "H")

BLOCK DIAGRAM AND PIN DESCRIPTION OF IC - 7

Q611:AK4353
DAC WITH DIT

Pin Layout



BLOCK DIAGRAM AND PIN DESCRIPTION OF IC - 7

Q611:AK4353
DAC WITH DIT

PIN/FUNCTION

No.	Pin Name	I/O	Description
1	MCKO	O	Master Clock Output Pin Same frequency as MCKI is output
2	TX	O	Transmit Channel Output Pin
3	DVDD	-	Digital Power Supply Pin, +2.7~+5.5V
4	DVSS	-	Digital Ground Pin, 0V
5	MCKI	I	Master Clock Input Pin
6	BICK	I	Serial Data Clock Pin
7	SDTI	I	Serial Data Input Pin
8	LRCK	I	Serial Input Channel Clock Pin
9	PDN	I	Power-Down Pin When "L", the circuit is in power-down mode. The AK4353 should always be reset upon power-up.
10	CSN	I	Chip Select Pin at 3-wire Serial control mode This pin should be connected to DVDD at I^2C Bus control mode.
11	SCL	I	Control Clock Pin at I^2C bus control mode
	CCLK	I	Control Clock Pin at 3-wire serial control mode
12	SDA	I/O	Control Data Input/Output Pin at I^2C Bus control mode
	CDTI	I	Control Data Input Pin at 3-wire serial control mode
13	TST	I	Test pin This pin should be connected to DVDD.
14	TTL	I	Digital Input Level Select Pin "L": CMOS, "H": TTL
15	I2C	I	Control Mode Select Pin "L": 3-wire Serial, "H": I^2C Bus
16	CAD0	I	Chip Address Select 0 Pin
17	CAD1	I	Chip Address Select 1 Pin
18	AOUTR	O	Rch Analog Output Pin
19	AOUTL	O	Lch Analog Output Pin
20	VCOM	O	Common Voltage Output Pin, AVDD/2 Used for analog common voltage. Large external capacitor is used to reduce power supply noise.
21	AVSS	-	Analog Ground Pin
22	AVDD	-	Analog Power Supply Pin
23	NC	-	No Connect Nothing should be connected externally to this pin.
24	DZF	O	Zero Input Detect Pin When SDTI follows a total 8192 LRCK cycles with "0" input data or RSTN = "0", this pin goes to "H".

DESCRIPTION OF MAIN MICROPROCESSOR - 1

Q7001, M30624FGAFP

No.	Symbol	I/O	Act.	Description (Function)
1	OSDDA	O	H	Data of OSD communication
2	OSDCL	O	CLK	Clock of OSD communication
3	~OSDCS	O	L	To select OSD communication
4,5	-	O		-
6	~IRIN	I	L	Inflared signal from rear panel (IR IN)
7	~IRMAIN	I	L	Inflared signal from front panel
8	BYTE	I	H	VSS
9	CNVSS	I	H	Change of prosessor mode
10,11	-	O		-
12	~RESET	I	L	Reset
13	XOUT	O		Crystal oscillator, connect to 16MHz oscillator
14	VSS			GND
15	XIN	I		Crystal oscillator, connect to 16MHz oscillator
16	VCC			Power supply, 5V
17	~NMI	I	L	-
18	-	O		-
19	RDSCLK	I	CLK	RDS clock
20	~POFF	I	L	Detect power failure
21~24	-	O		-
25	STBLED	O	H	STANDBY LED
26	-	O		-
27	~FLPOWER	O	L	Control of FL power supply
28	~FLTEST	O	L	FL tube test
29	RTCSCL	O	CLK	Clock of RTC IC
30	RTCSDA	I/O	H	Data of RTC IC
31~34	-	O		-
35	NETTX	O	L	Communication of network microprocessor
36	NETRX	I	L	Communication of network microprocessor
37	-	O		-
38	~ETPOWER	O	L	Control of power supply for ETHER IC
39	~DITPD	O	L	DIT power down
40	~DITCS	O	L	To select DIT
41	(~EPM)	I	L	Connect to VSS
42	-	O		-
43	XPOR	O	L	EP7312 reset
44	~DARST	O	L	DAC reset
45	DACS	O	L	To select DAC
46	(~CE)	I	L	Connect to Vcc
47	DIGCL	O	CLK	Common clock of DIT/DAC
48	DAMUT	O	L	Muting of DAC
49	DIGDO	O	H	Common data of DIT/DAC
50~54	-	O		-
55	VOLDA	O	H	Serial data of TC9412 volume IC
56	VOLCL	O	CLK	Serial clock of TC9412 volume IC

DESCRIPTION OF MAIN MICROPROCESSOR - 2

Q7001, M30624FGAFP

No.	Symbol	I/O	Act.	Description (Function)
57	VOLSTB	O	H	Strobe ofTC9412 volume IC
58	-	O		-
59	AMUT	O	H	Analog muting
60	TUMUT	O	H	Tuner muting
61	-	O		-
62	VCC			Power supply, 5V
63	SPRLY	O	H	Speaker relay
64	VSS			GND
65	-	O		-
66	~STEREO	I	L	Detect STEREO of tuner
67	~SD	I	L	Detect SD of tuner
68	PLLCL	O	CLK	PLL clock of tuner
69	PLLCS	O	H	To select of PLL of tuner
70	PLLDA	O	H	PLL data of tuner
71	RDSSIG	I	H	RDS signal
72	RDSDA	I	H	RDS data
73	~RTCINT	I	L	Interruption signal (1Hz) from RTC IC
74	FLBUSY	I	L	FL tube busy
75,76	-	O		-
77	~SELA	O	L	TC4052 function change, the reversal output terminal of A
78	~SELB	O	L	TC4052 function change, the reversal output terminal of B
79	FLWR	O	H	FL tube WR
80	~FLSEL	O	L	FL tube ~SEL
81	FLDA7	O	H	FL tube data 7
82	FLDA6	O	H	FL tube data 6
83	FLDA5	O	H	FL tube data 5
84	FLDA4	O	H	FL tube data 4
85	FLDA3	O	H	FL tube data 3
86	FLDA2	O	H	FL tube data 2
87	FLDA1	O	H	FL tube data 1
88	FLDA0	O	H	FL tube data 0
89	RDSEN	I	H	To select of RDS function
90	AREA2	I	H	Local setting 2
91	AREA1	I	H	Local setting 1
92	HPDET	I	H	Detect headphone (Insert : "H")
93	-	O		-
94	MODEL	I	H(AD)	Model setting
95	KEY1	I	AD	Key 1
96	AVSS			A/D convertor power supply, connect to VSS
97	KEY0	I	AD	Key 0
98	VREF	I		Reference voltage of A/D convertor
99	AVCC			A/D convertor power supply, connect to Vcc
100	-	O		-

ADJUSTMENT & CONFIRMATIONS OF OPERATIONS

ADJUSTMENT OF FREQUENCY

a) Turn C702 CCW to set minimum position before POWER ON.
b) Set the frequency at P702 to 32768Hz by adjusting C702 under the condition of no input and no load, immediately after POWER ON.
c) After 4 ~ 6 minutes of heat running, re-adjust by following b.

OPERATIONS OF SPEAKER RELAYS

The relay shall be ON about 5 seconds after POWER is ON and shall be OFF immediately after POWER is OFF.

INITIAL SETTING FOR SHIPPING

1. Initialization of memories
   Press STANDBY/ON button while pressing down INPUT button when the unit is POWER ON, then the FLT displays "CLEAR", and turn to STAND-BY. Remove power cord from power line.
2. Other settings
   Pull out the AC cord at the standby mode.

FIRMWARE UPDATE - 1

Arrangements for PC

1 Make the firmware folder under the Net-Tune Central folder.

2 Make the folder of a suitable name (ex.:FWNC500) in that.

3 Putting the following 4 files in that.

Fdist.fdf - File Distribution File

FW_0_1_0.dcf - Device Construciton File

LanY08na.mot - The program of Network microprocessor (The file name changes by the version).

LanY08rb(L).mot - The program of System microprocessor (The file name changes by the version)

4 Start Net-Tune Central.

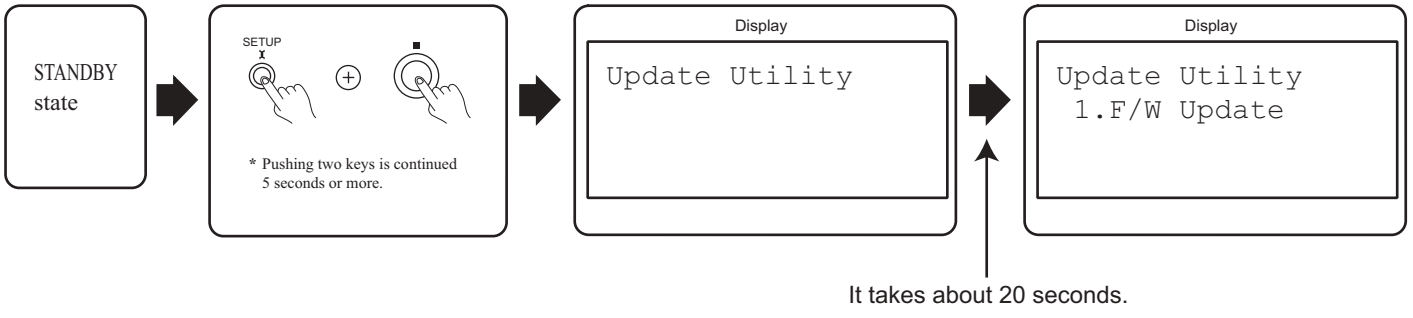
Note!

Update initializes each setting data.

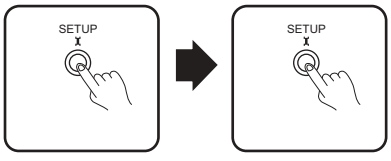
Put only the folder which puts firmware in the firmware folder. And, do not make the folder of the subordinate position from it.

When you replaces or edits the above file, you should end Net-Tune Central once, and restart. Otherwise, the change is not reflected.

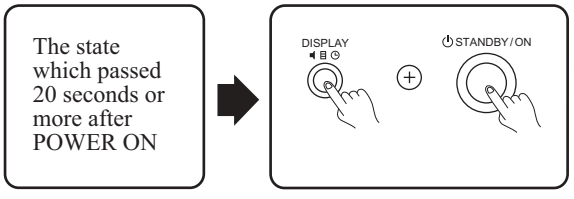
Update Utility : ON



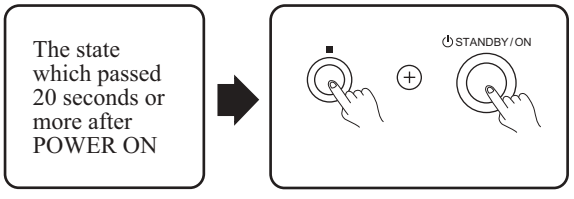
Update Utility : STOP → CANCEL



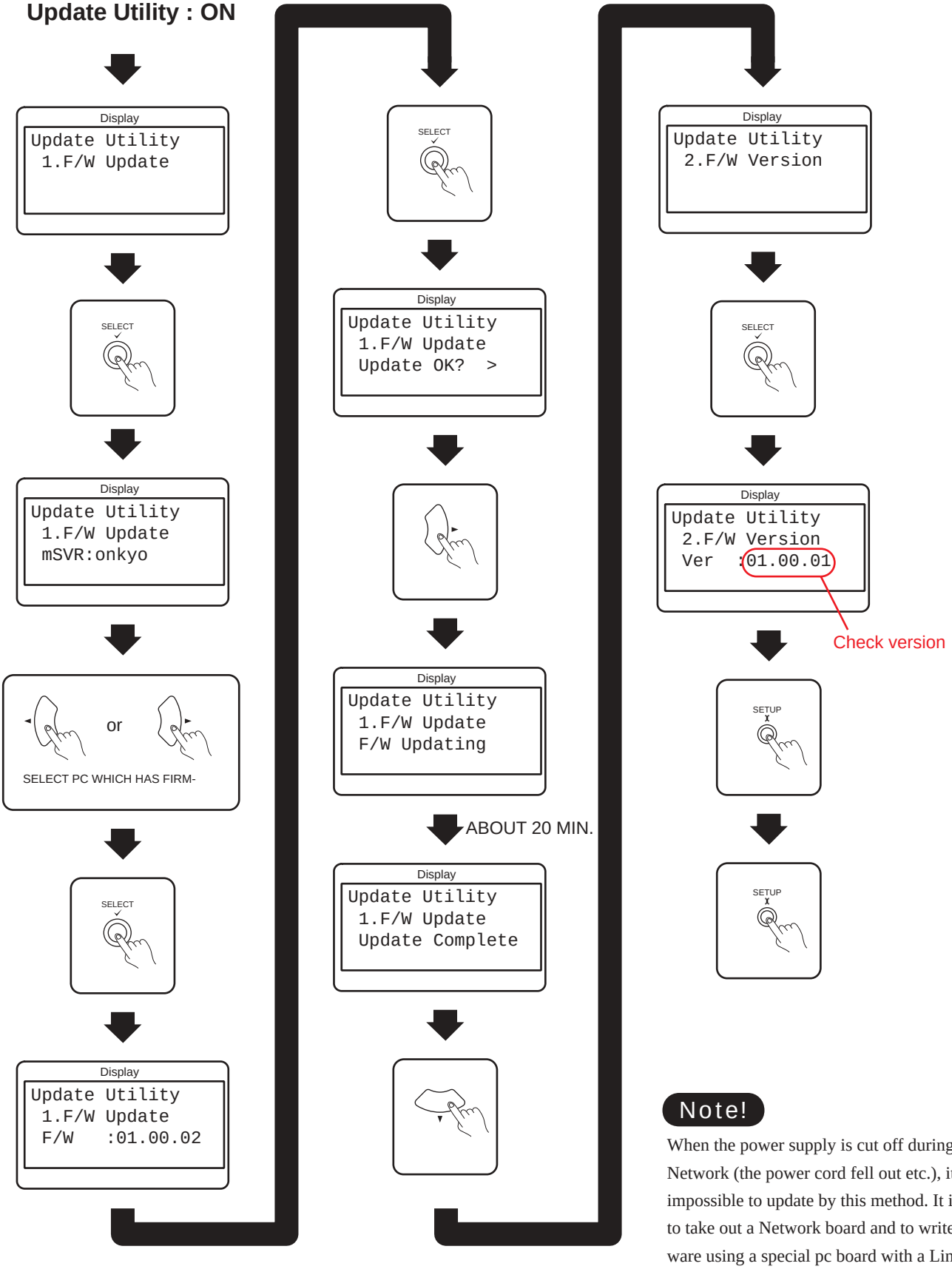
Version Check



Memory Clear



FIRMWARE UPDATE - 2

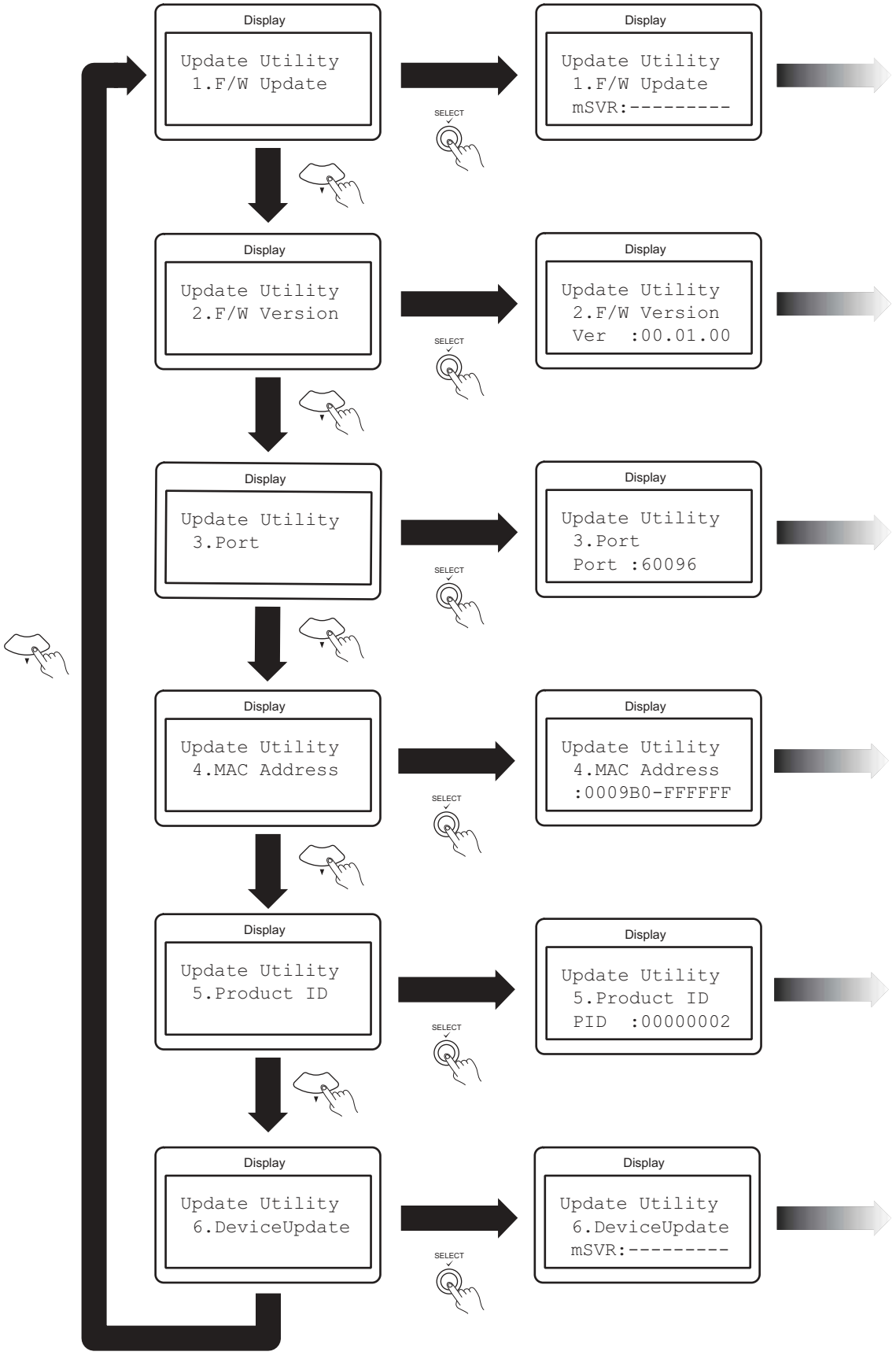


Note!

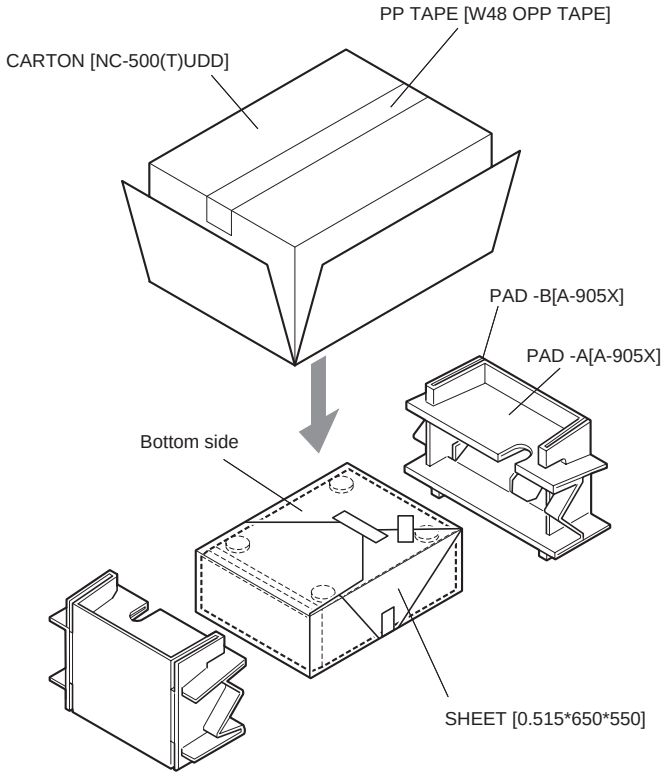
When the power supply is cut off during update of Network (the power cord fell out etc.), it becomes impossible to update by this method. It is necessary to take out a Network board and to write in firmware using a special pc board with a Linux PC.

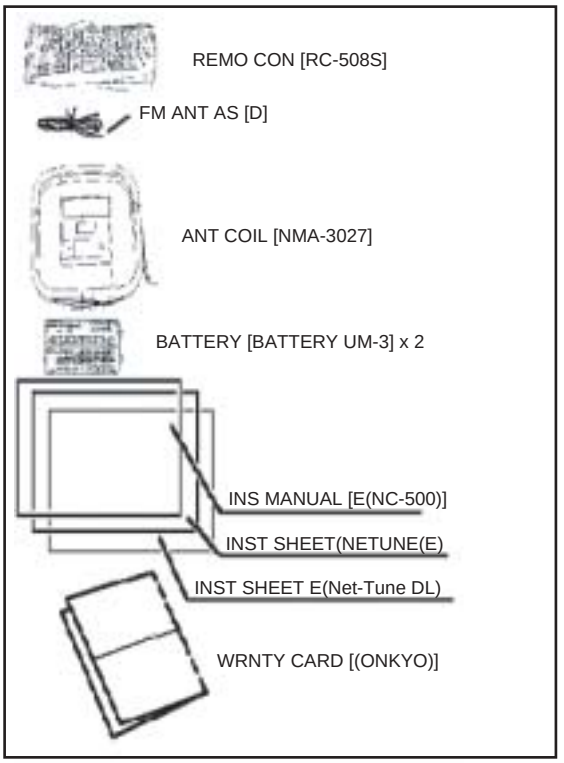
FIRMWARE UPDATE - 4

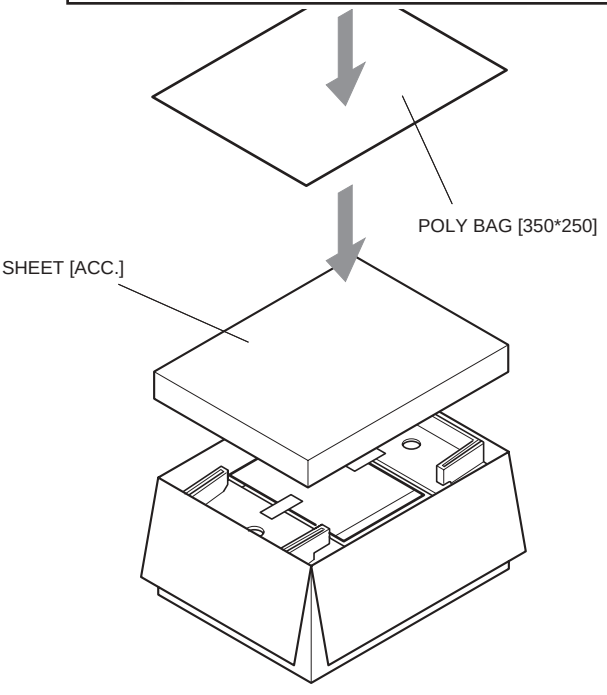
Menu of Update Utility

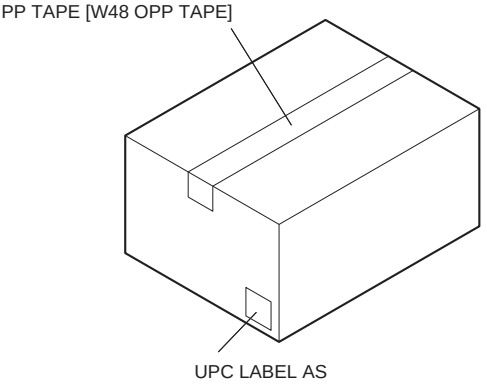


PACKING VIEW









Description	Part Number
POLY BAG [350*250]	29100097-1A
INS MANUAL [E(NC-500)]	29343427A
INST SHEET(NETUNE(E)	29355419
INST SHEET E(Net-Tune DL)	29355424
WRNTY CARD [(ONKYO)]	29365090A
ANT COIL [NMA-3027]	232198
REMO CON [RC-508S]	24140508
FM ANT AS [D]	292142
BATTERY [BATTERY UM-3]	3010054
TAPE [(SEROHAN)NITTO NO.29]	29110149
SHEET [0.515*650*550]	29095835
UPC LABEL AS	29363241
PAD -A[A-905X]	29091886
PAD -B[A-905X]	29091887
SHEET [ACC.]	29095932
PP TAPE [W48 OPP TAPE]	29110148
CARTON [NC-500(T)UDD]	29053969

NC-500

REF.NO. CIRCUIT NO.	PARTS NUMBER	DESCRIPTION
	[NC-500(T)UDD]	
	[00:Pc board AS]	
U000	1W240560-1C	NAAF-7660-1C
U001	1W240551-1C	NADG-7651-1C
U002	1W240553-1C	NAAF-7653-1C
U003	1W240554-1C	NAVD-7654-1C
U004	1W240555-1C	NAPS-7655-1C
U005	1W240556-1C	NADIS-7656-1C
U006	1W240557-1C	NAETC-7657-1C
U009	1W240562-1C	NADG-7662-1C, Network Circuit
	[01:Tuner Unit]	
U101D	240138A or 240134A	ENG06501QR, TUNER UNIT or TFCE1U114B, TUNER UNIT
	[02:Semi Conductor]	
Q501	22241729	LM4765, IC
Q7005	212235A	20S401DA2A, FL TUBE
	[03:Trans Coil]	
T901	2301664	NPT-1457D, P TRANS
	[07:SW TRM]	
Q501A	223025	AC262, ISO SHEET
Q501B	223034	MT-25, TR ACCY
	[09:Chassis Screw]	
A008	27100375E	A-905X, CHASSIS
A009	27175323	(AS), LEG
A015	27141829	RETAINER(AMP)
A016	27191016	NIFCO#2315, HOLDER
A017	27190503A	KGLS-8RF, HOLDER
A018	838130088	3TTB+8B, SCREW
A019	801433	3SMS8W.SW+14B(BC), SCREW
A020	838430068	3TTB+6B(BC), SCREW
A025	27225148	SHLD CASE
A026	27150482	SHLD PLT(PWB)
A029	27190480	HOLDER KGLS-8S, HOLDER
A035	830440089	4TTC+8C(BC), SCREW
A040	27150483	SHLD PLT(FRONT)
A042	27255004	CS-1U, CLIP
A050	27190608-1	(CRAMP) UA-0 V0, HOLDER
A055	27190266	KGLS-12RF, HOLDER
A060	27150448A	(PT), SHLD PLT
A061	880009	P-RIVET NRP-345, RIVET
A101	27123044A	LAN-100(T)UDD, REAR PANEL
A102	838430088	3TTB+8B(BC), SCREW

A103	838430068	3TTB+6B(BC), SCREW
A105	27300750	S-RELIEF #2271, BUSHING
A110	27111299	(T), F BRACKET
A111	28191895	(RE), CLEAR PLT
A112	28191979	FL(WHITE), CLEAR PLT
A113	27141830	RETAINER(JACK)
A114	838130088	3TTB+8B, SCREW
A120	27160525	RAD-182, HEAT SINK
	[10:Cabinet]	
A301	27212452	(T)UDD, F PANEL
A302	28191920	FACET(S)
A303	29110029	W3, DF TAPE
A304	838430088	3TTB+8B(BC), SCREW
A305	28135279	BADGE
A310	28184784	COVER
A315	29362572A	(UD), LABEL
	[11:Packing]	
A501	29053969	NC-500(T)UDD, CARTON
A504	29363241	(UPC)AS, LABEL
A601	29091886	A-905X, PAD-A
A604	29095835	0.515*650*550, SHEET
A607	29110149	(SEROHAN)NITTO NO.29, TAPE
A610	29110148	W48 OPP TAPE, PP TAPE
A622	29091887	A-905X, PAD-B
A623	29095932	ACC., SHEET
	[12:Accessary]	
A801	29343427	E(NC-500), INS MANUAL
A805	29365090A	(ONKYO), WRNTY CARD
A806	292142	D, FM ANT AS
A807	29362900	(RISK), LABEL
A808	29355419	NETUNE(E), INST SHEET
A809	29355424	E(Net-Tune DL), INST SHEET
A851	29100097-1A	350*250, POLY BAG
A852	29110149	(SEROHAN)NITTO NO.29, TAPE
A853	3010054	R6/AA(UM-3), BATTERY
A854	232198	NMA-3027, ANT COIL
U003	24140508	RC-508S, REMO CON
	[99:Other]	
F901	252157	1.25A-UL/T-237, FUSE
P101	2047150512	NCFC7-150512, FFC
P601	2045131012	NCFC5-131012, FFC
P602	2009990754UL	NSAS-8P1060, SOCKET AS
P606	2009990752	NSAS-5P1055, SOCKET AS
P607	2045082012	NCFC5-082012, FFC
P609	2044131512	NCFC4-131512, FFC
P7001	2009990751	NSAS-40P1054, SOCKET AS
P901	253331HDK	AS-UC-2, AC CORD

U000~U006	[NADG-7651-1C]	
	[02:Semi Conductor]	
D301,D302,D501,D902,D911,D912,D7003,D7004,D7005	223234R2	1SS352, C-DIODE
D7001	225290	SEL4110R, LED
D901,D905	22380285F or	RS403M, DIODE or
	22380271F	D3SBA20, DIODE
D913	224490510R2 or	UDZ5.1B, ZENER D or
	224550510R2	UDZS5.1B, ZENER D
D951	22380320	RK16, DIODE
Q101,Q102,Q307,Q308,Q309,Q310,Q323,Q324	2213631	RN1241-A, TR
Q103	2213510	DTA114ES, TR
Q201,Q202,Q203,Q302,Q303	22241383R2	NJM4565M-D, IC
Q271	22241884R2	LC74761M-9848, IC
Q274,Q275	2212125	2SA1048-GR, TR
Q301	22241854	TC9413AP, IC
Q304,Q313,Q505	2216350R2	KRA107S, TR
Q305	222840521R2 or	4052BF(TC4052BF), IC or
	222840521R1 or	4052BF(TC4052BF), IC or
	222840521R9	4052BF(TC4052BF, IC
Q311,Q312	2213640	DTC123JS, TR
Q502	2211256	2SC1815-BL, TR
Q503,Q504,Q908,Q909	2216761R2	IRLML6401, TR
Q7001	22241857	M30624FGAFP(NAC-2.3), IC
Q7002	2214490R2	RN1404, TR
Q714	22241856R2	S-3531AEFS, IC
Q901	222780125JRC	78M12HF(NJM78M12FA), IC(REGULATOI
Q902	222790125JRC or	79M12HF(NJM79M12FA), IC(REGULATOI
Q904	2216260R2 or	RN1407, TR or
	2216340R2	KRC107S, TR
Q906	2216260R2	RN1407, TR
Q905	22241853	SI-8010GL, IC
Q907	22278012ENE	MPC29M12HF, IC(REGULATOR)
Q910	24120080	PC817X, PHT CP
Q911,Q912	2214470R2	RN1402, TR
Q913	222780565JRC	78M56(NJM78M56FA), IC(REGULATOR)
	[03:Trans Coil]	
L271	231086	NCH-2134, CHOKE COIL
L501,L502	231176S	S-1.3C, S COIL
L901	231252 or	NCH-3489, CHOKE COIL or
	231287 or	NCH-3567, CHOKE COIL or
	231301 or	NCH-3581, CHOKE COIL or

	231305	NCH-3584, CHOKE COIL
L951	231328K470	NCH-3603K470, CHOKE COIL
	[04:Capacitor]	
C101,C920	354784799	CE04W50V-0.47M, ELECT C
C102	354780339	CE04W50V-3.3M, ELECT C
C104	353780109	CE04W50V-1M(S), ELECT C
C201,C202	374721024	ECQ-B50V-102J, TF C
C203,C204	374722724	ECQ-B50V-272J, TF C
C205,C206	374721824	ECQ-B50V-182J, TF C
C209,C210,C357,C358	354744709	CE04W16V-47M, ELECT C
C211,C212,C934	354742219	CE04W16V-220M, ELECT C
C256	354724719	CE04W6.3V-470M, ELECT C
C275,C296	354780109	CE04W50V-1M, ELECT C
C276	374726824	ECQ-B50V-682J, TF C
C282,C289	354721019	CE04W6.3V-100M, ELECT C
C297	354744709	CE04W16V-47M, ELECT C
C301,C302	353781009	CE04W50V-10M(S), ELECT C
C303,C304	353742209	CE04W16V-22M(S), ELECT C
C305,C306,C371	355741019	CE04W16V-100M, ELECT C
C307,C384	354780479	CE04W50V-4.7M, ELECT C
C321,C322,C351,C352,C391,C392,C393,C394	373022214R2	ECHU50V-221J, C-FILM C
C329,C330	353744709	CE04W16V-47M(S), ELECT C
C501,C502	354781009	CE04W50V-10M, ELECT C
C505,C506	354722219	CE04W6.3V-220M, ELECT C
C511,C512,C907	374721044	ECQ-V50V-104J, TF C
C521,C903,C904	374722234	ECQ-B50V-223J, TF C
C523,C524	374721024	ECQ-B50V-102J, TF C
C7001	354780229	CE04W50V-2.2M, ELECT C
C7003	3000116 or 3000089	EECS5R5V105, CONDENSER or DX-5R5V105, EDL C
C7010	353721019	CE04W6.3V-100M(S), ELECT C
C702	3060016	NTC-30P14, TRIMMER
C7203,C7204	374724744	ECQ-V50V-474J, TF C
C901,C902	3300030	DE1307E472M-KH, IS C
C905,C906	374723344	ECQ-V50V-334J, TF C
C908	3500183	CE04W35V-4700MLQ□□, ELECT C
C909,C7205	354721019	CE04W6.3V-100M, ELECT C
C913,C914	393364727	CE04W35V4700M, SPC C
C915,C916	354762219	CE04W35V-220M, ELECT C
C951,C961	393752217	CE04W25V-220M(PW), PW C
C952,C962	393724717	CE04W6.3V-470M(PW), PW C
X271	3010363T	HC-49/U0314.318M, CRYSTAL
	[05:Resistor]	

R225,R226,R305,R306 .R525.R526	453530474	RNU1/2WCJ-4.7, METAL R
R296	443521014	RS1/2WBJ-100, METAL O R
R355,R356	443523914	RS1/2WBJ-390, METAL O R
R366	443521034	RS1/2WBJ-10K, METAL O R
R523,R524	443521004	RS1/2WBJ-10, METAL O R
R901,R902	453532294	RNU1/2WCJ-0.22, METAL R
R905,R912,R913,R914 .R915	453530224	RNU1/2WCJ-2.2, METAL R
R907,R908	443521514	RS1/2WBJ-150, METAL O R
R909	443524714	RS1/2WBJ-470, METAL O R
R916,R917	4000206S	RD1/2SPH-3.3M, RESISTOR
R918	443521014	RS1/2WBJ-100, METAL O R
R922	453534794	RNU1/2WCJ-0.47, METAL R
R923,R924	443621204	RS1WBJ-12, METAL O R
R951	443524704	RS1/2WBJ-47, METAL O R
	[07:SW TRM]	
E901	25065425	NEGITANSI M3, TRM(SCREW)
P501	25060306	NTM-4PDML237, TRM
RL501	25065582 or	NRL-2P5A-DC18-138, RELAY or
	25065605	NRL-2P5A-DC18-154, RELAY
RL901	25065643 or	NRL-2P5A-DC18-168, RELAY or
	25065642	NRL-2P5A-DC18-167, RELAY
S7001,S7002	25035715	NPS-111-S678, PUSH SW
S7003,S7004,S7005,S 7006,S7007,S7011,S7 012,S7013,S7014,S70 15,S7016,S7017,S701 8	25035699	NPS-111-S662, PUSH SW
	[08:Mecha Parts]	
E501,E7001,E7002	25065425	NEGITANSI M3, TRM(SCREW)
Q907A	27160220	HEAT-SINK(RAD-51(B)), RADIATOR
Q907B	82143010	3P+10FN(BC), SCREW
	[99:Other]	
F901A,F901B	25052133	NSCT-1P2031, FUSE HOL
P01	25055704	NPLG-8P660, PLUG
P101B	25051822	NSCT-15P1609, SOCKET
P102A	25051530	NSCT-19P1317, SOCKET
P102B	25055808	NPLG-19P764, PLUG
P251	25045547	NPJ-1PDYE368, PIN JACK
P306A	25051239	NSCT-14P1029, SOCKET
P306B	25055710	NPLG-14P666, PLUG
P308	8J100606B15	JL8 100 B, JUMPER LEAD
P503B	25050267	NSCT-3P95, SOCKET
P504A	2009990685UL	NSAS-12P0952, SOCKET AS
P504B	25055444	NPLG-6P426, PLUG
P506	25045571 or	NPJ-6PDRW386, PIN JACK or

	25045300	NPJ-6PDBL159, JACK
P510	27141772	BBL15, BUS BAR
P551	25045714	YKB21-5133, ST JACK
P601	25052724	NSCT-8P2620, SOCKET
P602A	25055148	NPLG-4P132, PLUG
P606A	25055149	NPLG-5P133, PLUG
P608A,P610A	25052507	NSCT-13P2404, SOCKET
P7001A	25056173	NPLG-20P1112, PLUG
P7003A	25051089	NSCT-5P876, WIRE HOL
P7003B	25055626	NPLG-5P588, WIRE TRAP
P702	25055038	NPLG-2P29, PLUG
P901A	25055675	NPLG-2P631, PLUG
P907	25045387	YKB21-5130, JACK
P924	27141772	BBL15, BUS BAR
U7001	241345	PIC-37043SMI, REMO SENS
X703	3010282	DT-38, CRYSTAL
X7201	3010322	CST16.00MXW0C1, CERA LOCK
U009	[NADG-7662-1C]	
	[02:Semi Conductor]	
D601,D604,D605	223234R2	1SS352, C-DIODE
D603	225385R2	SEC1201C, LED
Q601	22241778R2	BA33C25FP, IC
Q603,Q608	22241861R3	HM5264165FTT-B6, IC
Q604	22241862R3	MX29LV320BTC-90, IC
Q605	22241821R2	WM8716EDS, IC
Q606	22241872R2	93LC46BT/SN, IC
Q607	22241863R3	EP7312-CV, IC
Q609,Q618	22241161R2	TC7W14FU, IC
Q610	22241159R2	TC7S02FU, IC
Q615	22241642R2	S-80127CNMC-JKM-T2, IC
Q616	22241867R3	CS8900A-CQ3, IC
Q617	22241289R2	NJM2370U05, IC
	[03:Trans Coil]	
L601,L605,L606	230949R2	BLM21P221SG, CHOKE COIL
L603	3030048R2	NFE31PT471F1E9, EMI FIL
L607	231237K470R2	NCH-1479, CHOKE COIL
X601	3010374R2	DSO-751SV, CRYSTAL
X602	3010371R2	DSX630G, CRYSTAL
X604	3010373R2	SMD-49, CRYSTAL
	[04:Capacitor]	
C601	356724709R2	CEWX6.3V-47M, CHIP ELECT C
C602	395530477R2	F93-10V-4.7M, CHIP TANTAL
C614	395544707R2	F93-16V-47M, CHIP TANTAL
C615,C637,C679	395521017R2	F93-6.3V-100M, CHIP TANTAL
C638,C645,C647,C693	356721019R2	CEWX6.3V-100M, CHIP ELECT C
C640,C649	393322217	CE04W6.3V-220M(VX), VX C

C641,C650	374721044	ECQ-V50V-104J, TF C
C694	356741009R2	CEWX16V-10M, CHIP ELECT C
	[05:Resistor]	
R697	43474510308R2	RM1/16IJB10KX08, C-R NET
	[07:SW TRM]	
E601,E602,E603,E604	25065425	NEGITANSI M3, TRM(SCREW)
P009	25137662B	NCDG-7662, PWB
P602B	25056180R2 or	NPLG-4P1119, PLUG or
	25055964R2	NPLG-4P917, PLUG
P606B	25056163R2 or	NPLG-5P1102, PLUG or
	25056182R2	NPLG-5P1121, PLUG
P607B	25056181R2 or	NPLG-5P1120, PLUG or
	25055965R2	NPLG-5P918, PLUG
P608B,P610B	25052711R2	NSCT-13P2607, FFC SOCKET
	[11:Packing]	
A701	29363264	(MAC), LABEL

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