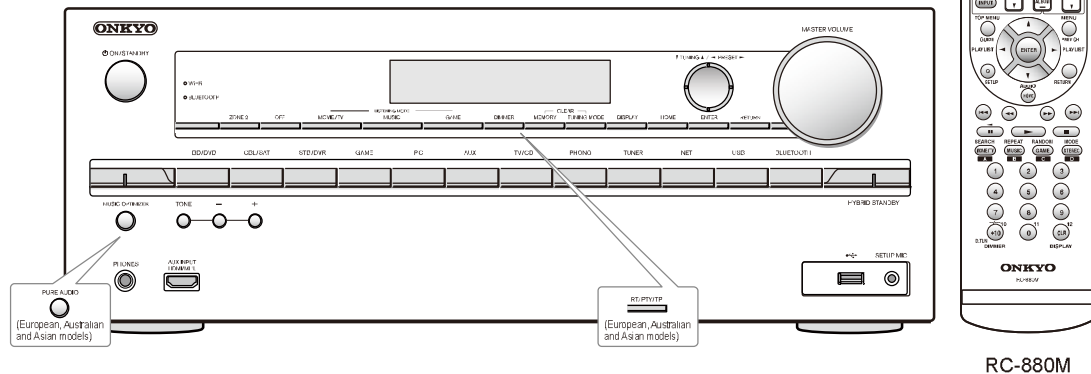


ONKYO® SERVICE MANUAL

AV RECEIVER MODEL TX-NR636(B)/(S)




RC-880M

Black and Silver models

B MDC, B MDF	120V AC, 60Hz
B MMR	220-240V AC, 50/60Hz
B MMP, B MMB, B MMA, S MMP	220-240V AC, 50/60Hz

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.

Onkyo Corporation
Service Department

DEBUG MODE-1
AUDIO DEBUG MODE-1/5

The operations of DSP and DIR etc are able to checked by the information displayed on FL in this debug mode.
 This information will help to analysing digital audio no sound trouble.

To set in Debug mode

1. Press **twice** the **ON/ STANDBY** key while pressing the **DISPLAY** key.

e.g. *M1.03/14307ALN* — The version number of Microprocessor is displayed only for 3 seconds.

2. Press **+** (**TONE**) button while the version number of microprocessor is displayed.

e.g. *N1.02/14210ALA* — The version number of DSP is displayed only for 3 seconds.

3. Press **DISPLAY** button while the version number of DSP is displayed.

e.g. *0A0002: :00* **Step-1**

4. Proceed to the next step by pressing the **DISPLAY** key.

ANA:o:NON:C: **Step-2**



1:ANA 048k048k **Step-3**



2/0.0: 2.0:3/4 **Step-4**



2:o:PCM :PCM **Step-5**



00:x:F:OFF **Step-6**



*SP00F*00F00409* **Step-7**



48 48256STB **Step-8**



L :0000 0000



SW :0000 0000



SW :0000 0000

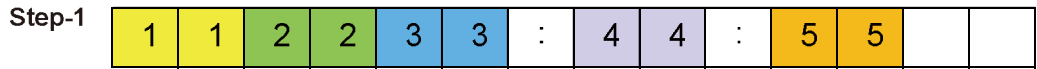


Exit

AUDIO debug mode
 The status of DSP and DIR etc will be displayed.

DEBUG MODE-2
AUDIO DEBUG MODE-2/5

FL Display



1. st_srd.lmd

01	C_LM_LAST
02	C_LM_PURE
03	C_LM_DIRECT
04	C_LM_STEREO
05	C_LM_MONO
20	C_LM_SURR
50	C_LM_THX_MUSIC
70	C_LM_THX_GAME
90	C_LM_THX_CINEMA
A0	C_LM_THX_U2GAME
A8	C_LM_THX_U2MUSIC
B0	C_LM_THX_U2CINEMA
D0	C_LM_AUDYSSEY
48	C_LM_DTSSS
06	C_LM_ORCHESTRA
07	C_LM_UNPLUGGED
08	C_LM_STUDIOMIX
09	C_LM_TVLOGIC
0A	C_LM_ALLCHST
0B	C_LM_FULLMONO
0C	C_LM_TD
F1	C_LM_TESTTONE
F2	C_LM_TESTTHR
F3	C_LM_TESTAUTO

F4	C_LM_ASC
F5	C_LM_FLASH
F6	C_LM_DEBUGMODE
F7	C_LM_FLASH2
F8	C_LM_FLASH3
F9	C_LM_FLASH4
FA	C_LM_FLASH_CHECK
0D	C_LM_RPG
0E	C_LM_ACTION
0F	C_LM_ROCKBAND
10	C_LM_SPORTS

3. st_srd.extdecmd

00	C_EXTDECMD_OFF
01	C_EXTDECMD_10
02	C_EXTDECMD_20
03	C_EXTDECMD_MOVIE
04	C_EXTDECMD_MUSIC
05	C_EXTDECMD_GAME
06	C_EXTDECMD_HEIGHT
07	C_EXTDECMD_WIDE

2. st_srd.extdec

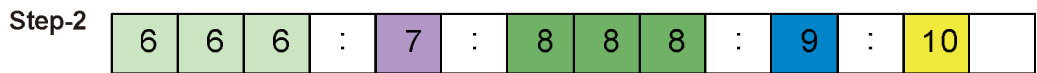
00	C_EXTDEC_OFF
01	C_EXTDEC_20_PLII
02	C_EXTDEC_20_PLIIX
03	C_EXTDEC_20_PLIIZ
04	C_EXTDEC_20_NEO6
05	C_EXTDEC_51_MTR
06	C_EXTDEC_51_DSC
07	C_EXTDEC_51_NEO6
08	C_EXTDEC_51_EX
09	C_EXTDEC_51_PLIIX
0A	C_EXTDEC_51_PLIIZ
0B	C_EXTDEC_9624
0C	C_EXTDEC_9624_MTR
0E	C_EXTDEC_71MULTI
0F	C_EXTDEC_20_NEURAL
10	C_EXTDEC_51_NEURAL

4. Muting port

D	DIGMUTE port
A	AMUTE port

5. Factor of muting

bit_1	SELMUTE
bit_2	POWMUTE
bit_3	PROTECTMUTE
bit_4	AUDIOOUTMUTE
bit_5	AUDIOMUTE
bit_6	DIRMUTE
bit_7	DACMUTE
bit_8	HDMIMUTE



6. Audio input channel

ANA	Analog
COX	Coaxial
OPT	Optical
HDM	HDMI
ARC	ARC

8. HDMI audio lock

STB	SOUND STATE FIX
TRS	SOUND STATE UNFIX
NON	SOUND STATE NONE

10. RX mute

V	HDMI MUTE
---	-----------

7. DSP decode

o	DSP Detect OK
x	DSP No Detect

9. Display inhibit frag

S	display_inhibit SET
C	display_inhibit CLR

DEBUG MODE-3
AUDIO DEBUG MODE-3/5

Step-3

1	:	11	11	11	11	12	12	12	k	13	13	13	k
---	---	----	----	----	----	----	----	----	---	----	----	----	---

11. Source_format

UNLK	DDR_UNLOCK
ANA	DDR_ANALOG
PCM	DDR_PCM
AC3	DDR_AC3
DTS	DDR_DTS
MPEG	DDR_MPEG
DATA	DDR_DATA
UNKW	DDR_UNKNOWN
NORD	DDR_NOT_READY
NPCM	DDR_NOT_PCM
FS96	DDR_FS96
NODT	DDR_NOT_DETECT

12. st_srd.fs

???	unknown
008	8kHz
011	11kHz
012	12kHz
016	16kHz
022	22kHz
024	24kHz
032	32kHz
044	44.1kHz
048	48kHz
064	64Hz
088	88.2kHz
096	96kHz
176	176.4kHz
192	192kHz

13. st_hd_display.fs

???	unknown
008	8kHz
011	11kHz
012	12kHz
016	16kHz
022	22kHz
024	24kHz
032	32kHz
044	44.1kHz
048	48kHz
064	64Hz
088	88.2kHz
096	96kHz
176	176.4kHz
192	192kHz

Step-4

14	14	14	.	15	:	16	16	16	16	:	17	17	17
----	----	----	---	----	---	----	----	----	----	---	----	----	----

14. Information of the input channels for listening mode transition

???	C_FMT_UNKNOWN
10	C_FMT_10
20	C_FMT_20
30	C_FMT_30
21	C_FMT_21
31	C_FMT_31
22	C_FMT_22
32	C_FMT_32
23	C_FMT_23
33	C_FMT_33
24	C_FMT_24
34	C_FMT_34
4H2	C_FMT_42H
5H2	C_FMT_52H
4W2	C_FMT_42W
5W2	C_FMT_52W
4H4	C_FMT_44H

4H3	C_FMT_43H
5H4	C_FMT_54H
5H3	C_FMT_53H
4W4	C_FMT_44W
4W3	C_FMT_43W
5W4	C_FMT_54W
5W3	C_FMT_53W
11	C_FMT_11

31	C_FMT_31
22	C_FMT_22
32	C_FMT_32
23	C_FMT_23
33	C_FMT_33
24	C_FMT_24
34	C_FMT_34
4H2	C_FMT_42H
5H2	C_FMT_52H
4W2	C_FMT_42W
5W2	C_FMT_52W
4H4	C_FMT_44H
4H3	C_FMT_43H
5H4	C_FMT_54H
5H3	C_FMT_53H
4W4	C_FMT_44W
4W3	C_FMT_43W
5W4	C_FMT_54W
5W3	C_FMT_53W
11	C_FMT_11

15. Information of the LFE channel input

0	SW 0ch
1	SW 1ch
2	SW 2ch

16. Channel information for the FL display
four-digit string "10.2" "5.1" "1 +1"

17. Number of channels after decoding

???	C_FMT_UNKNOWN
10	C_FMT_10
20	C_FMT_20
30	C_FMT_30
21	C_FMT_21

DEBUG MODE-4
AUDIO DEBUG MODE-4/5

Step-5 2 : 18 : 19 19 19 19 : 20 20 20 20

18. Audio output OK/NG

o	decode OK
x	decode NG

19. Details of input format

ANA	C_SRC_ANA
PCM	C_SRC_PCM
DLB	C_SRC_DD
DEX	C_SRC_DD_EX
DTS	C_SRC_DTS
MTR	C_SRC_DTS_MTR
DSC	C_SRC_DTS_DSC
D96	C_SRC_DTS_96
96M	C_SRC_DTS_96M
AAC	C_SRC_AAC
MCH	C_SRC_MCH
DSP	C_SRC_DSP
MPCM	C_SRC_MCHPCM
DSD	C_SRC_DSD
TRUE	C_SRC_TRUE
TREX	C_SRC_TRUE_EX
MSTR	C_SRC_MSTR
PLUS	C_SRC_DDPLUS
PLEX	C_SRC_DDPLUS_EX
EXP	C_SRC_DTSEXP
DTSH	C_SRC_DTSHD
DSUR	C_SRC_DD_SUR
DPSR	C_SRC_DDPLUS_SUR
TRSR	C_SRC_TRUE_SUR

20. Details of the format for the FL display

ANA	C_SRC_ANA
PCM	C_SRC_PCM
DLB	C_SRC_DD
DEX	C_SRC_DD_EX
DTS	C_SRC_DTS
MTR	C_SRC_DTS_MTR
DSC	C_SRC_DTS_DSC
D96	C_SRC_DTS_96
96M	C_SRC_DTS_96M
AAC	C_SRC_AAC
MCH	C_SRC_MCH
DSP	C_SRC_DSP
MPCM	C_SRC_MCHPCM
DSD	C_SRC_DSD
TRUE	C_SRC_TRUE
TREX	C_SRC_TRUE_EX
MSTR	C_SRC_MSTR
PLUS	C_SRC_DDPLUS
PLEX	C_SRC_DDPLUS_EX
EXP	C_SRC_DTSEXP
DTSH	C_SRC_DTSHD
DSUR	C_SRC_DD_SUR
DPSR	C_SRC_DDPLUS_SUR
TRSR	C_SRC_TRUE_SUR

Step-6 21 21 : 22 : 23 : 24 24 24 25 25

21. Dialog norm
Dialog Norm value from 0 to 31

22. Return value of DIRINT Request_dir (DDC_STATUS)

o	LOCK
x	UNLOCK

23. Return value of DIR busy or free
Request_dir (DDC_BUSY)

F	Free
B	Busy

24. emphasis of information

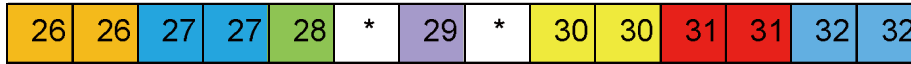
ON	ON
OFF	OFF

25. HDDVD/BLUE(only DDPLUS)

BD	Bluray
HD	HDDVD

DEBUG MODE-5
AUDIO DEBUG MODE-5/5

Step-7



26. AudiIF DA830 input

IH	AUD_IF_I2S_H
DS	AUD_IF_DSD
IS	AUD_IF_I2S
NT	AUD_IF_NET
SP	AUD_IF_SPDIF
AD	AUD_IF_ADC
HR	AUD_IF_DDDTSHR

0B	CLOCK_FREQ_88K
0C	CLOCK_FREQ_96K
0D	CLOCK_FREQ_128K
0E	CLOCK_FREQ_176K
0F	CLOCK_FREQ_192K

31. DIR switch sequence number

00	SEQ_SWITCH_POWEROFF
01	SEQ_SWITCH_RESET
02	SEQ_SWITCH_POWERON_WAIT
03	SEQ_SWITCH_CHANGE
04	SEQ_SWITCH_FREE

27. Information of DIR Burst Preamble

DS	DTSHD HR
DP	DD PLUS
Preamble Val	0x??

30. DIR sequence number

00	SEQ_DIG_POWEROFF
10	SEQ_DIG_RESET
11	SEQ_DIG_POWERON_WAIT
12	SEQ_DIG_RESTART
13	SEQ_DIG_WAIT_HDMI_FREE
20	SEQ_DIG_INPSEL_SET
30	SEQ_DIG_ANALOG_SET
31	SEQ_DIG_DIGITAL_SET
32	SEQ_DIG_MCHPCM_SET
33	SEQ_DIG_MCHANA_SET
34	SEQ_DIG_DDPDTSHD_SET
35	SEQ_DIG_NET_SET
40	SEQ_DIG_INIT_ERROR
41	SEQ_DIG_CHK_ERROR1
42	SEQ_DIG_CHK_ERROR2
43	SEQ_DIG_CHK_FREE
50	SEQ_DIG_CHK_ANALOG
60	SEQ_DIG_LOCK_PLL
61	SEQ_DIG_LOCK_ANA
f0	SEQ_DIG_FREE
f1	SEQ_DIG_FREE_ANA

32. DAC sequence number

00	SEQ_DAC_POWEROFF
01	SEQ_DAC_RESET
02	SEQ_DAC_POWERON_WAIT
03	SEQ_DAC_INITIALIZE
04	SEQ_DAC_RESTART
05	SEQ_DAC_CMND_SET
06	SEQ_DAC_FREE_WAIT
07	SEQ_DAC_FREE

28. DIR Free or Busy

F	Free
B	Busy

29. DIR Detect Fs

00	CLOCK_FREQ_UNKNOWN
01	CLOCK_FREQ_8K
02	CLOCK_FREQ_11K
03	CLOCK_FREQ_12K
04	CLOCK_FREQ_16K
05	CLOCK_FREQ_22K
06	CLOCK_FREQ_24K
07	CLOCK_FREQ_32K
08	CLOCK_FREQ_44K
09	CLOCK_FREQ_48K
0A	CLOCK_FREQ_64K

Step-8



33. Information of the input FS of DA830

UNK	C_FS_UNKNOWN
8	C_FS_08
11	C_FS_11
12	C_FS_12
16	C_FS_16
22	C_FS_22
24	C_FS_24
32	C_FS_32
44	C_FS_44
48	C_FS_48
64	C_FS_64
88	C_FS_88
96	C_FS_96
176	C_FS_176
192	C_FS_192

34. Information of the output FS of DA830

UNK	C_FS_UNKNOWN
8	C_FS_08
11	C_FS_11
12	C_FS_12
16	C_FS_16
22	C_FS_22
24	C_FS_24
32	C_FS_32
44	C_FS_44
48	C_FS_48
64	C_FS_64
88	C_FS_88
96	C_FS_96
176	C_FS_176
192	C_FS_192

35. Information of the input MCLK of DA830

64	AUD_MCLK_64Fs
128	AUD_MCLK_128Fs
256	AUD_MCLK_256Fs
384	AUD_MCLK_384Fs
512	AUD_MCLK_512Fs
640	AUD_MCLK_640Fs
768	AUD_MCLK_768Fs

36. State of the audio input of DA830

NO	AUD_STS_SOUND_NO
TRS	AUD_STS_SOUND_TRANS
STB	AUD_STS_SOUND_STAB

DEBUG MODE-6 HDMI RESOLUTION DISPLAY-1/4

HDMI-related operations can be checked to some extent by displaying HDMI debug mode.

To enter this mode

Hold down **DISPLAY** button for 3 seconds. Information display will last for about 8 seconds.

Resolution display method

Input resolution

1 0 8 0 i / 6 0 →

Output resolution

1 0 8 0 i / 6 0

List of standard resolution

4 8 0 i / 6 0	# 5 7 6 i / 5 0	5 7 6 p 2 0 0
4 8 0 p / 6 0	# 5 7 6 p / 5 0	5 7 6 i 2 0 0
1 0 8 0 i / 6 0	# 2 8 8 p / 5 0	4 8 0 p / 6 0
7 2 0 p / 6 0	1 0 8 0 p / 2 4	4 8 0 p 2 4 0
1 0 8 0 p / 6 0	1 0 8 0 p / 2 5	4 8 0 i 2 4 0
2 4 0 p / 6 0	1 0 8 0 p / 3 0	* 4 8 0 p / 6 0
# 4 8 0 i / 6 0	V G A	* 5 7 6 p / 5 0
# 4 8 0 p / 6 0	1 0 8 0 i 1 0 0	7 2 0 p / 2 4
# 2 4 0 p / 6 0	7 2 0 p 1 0 0	7 2 0 p / 2 5
5 7 6 i / 5 0	5 7 6 p 1 0 0	7 2 0 p / 3 0
5 7 6 p / 5 0	5 7 6 i 1 0 0	
1 0 8 0 i / 5 0	1 0 8 0 i 1 2 0	
7 2 0 p / 5 0	7 2 0 p 1 2 0	
1 0 8 0 p / 5 0	4 8 0 p 1 2 0	
2 8 8 p / 5 0	4 8 0 i 1 2 0	

Display of Input Resolution

DVI input signal	<p>4 8 0 I / 6 0 →</p> <p>4 8 0 P / 6 0 →</p> <p>"I" and "P" will be capitalized.</p>
VGA input signal	<p>* V G A →</p> <p>Display the " * " in column 1</p>
21:9	<p>1 0 8 0 p / 6 0 2 1 : 9 →</p>
No input	<p>U n k n o w n →</p>

DEBUG MODE-7 HDMI RESOLUTION DISPLAY-2/4

Display of Output Resolution

For a video processor	Via VSP Display the " → " in column 4	→ 1 0 8 0 i / 6 0
	VSP skip	1 0 8 0 i / 6 0
DVI input signal	i / p will be capitalized.	4 8 0 I / 6 0
		4 8 0 P / 6 0
VGA input signal	Display the " * " in column 5	* 4 8 0 p / 6 0
21:9	Aspect ratio	→ 1 0 8 0 i / 6 0 * 2 1 : 9
RSEN is OFF	Display the " * " in column 14	4 8 0 p / 6 0 *
EDID_READ is NG	Display the " # " in column 14	4 8 0 p / 6 0 #
Resolution Error	Display the " x " in column 14	4 8 0 p / 6 0 x
No output (Signal output destination can not be found.)		- - - - -
Hot-plug of Sink equipment can not be detected.		O F F

4K Upscaling

Display of Input resolution 1 0 8 0 i / 6 0 →

Display of Output resolution * * * * x * * * * p / * *

* * * If the three-digit numbers are refrate

List of resolution

3 8 4 0 x 2 1 6 0 p / 3 0
3 8 4 0 x 2 1 6 0 p / 2 5
3 8 4 0 x 2 1 6 0 p / 2 4
4 0 9 6 x 2 1 6 0 p / 2 4

Resolution Error 3 8 4 0 x 2 1 6 0 p / 3 0 x

EDID_READ_NG 3 8 4 0 x 2 1 6 0 p / 3 0 #

3D Display

Resolution display 1 0 8 0 p / 2 4 (3 D)

Status Display H D M I 4 4 4 3 6 b i t

3D format F r a m e P a c k i n g

INPUT/OUTPUT I N : O U T :

RSEN OFF	Display the " * " in column 14	1 0 8 0 p / 2 4 (3 D) *
EDID READ NG	Display the " # " in column 9	H D M I 4 4 4 # 3 6 b i t
Resolution Error	Display the " x " in column 13	1 0 8 0 p / 2 4 (3 D) x

DEBUG MODE-8

HDMI RESOLUTION DISPLAY-3/4

Status		
Input Mode	HDMI input	H D M I 4 4 4 3 6 b i t
	DVI input	D V I 4 4 4 3 6 b i t
	No input	- - - 4 4 4 3 6 b i t
Input Color	RGB	H D M I R G B 3 6 b i t
	422	H D M I 4 2 2 3 6 b i t
	444	H D M I 4 4 4 3 6 b i t
Deep Color	24bit	H D M I R G B 2 6 b i t
	30bit	H D M I R G B 3 0 b i t
	36bit	H D M I R G B 3 6 b i t
3D format		
Frame Packing	F r a m e P a c k i n g	
Field alternative	F a l t e r n a t i v e	
Line alternative	L a l t e r n a t i v e	
Side-by-Side(Full)	S i d e b y S i d e (F)	
L+depth	L + d e p t h	
L+depth + graphics	L + d e p t h g r a p h i c	
Side by Side(Harf)	S i d e b y S i d e (H)	
Top and Bottom	T o p - a n d - B o t t o m	
unknown	U N K N O W N	
INPUT/ OUTPUT		
	I N : * * O U T : * *	

DEBUG MODE-9 HDMI RESOLUTION DISPLAY-4/4

PC Resolution

Input Resolution 1 0 2 4 x 7 6 8 p / 6 0 →



Output Resolution 1 0 2 4 x 7 6 8 p / 6 0

Display of Input resolution		* * * * x * * * * p / * * →
		Horizontal resolution Vertical resolution Referat
DVI input	Display uppercase P/I	1 0 2 4 x 7 6 8 P / 6 0 →
HDMI input	Display lowercase p/i	1 0 2 4 x 7 6 8 p / 6 0 →
Three-digit numbers are Referat		1 0 2 4 x 7 6 8 P 1 2 0 →
No input		U N K N O W N
Display of Output resolution		* * * * x * * * * p / * *
		Horizontal resolution Vertical resolution Referat
DVI output	Display uppercase P/I	1 0 2 4 x 7 6 8 P / 6 0
HDMI output	Display lowercase p/i	1 0 2 4 x 7 6 8 p / 6 0
Display "-----"		→ - - - - -
Three-digit numbers are Referat		1 0 2 4 x 7 6 8 P 1 2 0
EDID READ NG	Display the "# " in column 13	1 0 2 4 x 7 6 8 P / 6 0 #
Resolution through	Display the "x " in column 13	1 0 2 4 x 7 6 8 P / 6 0 x
INPUT/ OUTPUT		I N : * O U T : *

DEBUG MODE-10 SERVICE INFORMATION MODE

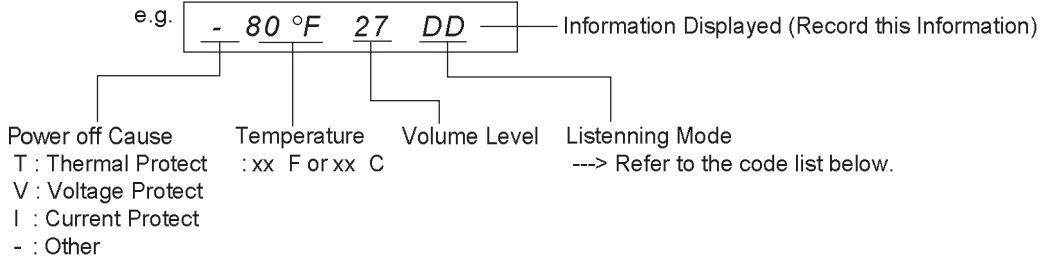
Displaying Service information

This service information display system is helpful in analyze the status when the unit goes into Protect mode and is powered off. Pay attention that the status will change if a button is pushed.

1. Press **twice** the **ON/ STANDBY** key while pressing the **DISPLAY** key.

e.g. M1.03/14307ALN — The version of main microprocessor is displayed only for 3 seconds.

2. Press **HOME** button within 3 seconds above.



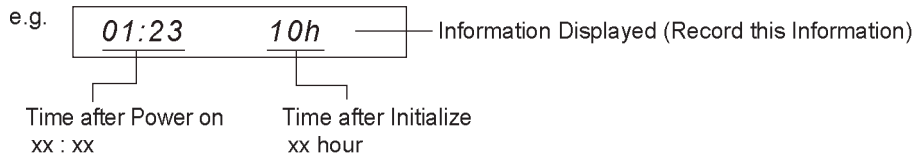
Listening Mode Code List

01	C_LM_LAST
02	C_LM_PURE
03	C_LM_DIRECT
04	C_LM_STEREO
05	C_LM_MONO
20	C_LM_SURR
50	C_LM_THX_MUSIC
70	C_LM_THX_GAME
90	C_LM_THX_CINEMA
A0	C_LM_THX_U2GAME
A8	C_LM_THX_U2MUSIC
B0	C_LM_THX_U2CINEMA

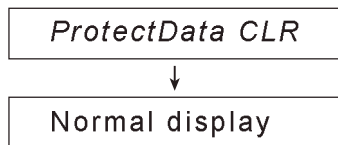
D0	C_LM_AUDYSSEY
48	C_LM_DTSSS
06	C_LM_ORCHESTRA
07	C_LM_UNPLUGGED
08	C_LM_STUDIOMIX
09	C_LM_TVLOGIC
0A	C_LM_ALLCHST
0B	C_LM_FULLMONO
0C	C_LM_TD
F1	C_LM_TESTTONE
F2	C_LM_TESTTHR
F3	C_LM_TESTAUTO

F4	C_LM_ASC
F5	C_LM_FLASH
F6	C_LM_DEBUGMODE
F7	C_LM_FLASH2
F8	C_LM_FLASH3
F9	C_LM_FLASH4
FA	C_LM_FLASH_CHECK
0D	C_LM_RPG
0E	C_LM_ACTION
0F	C_LM_ROCKBAND
10	C_LM_SPORTS

3. Press **HOME** button again. The following information are displayed.



4. Press **ON/STANDBY** button to exit the display of service information.
(Ref.: Press **RETURN** button to initialize the data in the service information.)



OPERATION CHECK-1

NOTATION ABOUT ENTERING TEST MODE BY PRESSING BUTTON

In this procedure, the following notations are used to simplify explanation of how to press button.

e.g.-1 **[TV/CD] + [ON/STANDBY] → [BD/DVD]**

This means "While holding down TV/CD button, press ON/STANDBY button then release both buttons and then press BD/DVD button".

e.g.-2 **[DISPLAY] + [ON/STANDBY] *2 → [DIMMER]**

This means "While holding down DISPLAY button, press ON/STANDBY button twice then release both buttons and then press DIMMER button".

INITIAL SETTING FOR SHIPPING

Initialization of memories.

Do the following operation.

[CBL/SAT] + [ON/STANDBY]

Unplug the power cord from AVR after the FL tube displays "Clear" and AVR goes standby.

CONFIRMATION OF F/W VERSION

Do the following operation.

1. **[DISPLAY] + [ON/STANDBY]**

to display MMPU version.

e.g. *M1.03/14307ALN*

2. **[TONE+]**

to display another F/W version.

e.g. **[ONKYO]**

M1.04/14422AE

Main

N1.03/14324AEA

DSP

D1.00/14218AEA

DSP2

V1.03/14325AE

HDMI/VIDEO

K1.00/14220AEO

VSP

T1.01/14311A

VSP2 HDCPTX

R1.00/14303A

VSP2 HDCPRX

O1.00/14219AE

OSD(Excluding TX-NR636)

[INTEGRA]

M1.04/14422AE

Main

N1.03/14324AEA

DSP

D1.00/14218AEA

DSP2

V1.03/14325AE

HDMI/VIDEO

K1.00/14220AEI

VSP

T1.01/14311A

VSP2 HDCPTX

R1.00/14303A

VSP2 HDCPRX

O1.00/14219AE

OSD(Excluding DTR-30.6)

H1.30.72.1

Sub3 HDBase-T(Excluding DTR-30.6)

<NOTE>

It cannot enter a test mode immediately after power supply ON, please press the Setup key.

CONFIRMATION OF MAIN CHECKSUM

MAIN Checksum can be confirmed the following operation.

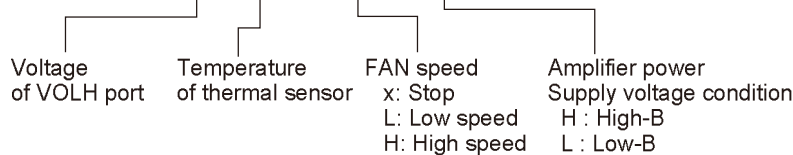
[DISPLAY] + [ON/STANDBY] * 2 → [MEMORY]

CONFIRMATION OF OUTPUT VOLTAGE AND THERMAL SENSOR

Temperature and output voltage can be confirmed the following operation.

[DISPLAY] + [ON/STANDBY] * 2 → [TONE]

e.g. *001 042 F:x S:H*



OPERATION CHECK-3

CONFIRMATION OF VOLTAGE-DETECTION PROTECTORS.

<NOTE>

Don't connect load nor short speaker terminals.

1. Do the following operation.

1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).

1-2. **[TV/CD] + [ON/STANDBY] → [BD/DVD]**

1-3. **[TONE +]**

to the following test mode.

TEST 1-01

2. AVR automatically tests in the following test sequence. And if it is all OK, Wi-Fi test will begin.

Test sequence (FL+) → (FR-) → (C+) → (SL-) → (SR+) → (SBL-) → (SBR+)

3. If FL tube displays Wi-Fi check mode then voltage-detection protectors test will be completed.

CONFIRMATION OF UPDATE ROUTE.

1. Do the following operation.

1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).

1-2. **[TV/CD] + [ON/STANDBY] → [BD/DVD]**

1-3. **[TONE +]**

to the following test mode.

TEST 1-01

2. Once the above mentioned test mode is entered, voltage-detection protectors function is checked automatically first, then update route check will begin.

If the result of update route check is no problem then Wi-Fi check will begin. If the result is NG then NG message will be shown on the FL tube.

3. If FL tube displays Wi-Fi check mode then voltage-detection protectors test and update route check are passed.

Detail of NG number of F/W update route test is as below.

1	N/A
2	VIDEO - OSD
3	DA830 - KG2H
4	VIDEO - HDCP TX
5	VIDEO - HDCP RX

OSD is except TX-NR636 and DTR-30.6

CONFIRMATION OF Wi-Fi CONNECTION

1. Setting Wi-Fi routers.

2. set the following test mode.

TEST 1-01

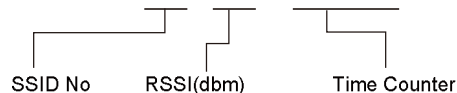
3. Once the above mentioned test mode is entered, voltage-detection protectors function is checked automatically first, then update route check will begin and then Wi-Fi check will begin.

In Wi-Fi check mode, it connects an access point automatically. Wi-Fi LED flashes during connection.

4. If connection is completed and IP address is successfully acquired, Wi-Fi LED turning lights off and the value of RSSI to an access point is displayed in dBm.

If the connection is failed, NG is displayed.

e.g. **02 -55d 01' 14''**



In case value of RSSI level isn't showed on the FL tube at all past 4 minutes in this timer mode, judge as NG. The sound from USB flash device is output from Zone2 PREOUT or Zone2 LINEOUT via Zone2 DAC.

CONFIRMATION OF ZONE2 DAC ROUTE

1. Connect USB memory or USB storage to AVR front USB port.

2. set the following test mode.

TEST 1-01

3. After being displayed Wi-Fi RSSI level, it will play back wave file from USB storage.

4. Check the wave form that appears L+R and R alternately from the following output terminal.

Output terminal : ZONE2 LINE OUT

Wi-Fi LED is turn on in Zone2 DAC check mode.

OPERATION CHECK-4

CONFIRMATION OF CURRENT DETECTION PROTECTORS

1. Do the following operation.
 - 1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).
 - 1-2. **[TV/CD] + [ON/STANDBY] → [CBL/SAT]**
 - 1-3. **[TONE -]**
to the following test mode.
TEST 1-09
2. Confirm that relay is not cut off even if you connect the following load A to the following channels one by one.
3. Confirm that relay is cut if you connect the following load B to the following channels one by one.

Channel	FL, FR, C, SL, SR, SBL and SBR ch
Load A	3 ohm
Load B	1 ohm

CONFIRMATION OF 12V TRIGGER OPERATIONS . (The following model ONLY)

After checking that there is no output from the following output terminal, set the following test mode and confirm that there is an output of the following power.

	(1)	(2)	(3)
Output terminal	12V TRIGGER Zone2	12V TRIGGER A	12V TRIGGER B
Test mode	TEST 1-09	TEST 1-09	TEST 1-08
Power	12V +10%, -20% /150mA	12V +10%, -20% /150mA	12V +10%, -20% /25mA
Applied model	TX-NR838	DTR-30.6, DTR-40.6, DTR-50.6	

CONFIRMATION OF OUTPUT SENSOR

1. Do the following operation.
 - 1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).
 - 1-2. **[TV/CD] + [ON/STANDBY] → [CBL/SAT]**
 - 1-3. **[TONE -] *2 and (*3)**
to the following test mode.
TEST 1-07 and TEST 1-08
- After lighting "FM STEREO" on the FL tube, the following relays break their connections and "FM STEREO" lamp goes off .
Relays **RL643** and **RL644**

CONFIRMATION OF COOLING FAN OPERATION

1. Confirm fan that is not rotating.
2. Set the following test mode and confirm fan that is rotating at HIGH speed.
TEST 1-07
3. Set the following test mode B and confirm fan that is rotating at LOW speed.
TEST 1-08

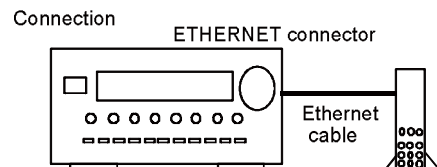
CONFIRMATION OF KEY OPERATION

1. Do the following operation.
 - 1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).
 - 1-2. **[TV/CD] + [ON/STANDBY] → [CBL/SAT]**
 - 1-3. **[TONE -] *4**
to the following test mode.
TEST 1-06
2. Confirm each key and master volume operation.
3. If "ON/STANDBY" button is pressed, AVR escapes from this KEY test mode.
Therefore, press the "ON/STANDBY" button, after checking other buttons finished.

CONFIRMATION OF NETWORK

Please wait for about 1 minute after turning on the AVR when using the following test mode.

1. Connect the receiver to the router.
2. Do the following operation.
 - 2-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).
 - 2-2. **[TV/CD] + [ON/STANDBY] → [CBL/SAT]**
 - 2-3. **[TONE -] *5**
to the following test mode.
TEST 1-05
3. Confirm that the AVR's display shows appropriate IP address.



OPERATION CHECK-5

CONFIRMATION OF FL TUBE AND LED

- Do the following operation.
[TV/CD] + [ON/STANDBY] → [DIMMER]
- Confirm that all LEDs and all segments of FL tube are lit.

CONFIRMATION OF HEAD PHONE OPERATION

Confirm the headphone indicator when headphones plug is inserted into the PHONES jack.

CONFIRMATION OF FM RADIO OPERATION

- Setting of Signal Generator(SG)

Carrier frequency	any
Modulation	1kHz
Deviation	75kHz
Output level	35dBu

- Waveform confirmation

Set the signal of SG as following channels and confirm output is the following table.

	SG Input	Output	
		Lch	R ch
(1)	R ch only	No	Yes
(2)	L + R ch	Yes	Yes

- Confirmation of Stereo indicator
Set SG as stereo and confirm stereo indicator is on.
- Confirmation of Auto stop operation
Do auto tuning (Press TUNING UP or TUNING DOWN button) and confirm that the searching stops when a station that is set by SG is found.

CONFIRMATION OF RDS (RADIO DATA SYSTEM) OPERATION (Applied to MPP/MPB/MM* type)

- Input 98MHz,30dBu signal modulated with RDS data.
- When a PS information is received, the name of the station "RDS TEST" shall be displayed within 2 seconds instead of the frequency.

CONFIRMATION OF OSD(ON SCREEN DISPLAY) OPERATION

- When DISPLAY button is pushed, confirm that OSD is displayed in HDMI SUB/ZONE2 Out.
- Confirm that specified operations for ENTER(with 4-cursor) buttons are made.

Applied model	TX-NR737/838,DTR-40.6/50.6
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CONFIRMATION OF CEC OPERATION

- Connect AVR's HDMI OUT to HDMI input of appliance compatible with CEC(SINK or REPEATER) by HDMI cable.
- Turn on the power to the AVR
- Do the following operation.
 - set the volume level to 25(TX-NR636, DTR-30.6) or 30(TX-NR737, 838, DTR-40, 50.5).
 - [TV/CD] + [ON/STANDBY] → [AUX]
 to the following test mode.
 TEST 6-00
 FL tube will display "OK" or "NG".

CONFIRMATION OF DOLBY TEST TONE

- Press TEST TONE on remote controller then press CH SELECT repeatedly.
Set turn to Dolby Test mode tone Check speaker condition.
- Please check that a sound comes out from each channel.
-> FL ch -> C ch -> FR ch -> SR ch -> SBR ch -> SBL ch -> SL ch -> SW ch ->

OPERATION CHECK-6

CONFIRMATION OF VIDEO SIGNAL-DETECTION

1. Do the following operation.
 - 1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).
 - 1-2. **[TV/CD] + [ON/STANDBY] → [PC]**
 - 1-3. **[TONE +]**
 to the following test mode.
TEST 5-01
2. Confirm the following indicator lights up on the FL TUBE when the following video signal is input.
3. Furthermore, confirm the following indicator is turned off on the FL TUBE when the following video signal isn't input at the following test mode as well.

	(1)	(2)
Input terminal	Composite	Component
Indicator	FM STEREO	RDS

CONFIRMATION OF VIDEO IN/OUT

Confirm Video output signal as shown Table 2, while Video signal are input as shown Table 1 in "Video in_out" sheet.
<NOTE>Confirm the HDMI path at 1080p signal.

Table-1

Video Signal ->	Composite Video	Component	HDMI
BD/DVD	---	---	IN1 F
CBL/SAT	A	IN1 E	IN2 G
STB/DVR	B	---	IN3 H
GAME	C	---	IN4 I
---	---	---	IN5 J
---	---	---	IN6 K
---	---	---	IN7 ---
AUX	D	---	AUX L

Table-2

Output	Composite Video	Component	HDMI
Test mode	MONITOR OUT	OUT	MAIN OUT *Sub OUT/Zone2 OUT
5-00(BD/DVD)	---	---	F
5-01(CBL/SAT)	A	E	G
5-02(STB/DVR)	B	---	H
5-03(GAME)	C	---	I
5-04(PC)	---	---	J
5-05(IN6)	---	---	K
5-06(IN7)	---	---	---
5-07(AUX)	D	---	L
5-08(CBL/SAT)	A	E	E
5-09(CBL/SAT)	A	---	— A

* TX-NR636, TX-NR737, DTR-30.6 --- Sub OUT
 TX-NR838, DTR-40.6, DTR-50.6 --- Zone2 OUT

CONFIRMATION OF FL DISPLAY

1. Do the following operation.
 - 1-1. set the volume level to **25**(TX-NR636, DTR-30.6) or **30**(TX-NR737, 838, DTR-40, 50.5).
 - 1-2. **[TV/CD] + [ON/STANDBY] → [DIMMER(RT/PTY/TP)]**
 to the FL test mode
[TONE+] = Step up
[TONE-] = Step down
- The contents of the step are as follows.
1. Lit all segment
 2. Lit '23456789ABCDEF'.
 3. Lit a even number segment
 4. Lit an odd number segment
 5. The Destination setting is displayed.

OPERATION CHECK-7

TEST 1-00 ~1-09

TEST No		DSP Output ch	DSP Output Frequency	DSP Output Voltage	Config. SW/F/C/S/SB	Master Vol.	Speaker Relay	12V TRG	etc.
1-00	SELECTOR MUTING TIME REDUCTION MODE	-	-	-	Y/L/L/L	64(Ref)	F	-	Analog Input Only
1-01	IDLING TIMER	Timer start	-	-	Y/L/L/L	Min(Min)	F	-	IDLING TIMER
	V Protect (FL)	FL	+DC	+Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 +DC Protect
	V Protect (FR)	FR	-DC	-Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 -DC Protect
	V Protect (C)	C	+DC	+Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 +DC Protect
	V Protect (SL)	SL	-DC	-Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 -DC Protect
	V Protect (SR)	SR	+DC	+Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 +DC Protect
	V Protect (SBL)	SBL	-DC	-Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 -DC Protect
	V Protect (SBR)	SBR	+DC	+Max	Y/L/L/L	Max(Max)	F/C/S/SB	-	*1, *3 +DC Protect
	V Protect (FHL)	FHL	-DC	-Max	Y/L/L/L	Max(Max)	F/C/S/SB/HW	-	*1, *3 -DC Protect
	V Protect (FHR)	FHR	+DC	+Max	Y/L/L/L	Max(Max)	F/C/S/SB/HW	-	*1, *3 +DC Protect
	V Protect (FWL)	FWL	-DC	-Max	Y/L/L/L	Max(Max)	F/C/S/SB/HW	-	*1, *3 -DC Protect
	V Protect (FWR)	FWR	+DC	+Max	Y/L/L/L	Max(Max)	F/C/S/SB/HW	-	*1, *3 +DC Protect
	UPDATE ROUTE	-	-	-	Y/L/L/L	Min(Min)	F	-	UPDATE ROUT CHECK
	Wi-Fi check	-	-	-	Y/L/L/L	Min(Min)	F	-	Wi-Fi check
	Z2 DAC (USB Play)	-	-	-	Y/L/L/L	Min(Min)	F	-	Z2 PREOUT
1-02	MULTI TONE 1kHz + 30Hz + 20kHz -20dBFS	ALL	1kHz+30Hz+20kHz	-20dBFS	Y/L/L/L	64(Ref)	F/C/S/SB	-	*6 Multi tone
1-03	Wi-Fi check	-	-	-	Y/L/L/L	Min(Min)	F	-	Wi-Fi check
1-04	UPDATE ROUTE	-	-	-	Y/L/L/L	Min(Min)	-	-	UPDATE ROUT CHECK
1-05	DISPLAY IP ADDRESS	-	-	-	Y/L/L/L	Min(Min)	-	-	IP ADDRESS
1-06	KEY TEST	-	-	-	Y/L/L/L	76(-6dB)	F/C/SB	-	*7 KEY TEST
1-07	VOLH DET / FAN HIGH-SPEED / 12V TRIGGER C	C,SL,SR,SBL,SBR	1kHz	0dBFS	Y/L/L/L	64(Ref)	F/C/S/SB	C	*5 VOLH DET, FAN High
1-08	VOLH DET / FAN LOW-SPEED / 12V TRIGGER B (ZONE3)	FL,FR,C,SL,SR	1kHz	0dBFS	Y/L/L/L	64(Ref)	F/C/S/SB	B (Z3)	*5 VOLH DET, FAN Low
1-09	CURRENT PROTECT / 12V TRIGGER A (ZONE2)	ALL	Pulse	Max	Y/L/L/L	58(76)	F/C/S/SB	A (Z2)	*1, *4 Current Protect

TEST 2-00 ~3-14

TEST No	Analog Input [Rec Sel] (Zone2/Zone3)	Listening Mode/ Input Format	VIDEO Input	Component V	HDMI	12V TRG	Digital Input /Output	Config.	Master Vol. NonTHX (THX)	Speaker Relay	etc.
2-00	Fch -> BD/DVD Cch -> STB/DVR Sch -> CBL/SAT SBch -> GAME Z2/Z3 -> (Off)	Stereo(Direct)	BD/DVD	IN1	-	-	-	-	Max(Max)	F/C/S/SB	T5, T6, D3 LINE GAIN, HLM, NOISE
	BD/DVD (Off)	Whole House Mode	BD/DVD	IN1	-	-	-	-	Max(Max)	F/C/S/SB	Except the above modds.
2-01	BD/DVD (Off)	ADC DSP 8ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	57(75)	F/C/S/SB	ADC GAIN etc.
2-02	BD/DVD (Off)	ADC DSP 8ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	MIN(Min)	F/C/S/SB	MIN NOISE
2-03	CBL/SAT (Off)	DIR DSP 8ch Thru	CBL/SAT	-	-	-	*OPT1	Y/L/L/L	Max(Max)	F/C/S/SB	AMUT OFF DAC HLM NOISE
2-04	MIC	ADC DSP 8ch Thru.	BD/DVD	BD/DVD	-	-	-	Y/L/L/L	Max(Max)	F/C/S/SB	MIC GAIN
2-05	MIC	ADC DSP 8ch Thru.	BD/DVD	BD/DVD	-	-	-	Y/L/L/L	Max(Max)	F/C/S/SB	MIC MUTE ON MIC MUTING
2-06	PHONO/Source	Direct	BD/DVD	-	-	-	-	-	Max(Max)	F	PHONO GAIN etc.
2-07	BD/Source	Bi AMP	BD/DVD	IN1	-	-	-	-	Max(+18dB)	F/C/S/FH	Bi AMP
2-08	BD/Source	ADC DSP 8ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	Max(+18dB)	F/C/S/SB	HLM NOISE
2-09	BD/Source	ADC DSP 12ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	Max(+18dB)	F/C	DIFF SIG MODE
2-10	BD(BALANCE)	ADC DSP 8ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	Max(+18dB)	F/C/S/SB	BALANCE
2-11	BD(BALANCE)	ADC DSP 8ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	Max(+18dB)	F/C/S/SB	BALANCE, Min
2-12	BD/DVD (Off)	ADC DSP 8ch Thru.	BD/DVD	IN1	-	-	-	Y/L/L/L	Max(Max)	C/S/SB	SPRLE OFF PREOUT RELAY OFF
2-13	BD/DVD (Off)	Stereo(Direct)	BD/DVD	IN1	-	-	-	-	Max(Max)	F	HP GAINP-B GAIN
2-14	PHONO/Source	Direct	BD/DVD	-	-	-	-	-	44(62)	F	PHONO SEP.
3-00	FM/Source	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	64(Ref)	F	Z2Vol_64 62(62) T6,T7,Z2 LINE T8,D3,D4,D5,Z2 PRELINE
3-01	GAME(BD/TV)	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	Max(Max)	F/Z2/Z3	Powered_ON Z2Z3Vol_64 62(62) T6,T7_LINE T8,D3,D4,D5_PRELINE
3-02	GAME(BD/TV)	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	Max(Max)	F/Z2/Z3	Powered_ON Z2Z3Vol_64 62(62) T6,T7_LINE T8,D3,D4,D5_PRELINE Z2Z3 Mute ON
3-03	GAME(BD/TV)	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	Max(Max)	F/Z2/Z3	Powered_ON Z2Z3Vol_64 62(62) T6,T7_LINE T8,D3,D4,D5_PRELINE Z2 Bass=Max
3-04	GAME(BD/TV)	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	Max(Max)	F/Z2/Z3	Powered_ON Z2Z3Vol_64 62(62) T6,T7_LINE T8,D3,D4,D5_PRELINE Z2 Bass=Min
3-05	GAME(BD/TV)	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	Max(Max)	F/Z2/Z3	Powered_ON Z2Z3Vol_64 62(62) T6,T7_LINE T8,D3,D4,D5_PRELINE Z2 Treble=Max
3-06	GAME(BD/TV)	Stereo(Direct)	BD/DVD	BD/DVD	-	-	-	-	Max(Max)	F/Z2/Z3	Powered_ON Z2Z3Vol_64 62(62) T6,T7_LINE T8,D3,D4,D5_PRELINE Z2 Treble=Min
3-07	GAME(BD/TV)	Stereo(Direct)	BD/DVD	-	-	-	-	-	MIN(Min)	F/Z2/Z3	Z2Z3PRE VOL MAX ATT
3-08	GAME(BD/TV)	Stereo(Direct)	BD/DVD	-	-	-	-	-	MIN(Min)	F/Z2/Z3	Z2Z3 LINEOUT (Mid)
3-09	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 1.44.1kHz_16bit_1kHz_0dBfs L&R.wav *2
3-10	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 2.44.1kHz_16bit_∞dBfs L&R.wav *2
3-11	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 3.44.1kHz_16bit_20Hz_0dBfs L&R.wav *2
3-12	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 4.44.1kHz_16bit_20kHz_0dBfs L&R.wav *2
3-13	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 5.44.1kHz_16bit_1kHz_0dBfs Lch.wav *2
3-14	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 6.44.1kHz_16bit_1kHz_0dBfs Rch.wav *2
	USB(Source)	Stereo(Direct)	Last	-	-	-	Front USB	-	MIN(Min)	F	Z2 out 7.48kHz_16bit_1kHz_0dBfs L&R.wav *2

OPERATION CHECK-8

TEST 4-00~4-30 Auto Measurement Mode

TEST No.	DSP Output channel	DSP Output Frequency	DSP Output Voltage	Config.	Master Vol.	Speaker Relay	etc.
4-00	ALL	1kHz (SW:30Hz)	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	*6 DSP Gain
4-01	ALL	30Hz (SW:1kHz)	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	*6 DSP Freq.Response
4-02	ALL	20kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	*6 DSP Freq.Response
4-03	SW	30Hz	-20dBFS	N/L/L/L/L	58(76)	F/CS/SB	*6 Characteristic(1)
4-04	FL,FR	30Hz	-20dBFS	N/L/L/L/L	64(Ref)	F/CS/SB	*6 Characteristic(2)
4-05		1kHz (SW:30Hz)	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute On *6 Muting
4-06	ALL	1kHz (SW:30Hz)	-20dBFS	Y/L/L/L/L	Min(Min)	F/CS/SB	*6 Volume Max.Attenuation
4-07	FR,C,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_FL *6 Separation(FL)
4-08	FL,C,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_FR *6 Separation(FR)
4-09	FL,FR,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_C *6 Separation(C)
4-10	FL,FR,C,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_SL *6 Separation(SL)
4-11	FL,FR,C,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_SR *6 Separation(SR)
4-12	FL,FR,C,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_SBL *6 Separation(SBL)
4-13	FL,FR,C,SL,SR,SBL,SBR,SW	10kHz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_SBR *6 Separation(SBR)
4-14	FL,FR,C,SL,SR,SBL,SBR	30Hz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB	Mute_SW *6 Separation(SW)
4-15	F,C,SUR,SBR,HR,Wide,SW	10kHz	-20dBFS	Y/L/L/L/L	82 (0dB)	F/CS/SB/HW	Mute_LH *6 Separation(FHL)
4-16	F,C,SUR,SBR,HL,Wide,SW	10kHz	-20dBFS	Y/L/L/L/L	82 (0dB)	F/CS/SB/HW	Mute_RH *6 Separation(FHR)
4-17	F,C,SUR,SRB,High,RW,SW	10kHz	-20dBFS	Y/L/L/L/L	82 (0dB)	F/CS/SB/HW	Mute_LW *6 Separation(FWL)
4-18	F,C,SUR,SRB,High,LW,SW	10kHz	-20dBFS	Y/L/L/L/L	82 (0dB)	F/CS/SB/HW	Mute_RW *6 Separation(FWR)
4-19	FL	+DC	+Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 +DC Protect(FL)
4-20	FR	-DC	-Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 -DC Protect(FR)
4-21	C	+DC	+Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 +DC Protect(C)
4-22	SL	-DC	-Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 -DC Protect(SL)
4-23	SR	+DC	+Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 +DC Protect(SR)
4-24	SBL	-DC	-Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 -DC Protect(SBL)
4-25	SBR	+DC	+Max	Y/L/L/L/L	Max(Max)	F/CS/SB	*1,*3 +DC Protect(SBR)
4-26	FHL	-DC	-Max	Y/L/L/L/L	Max(Max)	F/CS/SB/HW	*1,*3 -DC Protect(FHL)
4-27	FHR	+DC	+Max	Y/L/L/L/L	Max(Max)	F/CS/SB/HW	*1,*3 +DC Protect(FHR)
4-28	FWL	-DC	-Max	Y/L/L/L/L	Max(Max)	F/CS/SB/HW	*1,*3 -DC Protect(FWL)
4-29	FWR	+DC	+Max	Y/L/L/L/L	Max(Max)	F/CS/SB/HW	*1,*3 +DC Protect(FWR)
4-30	ALL	30Hz	-20dBFS	Y/L/L/L/L	64(Ref)	F/CS/SB/HW	PASSIVE SW=ON PASSIVE SW

*1 All SP-RELAYS are turned ON only at the time of this STEP.

Moreover, whether make RELAY restoration time at the time of protection operation into 1 second, and PROTECT input "H" is detected how many times or it continues 1 second or more, RELAY is not held at OFF or POWER OFF is not carried out, either.

When "H" is 1 seconds or more to PROTECT input and it is set to "L", RELAY is turned ON again.

Moreover, not any MUTE is outputted at the time of this STEP.

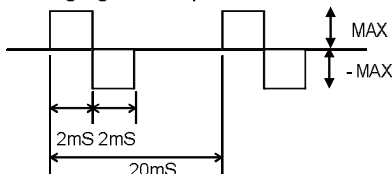
*2 Use USB memory which stored only following signals.

In addition, measure using application.

- 1.44.1kHz_16bit_1kHz_OdBfs_L&R.wav Reference
- 2.44.1kHz_16bit_∞dBfs_L&R.wav SN ratio
- 3.44.1kHz_16bit_20Hz_OdBfs_L&R.wav Freq. resp.
- 4.44.1kHz_16bit_20kHz_OdBfs_L&R.wav Freq. resp.
- 5.44.1kHz_16bit_1kHz_OdBfs_Lch.wav Separation
- 6.44.1kHz_16bit_1kHz_OdBfs_Rch.wav Separation
- 7.48kHz_16bit_1kHz_OdBfs_L&R.wav Operation check

*3 If voltage-detection protector check in TEST-1-01 starts, DC voltage is output immediately from each channel. (within 100msec.)

*4 The following signal is output from all channel continuously in TEST1-09.



*5 VOLH is detected and H/L of SEC1H is changed.

A detection level is the same as the normal mode. When it is detected, light "FM STEREO" on FL TUBE.

*6 4-00~4-18:PRRLF=ON

*7 In TEST 1-04 06, some character is displayed while pushing down some button. Another character shall be displayed by each button.

<NOTE>

TEST of NET/USB can't do immediately after the start-up. It should be measure after other TEST.

OPERATION CHECK-9

<NOTES>

1. DSP Thru of Listening Mode outputs L Input signal to L/C/SL/SBL, and outputs R Input signal to R/SR/SBR/SW.
2. Config. is in order of SW/Front/Center/Surround/Surround back.
3. Mute is function to stop output(from the channel) by using inner DSP programming.
4. When Listening Mode is DSP thru, an analog SW is changed into the state of SURROUND.
5. At the time of PRTCTTHM detection, it is displayed on FLT as "THERMAL PROTECT".
6. In all test modes, it is not concerned with detection of VOLH but SEC1H are made "H" fixation. (Except TEST 1-07 and 1-08.)
7. After initialization of Net or USB, start TEST 1-04. After TEST 1-04 checking, clear the set.

TEST-3-00

Following frequencies are automatically written in the preset memory, when the unit goes into "TEST 3-00".

	PRESET No.	MD*	MW*(10k)	MP*,MG* MW*(9k)	MJJ
FM	1	89.9MHz	89.90MHz	89.90MHz	76.0MHz
	2	97.9MHz	97.90MHz	97.90MHz	82.0MHz
	3	98.9MHz	98.90MHz	98.90MHz	83.0MHz
	4	107.1MHz	107.10MHz	107.10MHz	84.0MHz
	5	107.9MHz	107.90MHz	107.90MHz	90.0MHz
	6	100.1MHz	100.10MHz	100.10MHz	80.0MHz
	7	88.1MHz	88.10MHz	88.10MHz	85.1MHz
	8	104.1MHz	104.10MHz	104.10MHz	88.1MHz
	9	95.3MHz	95.30MHz	95.30MHz	76.0MHz
	10	106.7MHz	106.70MHz	106.70MHz	90.0MHz
AM	11	530KHz	530KHz	522KHz	522kHz
	12	630KHz	630KHz	630KHz	630kHz
	13	990KHz	990KHz	990KHz	990kHz
	14	1440KHz	1440KHz	1440KHz	1440kHz
	15	1710KHz	1710KHz	1611KHz	1611kHz
	16	670KHz	670KHz	666KHz	666kHz
	17	830KHz	830KHz	828KHz	828kHz
	18	1310KHz	1310KHz	1314KHz	1314kHz
	19	1200KHz	1200KHz	1197KHz	1197kHz
	20	530KHz	530KHz	522KHz	522kHz
FM	21	87.5MHz	87.50MHz	87.50MHz	76.0MHz
	22	107.9MHz	108.00MHz	108.00MHz	90.0MHz
	23	103.7MHz	104.00MHz	104.00MHz	79.8MHz
	24	104.5MHz	104.20MHz	104.20MHz	80.2MHz
AM	25	1180kHz	1180kHz	1179kHz	1179kHz
	26	1220kHz	1220kHz	1215kHz	1215kHz

TEST-5-00~6-05 Video & HDMI Test mode

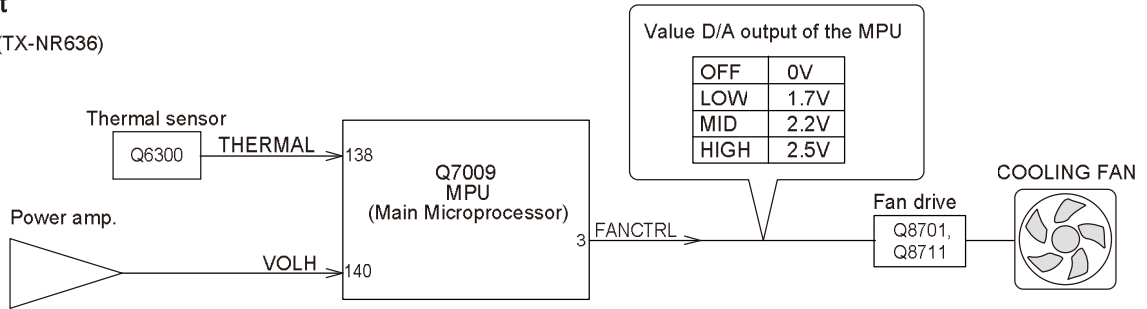
	Input selector	DIGITAL INPUT	COMPONENT	Volume NonTHz/THK	HDMI	MODE	etc.	Reference TEST DISC*
5-00	BD/DVD	HDMI	-	31/51	IN1	Through(Main/Sub or Zone2_Both), I2S	SP ALLch & SW-PO	DISC-D(BD) Tr.20or28
5-01	CBL/SAT	HDMI	IN	31/51	IN2	Through(Main/Sub or Zone2_Both), SPDIF	SP ALLch & SW-PO	DISC-D(BD) Tr.21 or A(DVD)
5-02	STB/DVR	HDMI	-	31/51	IN3	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-03	GAME	HDMI	-	31/51	IN4	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-04	PC	HDMI	-	31/51	IN5	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-05	IN6	HDMI	-	31/51	IN6	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-06	IN7	HDMI	-	31/51	IN7	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-06	IN8	HDMI	-	31/51	IN8	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-07	AUX	HDMI	-	31/51	AUX	Through(Main/Sub or Zone2_Both), SPDIF	Audio out TV = ON	DISC-D(BD) Tr.21 or A(DVD)
5-08	CBL/SAT	-	IN1	MIN	-	COMPONENT?HDMI(Main/Sub or Zone2_Both)	-	-
5-09	CBL/SAT	-	-	MIN	-	CV?HDMI(Main/Sub or Zone2_Both)	-	-
	BD/DVD	-	-	MIN	-	CV?CV_COMPONENT	-	-
5-10	PC(RGB)	-	-	MIN	-	RGB INPUT? HDMI OUT	-	-
5-11	PC/GAME	HDMI	-	31/51	IN5/IN4	Z2 HDMI TEST / HDMI Powered Z2	-	-
6-00	BD/DVD	HDMI	IN	40/60	IN3	HDMI DSD SIGNAL	OUTPUT CH = L/R/C/SW/SR	DISC-Q(SACD) TRACK12
6-01	BD/DVD	COAX1*	IN	MIN	-	Audio TV OUT = ON, VOL=0, ANAL OG(DVD)	HDMI OUT is blue back	-
6-02	CBL/SAT	HDMI ARC	-	40/60	-	HDMI AUDIO RETURN CHANNEL	-	-
6-03	BD/DVD	HDMI	-	31/51	IN1	MHL Check(CABLE DET)	CEC Relay check	-
6-04	BD/DVD	HDMI	-	31/51	IN1	MHL Check(VBUS=OFF)	CEC Relay check	-
6-05	BD/DVD	HDMI	-	31/51	IN1	MHL Check(VBUS=ON)	-	-

OPERATION CHECK-10

COOLING FAN

Circuit

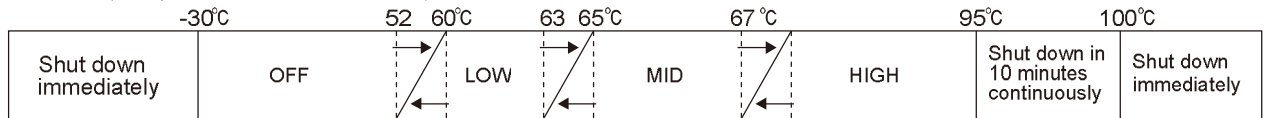
e.g.(TX-NR636)



Condition to operate

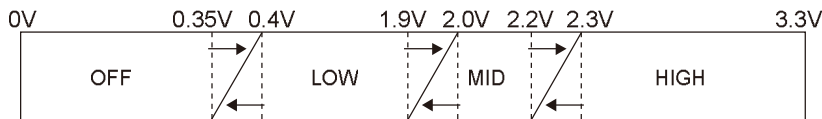
		VOLH							
		Normal/ Bi-Amp				Powerd Zone-2,3,4			
		OFF or Headphone	LOW	MID	HIGH	OFF or Headphone	LOW	MID	HIGH
THERMAL	OFF	STOP	STOP	STOP	STOP	STOP	STOP	STOP	STOP
	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
	MID	LOW	MID	MID	MID	MID	MID	MID	MID
	HIGH	MID	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH

THERMAL(Temperature of thermal sensor)



Hysteresis control

VOLH(Voltage of VOLH port)



Hysteresis control

How to check

- How to check operation of Cooling Fan.
See "CONFIRMATION OF COOLING FAN OPERATION" in OPERATION CHECK-4.
- How to check the value of THERMAL and VOLH.
See "CONFIRMATION OF OUTPUT VOLTAGE AND THERMAL SENSOR" in OPERATION CHECK-1.

ADJUSTMENT PROCEDURE

ADJUSTMENT OF IDLING CURRENT

Applied to the following model.

(Model)	TX-NR636/ DTR-30.6/ HT-RC660/ HT-R993
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Procedure

a. Pre-adjustment

Set the following registers to minimum position before POWER ON.

Set the voltages at the following terminals to the following voltage by adjusting the following registers, under the condition of no input and no load, immediately after POWER ON.

Channel	L/C/R	SL/SR/SBL/SBR
Terminals	P6080~6082	P6083~6086
Registers	R5440~5442	R5443~5446
Voltage	2.5mV	1.5mV

b. Aging

Heat run during the following time.

Time	4~6 minutes
------	-------------

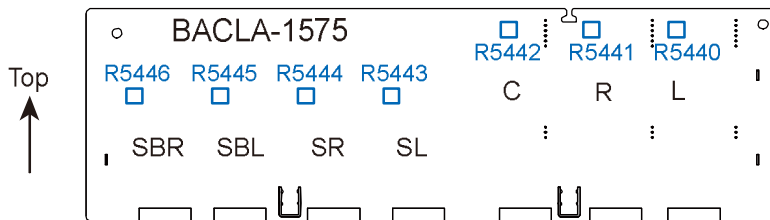
c. Final adjustment

Re-adjust by the following procedure after heat running for the above mentioned time.

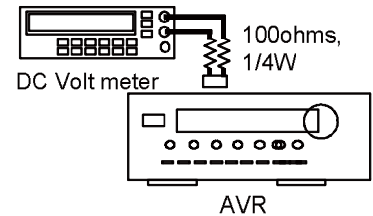
L/C/R		
Below	9mV	9mV
Between	9~11mV	Do not adjust.
Over	11mV	11mV
SL/SR/SBL(SW)/SBR		
Below	6mV	6mV
Between	6~8mV	Do not adjust.
Over	8mV	8mV

Adjustment point

Equip series 1/4W 100-ohm resistors near the terminal respectively in each pole of the jig used for the above mentioned terminals.



Connection



Test point

