

AV RECEIVER/AV AMPLIFIER RX-V459/HTR-5940/DSP-AX459 HTR-5935 SERVICE MANUAL

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.

It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.



■ TO SERVICE PERSONNEL

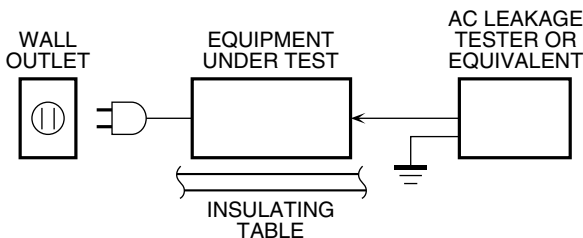
1. Critical Components Information

Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.

2. Leakage Current Measurement (For 120V Models Only)

When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohms shunted by 0.15μF.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



“CAUTION”

“F3000, 3001: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 8A, 125V FUSE.”

CAUTION

F3000, 3001: REPLACE WITH SAME TYPE 8A, 125V FUSE.

ATTENTION

F3000, 3001: UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 8A, 125V.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

About Lead Free Solder / 無鉛ハンダについて

The P.C.B.s installed in this unit are soldered using the following solder.

本機に搭載されている基板のハンダ付けに使用されているハンダは下記の通りです。

	SIDE A / A面	SIDE B / B面
DSP P.C.B.	lead	

Among some types of lead free solder currently available, it is recommended to use one of the following types for the repair work.

- Sn + Ag + Cu (tin + silver + copper)
- Sn + Cu (tin + copper)
- Sn + Zn + Bi (tin + zinc + bismuth)

Caution:

1. As the melting point temperature of the lead free solder is about 30°C to 40°C (50°F to 70°F) higher than that of the lead solder, be sure to use a soldering iron suitable to each solder.
2. If lead solder must be used, be sure to remove lead free solder from each terminal section of the parts to be replaced and from the area around it completely before soldering, or make sure that the lead free solder and lead solder melt together fully.

無鉛ハンダにはいくつかの種類がありますが、修理時には下記のような無鉛ハンダの使用を推奨します。

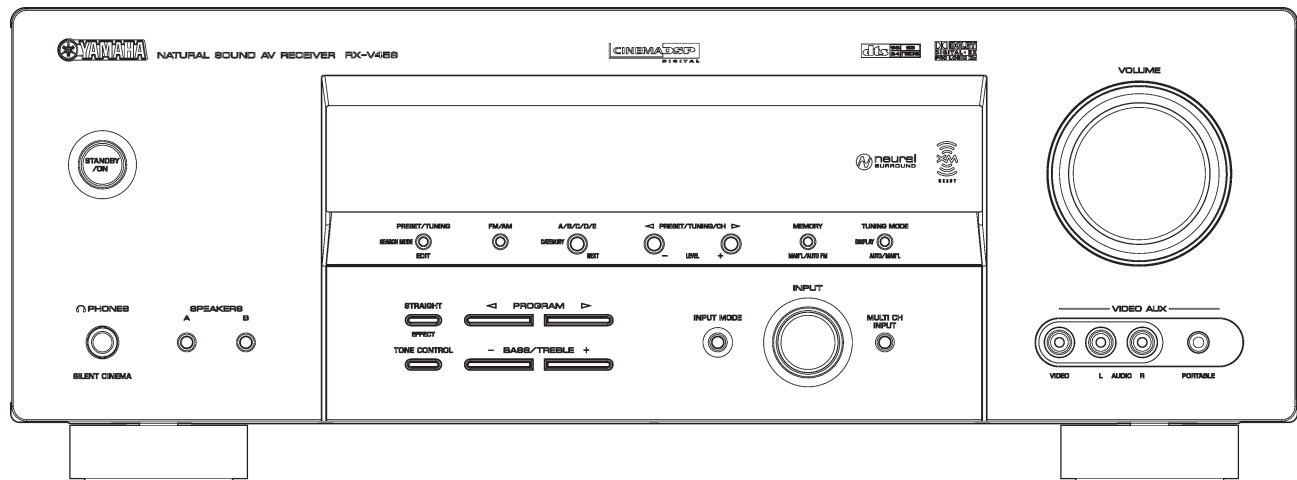
- ・ Sn+Ag+Cu(錫+銀+銅)
- ・ Sn+Cu(錫+銅)
- ・ Sn+Zn+Bi(錫+亜鉛+ビスマス)

注意:

1. 無鉛ハンダの融点温度は通常の鉛入りハンダに比べ30～40℃程度高くなっていますので、それぞれのハンダに合ったハンダごてをご使用ください。
2. 鉛入りハンダを使わざるを得ない場合は、あらかじめ交換する部品端子部やその周辺部の無鉛ハンダをすべて取り除くか、あるいは無鉛ハンダと鉛入りハンダが十分に溶けた状態となるようにハンダ付けしてください。

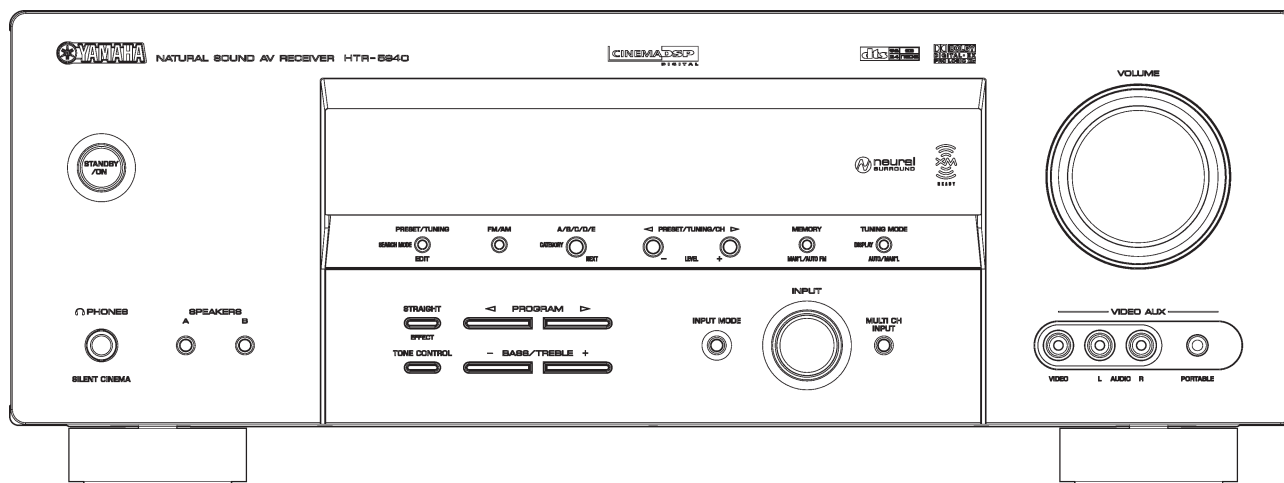
FRONT PANELS

RX-V459 (U, C models)

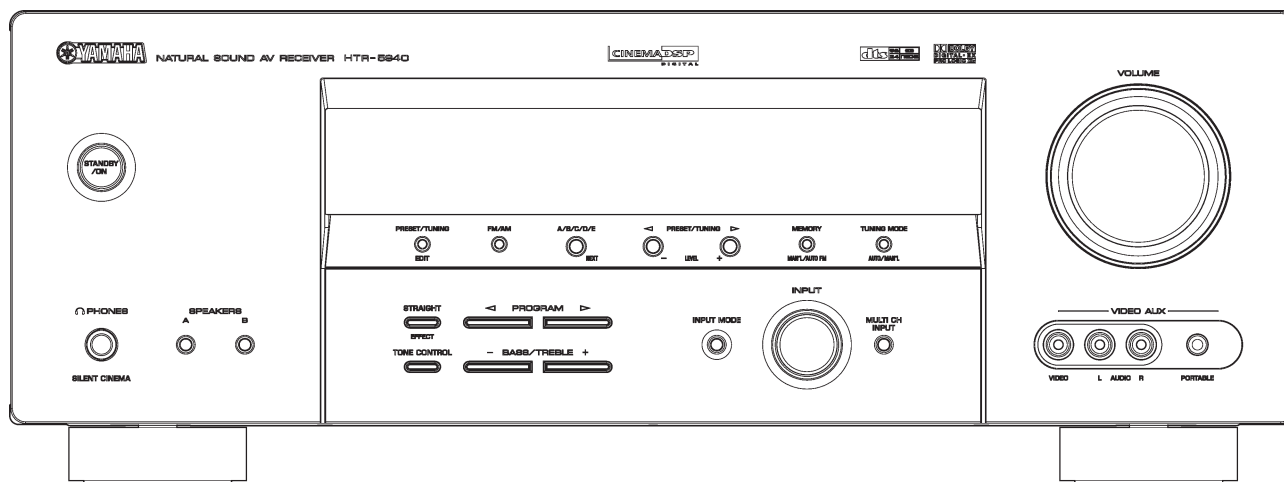


RX-V459 (R, T, K, A, G, E, L models)

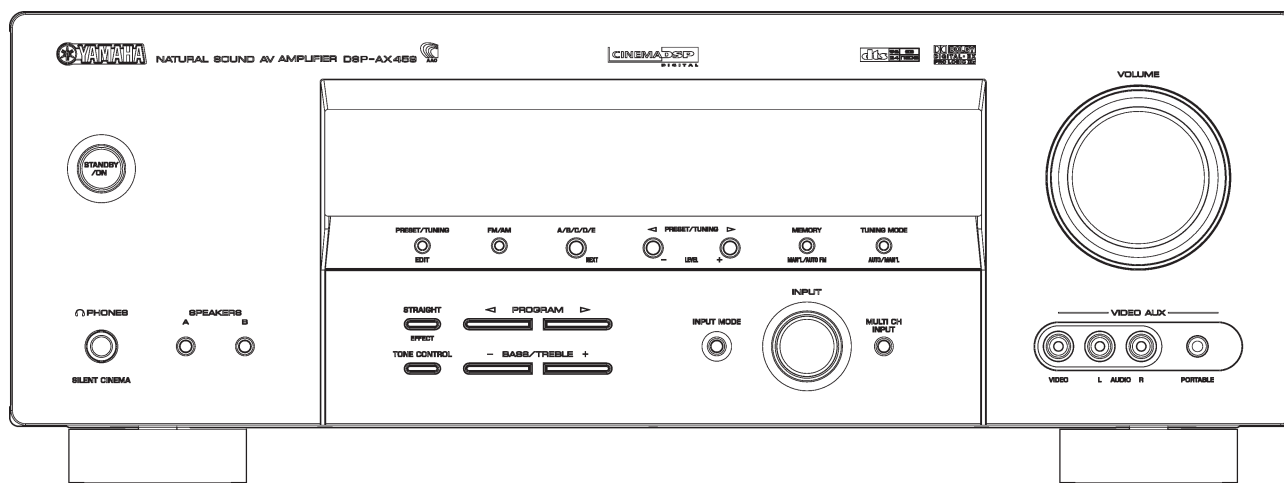
HTR-5940 (U, C models)



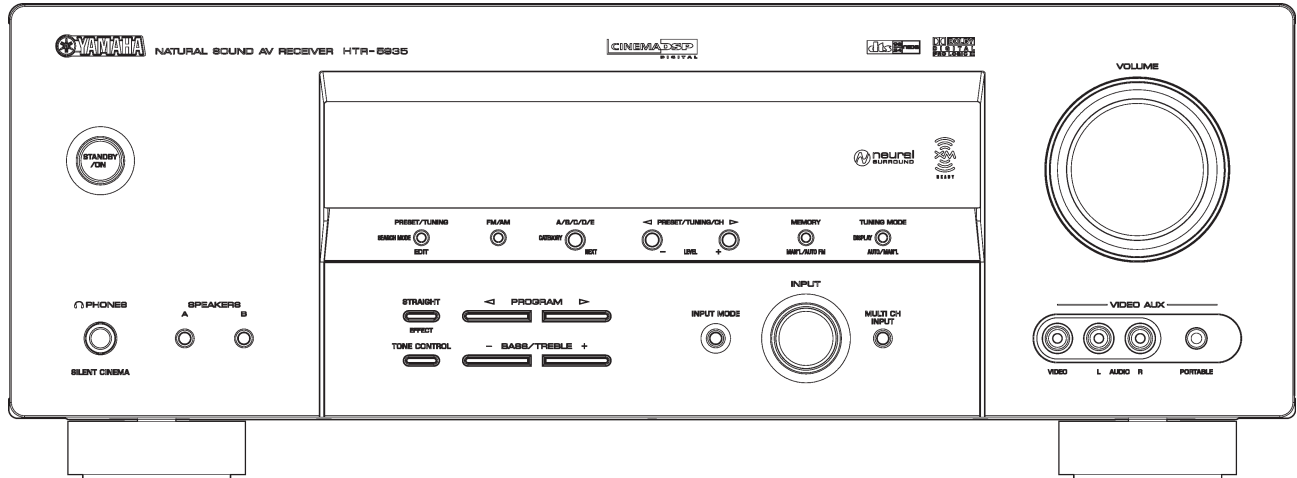
HTR-5940 (T, K, A, G, E models)



DSP-AX459 (J model)

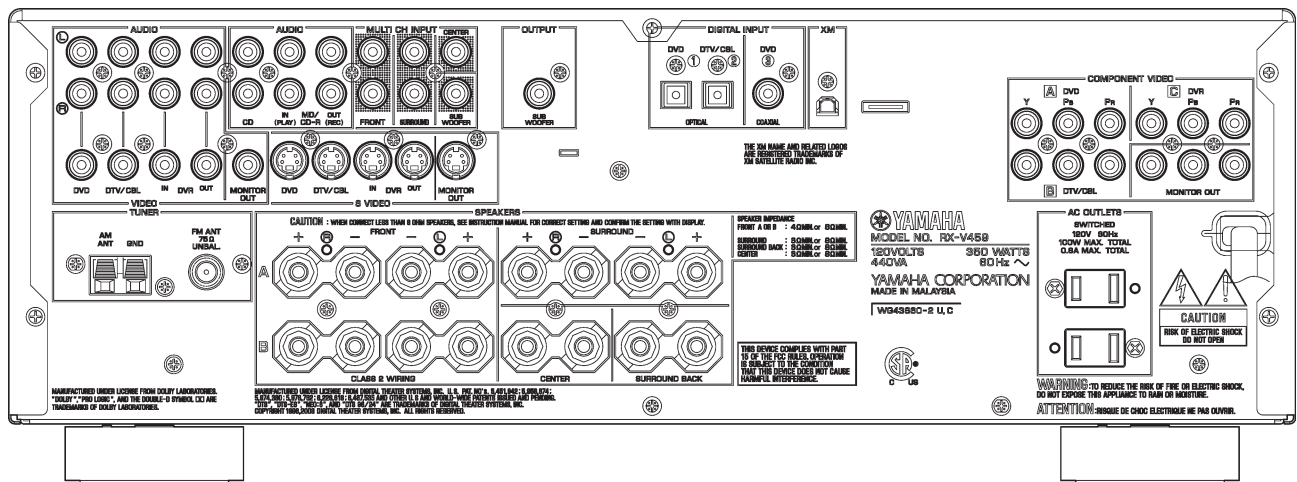


HTR-5935 (U model)

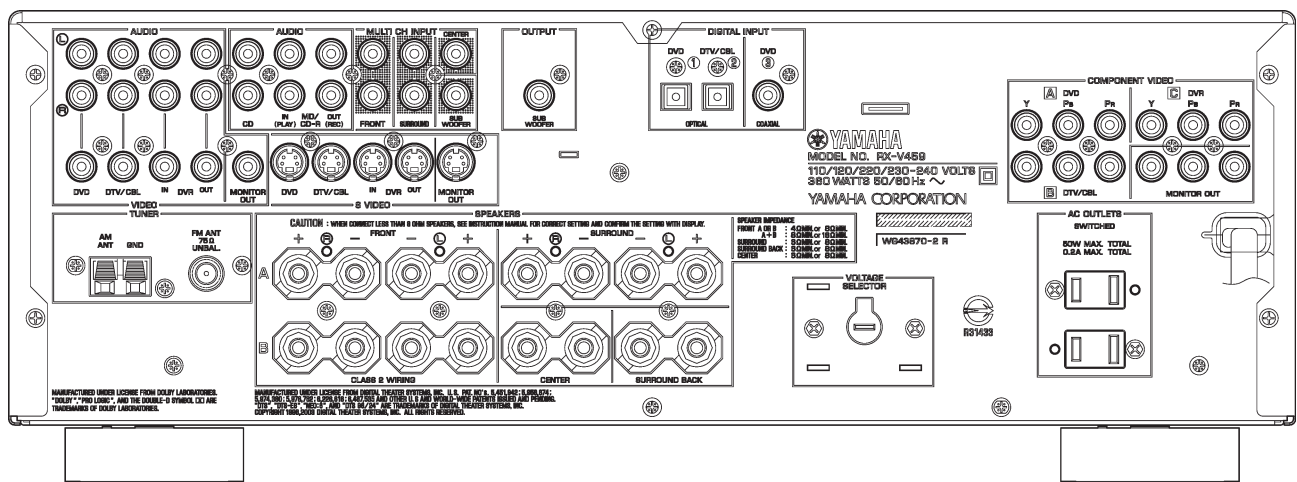


REAR PANELS

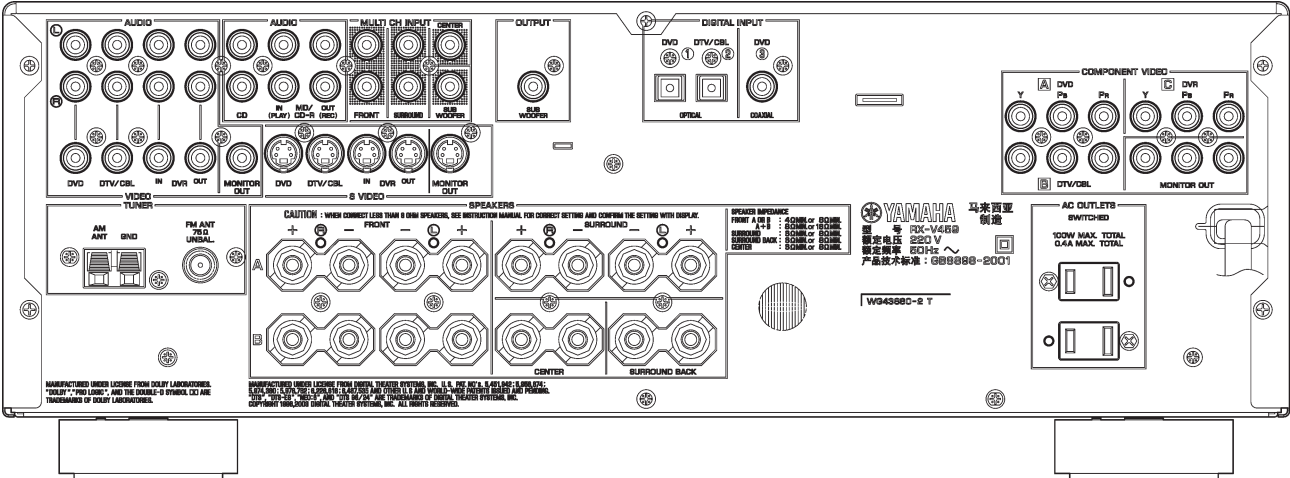
RX-V459 (U, C models)



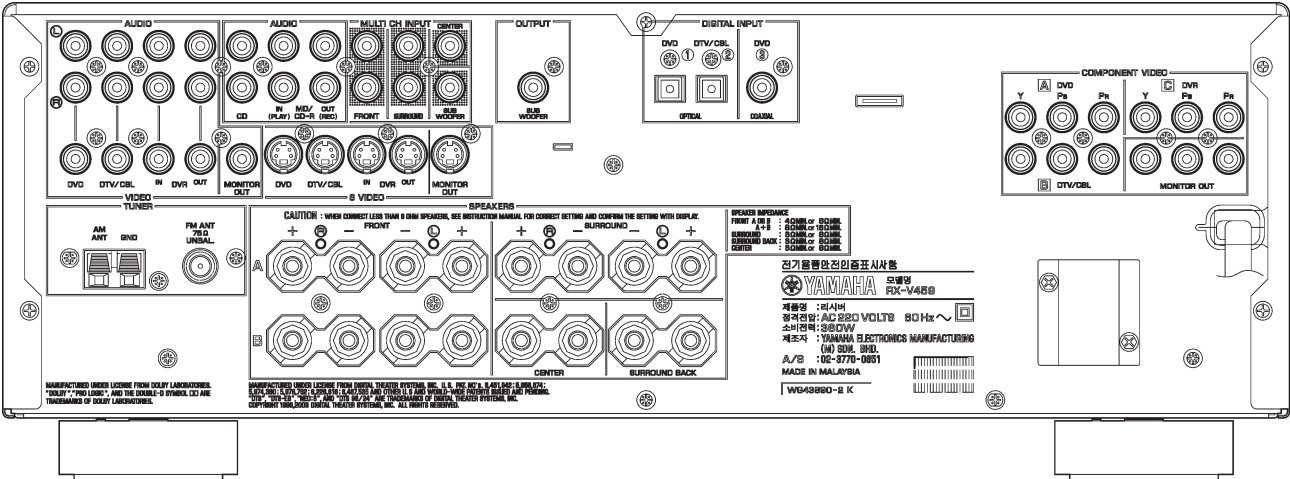
RX-V459 (R model)



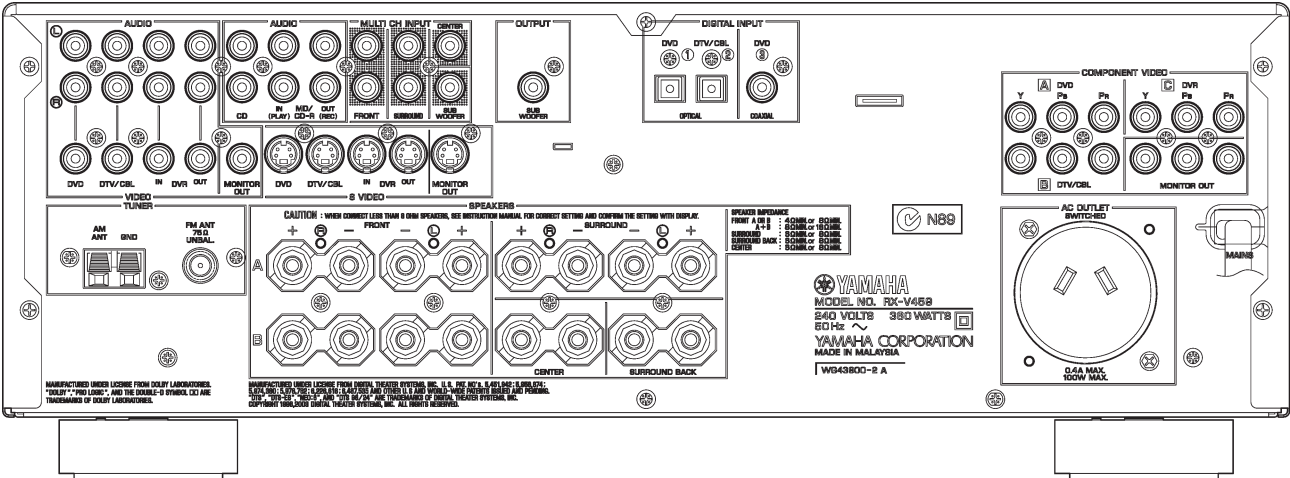
RX-V459 (T model)



RX-V459 (K model)



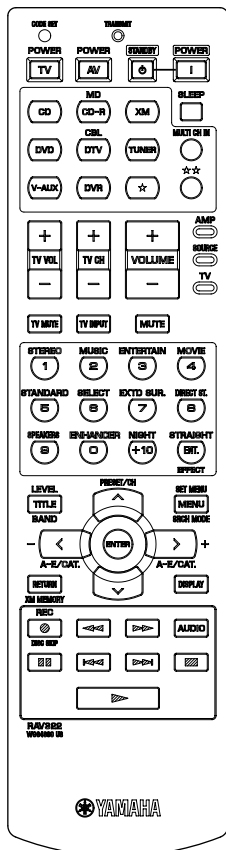
RX-V459 (A model)



RX-V459/HTR-5940/DSP-AX459
HTR-5935

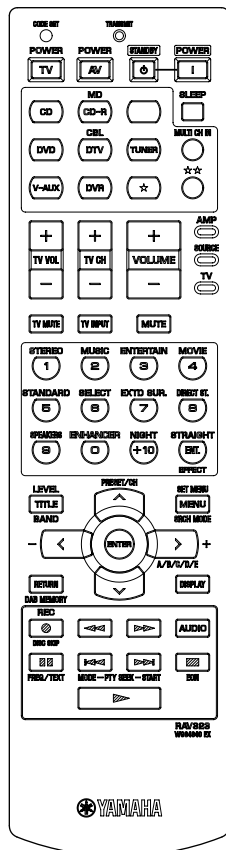
■ REMOTE CONTROL PANELS

RAV322



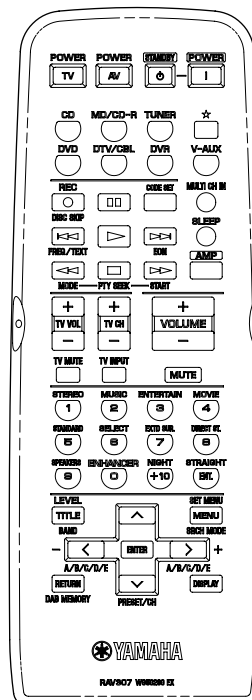
RX-V459 (U, C models)
HTR-5940 (U, C models)

RAV323



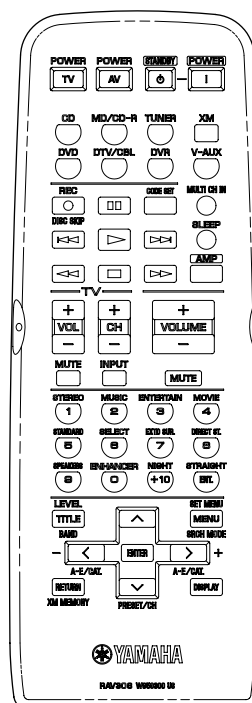
DSP-AX459 (J model)

RAV307



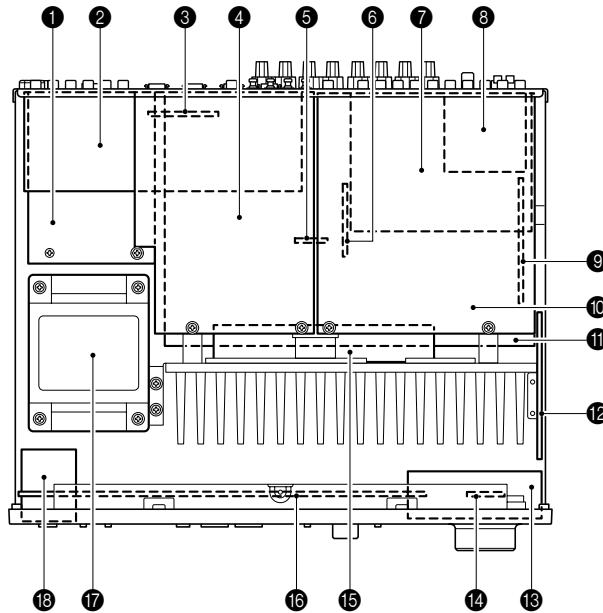
RX-V459 (R, T, K, A, G, E, L models)
HTR-5940 (T, K, A, G, E models)

RAV308



HTR-5935 (U model)

INTERNAL VIEW



- ❶ OPERATION (4) P.C.B.
- ❷ FUNCTION (2) P.C.B.
- ❸ FUNCTION (3) P.C.B. (R, L models)
- ❹ DSP P.C.B.
- ❺ MAIN (5) P.C.B.
- ❻ MAIN (4) P.C.B.
- ❼ OPERATION (2) P.C.B.
- ❽ Tuner
- ❾ YST P.C.B. (HTR-5935 model)
- ❿ FUNCTION (1) P.C.B.
- ⓫ MAIN (1) P.C.B.
- ⓬ FUNCTION (4) P.C.B.
- ⓭ OPERATION (5) P.C.B.
- ⓮ OPERATION (6) P.C.B.
- ⓯ MAIN (2) P.C.B.
- ⓰ OPERATION (3) P.C.B.
- ⓱ Power Transformer
- ⓲ OPERATION (3) P.C.B.

■ DISASSEMBLY PROCEDURES / 分解手順

(Remove parts in the order as numbered.)

Disconnect the power cable from the AC outlet.

(番号順に部品を取り外してください。)

AC電源コンセントから、電源コードを抜いてください。

1. Removal of Top Cover

- Remove 4 screws (①), 5 screws (②) and 1 screw (③). (Fig. 1)
- Slide the Top Cover rearward to remove it. (Fig. 1)

1. トップカバーの外し方

- ①のネジ4本、②のネジ5本、③のネジ1本を外します。 (Fig. 1)
- トップカバーを後方へスライドさせ、取り外します。 (Fig. 1)

2. Removal of Front Panel Unit

- Remove 6 screws (④). (Fig. 1)
- Remove a push rivet (⑤). (Fig. 1)
- Remove the Barrier/FFC. (Fig. 1)
- Remove CB5, CB203, CB205 and CB310. (Fig. 1)
- Remove the Front Panel Unit. (Fig. 1)

2. フロントパネルユニットの外し方

- ④のネジ6本を外します。 (Fig. 1)
- ⑤プッシュリベット1本を外します。 (Fig. 1)
- バリアー/FFCを取り外します。 (Fig. 1)
- CB5、CB203、CB205、CB310を外します。 (Fig. 1)
- フロントパネルユニットを取り外します。 (Fig. 1)

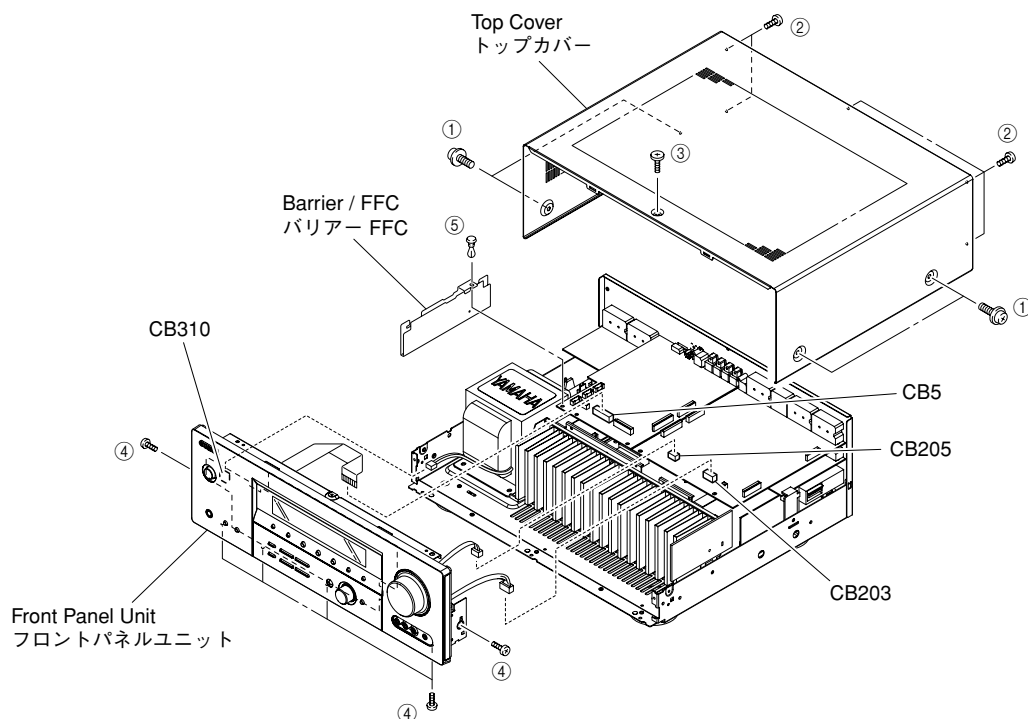
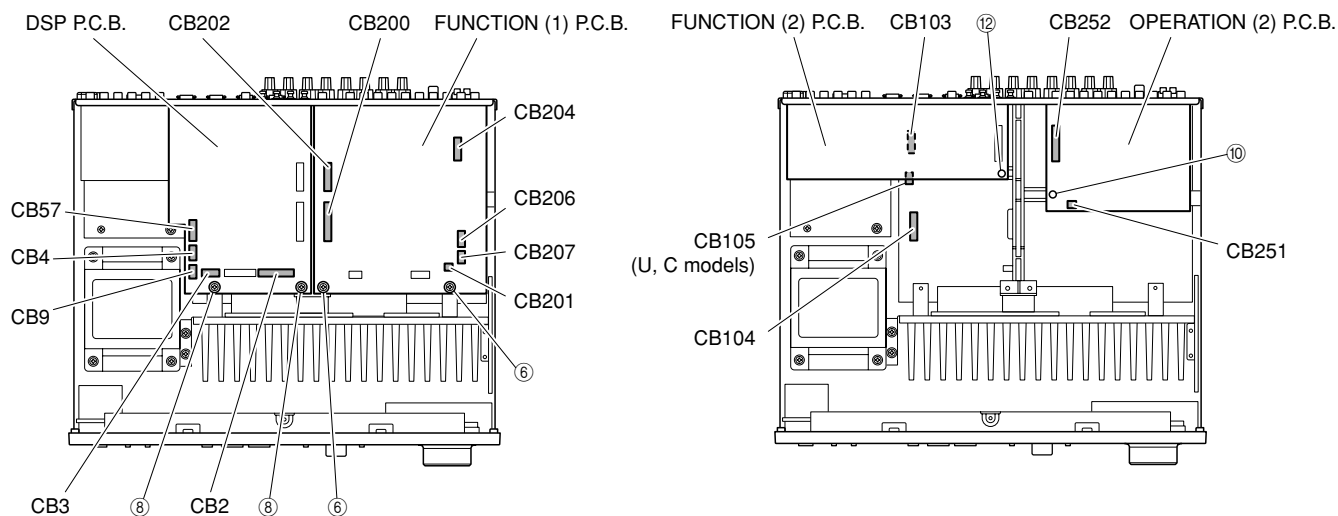


Fig. 1



● Functions in DIAG mode

In addition to the DIAG menu items, functions as listed below are available.

- Input selection
- Center/Rear/Rear Center/Sub-woofer level adjustment
- Speaker relay control of A and B
- Muting
- Power on/off
- Master volume

* Functions related to the tuner and the set menu are not available.

* It is possible to confirm Menu No.16 IF STATUS while keeping the signal process (operation status) of each DIAG menu by using the INPUT MODE key of the main unit.

● Initial settings used to start DIAG

The following settings are used when starting DIAG.

When DIAG is canceled, these settings are restored to those before starting DIAG.

- Master volume: -20 dB
- Input: DVD (MULTI CH INPUT OFF)
- Effect level: 0 dB
- Audio mute: OFF
- Speaker relay of A and B: ON
- Speaker setting: LARGE / BASS OUT = SWFR
- DIAG menu: BYPASS (1. ANALOG BYPASS)

● ダイアグ中の機能

ダイアグメニューの他に、以下の機能が動作します。

- ・ インプット切り換え
- ・ センター、リア、リアセンター、サブウーファーレベル調整
- ・ スピーカーリレーA/B
- ・ ミューティング
- ・ パワーオン/オフ
- ・ マスターボリューム

※ チューナー関連、セットメニュー関連は機能しません。

※ 本体のINPUT MODEキーにより、各ダイアグメニューの信号処理(動作状態)を維持したままメニューNo.16 "IF STATUS"の確認ができます。

● ダイアグ開始時の初期設定

ダイアグ開始時に以下のような設定になります。ダイアグ解除時にはダイアグ開始前の状態に戻ります。

- ・ マスターボリューム：-20 dB
- ・ インプット：DVD (MULTI CH INPUT オフ)
- ・ エフェクトレベル：0 dB
- ・ オーディオミュート：オフ
- ・ スピーカーリレーA/B：ON
- ・ スピーカー設定：LARGE / BASS OUT = SWFR
- ・ ダイアグメニュー：BYPASS (1. ANALOG BYPASS)

• Details of DIAG menu

1. BYPASS

Using the sub-menu, it is possible to select analog bypass output or DSP bypass output.

ANALOG BYPASS

1. ANALOG BYPAS

Reference data

INPUT: DVD ANALOG

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

Input level	Volume	SPEAKERS OUT				SUBWOOFER OUTPUT
		FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	
Both ch, -20 dBm	+6.0 dB	+13.0 dBm	- ∞	- ∞	- ∞	- ∞

ANALOG BYPASS

1. BYPASS

サブメニューによりANALOG BYPASS/DSP BYPASSが選択可能です。

DSP BYPASS

1. DSP BYPASS

Reference data

INPUT: DVD ANALOG

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

Input level	Volume	SPEAKERS OUT				SUBWOOFER OUTPUT
		FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	
Both ch, -20 dBm	+6.0 dB	+13.5 dBm	- ∞	- ∞	- ∞	- ∞

ANALOG BYPASS

2. RAM THROUGH

Using the sub-menu, it is possible to select margin output or full-bit output.

RAM MARGIN

Following head margin is reserved.

FRONT	CENTER	SURROUND	SURROUND BACK	SUBWOOFER
+15.0 dB	+13.5 dB	+9.0 dB	+7.5 dB	+21.0 dB

2. RAM MARGIN

Reference data

INPUT: DVD ANALOG

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

Input level	Volume	SPEAKERS OUT				SUBWOOFER OUTPUT
		FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	
Both ch, -20 dBm	+6.0 dB	+13.5 dBm	+13.5 dBm	+13.5 dBm	+13.5 dBm	+2.0 dBm

RAM FULL BIT

No head margin is reserved except SW.

FRONT	CENTER	SURROUND	SURROUND BACK	SUBWOOFER
0 dB	0 dB	0 dB	0 dB	+21 dB

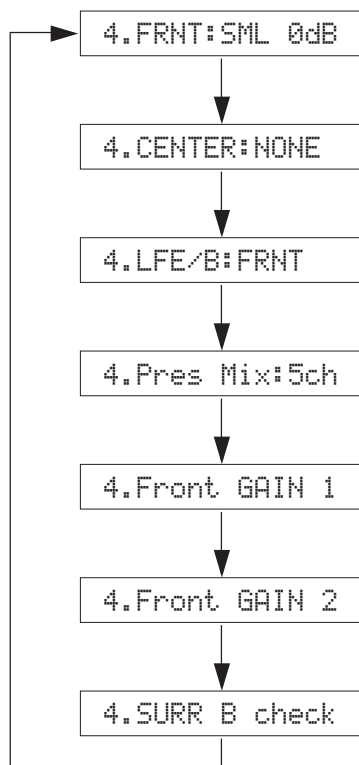
2. RAM FULL BIT

Reference data

INPUT: DVD ANALOG

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

Input level	Volume	SPEAKERS OUT				SUBWOOFER OUTPUT
		FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	



Reference data

INPUT: DVD ANALOG (Both ch)

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

	Sub-menu	Input level	Volume	SPEAKER OUT				SUBWOOFER OUTPUT
				FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	
1	FRONT: SML 0dB	Both ch, -20 dBm	+6.0 dB	+13.5 dBm	+13.5 dBm	+13.5 dBm	+13.5 dBm	+5.5 dBm
2	CENTER: NONE	Both ch, -20 dBm	+6.0 dB	+10.5 dBm	- ∞	+13.5 dBm	+13.5 dBm	+2.0 dBm
3	LFE/B: FRNT (1 kHz)	Both ch, -20 dBm	+6.0 dB	- ∞	+13.5 dBm	+13.5 dBm	+13.5 dBm	- ∞
	LFE/B: FRNT (50 Hz)	Both ch, -20 dBm	+6.0 dB	+20.5 dBm	+13.5 dBm	+13.5 dBm	+13.5 dBm	- ∞
4	Pres Mix: 5ch	Both ch, -20 dBm	+6.0 dB	- ∞	+13.5 dBm	+18.5 dBm	- ∞	-0.5 dBm
5	Front Gain 1	Both ch, -20 dBm	+6.0 dB	+20.5 dBm	+13.5 dBm	+13.5 dBm	+13.5 dBm	+2.0 dBm
6	Front Gain 2	Both ch, -20 dBm	+6.0 dB	+20.5 dBm	+13.5 dBm	+13.5 dBm	+13.5 dBm	+2.0 dBm
7	SUR							

5. XCH INPUT

The signal input through the multi ch input is output.
The speaker impedance can be selected.

XCH INPUT_6 (ohms)

5.XCH INPUT_6

Reference data

INPUT: MULTI CH INPUT

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

Input level	Volume	SPEAKERS OUT				SUBWOOFER OUTPUT
		FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	
Both ch, -20 dBm	+6.0 dB	+13.5 dBm	+13.5 dBm	+13.5 dBm	- ∞	-10.0 dBm

5. XCH INPUT

マルチCH入力された信号が出力されます。
6オーム、8オームが選択されます。

XCH INPUT_6(ohms)

XCH INPUT_8 (ohms)

5.XCH INPUT_8

Reference data

INPUT: MULTI CH INPUT

SUBWOOFER OUTPUT: 50 Hz, Others: 1 kHz

Input level	Volume	SPEAKERS OUT				SUBWOOFER OUTPUT
		FRONT L/R	CENTER	SURROUND L/R	SURROUND BACK L/R	
Both ch, -20 dBm	+6.0 dB	+13.5 dBm	+13.5 dBm	+13.5 dBm	- ∞	-10.0 dBm

XCH INPUT_8(ohms)

LIMIT SET

IMP SW/POWER LIMIT (impedance/power limiter detection)

IMP: Not applied to these models.

PL: Power limiter detection value

The voltage value of pin No. 92 of IC451 is displayed, using 5V/256 as standard.

The port (No. 3) output is controlled by using the input voltage value of pin No. 92 of IC451.

IMP SW/POWER LIMIT (インピーダンス/パワーリミッターの検出)

IMP: このモデルには適用されません。

PL: パワーリミッター検出の値

IC451 92ピンの入力電圧値を5V/256を基準にして表示します。IC451 92ピンの入力電圧値により、ポート(3ピン)を制御します。

IMP:8 PL:245

PANEL KEY (K0/K1)

(Panel key of main unit) [Remote control code: -]

A/D of the key fails to function properly when the standard value is deviated by ± 8 . In this case, check the constant of partial pressure resistor, solder condition, etc. Refer to table.

(Reference voltage: 5 V=100 %)

PANEL KEY (K0/K1)

(本機パネルキー)

キーのA/Dは基準値から ± 8 を外れると、正常な動きをしません。下表をご覧ください。各キーの分圧抵抗の定数、ハンダ不良等の確認をしてください。

(基準電圧: 5V=100%)

K0:100 K1:100

Display (%)	K0	K1
0 - 6	◁ PROGRAM	—
7 - 13	PROGRAM ▷	—
14 - 21	BASS/TREBLE -	—
22 - 31	BASS/TREBLE +	—
32 - 41	INPUT	

11. VIDEO

Not applied to these models.

11. VIDEO

このモデルには適用されません。

12. XM STATUS (U, C models)

Perform the output check of XM Radio Antenna connected to the XM terminal.

12. XM STATUS(U, C models)

XM端子に接続された、XM Radio Antennaの出力チェックを行います。

1k -1dB/44.1k

The test tone (1kHz, -1dB/44.1kHz) is output.

1k -1dB/44.1k

テストトーン(1kHz、-1dB/44.1kHz)を出力します。

1k - 1dB/44

1k -61dB/44.1k

The test tone (1kHz, -61dB/44.1kHz) is output.

1k -61dB/44.1k

テストトーン(1kHz、-61dB/44.1kHz)を出力します。

1k -61dB/44

Mute /44.1k

Nothing is output.

Mute /44.1k

何も出力されません。

Mute /44

XM Tone/44.1k

The XM tone (44.1kHz) is output.

XM Tone/44.1k

XMトーン(44.1kHz)を出力します。

XM Tone/44

ISO Tone/44.1k

The ISO tone (44.1kHz) is output.

Mute /32k

Nothing is output.

Mute /32k

何も出力されません。

Mute /32

XM Tone/32k

The XM tone (32kHz) is output.

XM Tone/32k

XMトーン(32kHz)を出力します。

XM Tone/32

ISO Tone/32k

The ISO tone (32kHz) is output.

ISO Tone/32k

ISOトーン(32kHz)を出力します。

ISO Tone/32

XM/DT Bus Power: OFF

The power of XM module is turned off.

XM/DT Bus Power: OFF

XMモジュールの電源をOFFします。

Bus Power:OFF

13. iPod

Not applied to these models.

13. iPod

このモデルには適用されません。

13.DOCK:NG NNN

<5th byte> / <第5バイト>

Signal processing status information /

信号処理ステータス情報

bit	Fs (kHz)
bit 7	Digital mute
bit 6	—
bit 5	6.1 (7.1) processing
bit 4	Analog mute
bit 3	—
bit 2	PCM through
bit 1	—
bit 0	dts analog mute

DMD: Decoder mode information

Not applied to these models.

DMD: デコーダー情報

このモデルには適用されません。

DMD:03C00000

DIF: DIR information

Not applied to these models.

DIF: DIR情報

このモデルには適用されません。

DIF:0001000600

PC: Preamble C information

Not applied to these models.

PC: Preamble C情報

このモデルには適用されません。

PC :0000

CS1, 2: Channel status information

Not applied to these models.

CS1, 2: チャンネルステータス情報

このモデルには適用されません。

CS1:0000000000

CS2:00

ZONE2: NOT or EXIST can be selected. (SW MODE:
Selectable when FNC has been selected.)

ZONE2 : NOTまたはEXISTを選択できます。(SW MODE :
FNC時選択できます。)

21.ZONE2:EXIST

AAC: NOT or EXIST can be selected. (SW MODE:
Selectable when FNC has been selected.)

AAC : NOTまたはEXISTを選択できます。(SW MODE : FNC
時選択できます。)

21.AAC :NOT

TUNER: NOT or EXIST can be selected. (SW MODE:
Selectable when FNC has been selected.)

TUNER : NOTまたはEXISTを選択できます。(SW MODE :
FNC時選択できます。)

21.TUNER:EXIST

ZONE2 AMP: NOT or EXIST can be selected. (SW
MODE: Selectable when FNC has been selected.)

ZONE2 AMP : NOTまたはEXISTを選択できます。(SW
MODE : FNC時選択できます。)

21.Z2Amp:NOT

OSD: NOT or EXIST can be selected. (SW MODE:
Selectable when FNC has been selected.)

OSD : NOTまたはEXISTを選択できます。(SW MODE : FNC
時選択できます。)

21.OSD :EXIST

YPAO: NOT or EXIST can be selected. (SW MODE:
Selectable when FNC has been selected.)

YPAO : NOTまたはEXISTを選択できます。(SW MODE :
FNC時選択できます。)

21.YPAO :NOT

