

# Service Manual



XV-DVR9H

ORDER NO.  
**RRV3019**

DVD-RW/HDD TUNER

# XV-DVR9H

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

Model	Type	Power Requirement	Regional restriction codes (Region No.)	Remarks
XV-DVR9H	WYXJ	AC220-240V	2	
XV-DVR9H	WVXJ	AC220-240V	2	

- When servicing this model, some service procedures may reset the settings that customer set (\*) to the factory default settings. Make sure to explain this to the customer.

(\*) : Initial Setup (Clock Setting, Tuner settings, Video In / Out settings, Audio In settings, Audio Out settings, Language settings, Recording settings, Playback settings)

Refer to the chapter 15 of the Operating Instructions for more details.

An HDD (Hard Disc Drive) is mounted in this product.

The HDD is a precision instrument very vulnerable to shock and electrostatic charges. Please read "7.4 Cautions on Handling the HDD" in this manual and exercise sufficient caution when handling the HDD itself, as well as the product with the HDD built in.

When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible. Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.

The user must be made aware that all recorded data are deleted if the HDD is initialized.



For details, refer to "Important Check Points for Good Servicing".

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan  
**PIONEER ELECTRONICS (USA) INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.  
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium  
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936

©PIONEER CORPORATION 2004

# SAFETY INFORMATION

## LITHIUM BATTERY NOTICE

### CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

When replacing the lithium batteries, follow the note below. Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note : The lithium battery installation position is shown in the exploded views.

### LABEL CHECK

#### WARNING !

The AEL (accessible emission level) of the laser power output is less than **CLASS 1** but the laser component is capable of emitting radiation exceeding the limit for **CLASS 1**.

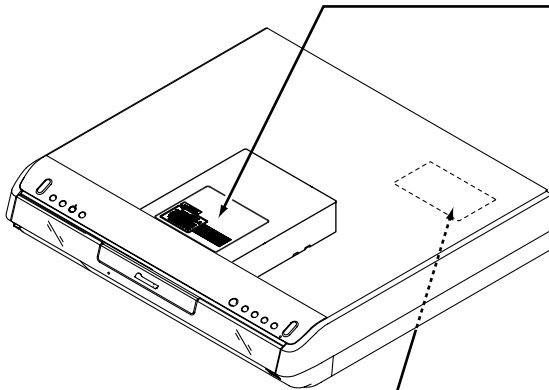
A specially instructed person should do servicing operation of the apparatus.

#### LASER DIODE CHARACTERISTICS

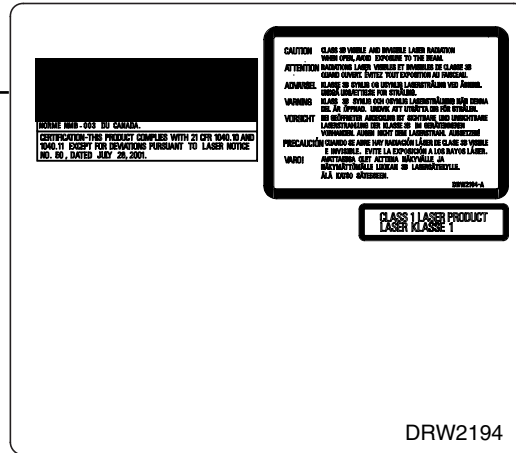
MAXIMUM OUTPUT POWER : 70 mW  
PULSE WIDTH : 100ns DUTY : 50% 140mW  
WAVELENGTH : 654 - 662 nm

#### LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER : 100 mW  
PULSE WIDTH : 100ns DUTY : 50% 240mW  
WAVELENGTH : 780 - 787 nm



(Printed on License Label)



DRW2194

#### Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF. In normal operation, if no disc is clamped, the laser diode oscillation is disabled. However, the interlock does not always operate in the test mode.
2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

## [Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol. Please be sure to confirm and follow these procedures.

### 1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification (addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris. Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs. In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages. If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries. Please pay attention to your surroundings and repair safely.

### 2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification. Adjustments should be performed in accordance with the procedures/instructions described in this manual.

### 3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance. Make sure the proper amount is applied.

### 4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

### 5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

# CONTENTS

- SAFETY INFORMATION ..... 2
- 1. SPECIFICATIONS ..... 5
- A 2. EXPLODED VIEWS AND PARTS LIST ..... 8
  - 2.1 PACKING ..... 8
  - 2.2 EXTERIOR SECTION ..... 10
  - 2.3 CHASSIS SECTION ..... 12
  - 2.4 FRONT PANEL SECTION ..... 14
- 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM ..... 16
  - 3.1 BLOCK DIAGRAM ..... 16
    - 3.1.1 OVERALL BLOCK DIAGRAM ..... 16
    - 3.1.2 MAIN ASSY BLOCK DIAGRAM ..... 20
    - 3.1.3 POWER SUPPLY BLOCK DIAGRAM ..... 22
  - 3.2 OVERALL WIRING CONNECTION DIAGRAM ..... 24
  - 3.3 TV MODULE ASSY ..... 26
  - 3.4 TV CONNECT ASSY ..... 28
  - B 3.5 JACK ASSY (1/2) ..... 30
  - 3.6 JACK ASSY (2/2) ..... 32
  - 3.7 MAIN ASSY (1/5) ..... 34
  - 3.8 MAIN ASSY (2/5) ..... 36
  - 3.9 MAIN ASSY (3/5) ..... 38
  - 3.10 MAIN (4/5), ATWB and ATHB ASSYS ..... 40
  - 3.11 MAIN ASSY (5/5) ..... 42
  - 3.12 CONTROL ASSY (1/4) ..... 44
  - 3.13 CONTROL ASSY (2/4) ..... 46
  - 3.14 CONTROL ASSY (3/4) ..... 48
  - 3.15 CONTROL ASSY (4/4) ..... 50
  - 3.16 DSP ASSY (1/2) ..... 52
  - C 3.17 DSP ASSY (2/2) ..... 54
  - 3.18 REG, DISPLAY, LED, TRADE, F. JACK, IR, KEY L and KEY R ASSYS ..... 56
  - 3.19 POWER SUPPLY UNIT ..... 58
  - 3.20 WAVEFORMS ..... 60
- 4. PCB CONNECTION DIAGRAM ..... 63
  - 4.1 TV MODULE ASSY ..... 64
  - 4.2 TV CONNECT ASSY ..... 65
  - 4.3 JACK and TRADE ASSYS ..... 66
  - 4.4 MAIN ASSY ..... 70
  - 4.5 CONTROL ASSY ..... 74
  - 4.6 DSP ASSY ..... 78
  - 4.7 REG ASSY ..... 80
  - D 4.8 DISPLAY and LED ASSYS ..... 81
  - 4.9 FRONT JACK ASSY ..... 82
  - 4.10 IR, KEY L and KEY R ASSYS ..... 83
  - 4.11 ATWB and ATHB ASSYS ..... 84
- 5. PCB PARTS LIST ..... 85
- 6. ADJUSTMENT ..... 92
  - 6.1 TV MODULE ADJUSTMENT ..... 92
  - 6.2 MAIN ASSY ADJUSTMENT ..... 93
- 7. GENERAL INFORMATION ..... 94
  - 7.1 DIAGNOSIS ..... 94
    - 7.1.1 CPRM ID NUMBER AND DATA SETTING ..... 95
    - 7.1.2 MODEL SETTING ..... 99
    - 7.1.3 DOWNLOAD METHOD ..... 100
    - E 7.1.4 SERVICE MODE ..... 102
    - 7.1.5 ERROR RATE MEASUREMENT ..... 117
    - 7.1.6 SERVICE SPECIFICATIONS OF THE PT MICROCOMPUTER (PDC117A-K) ..... 119
    - 7.1.7 SPECIFICATIONS OF THE DSP DISPLAY ..... 120
    - 7.1.8 VIDEO ADJUSTMENT FOR SPECIFIC AREA ..... 123
    - 7.1.9 AGING MODE ..... 127
    - 7.1.10 SETUP SEQUENCE ..... 129
    - 7.1.11 DSP TROUBLE SHOOTING ..... 130
    - 7.1.12 DISASSEMBLY ..... 134
  - 7.2 PARTS ..... 141
    - 7.2.1 IC ..... 141
  - 7.3 DIAGNOSIS METHOD OF THE HDD ..... 175
  - F 7.4 CAUTIONS ON HANDLING THE HDD ..... 181
  - 7.5 DISC/CONTENT FORMAT ..... 183
  - 7.6 CLEANING ..... 184
- 8. PANEL FACILITIES ..... 185

# 1. SPECIFICATIONS

## General

System . . . . . HDD, DVD-Video, DVD-R/RW,  
Video-CD, Super VCD, CD,  
CD-R/RW (WMA, MP3, JPEG, CD-DA)

Power requirements . . . . . 220-240 V, 50/60 Hz

Power consumption

XV-DVR9H . . . . . 81 W

S-DVR9SW . . . . . 151 W

Power consumption in standby

XV-DVR9H . . . . . 0.80 W (front display off)

S-DVR9SW . . . . . 0 W

Dimensions . . . . . 420 (W) x 77.5 (H) x 398 (D) mm

Weight . . . . . 5.6 kg

Operating temperature . . . . . +5°C to +35°C

Operating humidity . . . . . 5% to 85%  
(no condensation)

TV system . . . . . PAL/SECAM/  
NTSC (external input only)

## Recording

Recording format . . . . . DVD Video Recording  
DVD-VIDEO

## Recordable discs

DVD-RW (DVD Re-recordable disc)

DVD-R (DVD Recordable disc)

## Video recording format

Sampling frequency . . . . . 13.5MHz

Compression format . . . . . MPEG

## Audio recording format

Sampling frequency . . . . . 48kHz

Compression format . . . . . Dolby Digital or Linear PCM  
(uncompressed)

## Recording time

### HDD

Fine (FINE) . . . . . Approx. 17 hours

Standard Play (SP) . . . . . Approx. 34 hours

Long Play (LP) . . . . . Approx. 68 hours

Extended Play (EP) . . . . . Approx. 102 hours

Manual Mode (MN) . . . . . Approx. 17-102 hours

### DVD-R/DVD-RW

Fine (FINE) . . . . . Approx. 1 hour

Standard Play (SP) . . . . . Approx. 2 hours

Long Play (LP) . . . . . Approx. 4 hours

Extended Play (EP) . . . . . Approx. 6 hours

Manual Mode (MN) . . . . . Approx. 1-6 hours

## TV tuner section

### Receivable channels

	PAL B/G		PAL I	
	Frequency	Channel	Frequency	Channel
VHF (low)	47 - 89 MHz	E2 - E4 X - Z	44 - 89 MHz	A - C X - Z
VHF (high)	104 - 300 MHz	E5 - E12 S1 - S20 M1 - M10 U1 - U10	104 - 300 MHz	D - J 11, 13 S1 - S20
Hyper	302 - 470 MHz	S21 - S41	302 - 470 MHz	S21 - S41
UHF	470 - 862 MHz	E21 - E69	470 - 862 MHz	E21 - E69

	SECAM L		SECAM D/K	
	Frequency	Channel	Frequency	Channel
VHF (low)	49 - 65 MHz	2 - 4	49 - 94 MHz	R1 - R5
VHF (high)	104 - 300 MHz	5 - 10 B - Q	104 - 300 MHz	R6 - R12 S1 - S20
Hyper	300 - 470 MHz	S21 - S41	302 - 470 MHz	S21 - S41
UHF	470 - 862 MHz	21 - 69	470 - 862 MHz	E21 - E69

STEREO

B/G - A2

I - NICAM

L - NICAM

B/G - NICAM

D/K - NICAM

## Amplifier section

Continuous Power Output (RMS):

Front, Center, Surround . . . . . 100 W per channel  
(1 kHz, 10 % T.H.D., 6Ω)

Subwoofer . . . . . 100 W (100 Hz, 10 % T.H.D., 6Ω)

## FM tuner section

Frequency range . . . . . 87.5 to 108 MHz

Antenna . . . . . 75Ω, unbalanced

## AM tuner section

Frequency range . . . . . 531 kHz to 1,602 kHz

Antenna . . . . . Loop antenna

## Timer

Programs . . . . . 1 month/32 programs

Clock . . . . . Quartz lock (24-hour digital display)

Power off memory . . . . . Approx. 5 years (after manufacture)

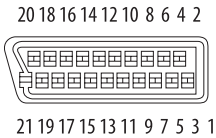
**Input/Output**

- VHF/UHF antenna input/output terminal . . . . . VHF/UHF set  
75Ω (IEC connector)
- A Video input . . . . . Line 1 (rear), 2 (front)
- Input level . . . . . 1 Vp-p (75Ω)
- Jacks . . . . . AV connector (Line 1), RCA jack (Line 2)
- Video output . . . . . AV1, AV2
- Output level . . . . . 1 Vp-p (75Ω)
- Jacks . . . . . AV connector (AV1/AV2)
- S-Video input . . . . . Line 1 (rear), 2 (front)
- Y (luminance) - Input level . . . . . 1 Vp-p (75Ω)
- C (colour) - Input level . . . . . 286 mVp-p (75Ω)
- Jacks . . . . . AV connector (Line 1), RCA jack (Line 2)
- S-Video output . . . . . AV1
- Y (luminance) - Output level . . . . . 1 Vp-p (75Ω)
- C (colour) - Output level . . . . . 286 mVp-p (75Ω)
- Jacks . . . . . AV connector (AV1)
- B RGB input . . . . . Line 1
- Input level . . . . . 0.7 Vp-p (75Ω)
- Jacks . . . . . AV connector (Line 1)
- RGB output . . . . . AV1
- Output level . . . . . 0.7 Vp-p (75Ω)
- Jacks . . . . . AV connector (AV1)
- C Audio input . . . . . Line 1 (rear), 2 (front),  
Analog audio (rear) L/R
- Input level
- During audio input . . . . . 2V rms  
(Input impedance: more than 22 kΩ)
- Jacks . . . . . AV connector (Line 1),  
RCA jacks (Line 2, Analog audio)
- Audio output . . . . . AV1, AV2, Analog audio
- During audio output . . . . . 2V rms (AV1, AV2)  
1V rms (Analog audio)  
(Output impedance: less than 1.5 kΩ)
- Jacks . . . . . AV connector (AV1/AV2)  
RCA jacks (Analog audio)
- Control input . . . . . Mini jack
- DV input/output . . . . . 4 pin  
(i.LINK/IEEE 1394 standard)

**AV Connectors (21-pin connector assignment)**

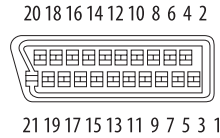
This connector sends/receives video and audio signals to/ from a compatible colour TV, monitor, VCR, etc.

**AV1(RGB)-TV connector output for TV/monitor**



- PIN no.
- 1 : Audio 2/R out
- 2 : -
- E 11 : G out
- 3 : Audio 1/L out
- 6 : -
- 15 : R or C out
- 4 : GND
- 17 : GND
- 7 : B out
- 19 : Video out or Y out
- 20 : -
- 8 : Status
- 21 : GND

**AV2 (LINE 1) connector input/output for VCR or other component**



- PIN no.
- 1 : Audio 2/R out
- 2 : Audio 2/R in
- 11 : G in
- 3 : Audio 1/L out
- 6 : Audio 1/L in
- 15 : R or C in
- 4 : GND
- 17 : GND
- 7 : B in
- 19 : Video out
- 20 : Video in or Y in
- 8 : Status
- 21 : GND

**Accessories (DVD-RW/HDD Tuner)**

- Remote control . . . . . 1
- AA/R6 dry cell batteries . . . . . 2
- SCART cable . . . . . 1
- RF antenna cable . . . . . 1
- 12-pin system cable (blue) . . . . . 1
- 16-pin system cable (black) . . . . . 1
- AM loop antenna . . . . . 1
- FM wire antenna . . . . . 1
- Power cord . . . . . 2
- Warranty Card . . . . . 1
- Setup Guide . . . . . 1

# • Accessories

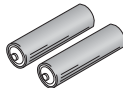
Remote control  
(AXD7398: WYXJ type)  
(AXD7399: WVXJ type)



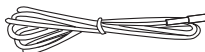
AM loop antenna  
(ATB7013)



Dry cell batteries  
(AA, R6P) x2  
(VEM1031)



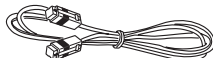
FM Wire antenna  
(ADH7030)



RF antenna cable  
(VDE1075)



12-pin system cable  
(ADE7063) L=3m



Blue plugs

SCART cable  
(VDE1079)

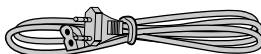


16-pin system cable  
(ADE7099)

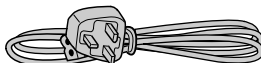


Black plugs

Power cord  
(ADG1154: WYXJ type) x2



Power cord  
(ADG1156: WVXJ type) x2



A

B



C

D

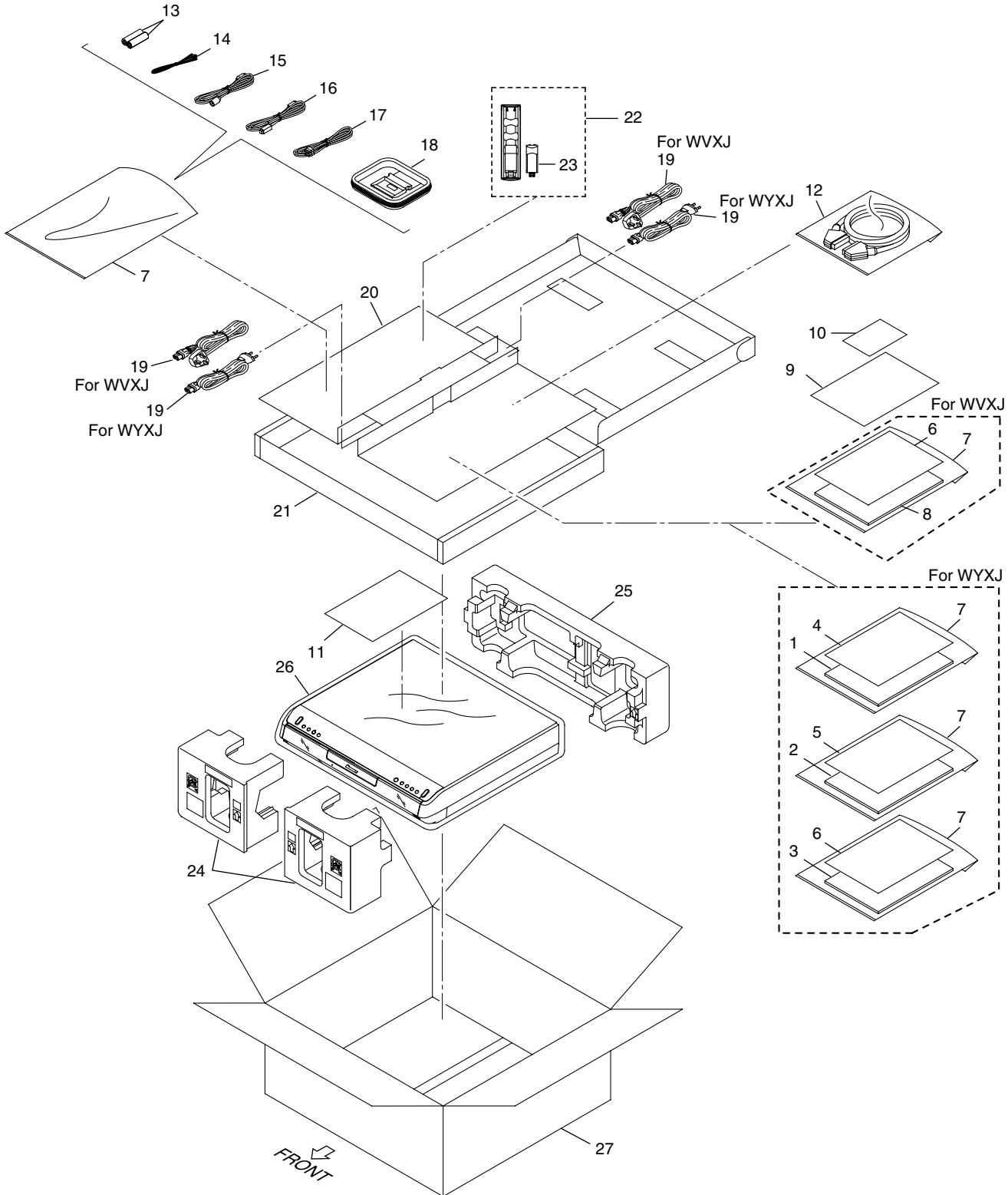
E

F

# 2. EXPLODED VIEWS AND PARTS LIST

- NOTES:**
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
  - The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - Screws adjacent to  mark on product are used for disassembly.
  - For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)

## 2.1 PACKING





5 6 7 8

**PACKING SECTION Parts List**

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	Operating Instructions (German/French)	See Contrast table(2)	16	12-pin System Cable	ADE7063
2	Operating Instructions (Spanish/Italian)	See Contrast table(2)	17	16-pin System Cable	ADE7099
3	Operating Instructions (English/Dutch)	See Contrast table(2)	18	AM Loop Antenna	ATB7013
4	Setup Guide (German/French)	See Contrast table(2)	19	Power Cord	See Contrast table(2)
5	Setup Guide (Spanish/Italian)	See Contrast table(2)	20	Spacer Card	AHB7102
6	Setup Guide (English/Dutch)	ARE7349	21	Spacer	AHB7096
NSP 7	Polyethylene Bag	Z21-038	22	Remote Control	See Contrast table(2)
8	Operating Instructions (English)	See Contrast table(2)	23	Battery Cover	AZA7424
9	HDD Caution 7L A	ARM7090	24	Front Pad	AHA7438
NSP 10	Warranty Card	ARY7065	25	Rear Pad LR	AHA7439
11	HDD Caution 7L B	ARM7091	26	Packing Sheet	AHG7010
12	SCART Cable	VDE1079	27	Packing Case	See Contrast table(2)
NSP 13	Dry Cell Battery (AA,R6P)	VEM1031			
14	FM Wire Antenna	ADH7030			
15	RF Antenna Cable	VDE1075			

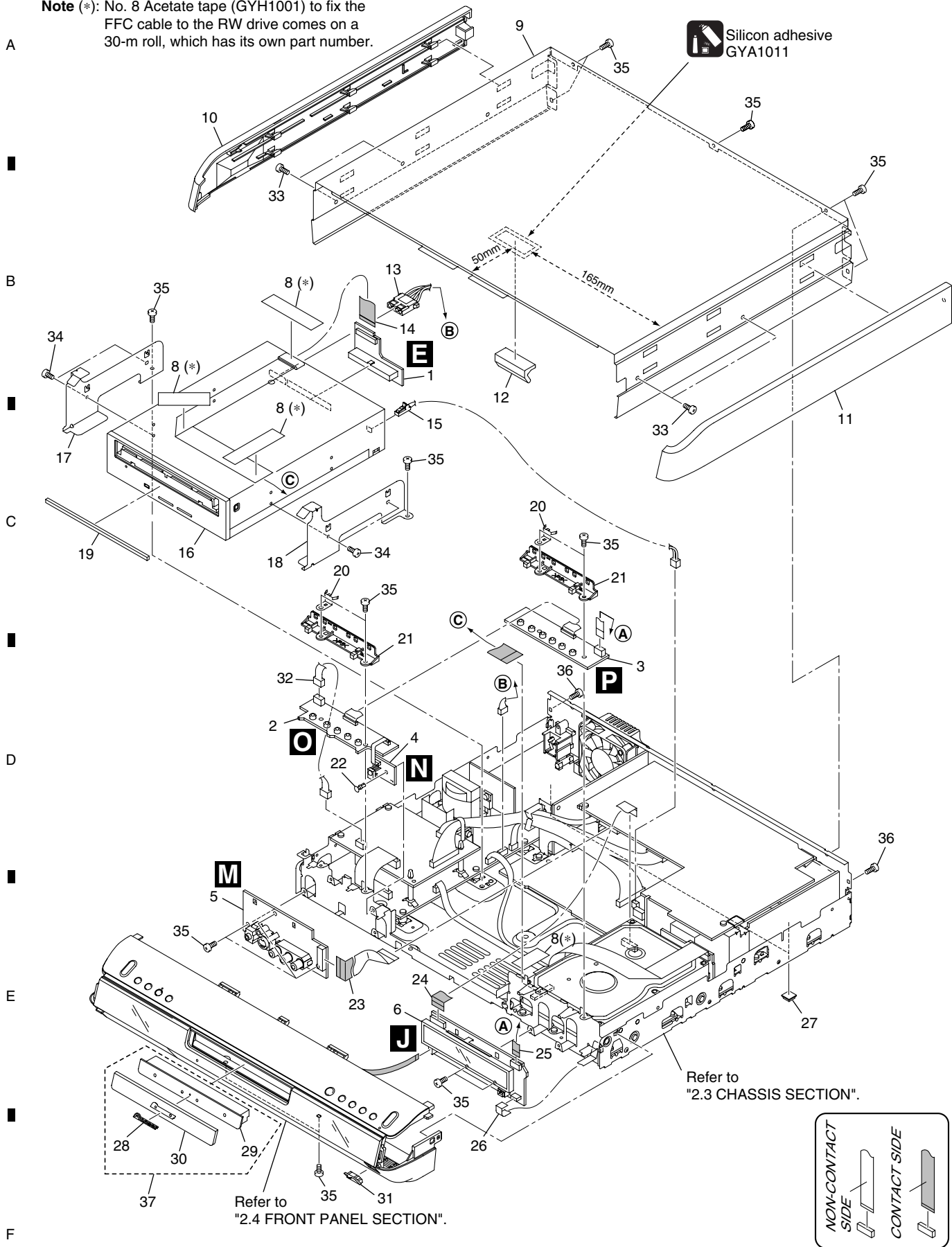
**(2) CONTRAST TABLE**

XV-DVR9H/WYXJ and WVXJ are constructed the same except for the following:

<u>Mark</u>	<u>No.</u>	<u>Description</u>	<u>XV-DVR9H/WYXJ</u>	<u>XV-DVR9H/WVXJ</u>
	1	Operating Instructions (German/French)	ARC7560	Not used
	2	Operating Instructions (Spanish/Italian)	ARC7561	Not used
	3	Operating Instructions (English/Dutch)	ARE7348	Not used
	4	Setup Guide (German/French)	ARC7564	Not used
	5	Setup Guide (Spanish/Italian)	ARC7565	Not used
	8	Operating Instructions (English)	Not used	ARB7316
⚠	19	Power Cord	ADG1154	ADG1156
	22	Remote Control	AXD7398	AXD7399
	27	Packing Case	AHD8335	AHD8336

## 2.2 EXTERIOR SECTION

**Note (\*)**: No. 8 Acetate tape (GYH1001) to fix the FFC cable to the RW drive comes on a 30-m roll, which has its own part number.



**EXTERIOR SECTION Parts List**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	ATWB Assy	AWU8240	21	Joint Mold	AMR7489
2	KEY L Assy	AWU8221	22	Rivet	AEC7514
3	KEY R Assy	AWU8222	23	17P FFC/60V	ADD7494
4	IR Assy	AWU8227	24	15P FFC/60V	ADD7488
5	FRONT JACK Assy	AWU8226	25	9P FFC/60V	ADD7492
6	DISPLAY Assy	AWU8216	26	7P FFC/60V	ADD7491
7	Silicone Adhesive	GYA1011	27	Rubber Foot	VEB1325
8	Acetate Tape	GYH1001 *(30-m roll)	28	PIONEER Name Plate	AAM7014
9	Bonnet Case	ANE7322	29	Tray Cap	AAK8210
10	Side Panel L	AAK8208	30	Tray Panel	AAK8213
11	Side Panel R	AAK8209	31	DV Cap	AAK8215
12	Gasket	AEC7515	32	Connector Assy (4P)	PF04PP-S05
13	4P Lead with Housing	ADX7469	33	Screw	BBZ30P040FCC
14	40P FFC/60V	ADD7496	34	Screw	AMZ30P060FTC
15	Housing Assy (2P)	VKP2315	35	Screw	BBZ30P080FTC
16	DRIVE Assy R7 (For servise)	VXX2942	36	Screw	PPZ30P080FTC
17	Mecha Angle L	AND7069	37	Tray Panel Assy	AZA7431
18	Mecha Angle R	AND7070			
19	Panel Sheet	AEC7522			
20	Earth Spring	ABK7059			

**Note :**

When the Bonnet Case is replaced, the Gasket also need to be replaced at the same time.

The reason why No.12 Gasket AEC7515 is necessary :

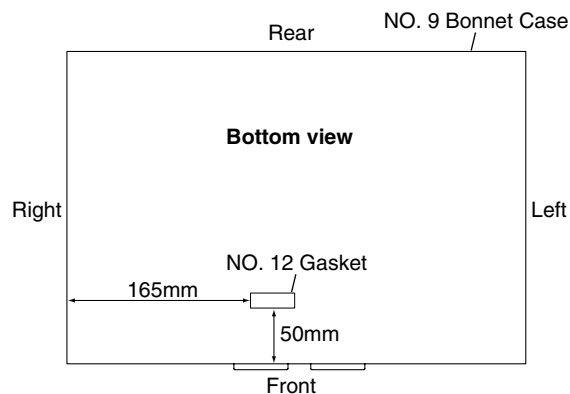
When No.12 Gasket AEC7515 is not assembling to the Bonnet Case, the product does not satisfy the standard value of electric wave interference regulation.

When the Bonnet Case is replaced, confirm that AEC7515 is assembling to the Bonnet Case.

**Note :**

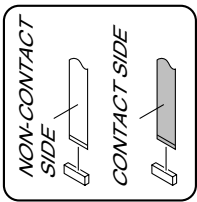
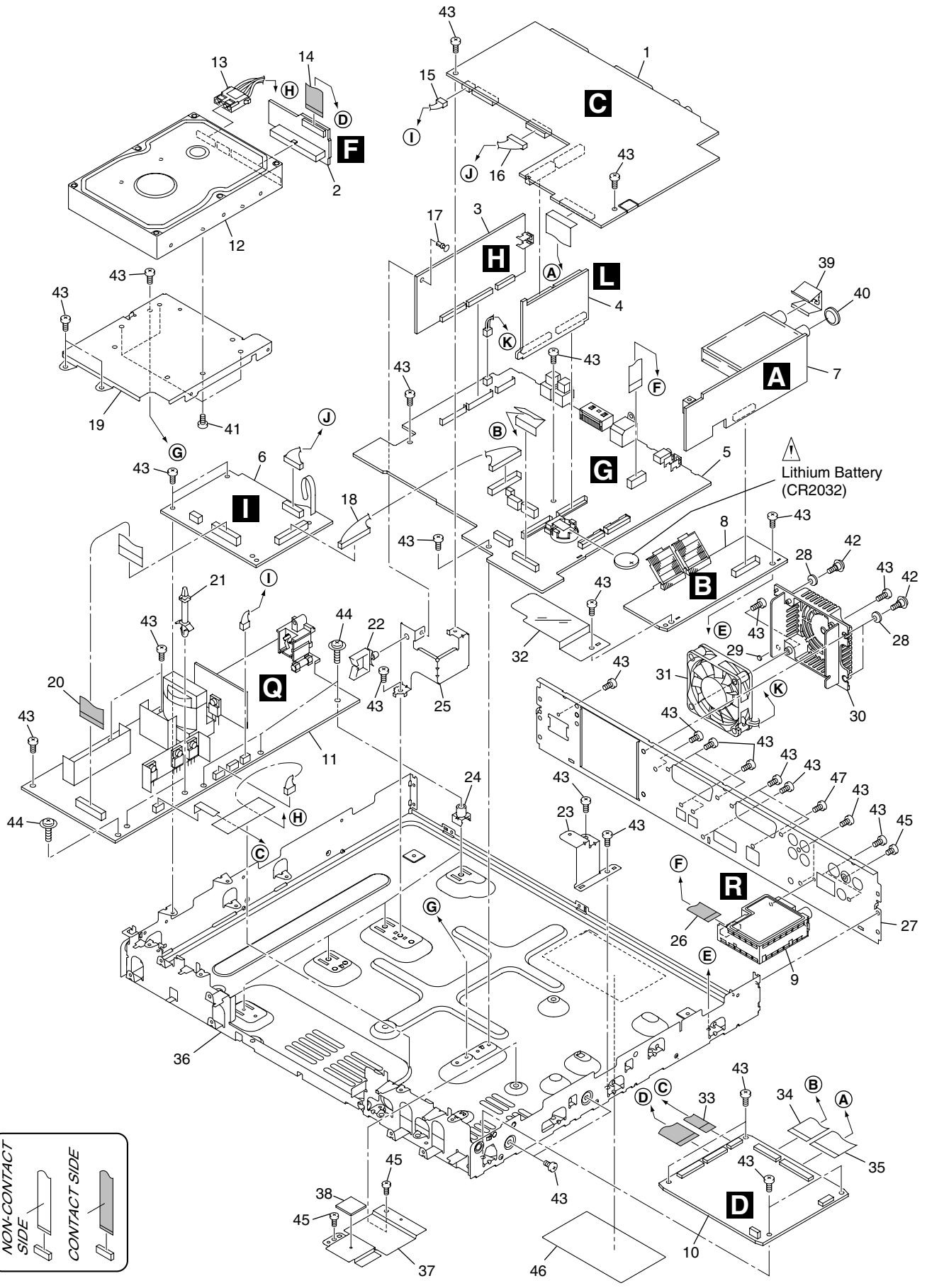
No.8 Acetate Tape using at the production line is ZTA-156A-19.

**• Position of the Gasket**



# 2.3 CHASSIS SECTION

A  
B  
C  
D  
E  
F



5  
**CHASSIS SECTION Parts List**

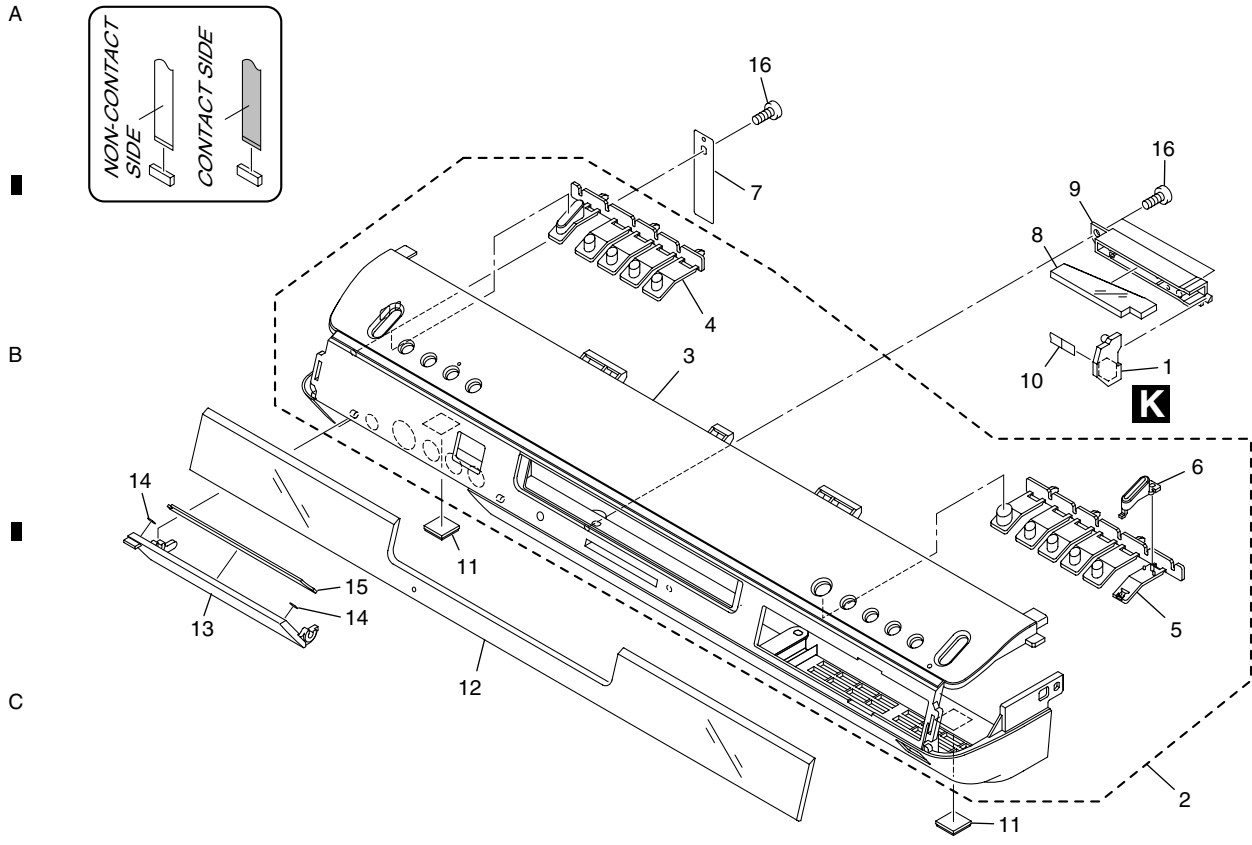
<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	JACK Assy	AWU8215	26	11P FFC/60V	ADD7493
2	ATHB Assy	AWU8241	27	Rear Panel	ANC8275
3	DSP Assy	AWX8486	28	Rubber Bushing	VEB1112
4	TRADE Assy	AWU8224	29	Door Cushion	VEC2312
5	CONTROL Assy	AWU8202	30	Fan Cover	AMR7488
6	REG Assy	AWU8225	31	DC Fan Motor	VXM1109
7	TV MODULE Assy	AWU8217	32	Barrier	AEC7524
8	TV CONNECT Assy	AWU8203	33	8P FFC/60V	ADD7486
9	FM/AM TUNER Unit	AXX7170	34	24P FFC/60V	ADD7489
10	MAIN Assy	VWV2013	35	32P FFC/60V	ADD7490
⚠ 11	POWER SUPPLY Unit	AWR7013	NSP 36	Bottom Chassis	ANA7175
12	HDD 80G 4R080L0	VXF1010	NSP 37	Heat Sink	VNH1070
13	4P Lead with Housing	ADX7468	38	Radiation Sheet	AEB7352
14	40P FFC/60V	ADD7497	39	Earth Plate	VBK1153
15	4P Lead with Housing	ADX7467	40	Gasket Ring	AEB7363
16	Connector Assy (10P)	PF10PP-S25	41	#6-32 Screw	DBA1125
17	Rivet	AEC7514	42	Screw B	PBA1014
18	Connector Assy (16P)	PF16PP-S25	43	Screw	BBZ30P080FTC
19	HDD Base	ANG7517	44	Screw	IBZ30P150FCC
20	21P FFC/60V	ADD7487	45	Screw	BBZ30P040FCC
21	PCB Support	AEC7513	NSP 46	License Label PT	See Contrast table(2)
22	Wire Saddle	AEC7518	47	Screw	PSC30P080FNI
23	Angle PCB B	AND7068			
24	PCB Mold	AMR2534			
25	Angle PCB A	AND7067			

**(2) CONTRAST TABLE**

XV-DVR9H/WYXJ and WVXJ are constructed the same except for the following:

<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>XV-DVR9H/WYXJ</b>	<b>XV-DVR9H/WVXJ</b>
NSP	46	License Label PT WY	ARW7314	Not used
NSP	46	License Label PT WV	Not used	ARW7315

# 2.4 FRONT PANEL SECTION



5 6 7 8

**FRONT PANEL SECTION Parts List**

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	LED Assy	AWU8223	11	Rubber Foot	VEB1325
2	Front Panel Assy	See Contrast table(2)	12	Window	AAK8211
3	Front Panel	See Contrast table(2)	13	Sealing Door	AAK8278
4	Button L	AAD7731	14	Door Cushion	VEC2312
5	Button R	AAD7738	15	Door Sheet	AAK8216
6	Button Cap	AAK8246	16	Screw	PPZ30P080FTC
7	Door Spring	ABH7234			
8	Illumination Lens	AAK8214			
9	Lens Holder	AMR7487			
10	3P FFC/60V	ADD7495			

**(2) CONTRAST TABLE**

XV-DVR9H/WYXJ and WVXJ are constructed the same except for the following:

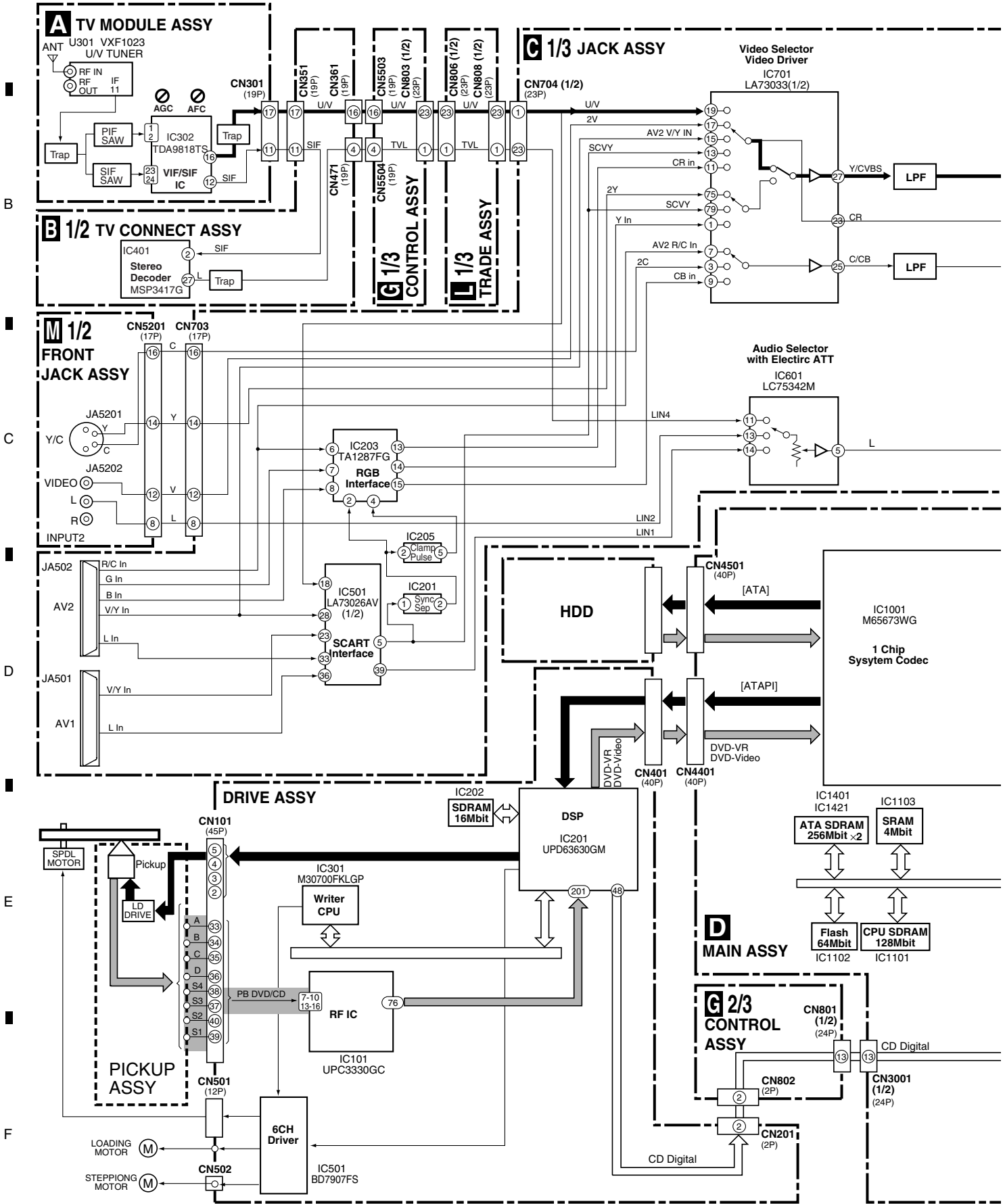
<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>XV-DVR9H/WYXJ</b>	<b>XV-DVR9H/WVXJ</b>
	2	Front Panel Assy	AXG7236	AXG7242
	3	Front Panel	AMB7880	AMB7891

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM



## 3.1 BLOCK DIAGRAM

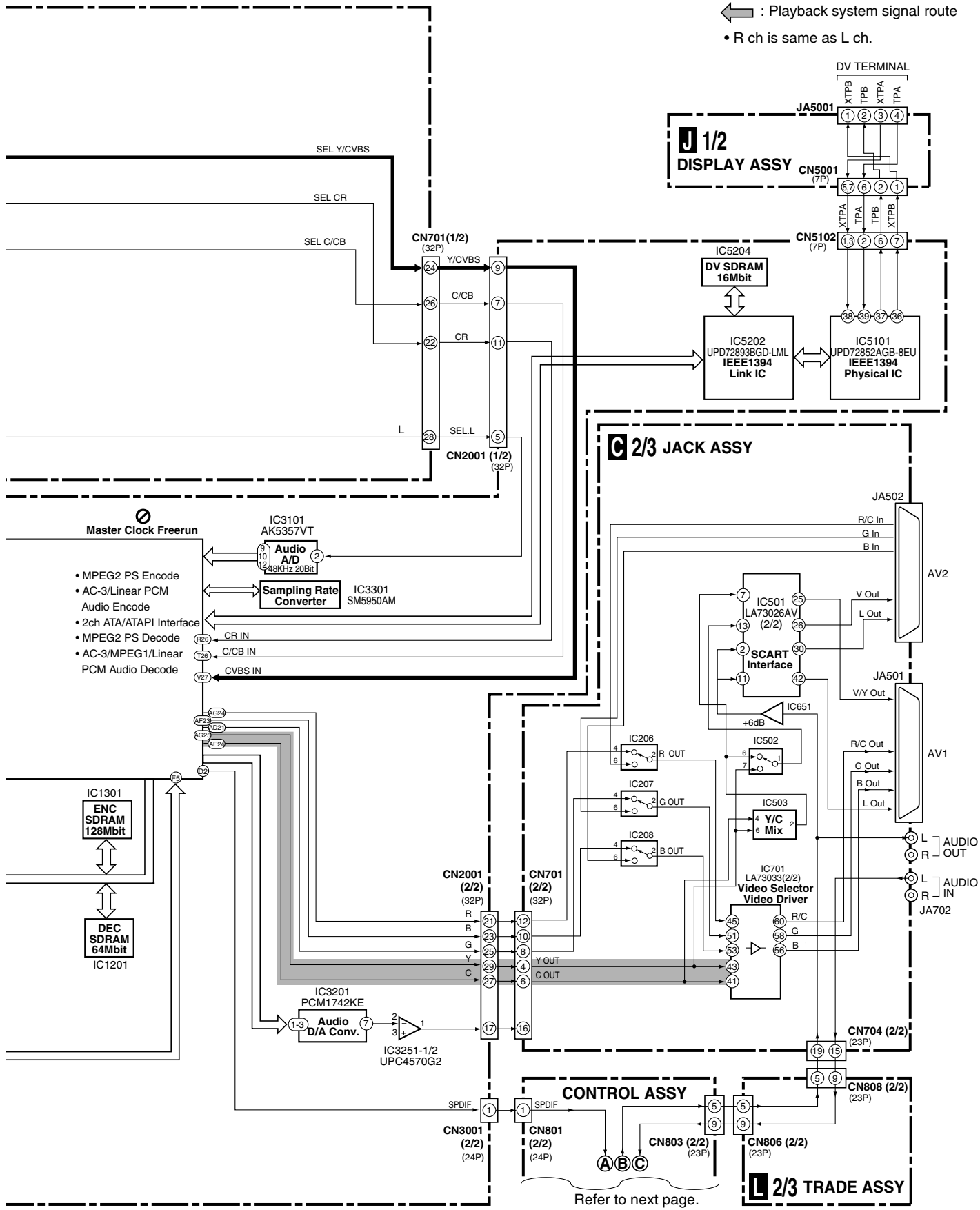
### 3.1.1 OVERALL BLOCK DIAGRAM

A





 : Recording system signal route  
 : Playback system signal route  
 • R ch is same as L ch.



Refer to next page.

A

B

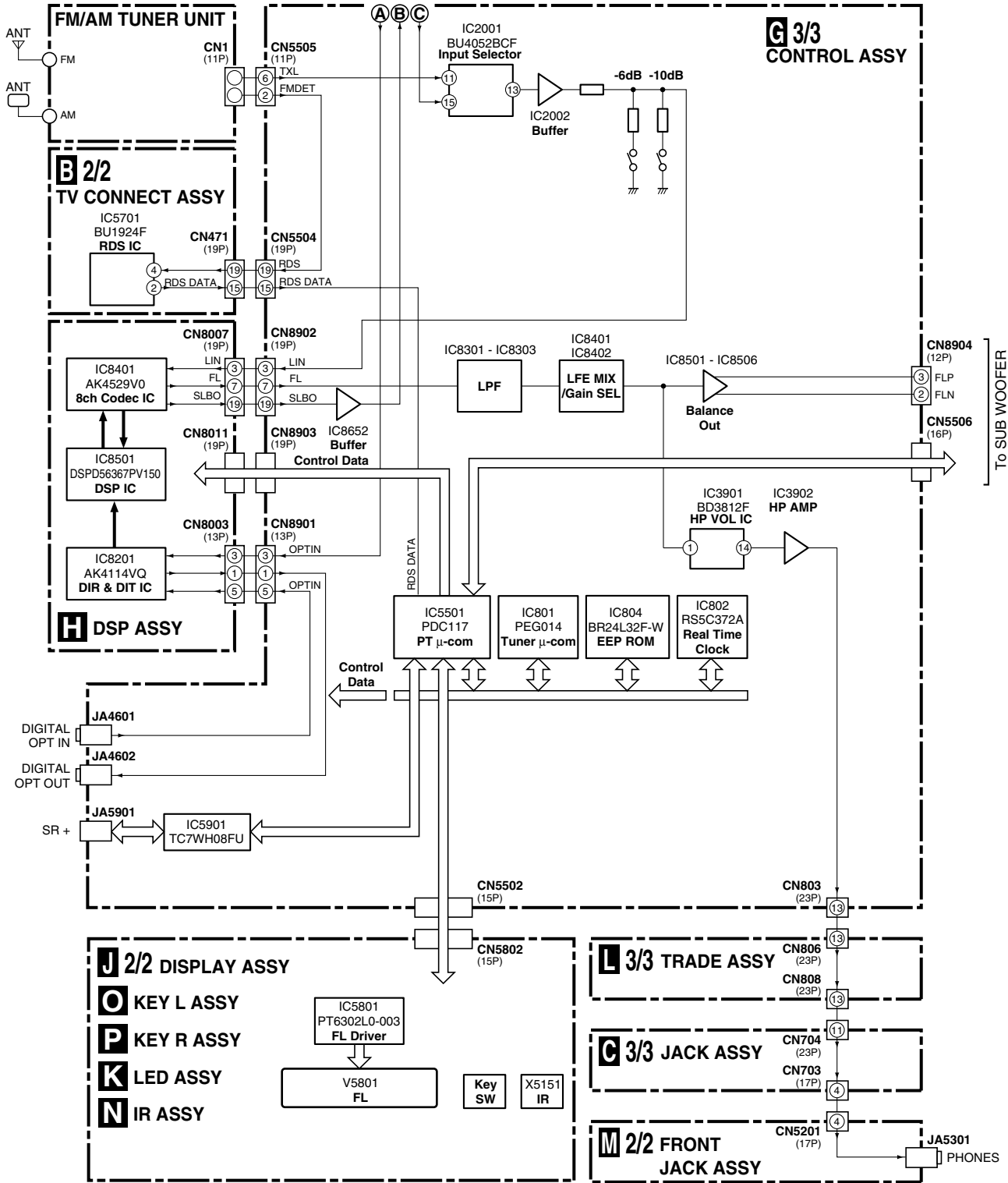
C

D

E

F

Refer to ex-page.



■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

XV-DVR9H

■

7

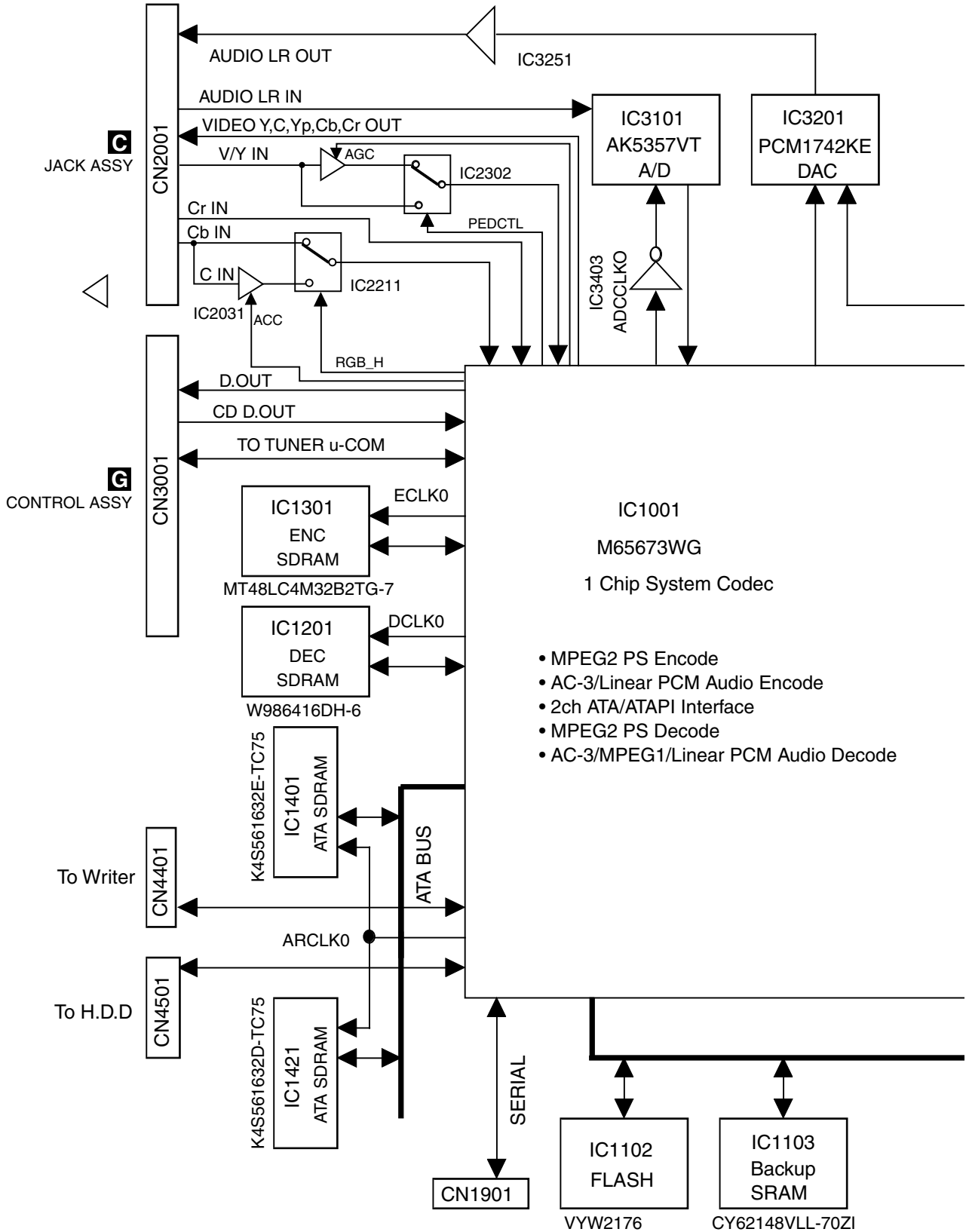
■

8

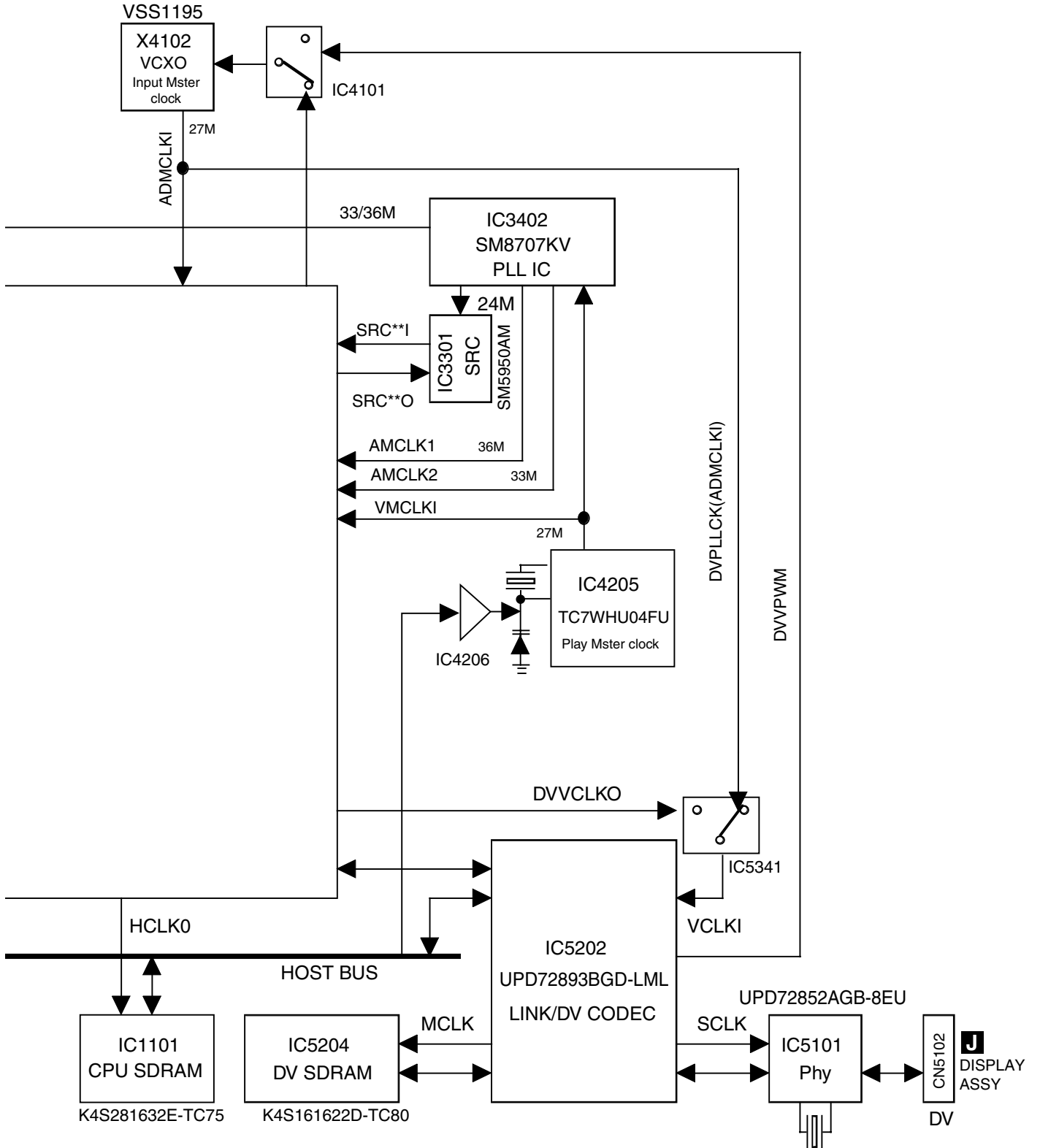
■

### 3.1.2 MAIN ASSY BLOCK DIAGRAM

#### D MAIN ASSY (VWV2013)

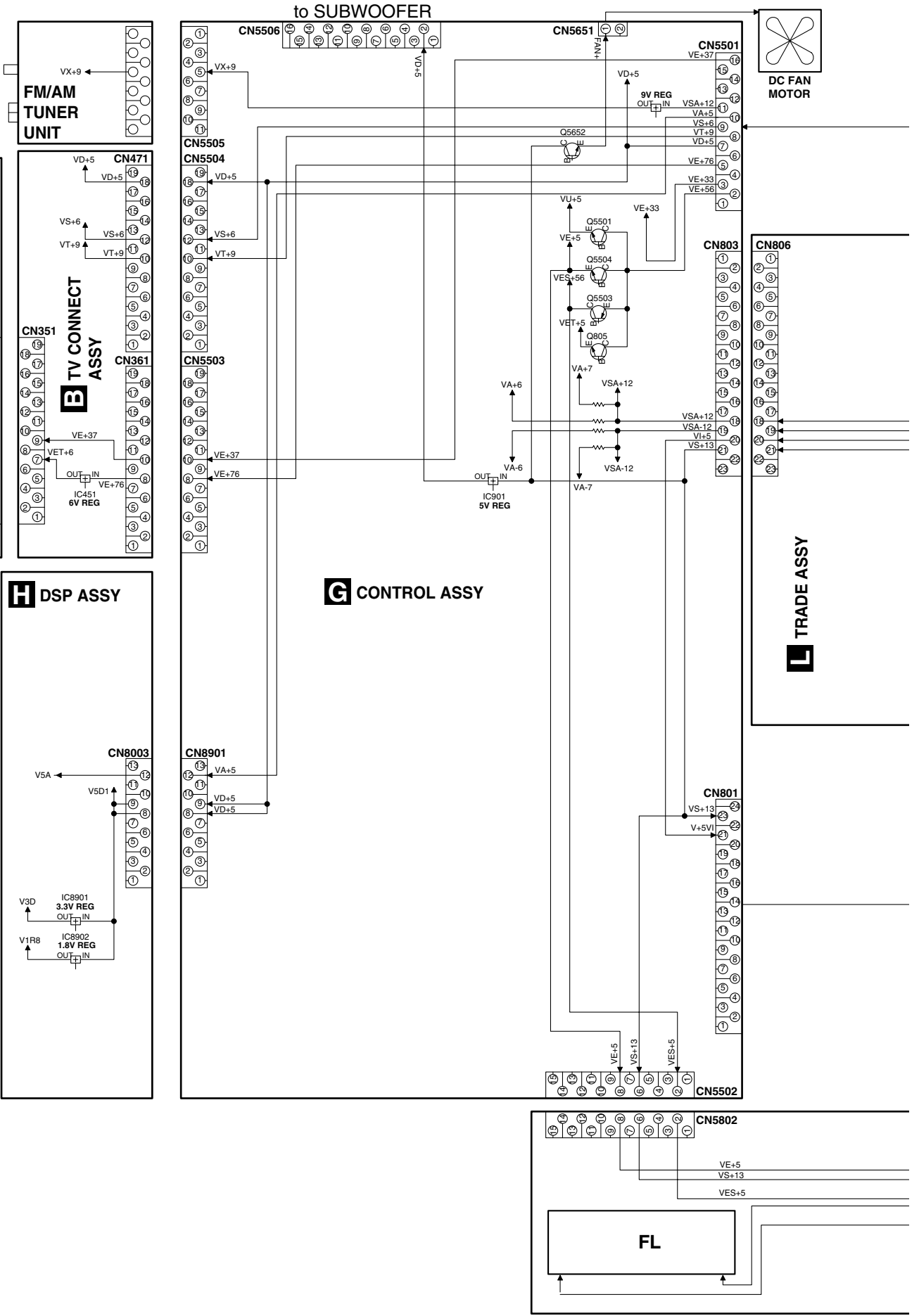


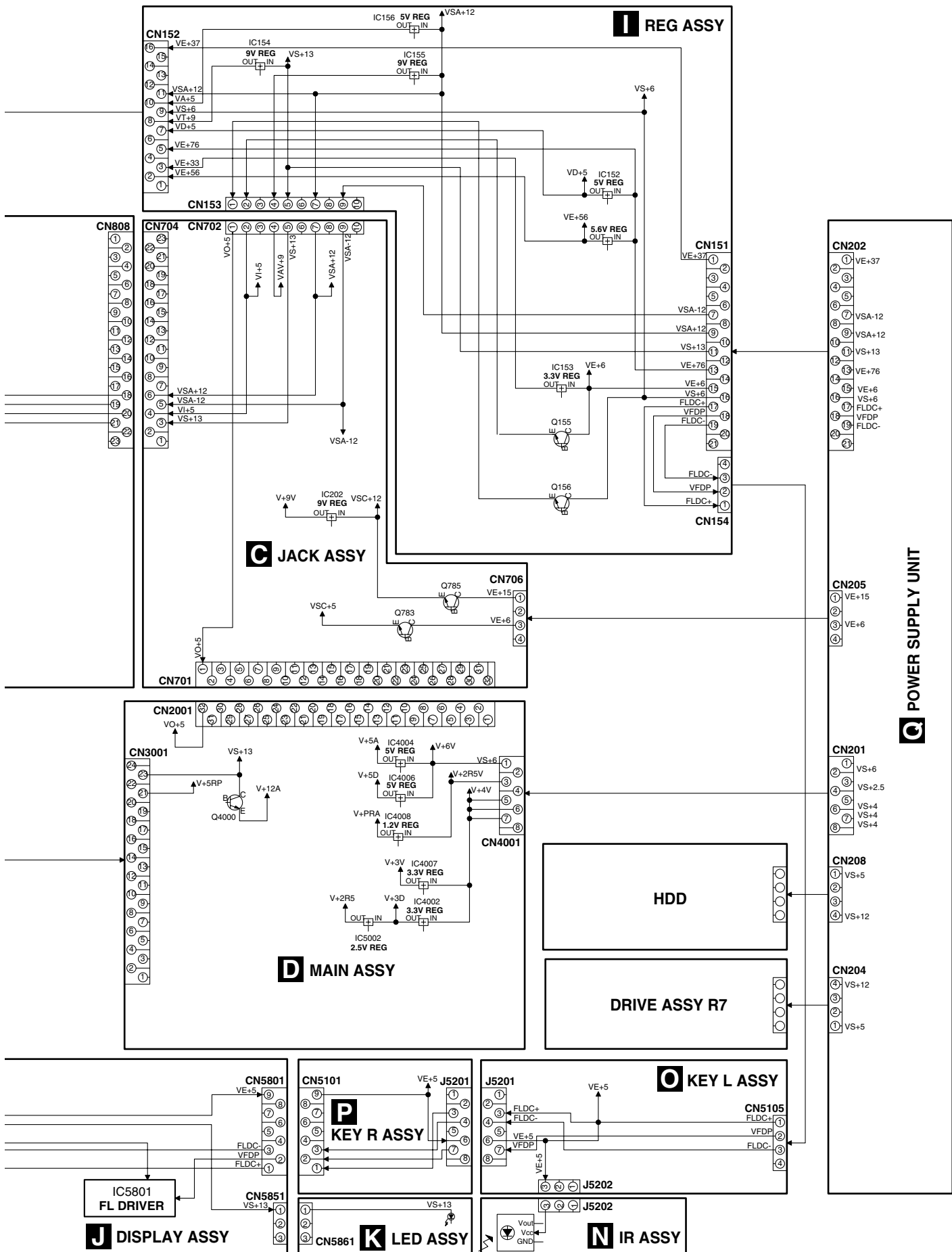
A  
B  
C  
D  
E  
F



### 3.1.3 POWER SUPPLY BLOCK DIAGRAM

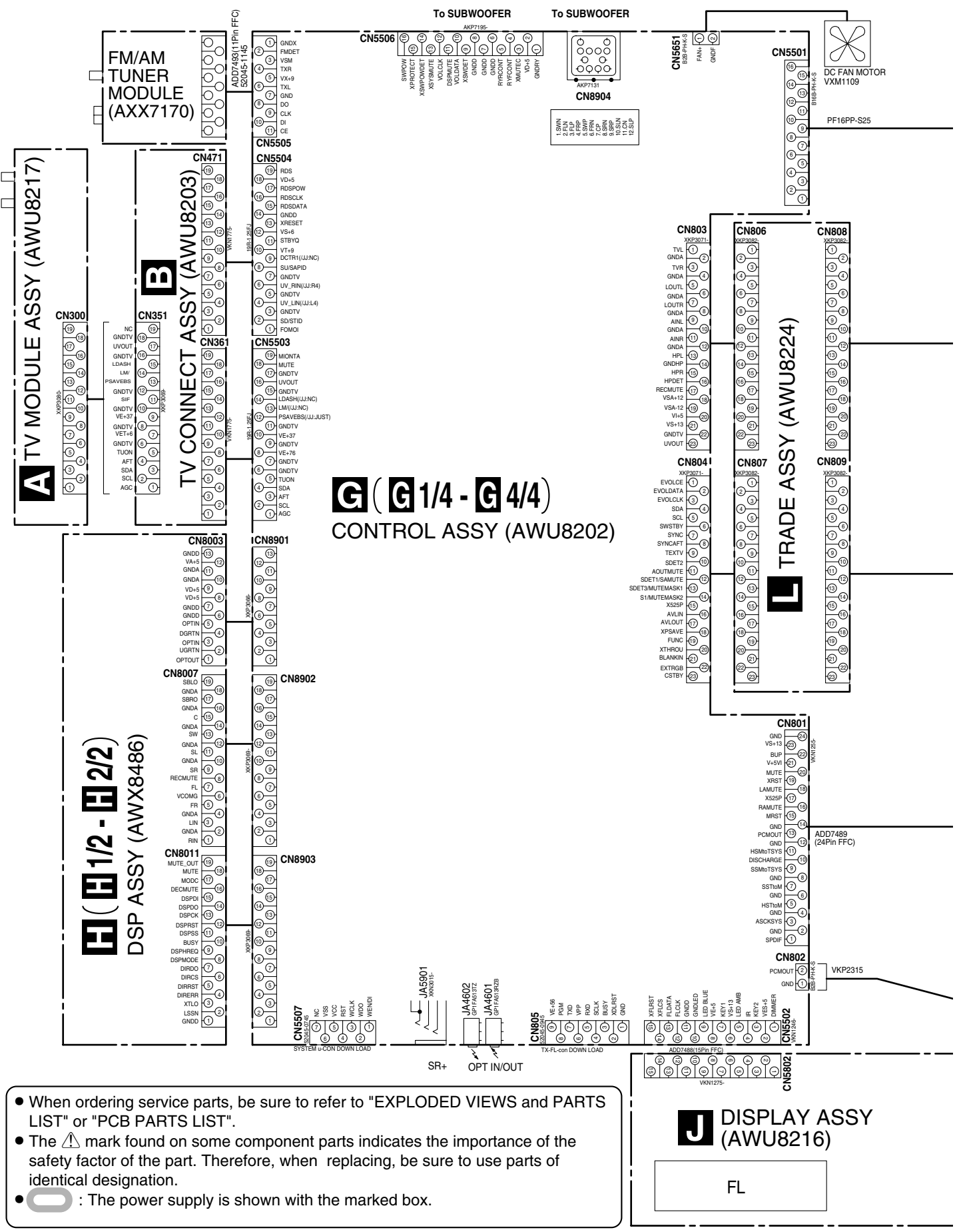
A  
B  
C  
D  
E  
F





# 3.2 OVERALL WIRING CONNECTION DIAGRAM

A  
B  
C  
D  
E  
F



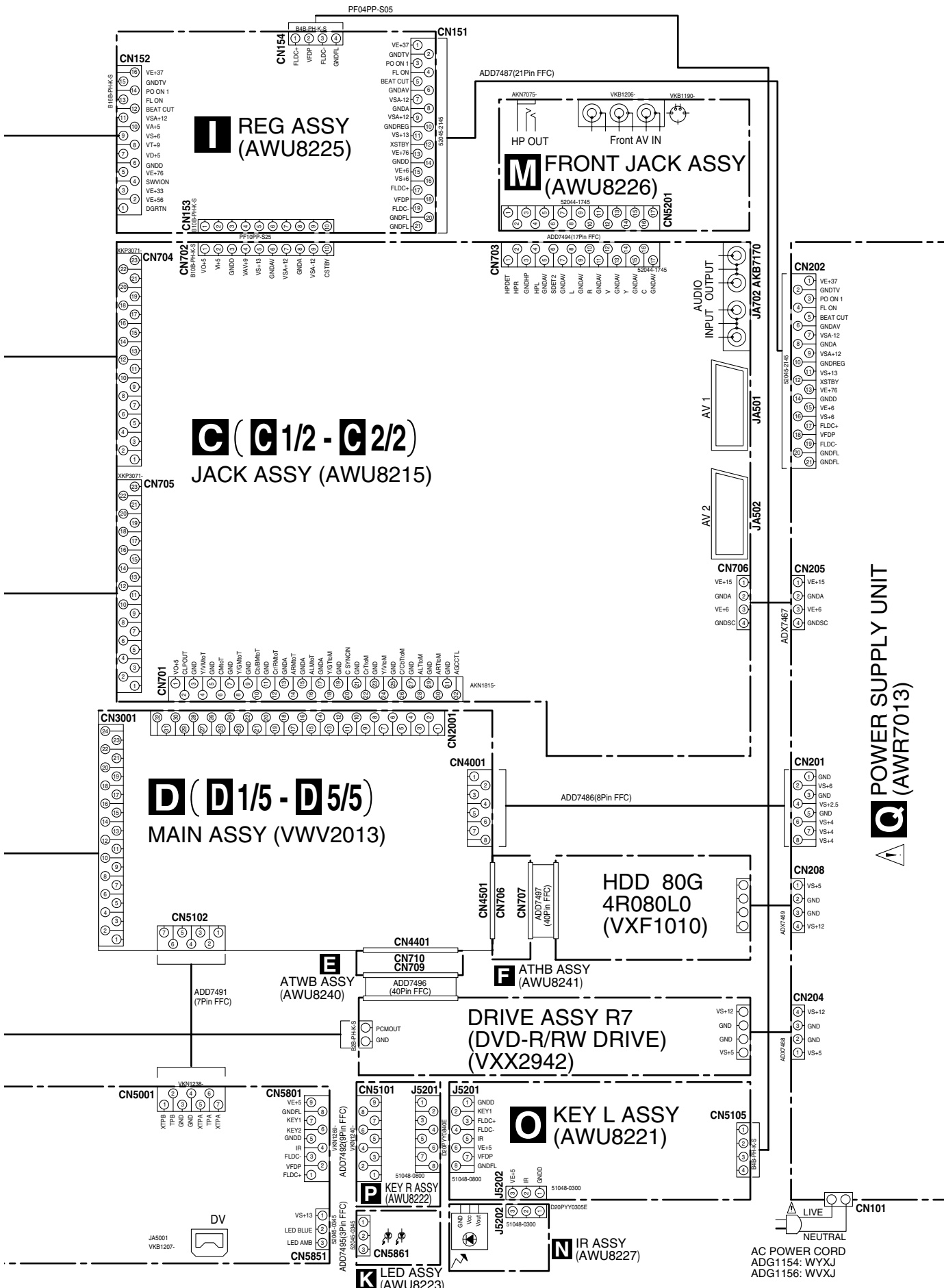
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

**J DISPLAY ASSY (AWU8216)**

FL



A  
B  
C  
D  
E  
F



# 3.3 TV MODULE ASSY

1

2

3

4

A

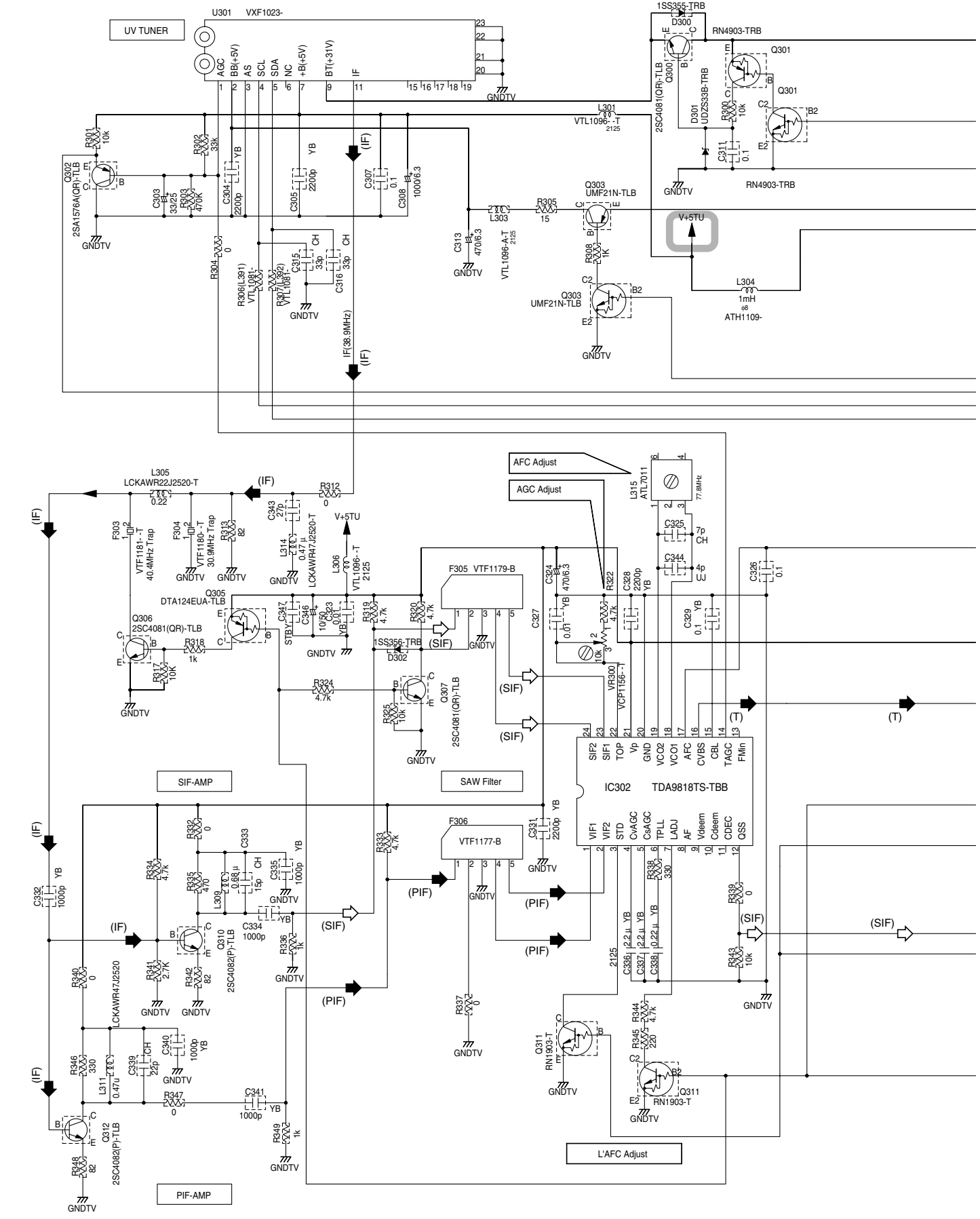
B

C

D

E

F



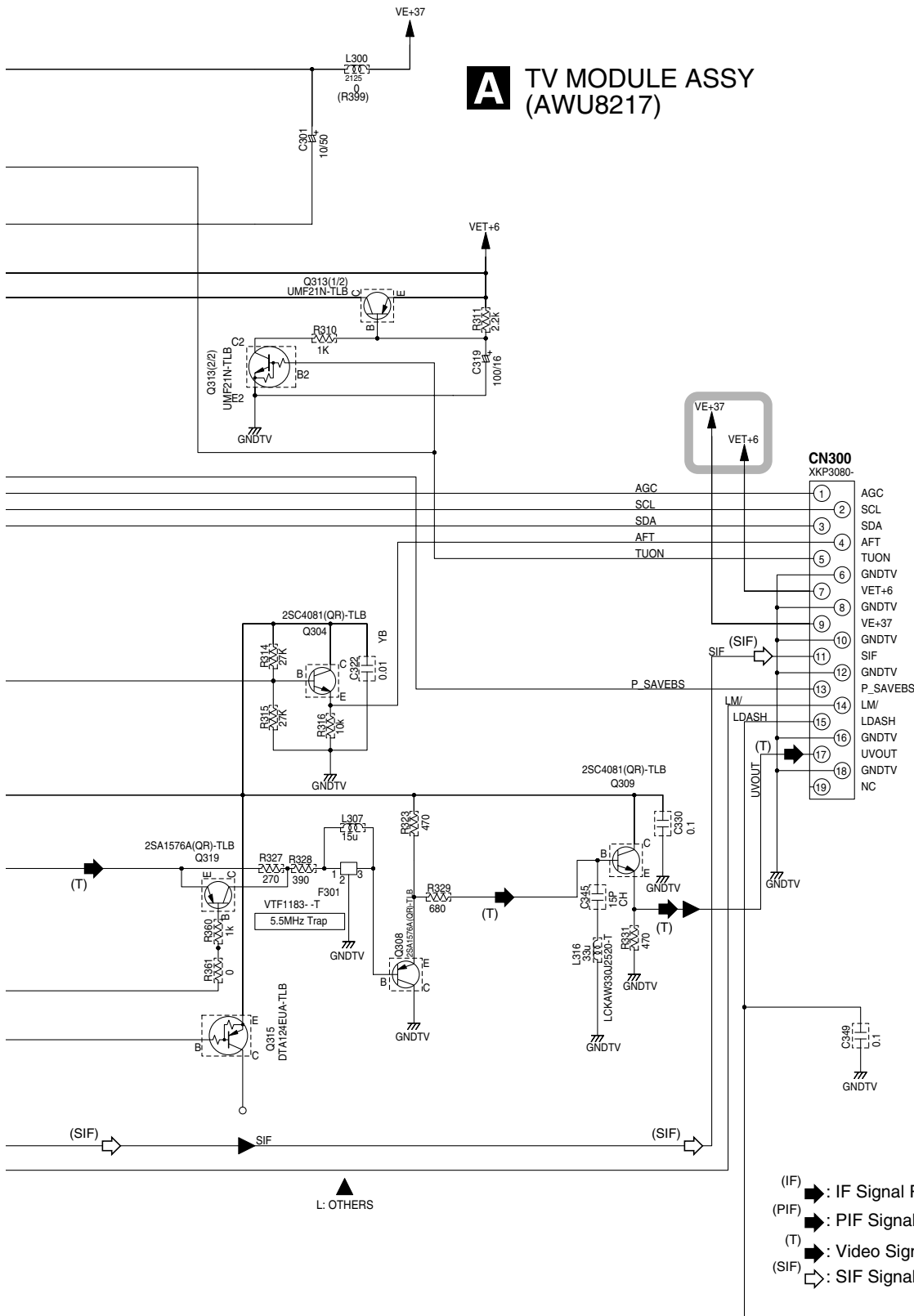
1

2

3

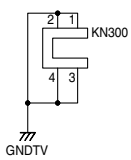
4

# A TV MODULE ASSY (AWU8217)



**B** CN351

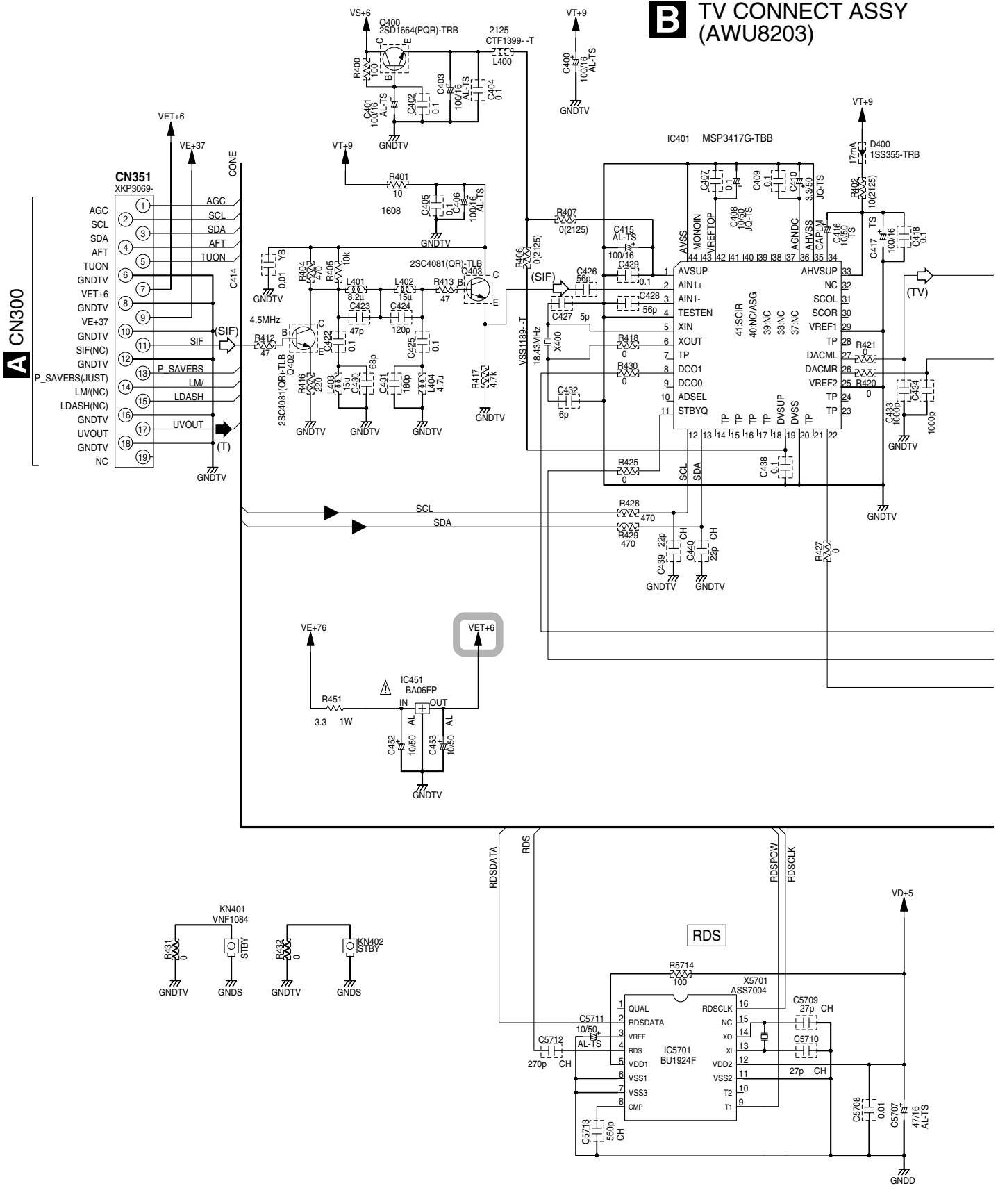
- (IF) : IF Signal Route (TUNER)
- (PIF) : PIF Signal Route (TUNER)
- (T) : Video Signal Route (TUNER)
- (SIF) : SIF Signal Route (TUNER)



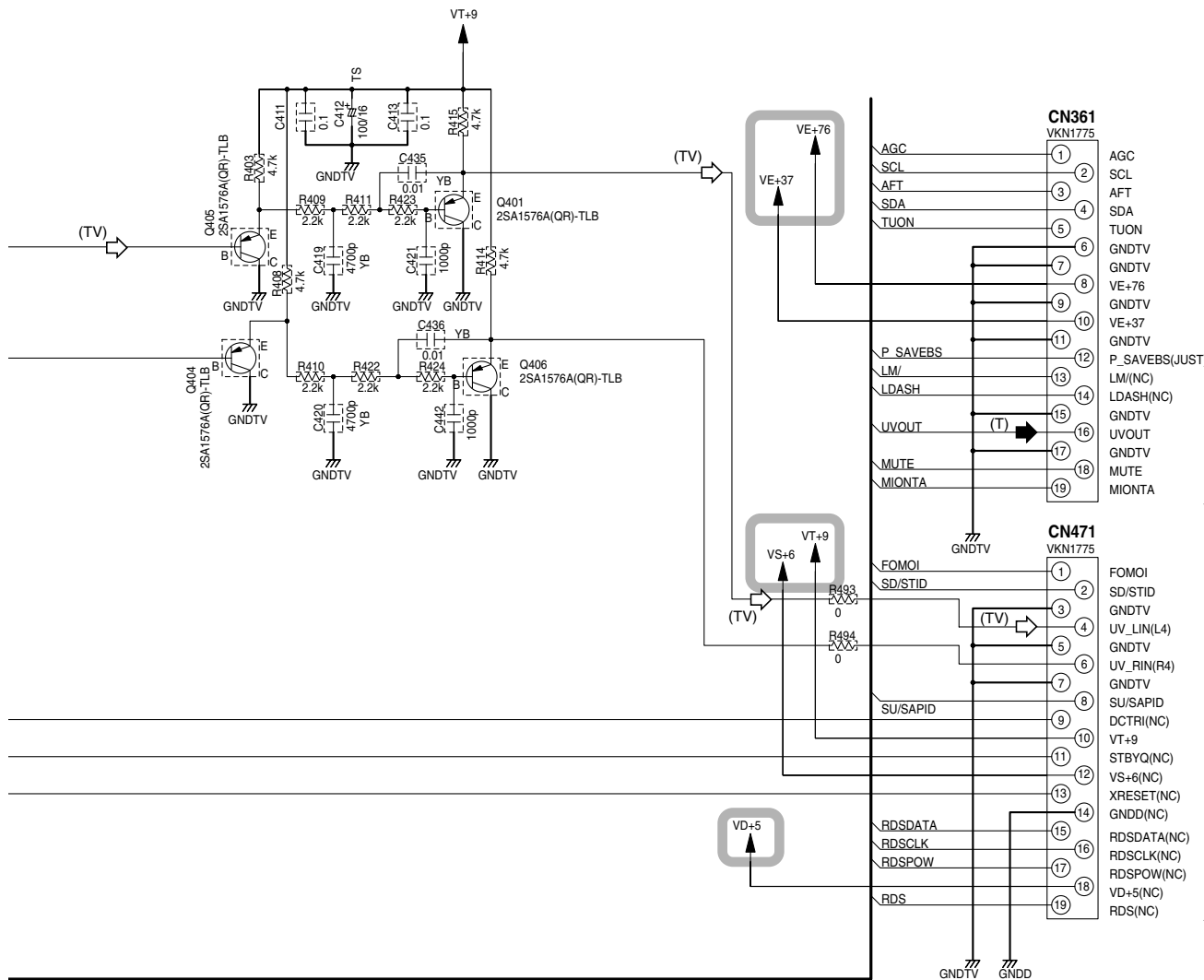
# 3.4 TV CONNECT ASSY

A  
B  
C  
D  
E  
F

## B TV CONNECT ASSY (AWU8203)



1 2 3 4



G 2/4 CN5503

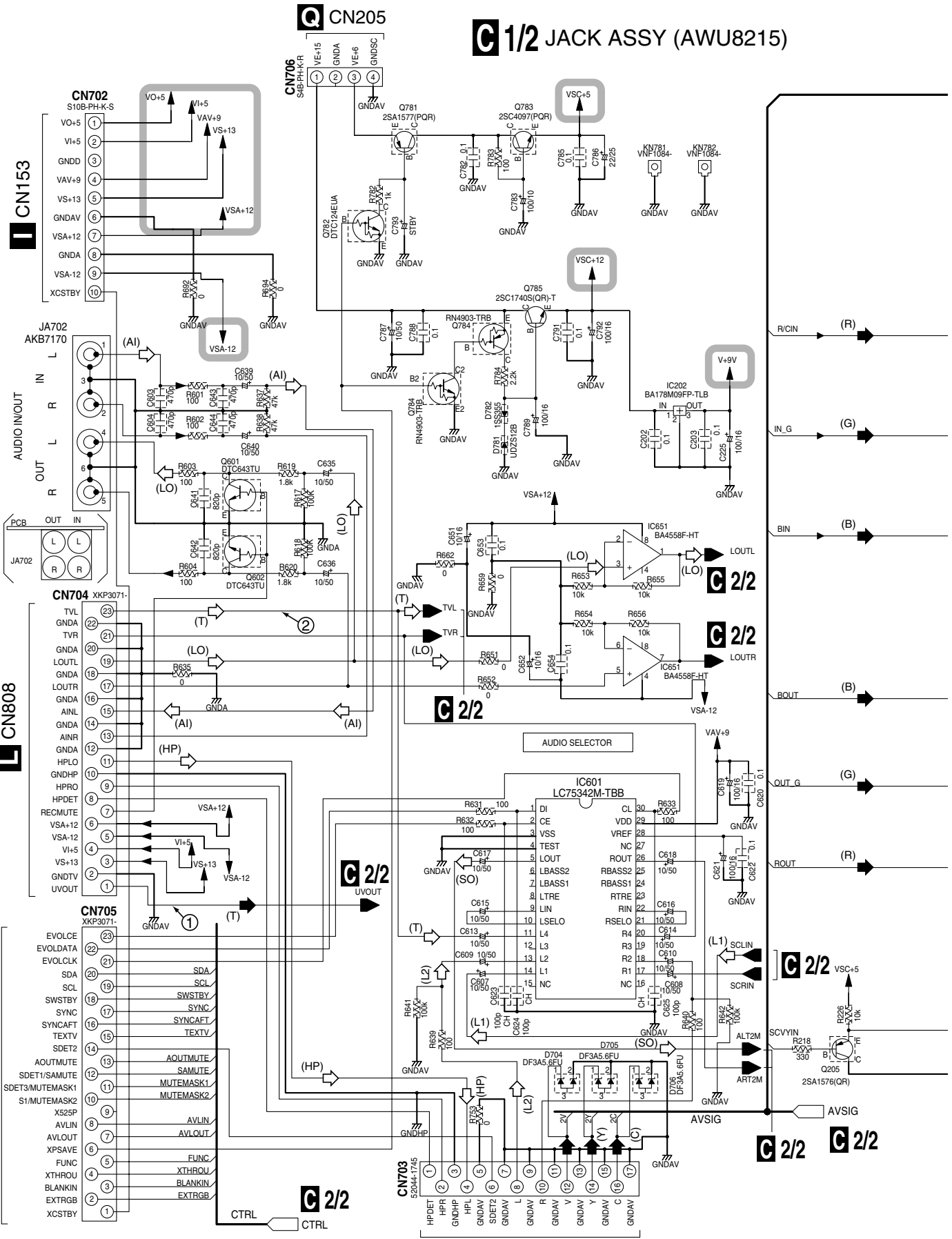
G 2/4 CN5504

(T) : Video Signal Route (TUNER)  
 (TV) : Audio Signal Route (TV)  
 (SIF) : SIF Signal Route (TUNER)

# 3.5 JACK ASSY (1/2)

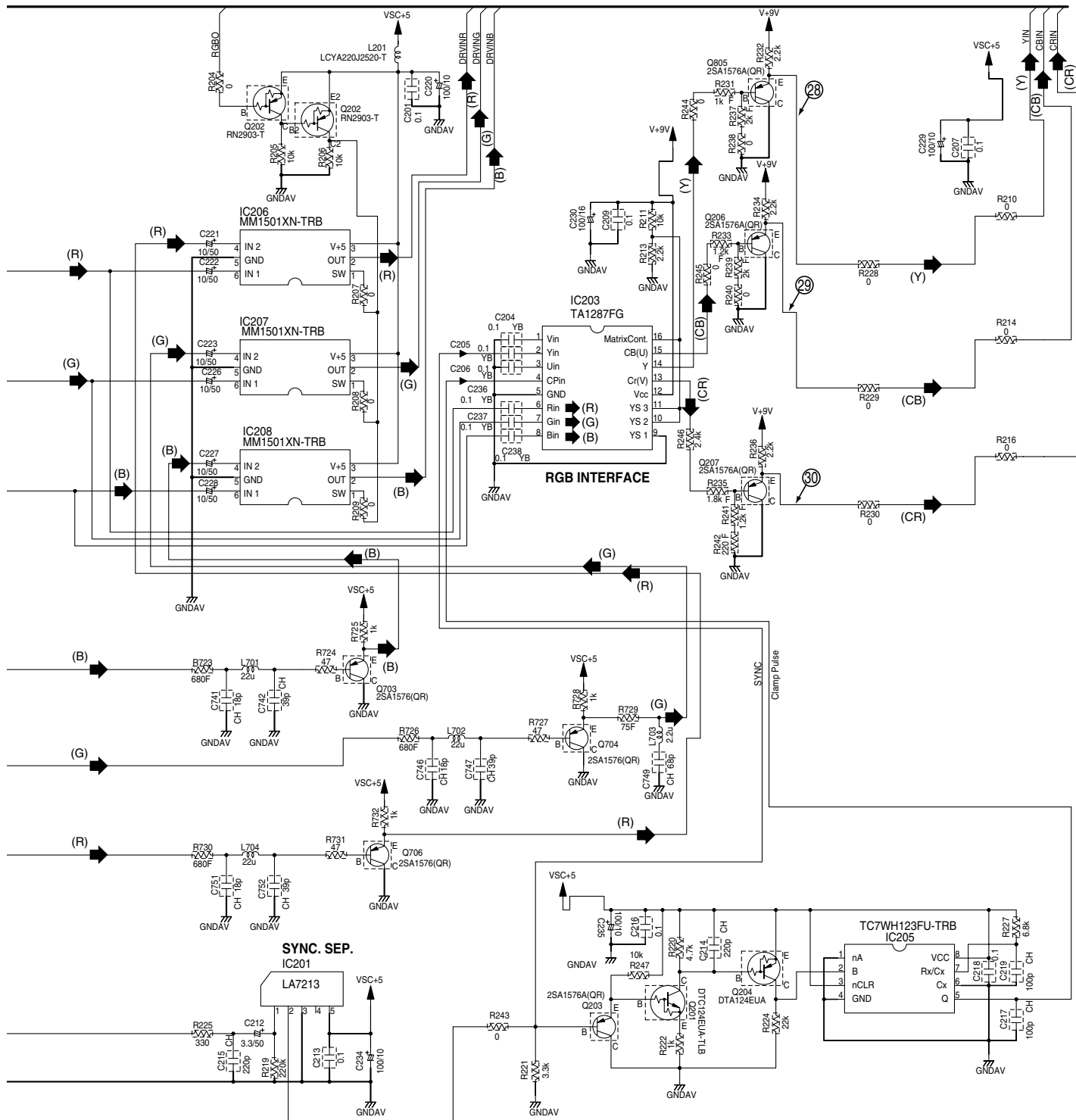
A  
B  
C  
D  
E  
F

# C 1/2 JACK ASSY (AWU8215)



# C 1/2

# M CN5201

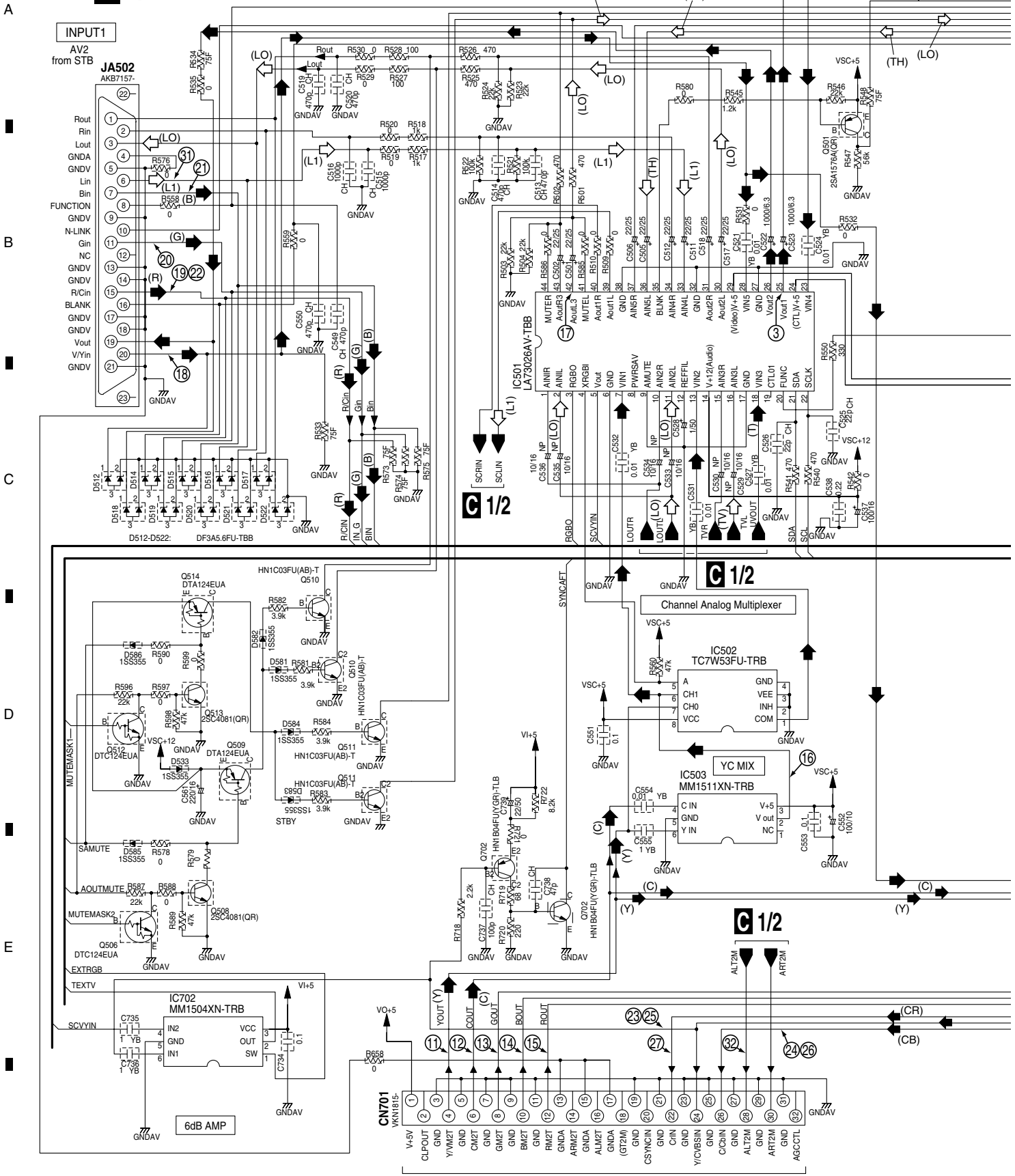


- ◆ : Video Signal Route
- (T) ◆ : Video Signal Route (TUNER)
- (R) ◆ : Video Signal Route (R)
- (G) ◆ : Video Signal Route (G)
- (B) ◆ : Video Signal Route (B)
- (Y) ◆ : Video Signal Route (Y)
- (CB) ◆ : Video Signal Route (CB)
- (CR) ◆ : Video Signal Route (CR)
- (L1) ◇ : Audio Signal Route (LINE 1 IN)
- (L2) ◇ : Audio Signal Route (LINE 2 IN)
- (TV) ◇ : Audio Signal Route (TV)
- (LO) ◇ : Audio Signal Route (LINE OUT)
- (SO) ◇ : Audio Signal Route (AUDIO SELECTOR OUT)
- (AI) ◇ : Audio Signal Route (AUDIO IN)
- (HP) ◇ : Audio Signal Route (H.P)



# 3.6 JACK ASSY (2/2)

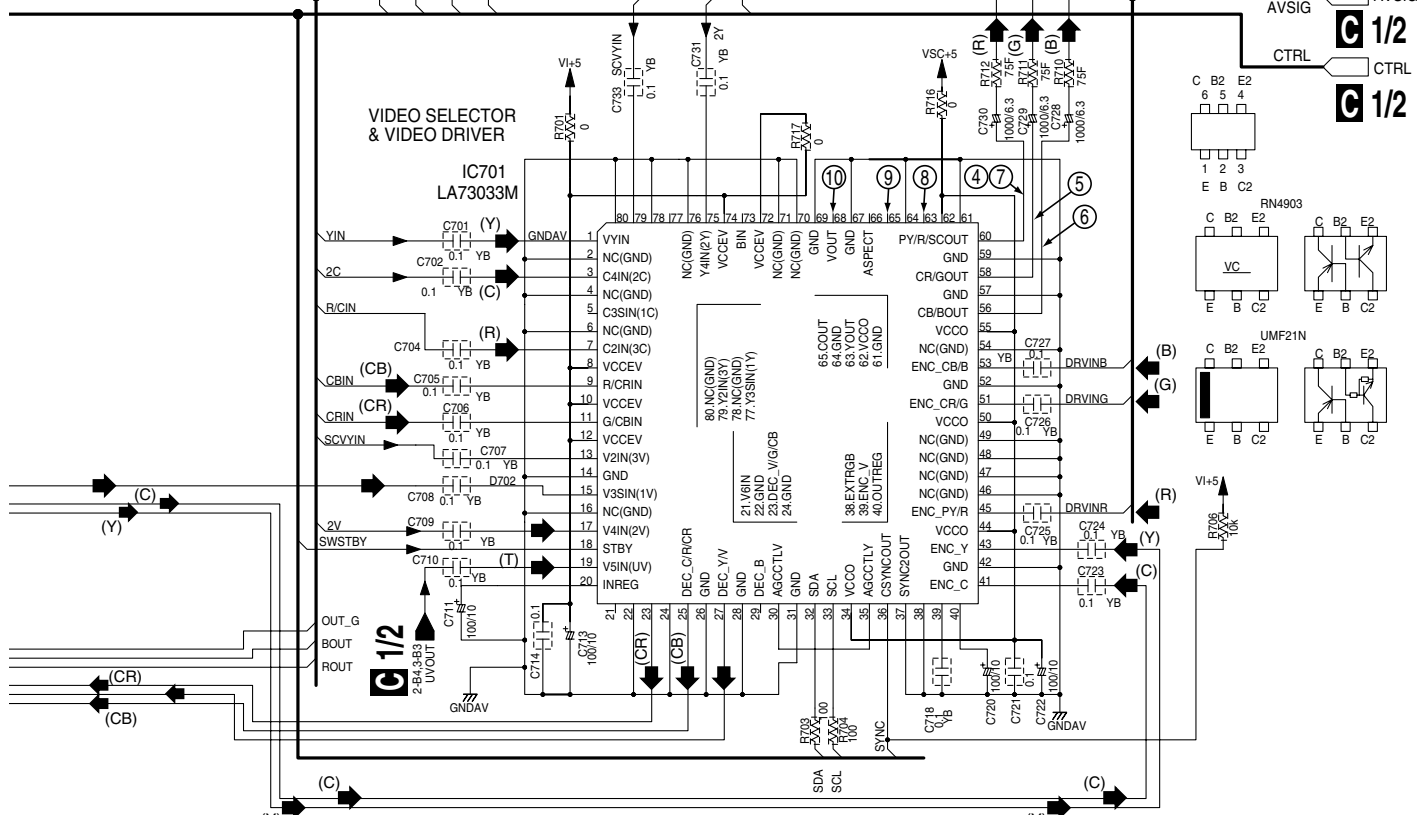
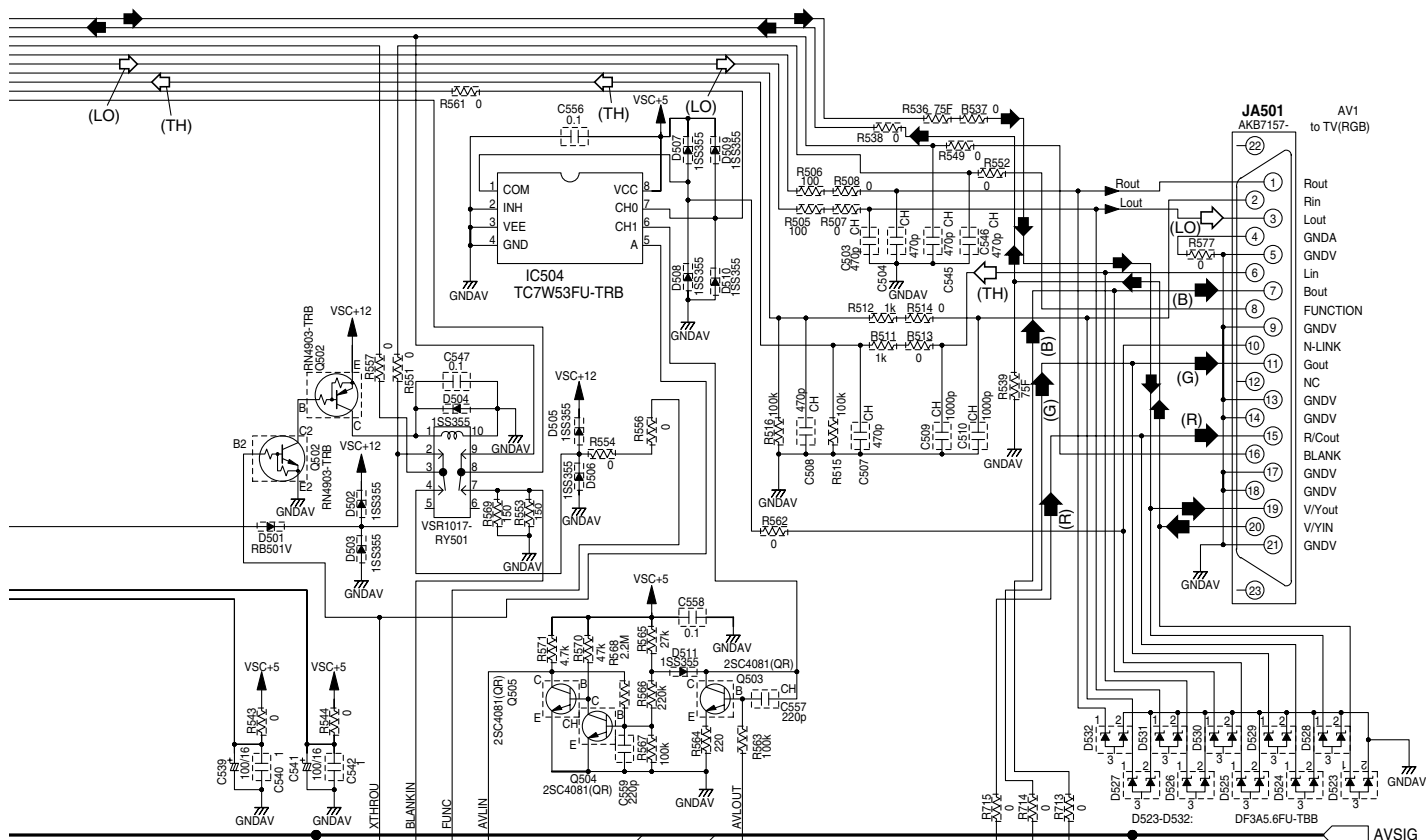
## C 2/2 JACK ASSY (AWU8215)



## D 2/5 CN2001







- (T) : Video Signal Route
- (R) : Video Signal Route (TUNER)
- (G) : Video Signal Route (G)
- (B) : Video Signal Route (B)
- (Y) : Video Signal Route (Y)
- (C) : Video Signal Route (C)
- (CB) : Video Signal Route (CB)
- (CR) : Video Signal Route (CR)
- (L1) : Audio Signal Route (LINE 1 IN)
- (TH) : Audio Signal Route (for SCART through)
- (TV) : Audio Signal Route (TV)
- (LO) : Audio Signal Route (LINE OUT)
- (SO) : Audio Signal Route (AUDIO SELECTOR OUT)

3.7 MAIN ASSY (1/5)

1

2

3

4

A

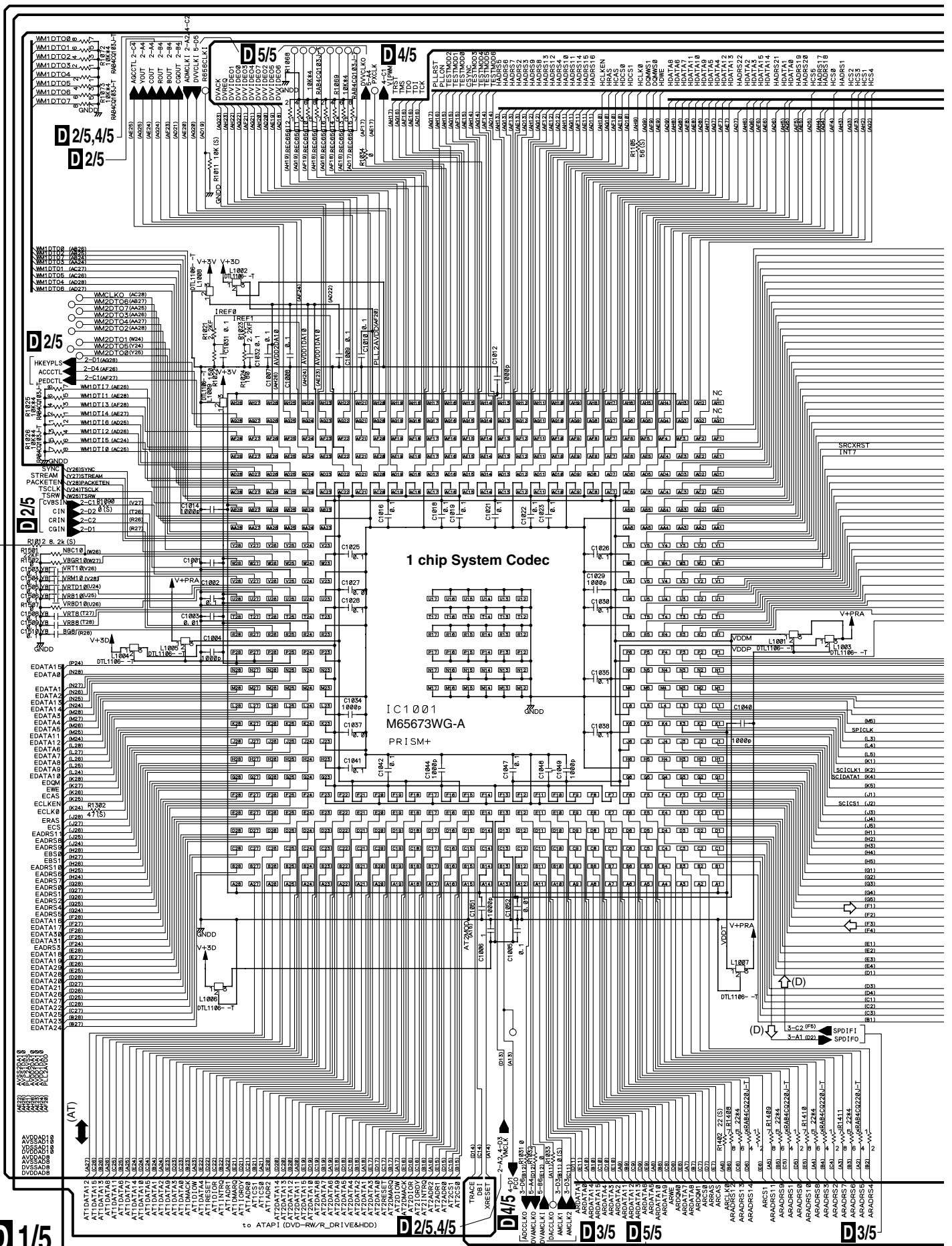
B

C

D

E

F



1

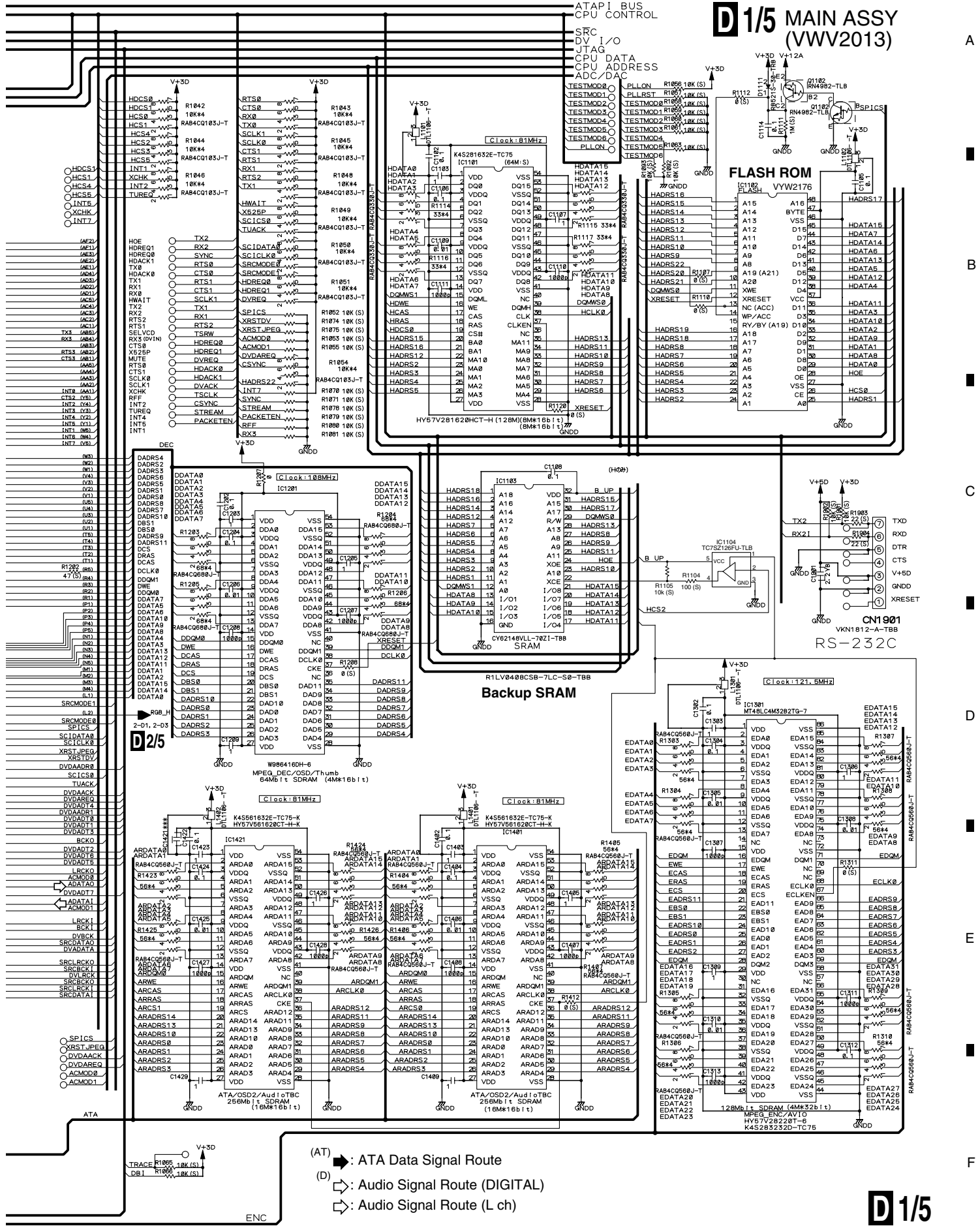
2

3

4

# D1/5 MAIN ASSY (VWV2013)

ATAPI BUS  
CPU CONTROL  
SBC  
DV I/O  
JTAG  
CPU DATA  
CPU ADDRESS  
ADC/DAC



**Legend:**

- (AT) → : ATAPI Data Signal Route
- (D) ⇔ : Audio Signal Route (DIGITAL)
- ⇔ : Audio Signal Route (L ch)



# 3.8 MAIN ASSY (2/5)

1

2

3

4

## A D 2/5 MAIN ASSY (VWV2013)

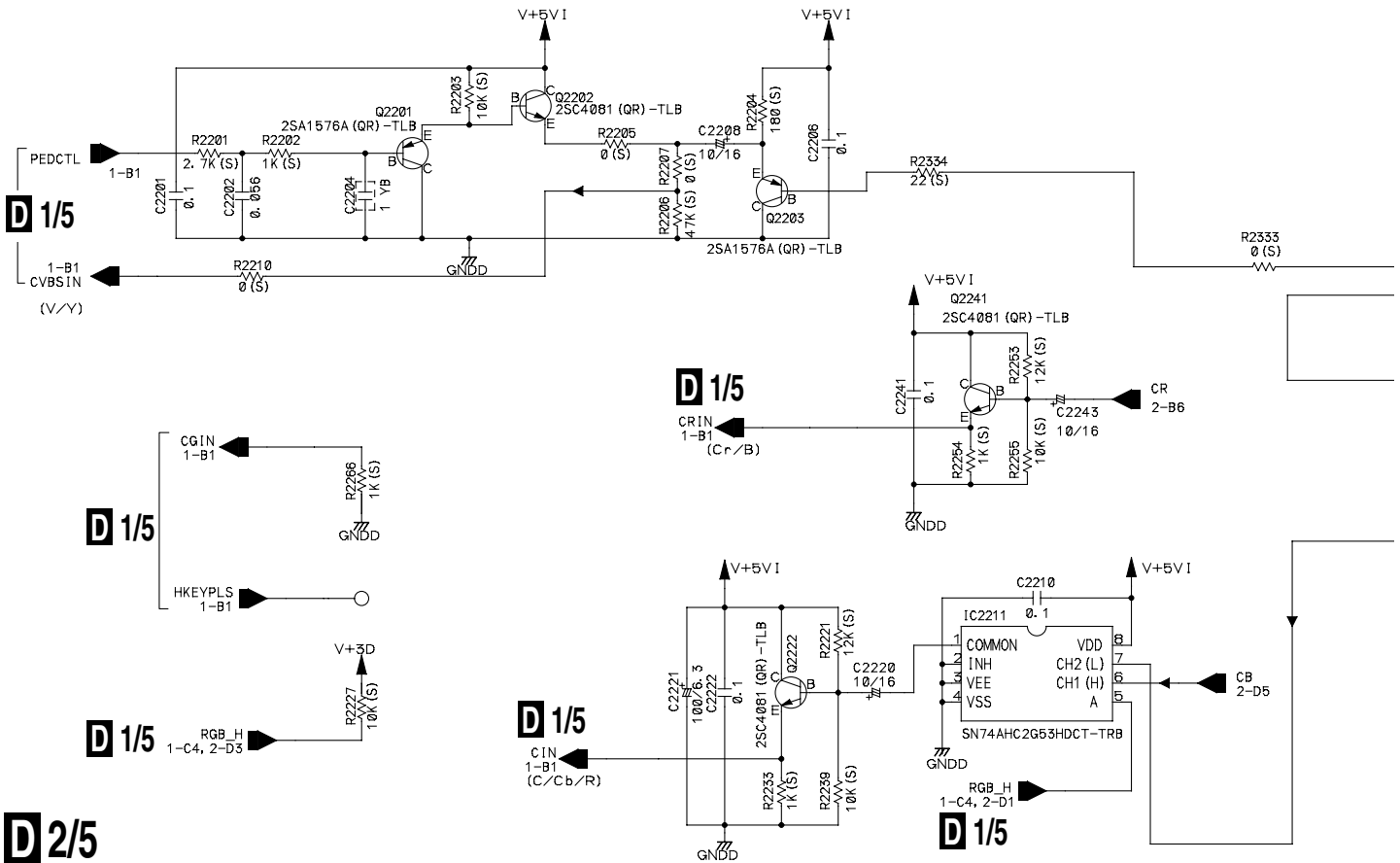
B

C

D

E

F

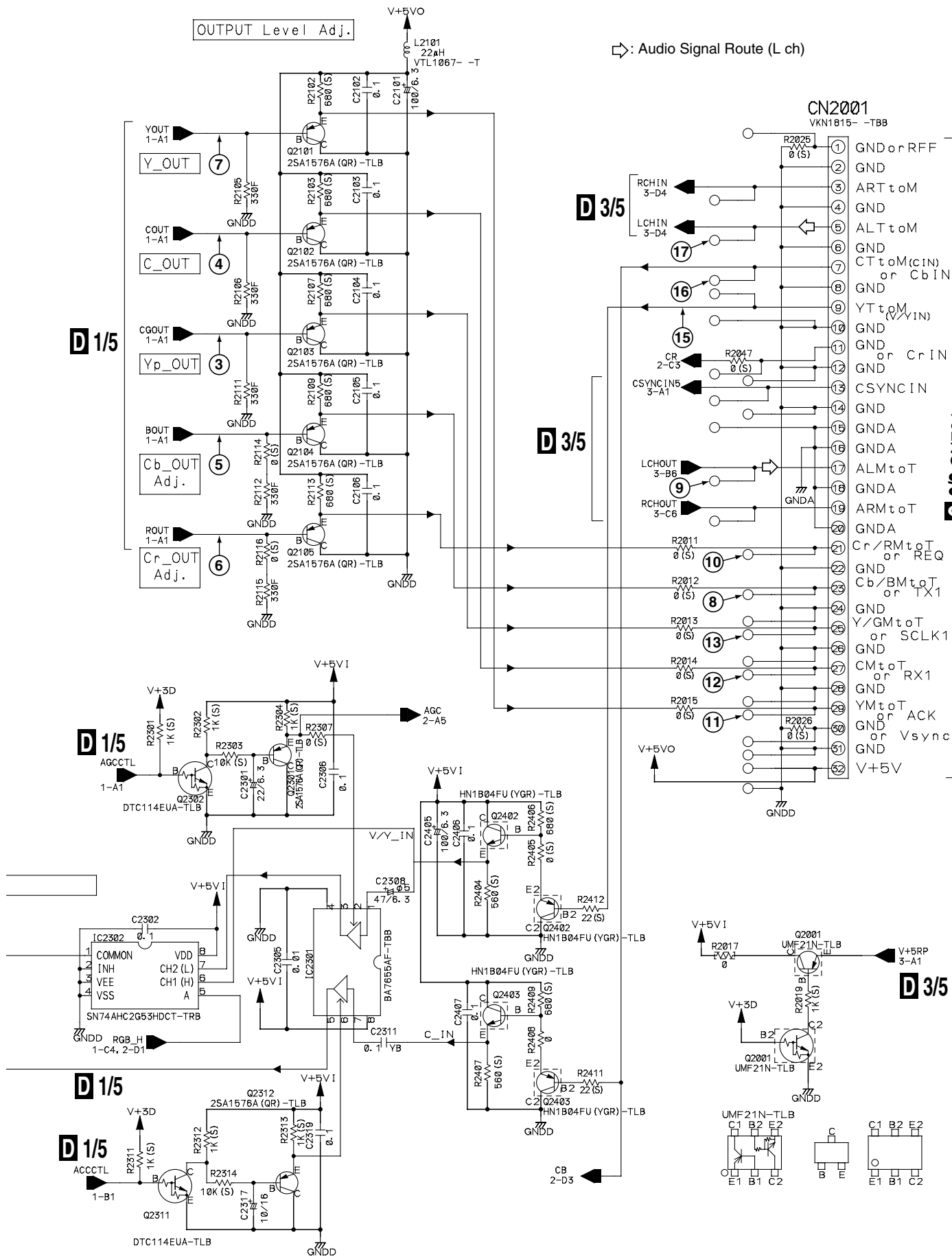


1

2

3

4



⇨ : Audio Signal Route (L ch)

D 1/5

D 3/5

D 3/5

D 1/5

D 1/5

D 1/5

D 3/5

D 2/5

# 3.9 MAIN ASSY (3/5)

1

2

3

4

A

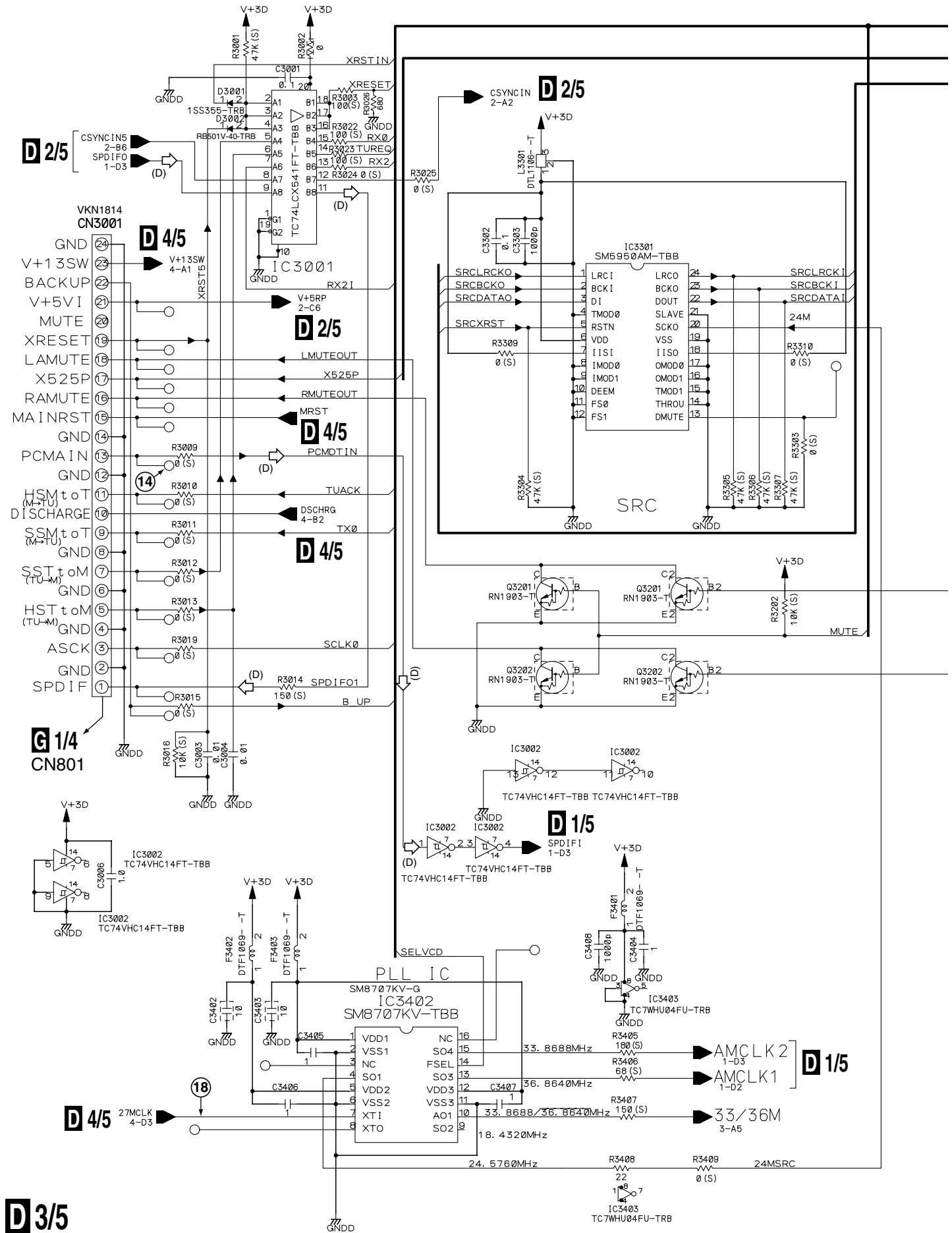
B

C

D

E

F



D 3/5

1

2

3

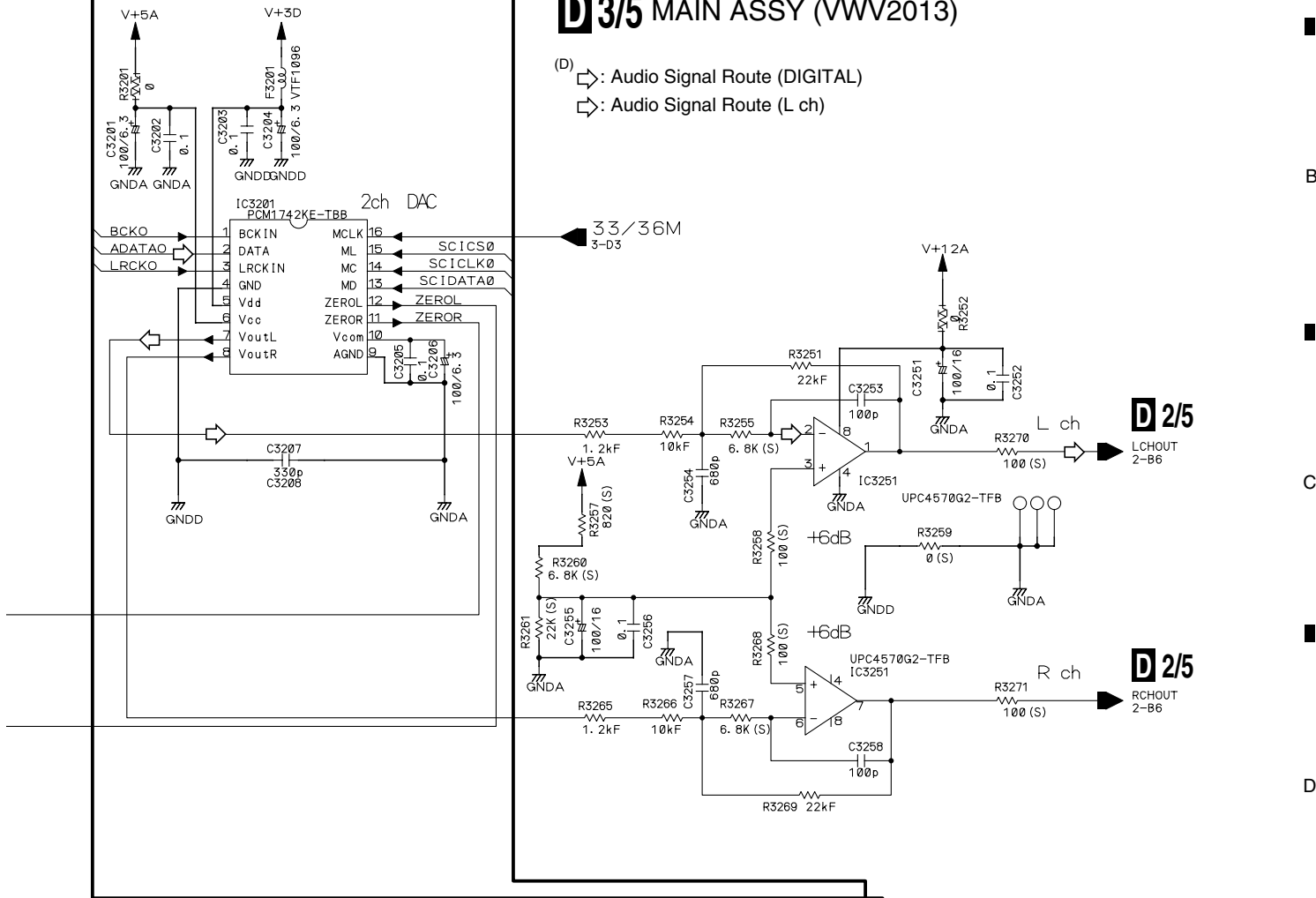
4



D 1/5

### D 3/5 MAIN ASSY (VWV2013)

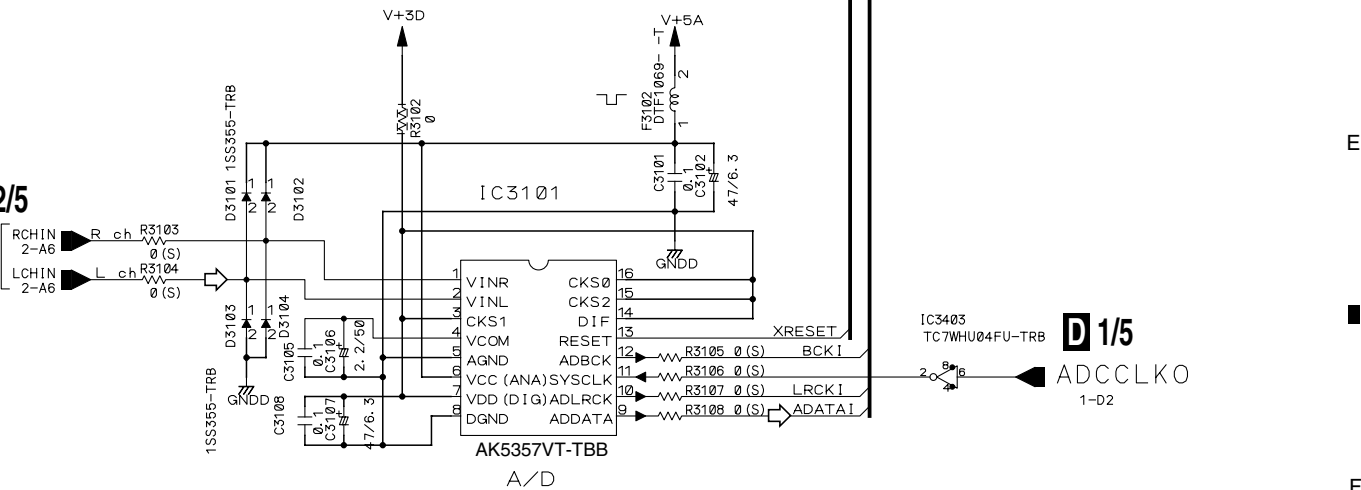
- (D) Audio Signal Route (DIGITAL)
- Audio Signal Route (L ch)



D 2/5

D 2/5

D 2/5



D 1/5

D 3/5

### 3.10 MAIN (4/5), ATWB and ATHB ASSYS

1

2

3

4

A

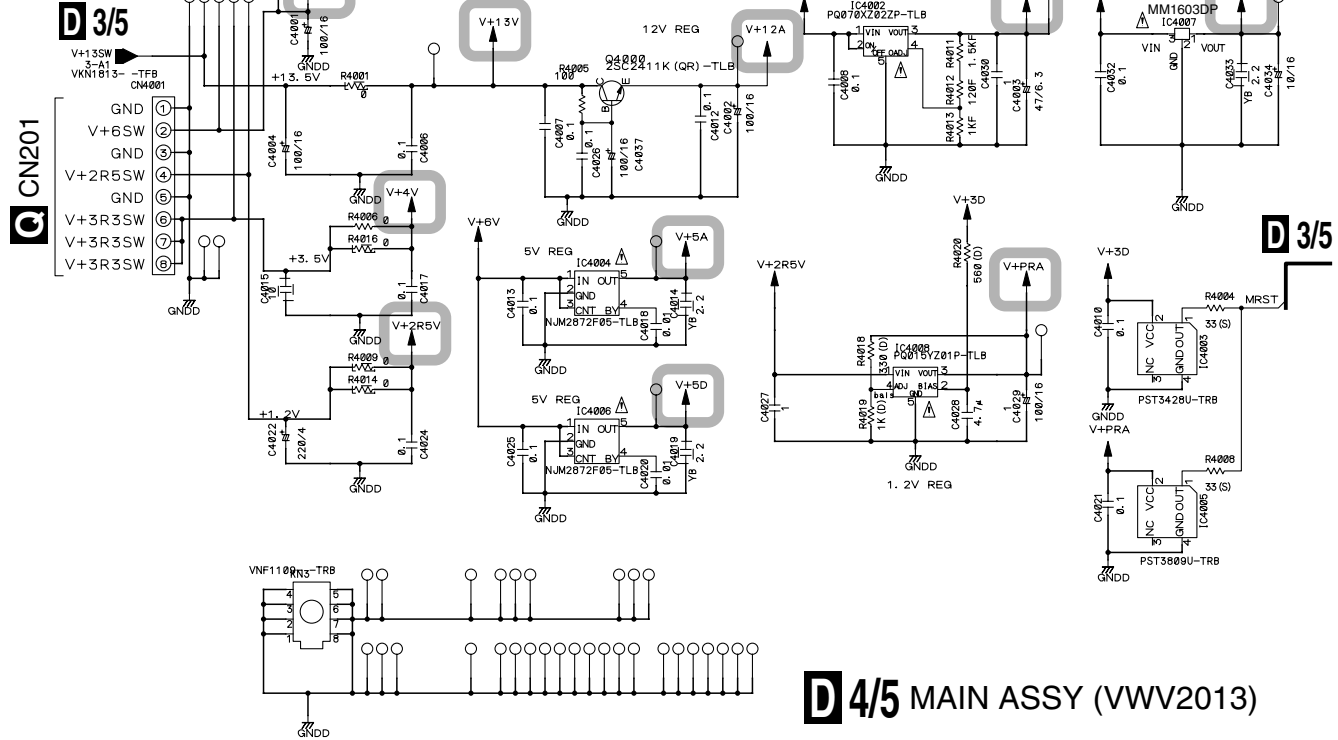
B

C

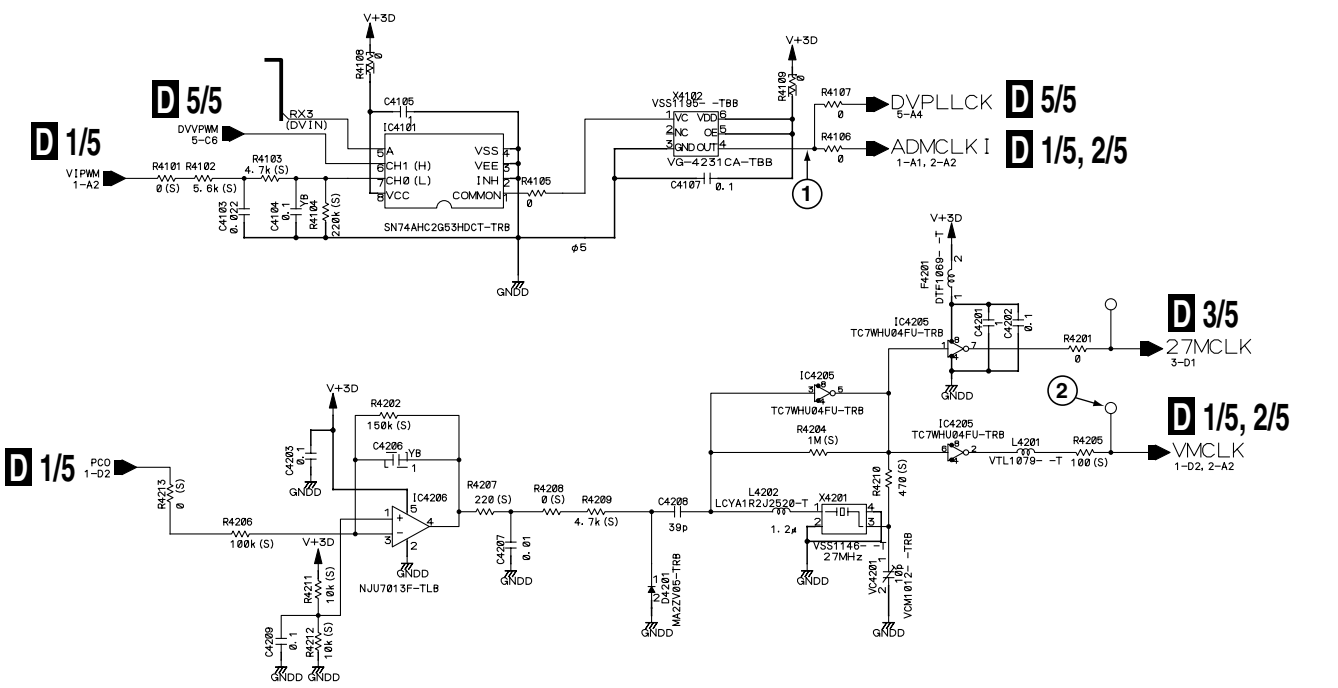
D

E

F



**D 4/5** MAIN ASSY (VWV2013)



**D 4/5**

1

2

3

4

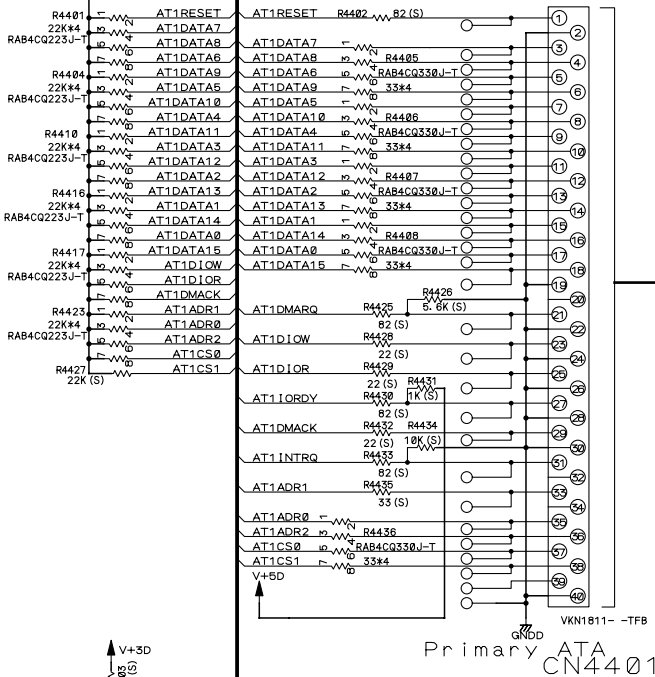


D 1/5

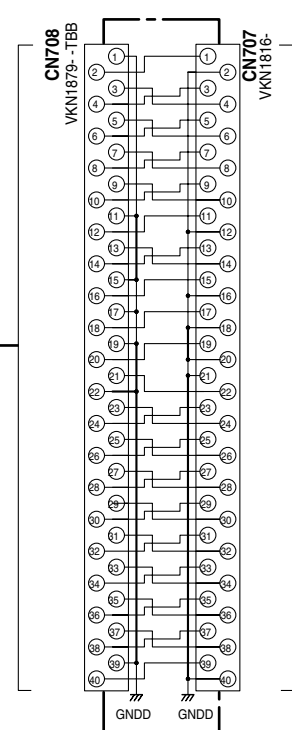
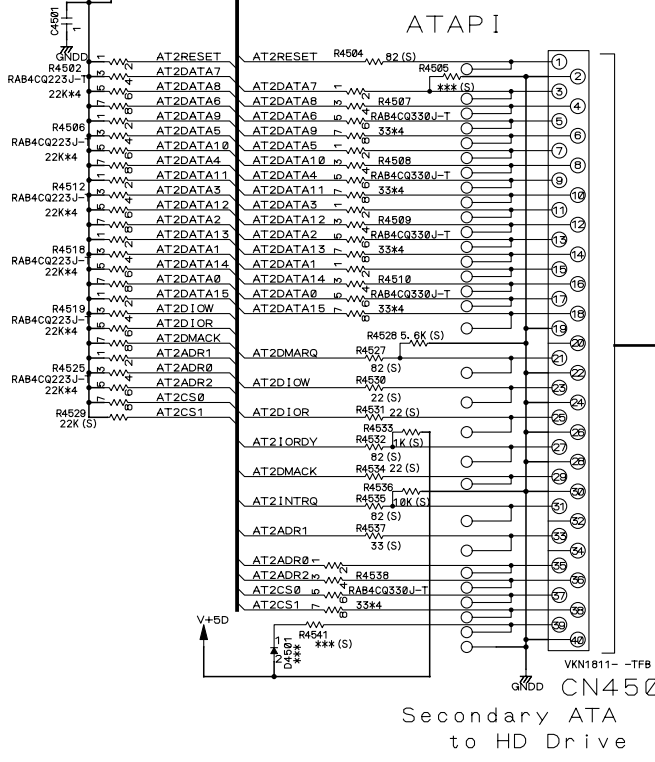
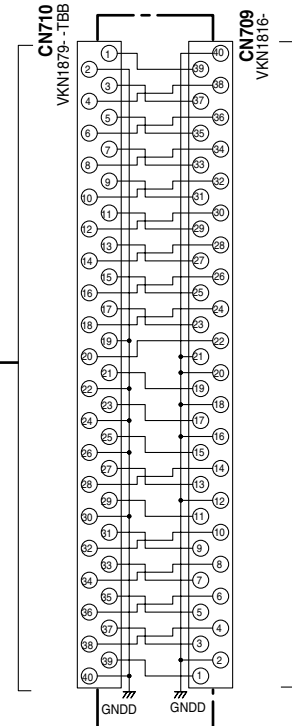
ATAPI BUS

V+5D

(AT) : ATA Data Signal Route



**E** ATWB ASSY (AWU8240)



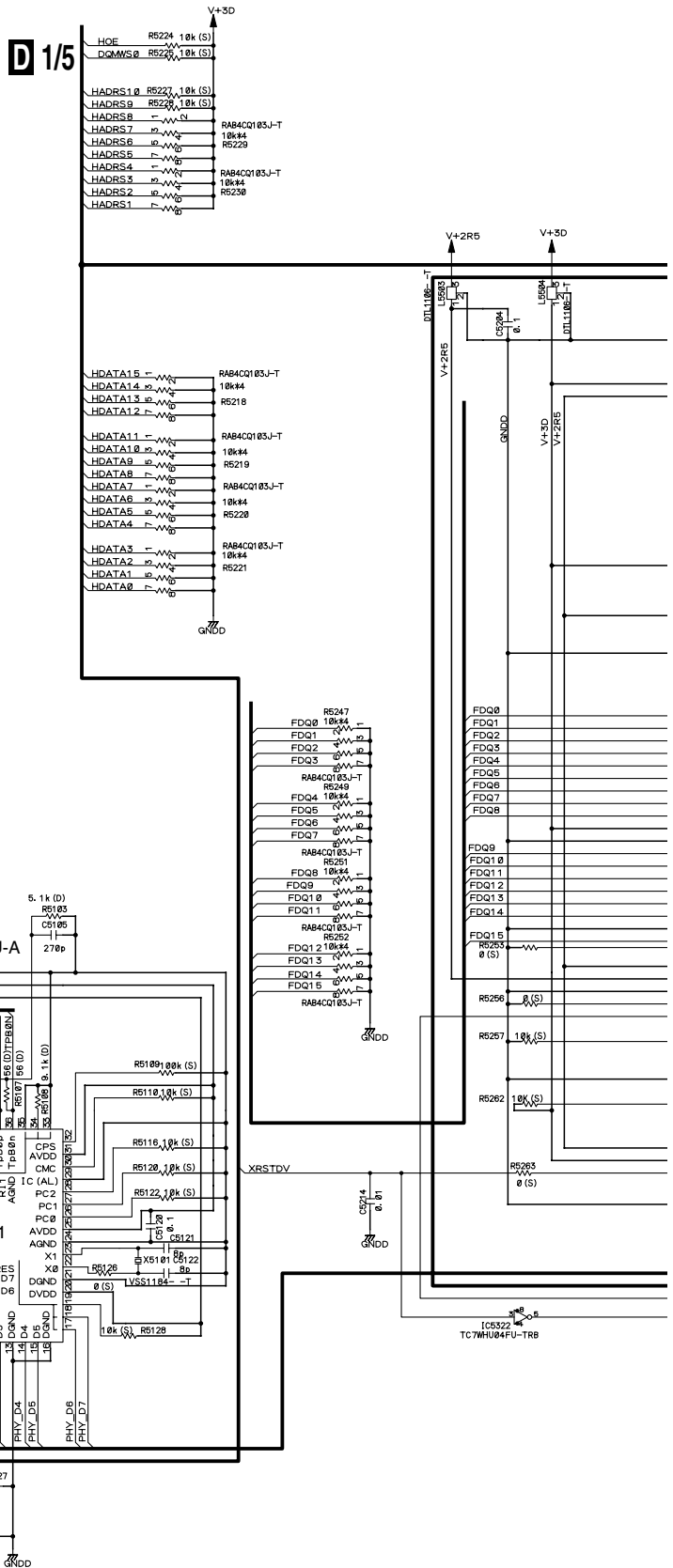
**F** ATHB ASSY (AWU8241)

A  
B  
C  
D  
E  
F

D 4/5 E F

# 3.11 MAIN ASSY (5/5)

## D 5/5 MAIN ASSY (VWV2013)



J CN5001

D 5/5

XV-DVR9H

D 1/5

D 4/5

D 1/5

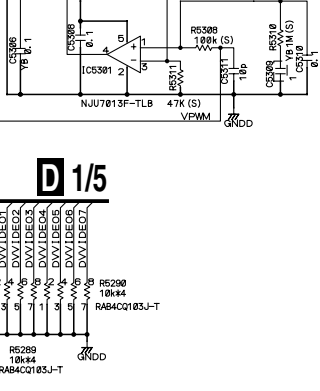
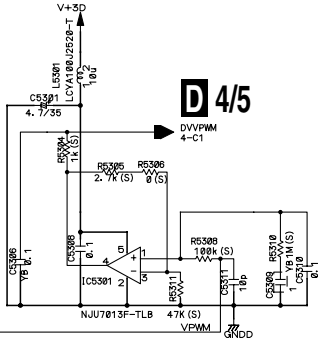
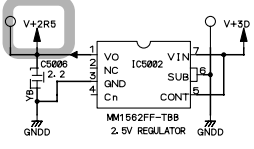
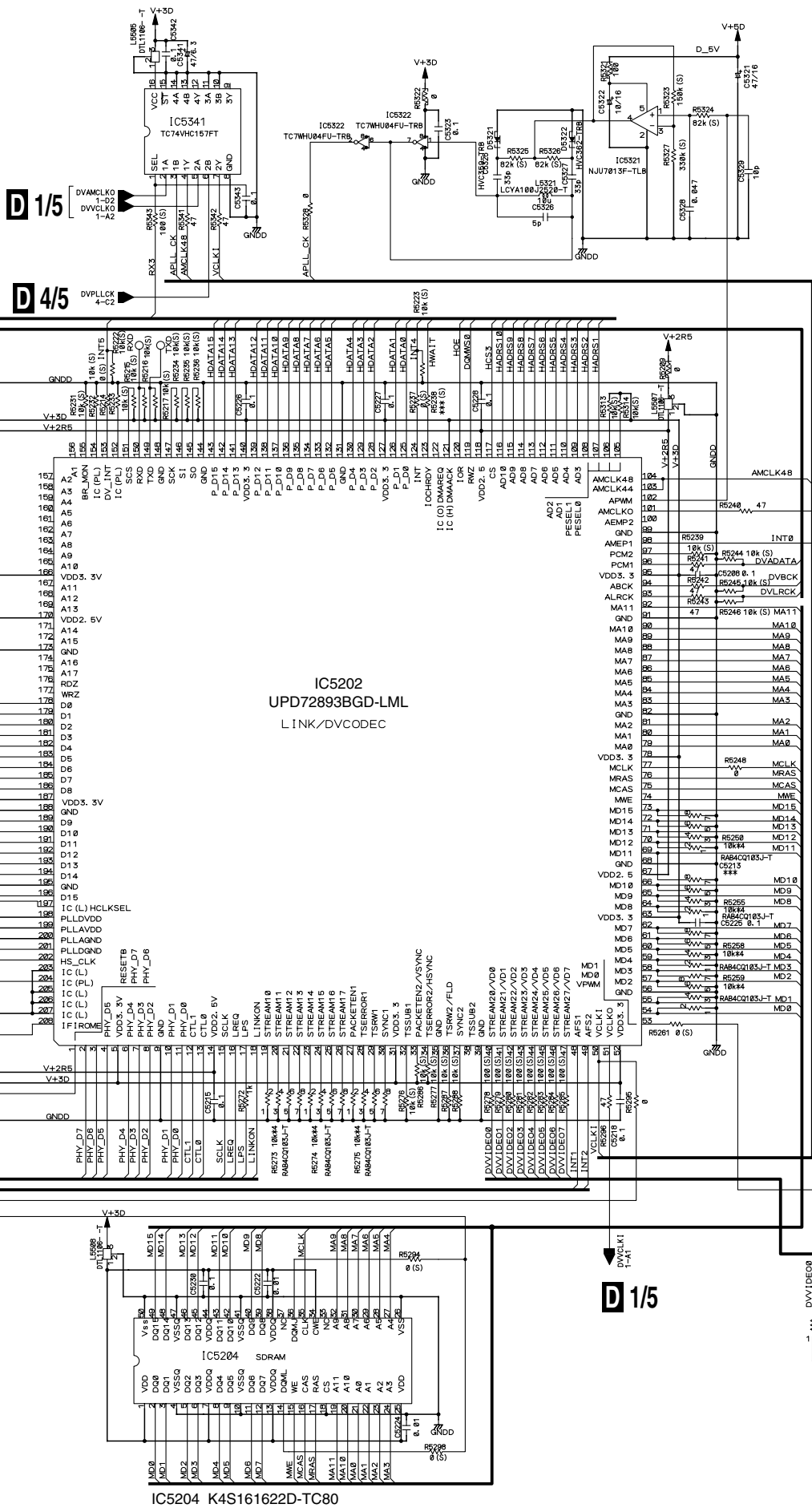
D 1/5

D 4/5

D 1/5

D 1/5

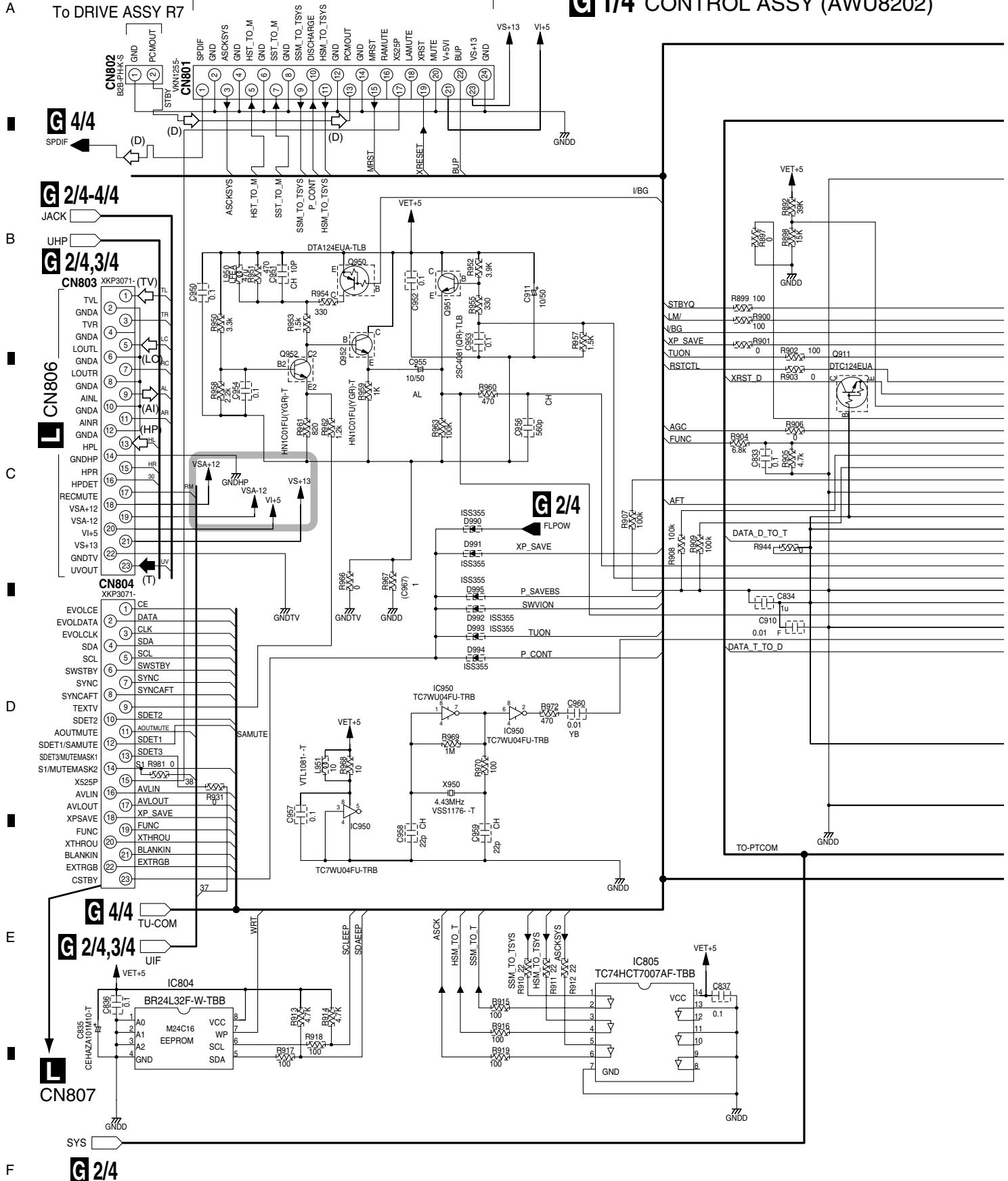
D 5/5

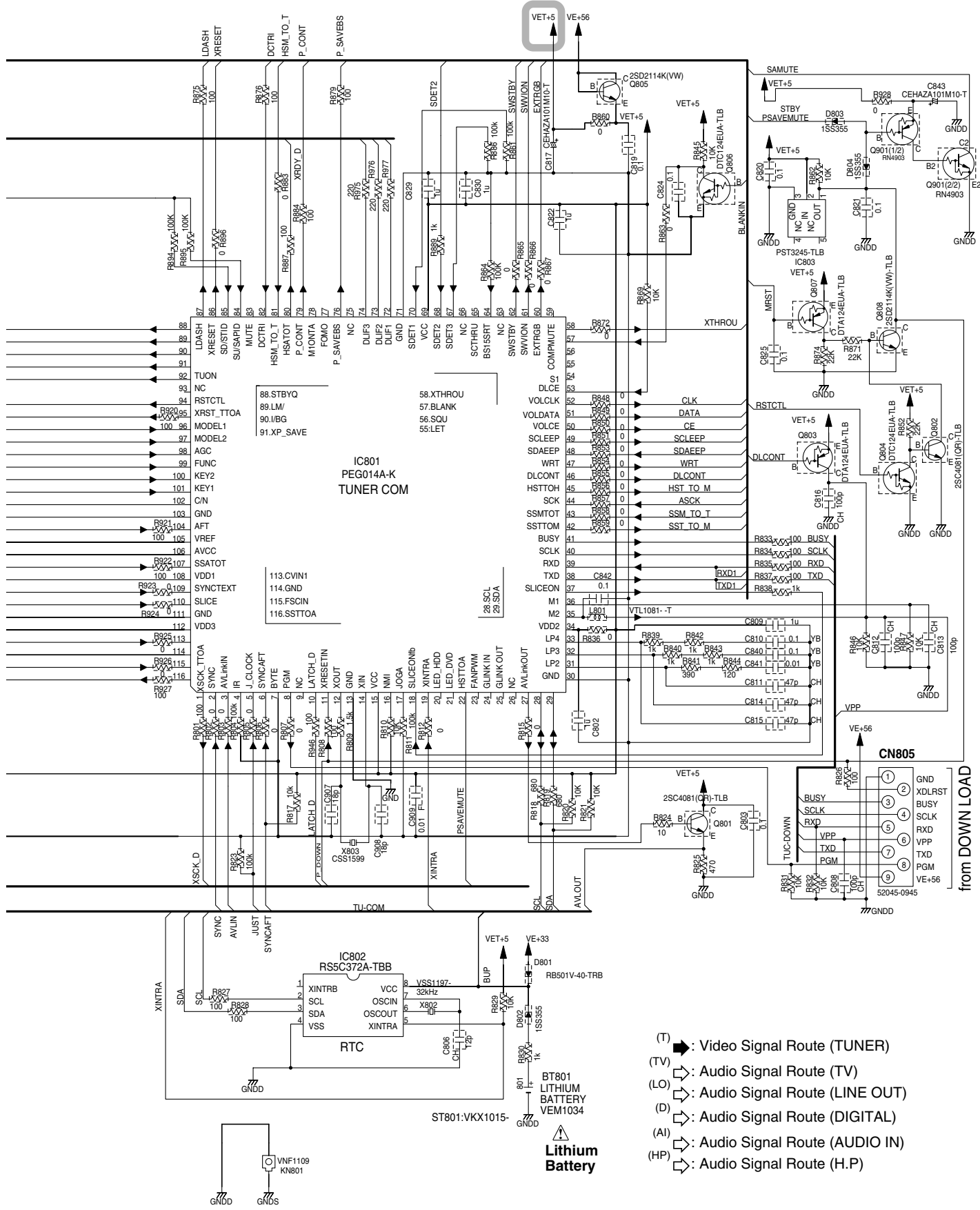


# 3.12 CONTROL ASSY (1/4)

D 3/5 CN3001

G 1/4 CONTROL ASSY (AWU8202)





- (T) : Video Signal Route (TUNER)
- (TV) : Audio Signal Route (TV)
- (LO) : Audio Signal Route (LINE OUT)
- (D) : Audio Signal Route (DIGITAL)
- (AI) : Audio Signal Route (AUDIO IN)
- (HP) : Audio Signal Route (H.P)

**Lithium Battery**

from DOWN LOAD



# 3.13 CONTROL ASSY (2/4)

1

2

3

4

A

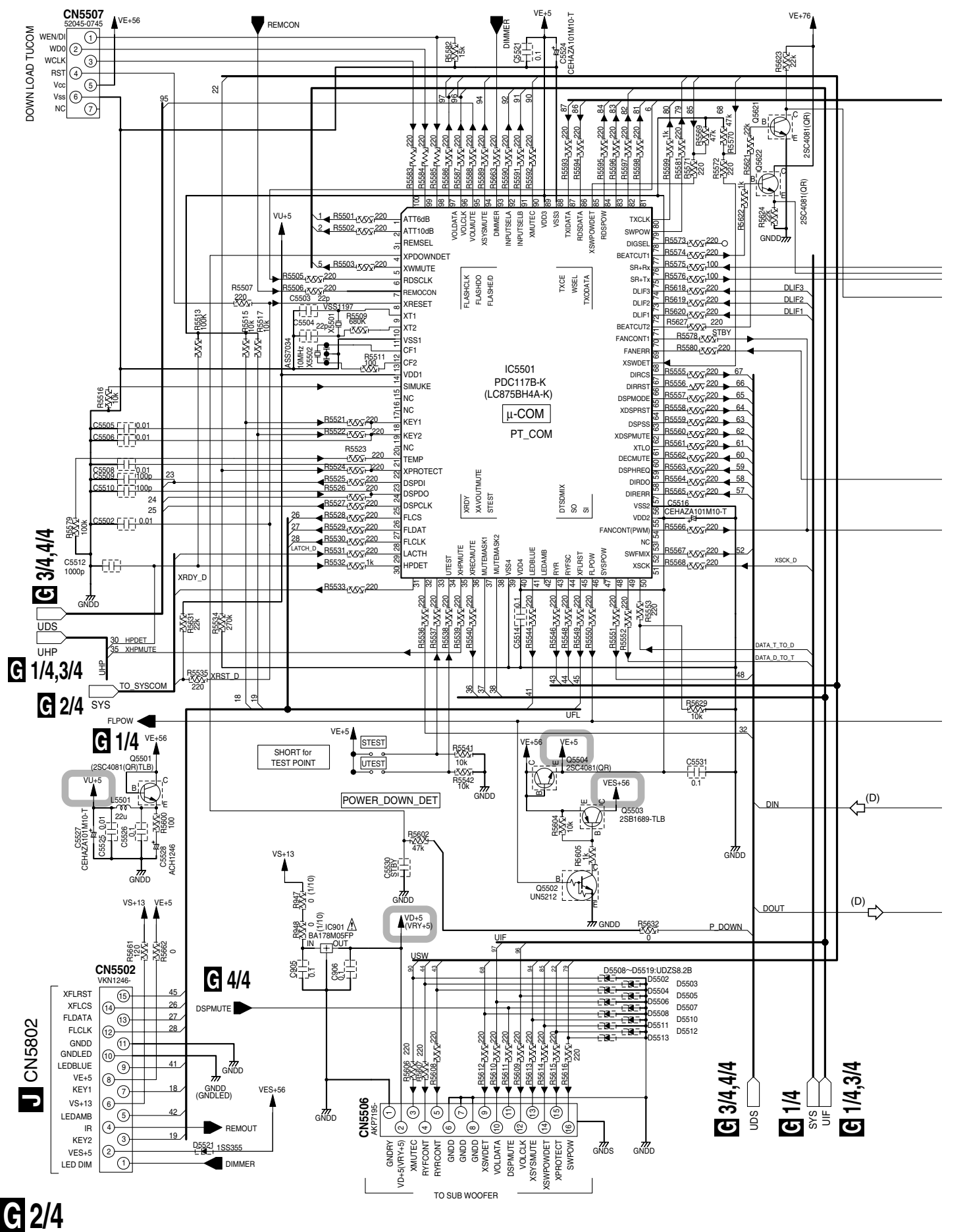
B

C

D

E

F



**G 3/4,4/4**

**G 1/4,3/4**

**G 2/4**

**G 1/4**

**G 4/4**

**J CN5802**

**G 3/4,4/4**

**G 1/4**

**G 1/4,3/4**

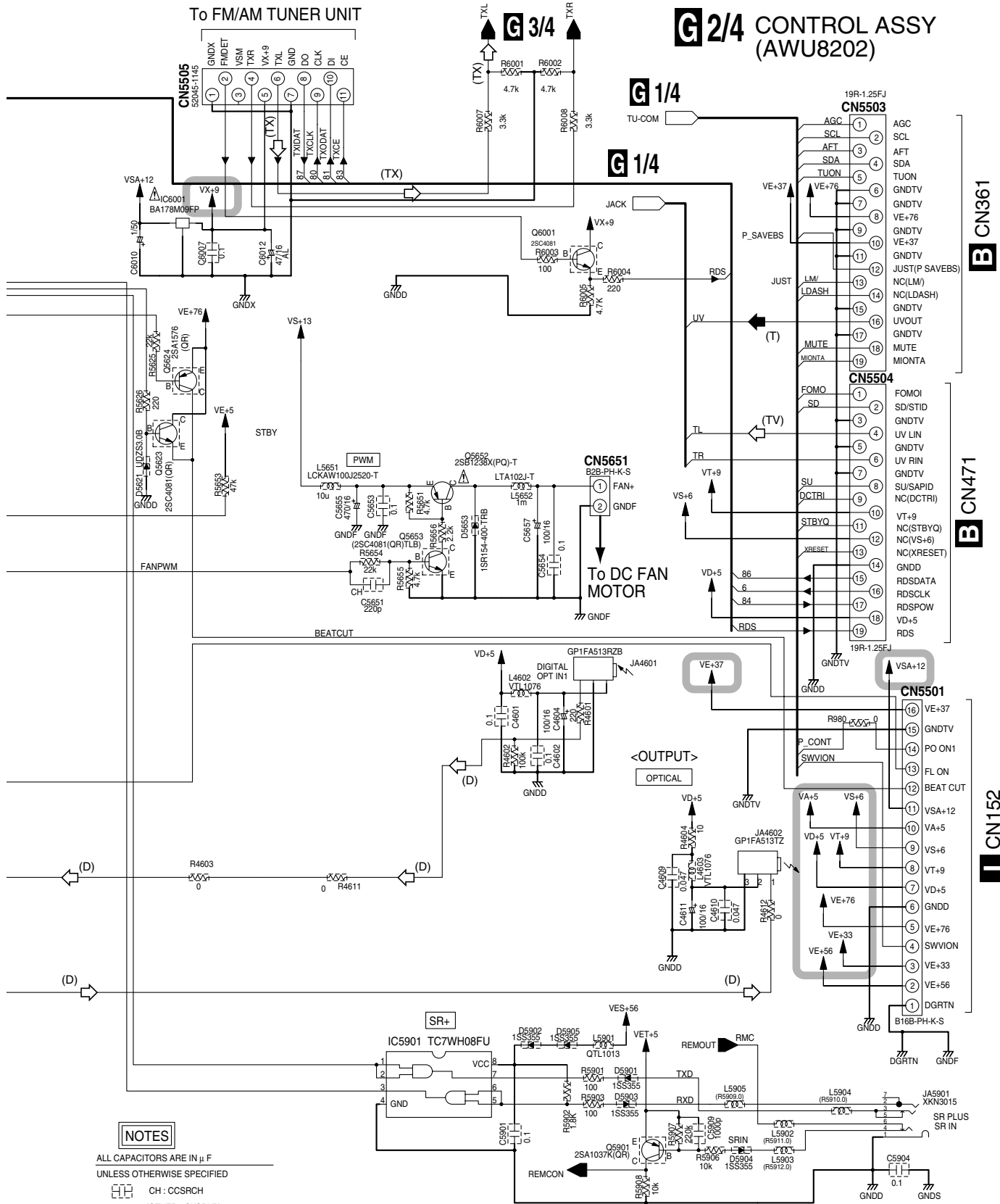
**G 2/4**

1

2

3

4



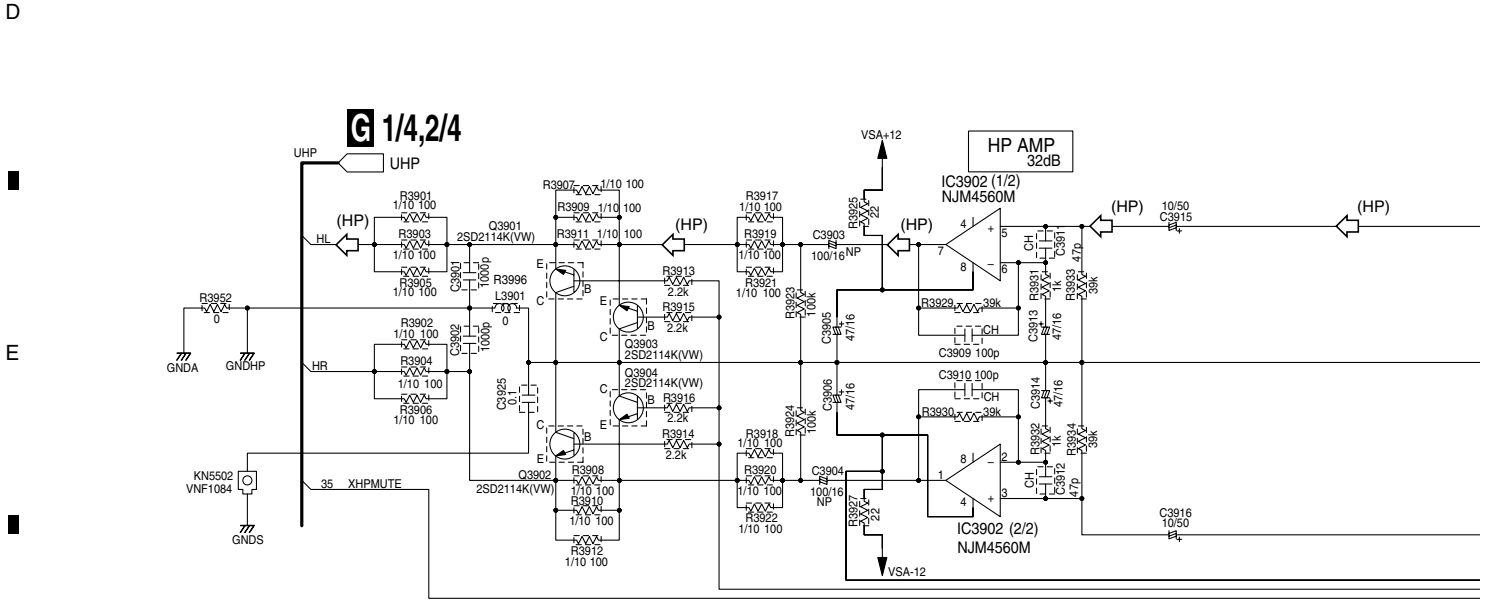
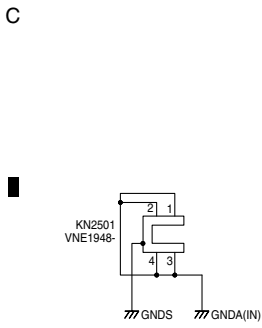
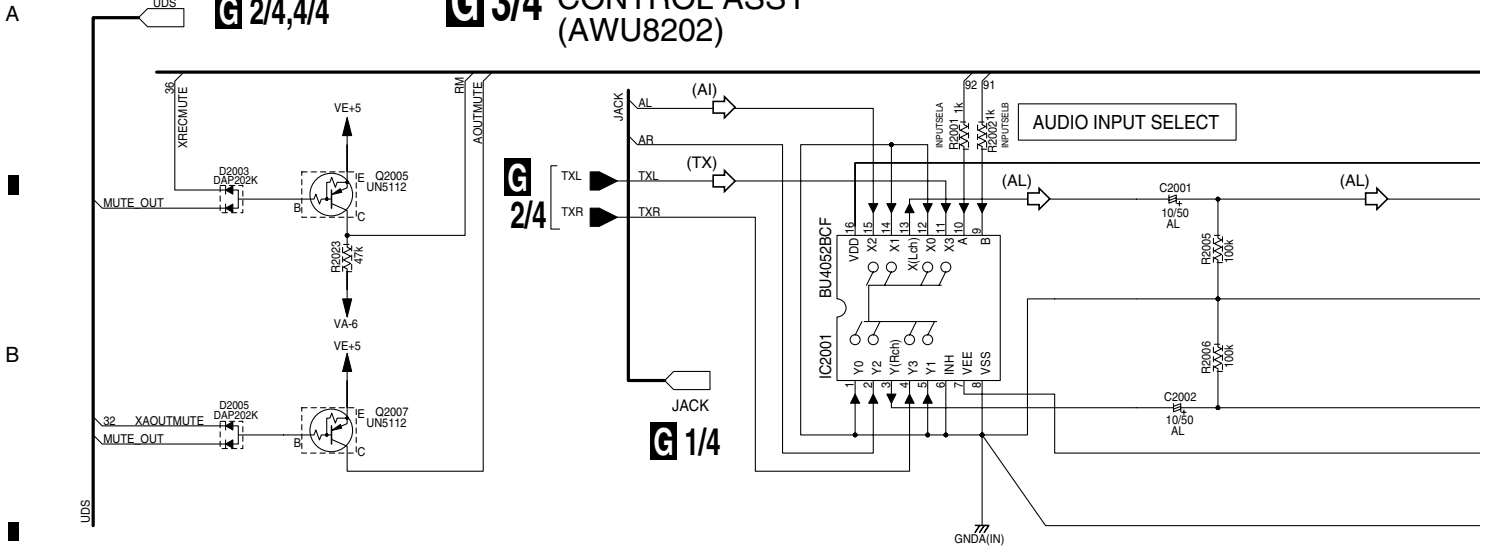
**NOTES**

- ALL CAPACITORS ARE IN  $\mu$ F UNLESS OTHERWISE SPECIFIED
- CH : CCSRCH (OTHER : CKSRYB)
- AL : CEAL (OTHER : CEAT)
- ALL RESISTORS ARE IN  $\Omega$
- RS116S\*\*\*J (1/10)
- RS110S\*\*\*J (1/10)
- ALL INDUCTORS ARE IN  $\mu$ H
- LFEA\*\*\*J

- (T) : Video Signal Route (TUNER)
- (D) : Audio Signal Route (DIGITAL)
- (TX) : Audio Signal Route (FM/AM)
- (TV) : Audio Signal Route (TV)

# 3.14 CONTROL ASSY (3/4)

1 2 3 4



**NOTES**

ALL CAPACITORS ARE IN  $\mu$ F UNLESS OTHERWISE SPECIFIED

ALL RESISTORS ARE IN  $\Omega$

CH : CCSRCH (OTHER : CKSRYB)

AL : CEAL

NP : CEANP (OTHER : CEAT)

RS1/16S\*\*\*J

RS1/10S\*\*\*J

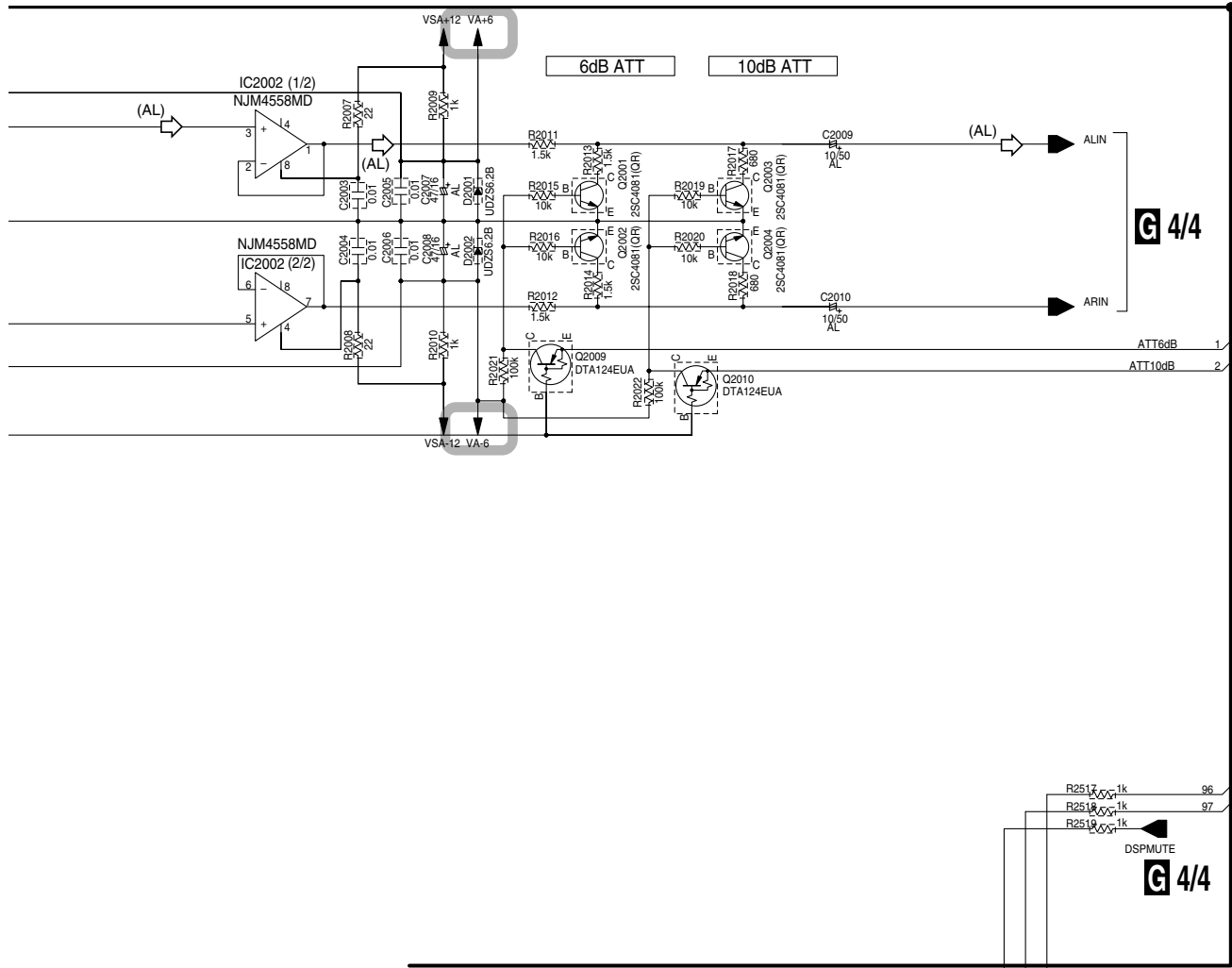
**G 3/4**

1 2 3 4



G 1/4,2/4

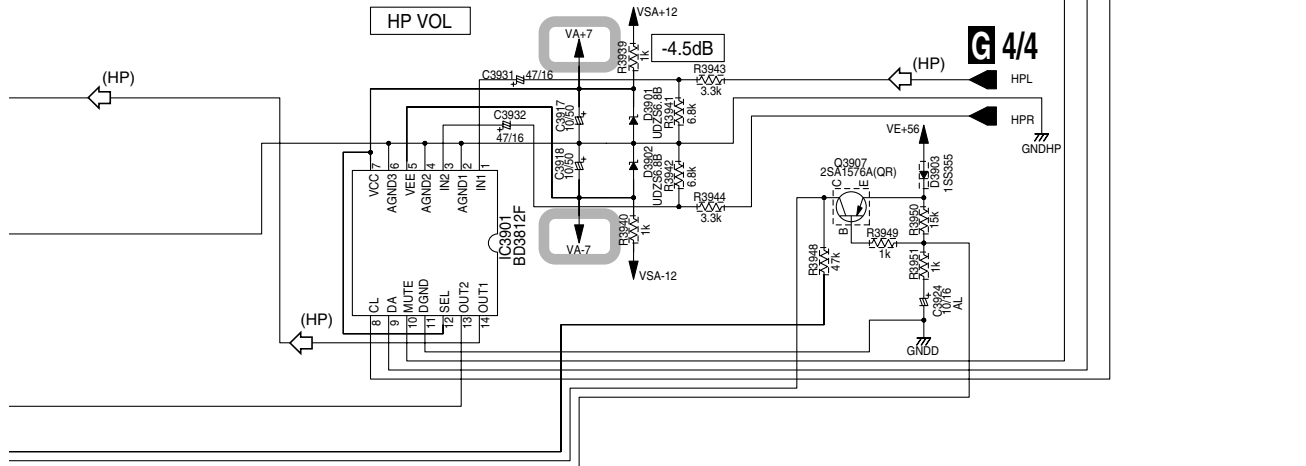
A



B

C

D



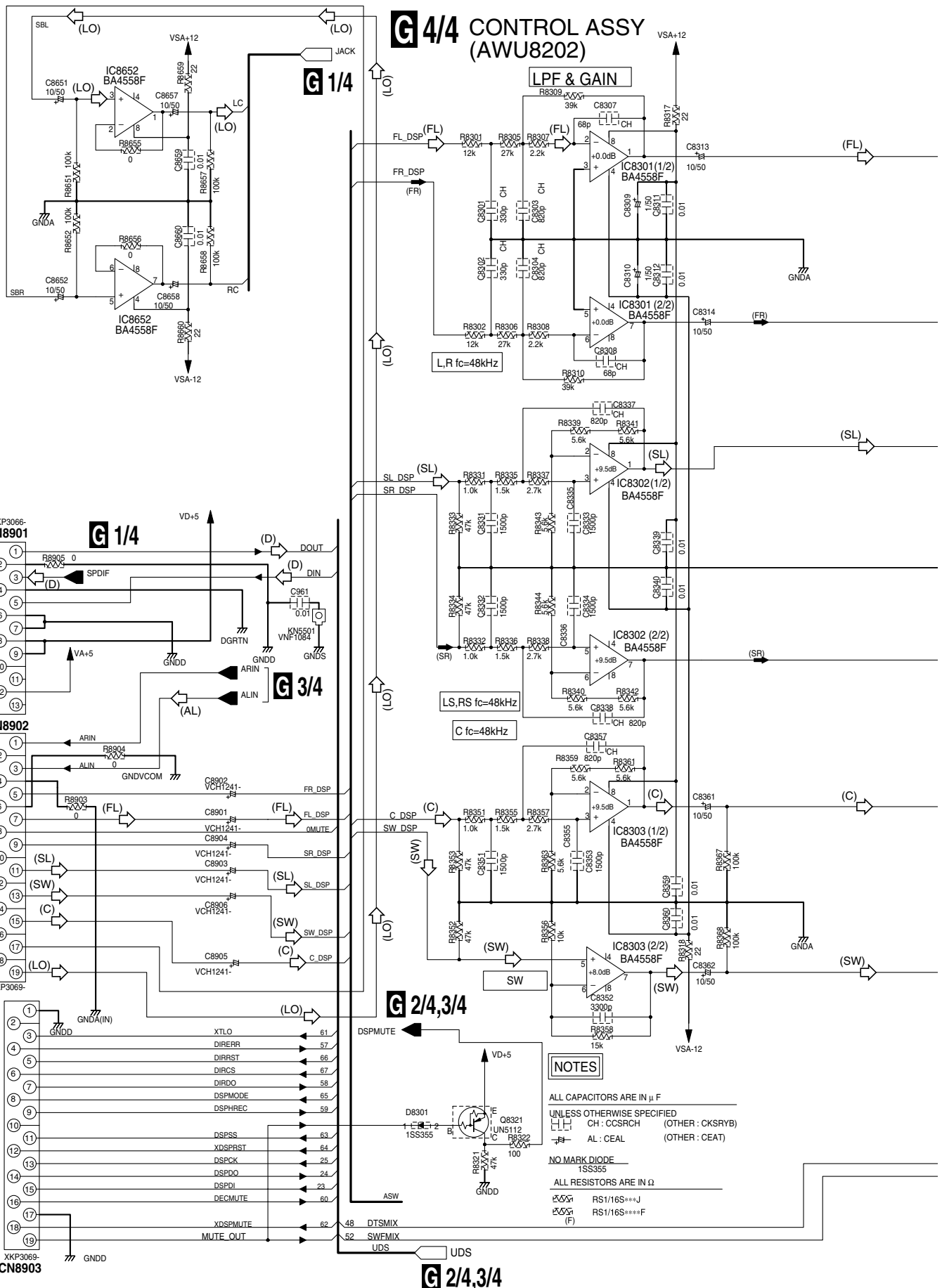
E

- (AL) ⇨ : Audio Signal Route (AUDIO L ch)
- (TX) ⇨ : Audio Signal Route (FM/AM)
- (AI) ⇨ : Audio Signal Route (AUDIO IN)
- (HP) ⇨ : Audio Signal Route (H.P)

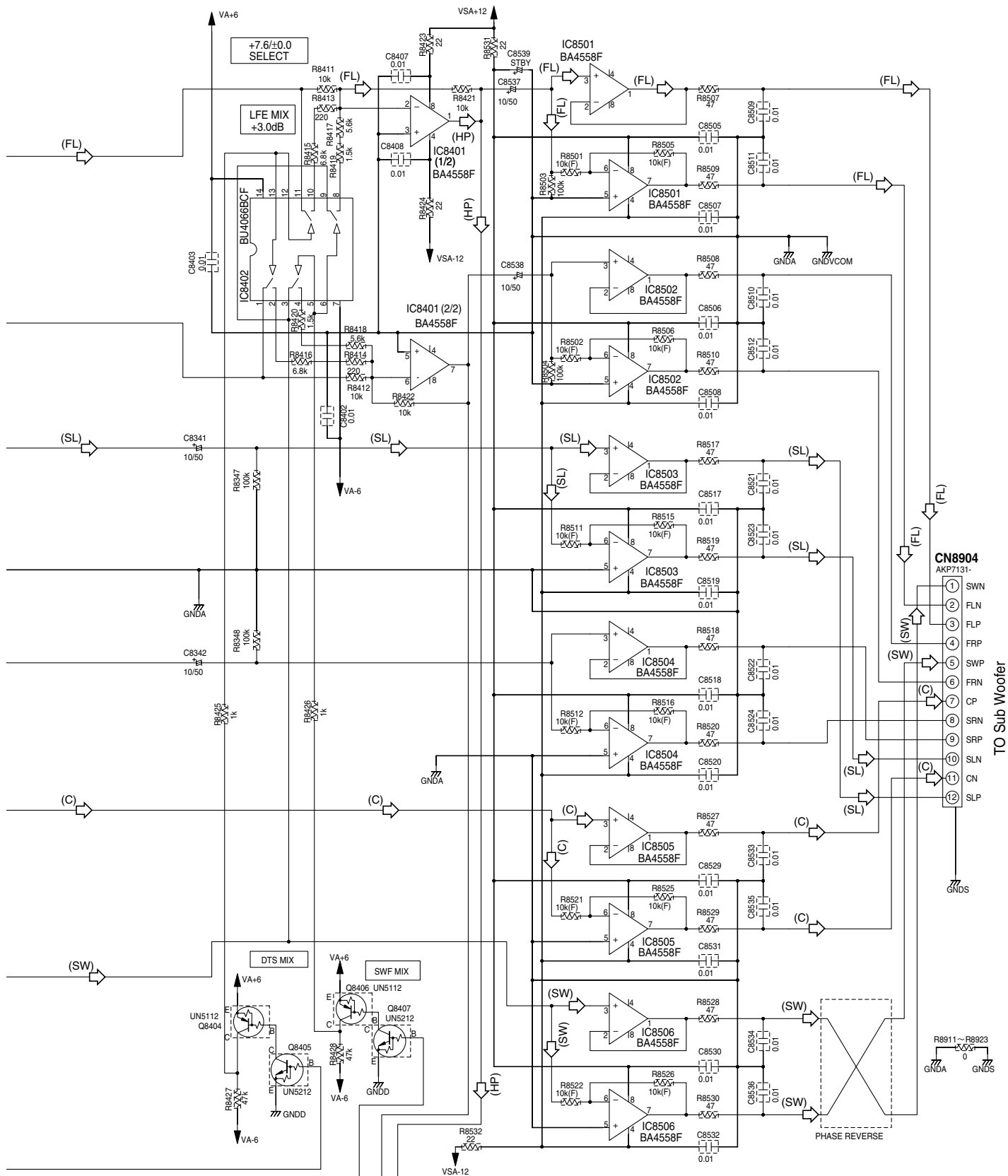
F

G 3/4

# 3.15 CONTROL ASSY (4/4)



**G 4/4**

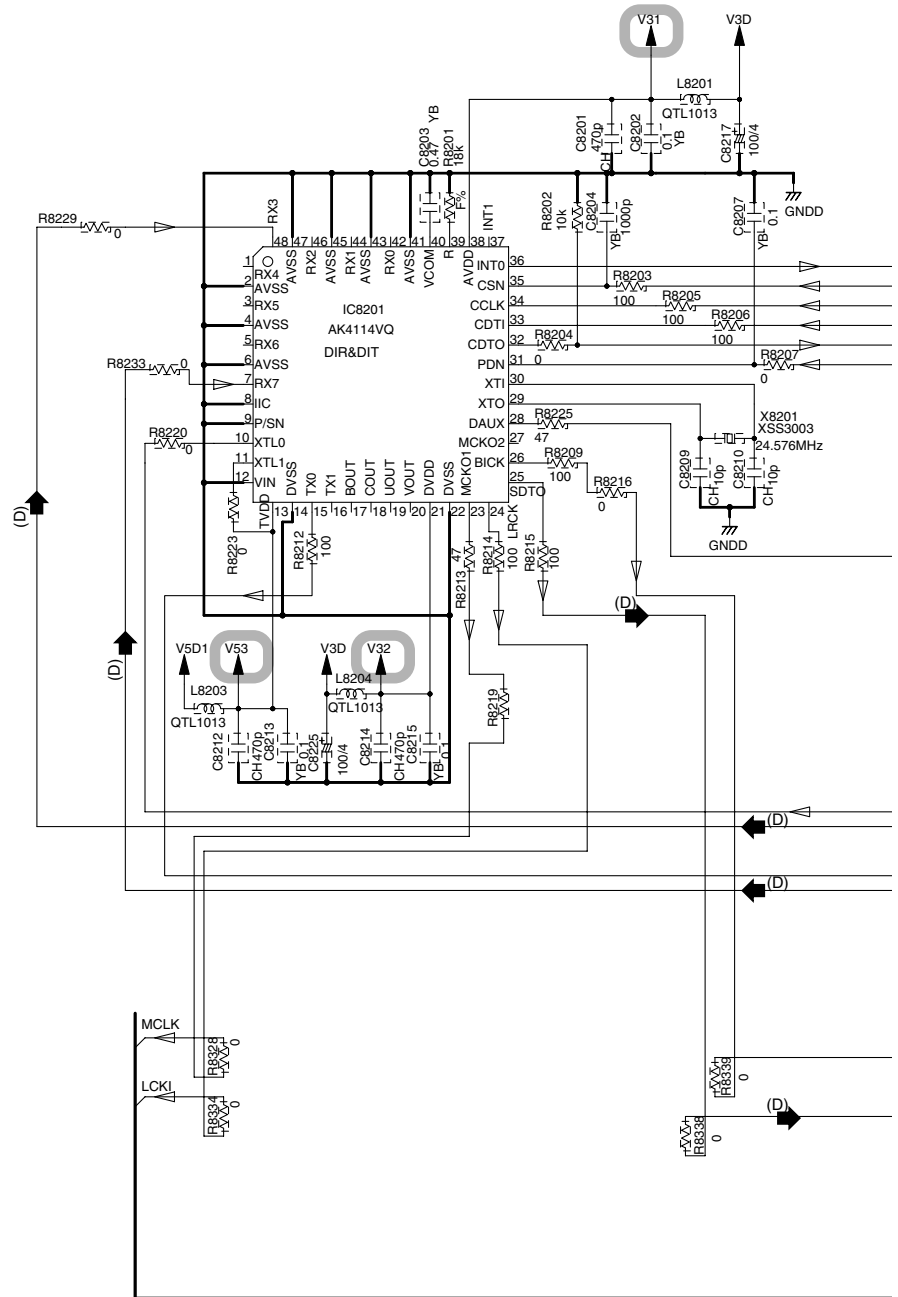
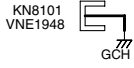


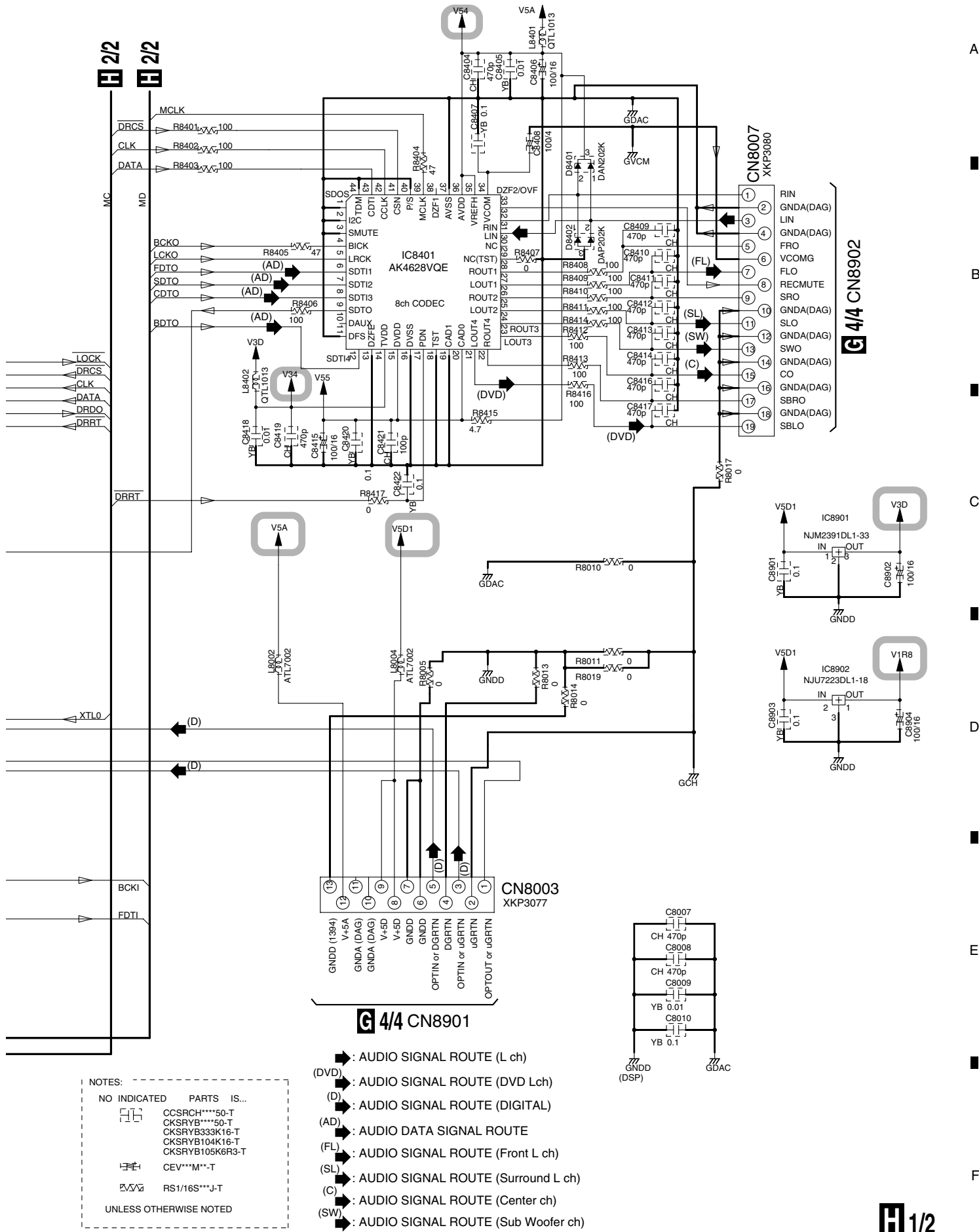
- (AL) ⇨ Audio Signal Route (AUDIO L ch)
- (HP) ⇨ Audio Signal Route (H.P)
- (D) ⇨ Audio Signal Route (DIGITAL)
- (FL) ⇨ Audio Signal Route (FL ch)
- (SL) ⇨ Audio Signal Route (SL ch)
- (C) ⇨ Audio Signal Route (C ch)
- (SW) ⇨ Audio Signal Route (SW ch)
- (LO) ⇨ Audio Signal Route (LINE OUT)



# 3.16 DSP ASSY (1/2)

## H 1/2 DSP ASSY (AWX8486)





NOTES:

NO INDICATED PARTS IS...	
	CCSRCH****50-T
	CKSRYPB****50-T
	CKSRYPB333K16-T
	CKSRYPB104K16-T
	CKSRYPB105K6R3-T
	CEV****M**-T
	RS1/16S***J-T

UNLESS OTHERWISE NOTED

- ➡ : AUDIO SIGNAL ROUTE (L ch)
- (DVD) ➡ : AUDIO SIGNAL ROUTE (DVD Lch)
- (D) ➡ : AUDIO SIGNAL ROUTE (DIGITAL)
- (AD) ➡ : AUDIO DATA SIGNAL ROUTE
- (FL) ➡ : AUDIO SIGNAL ROUTE (Front L ch)
- (SL) ➡ : AUDIO SIGNAL ROUTE (Surround L ch)
- (C) ➡ : AUDIO SIGNAL ROUTE (Center ch)
- (SW) ➡ : AUDIO SIGNAL ROUTE (Sub Woofer ch)

# 3.17 DSP ASSY (2/2)

1

2

3

4

A

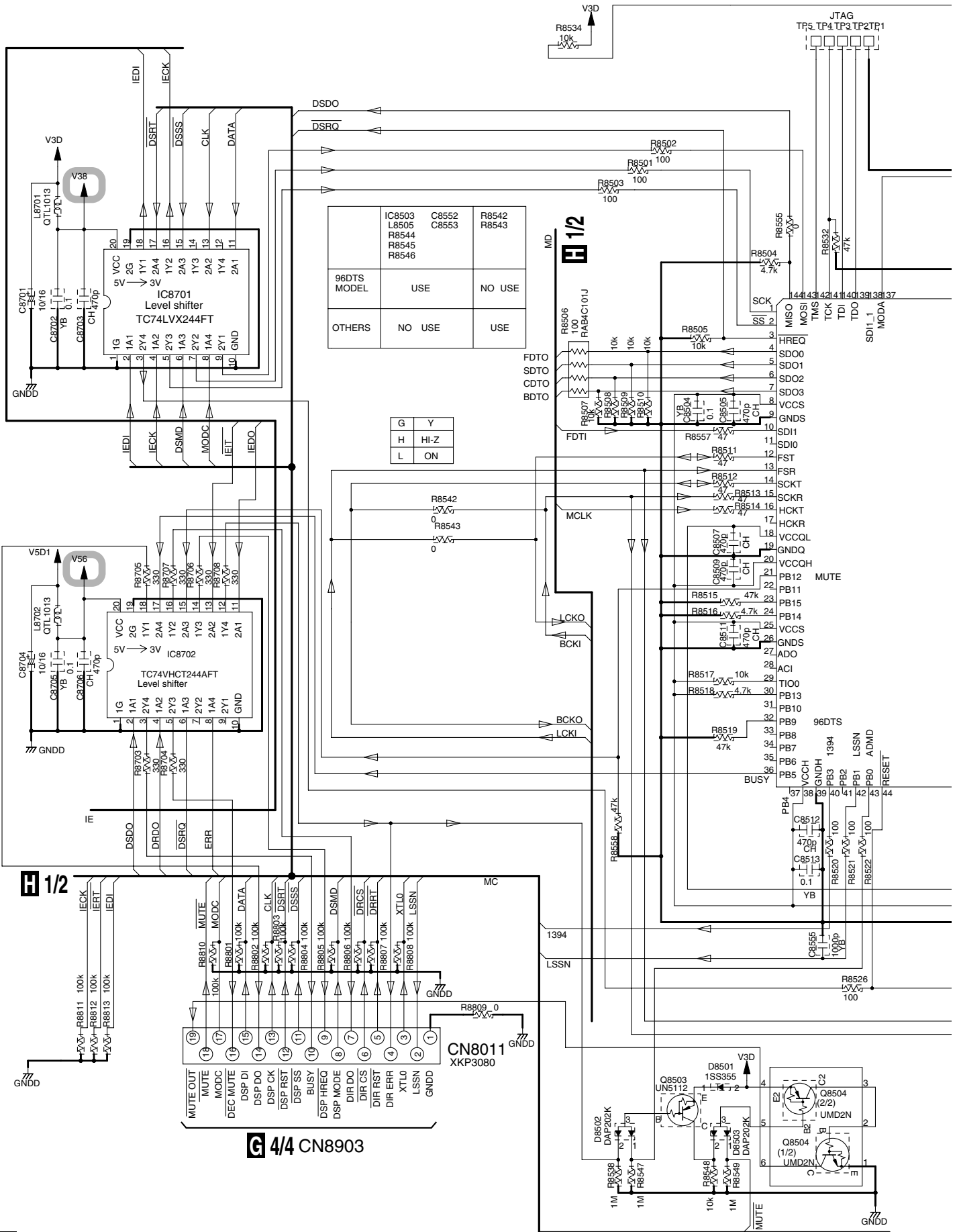
B

C

D

E

F



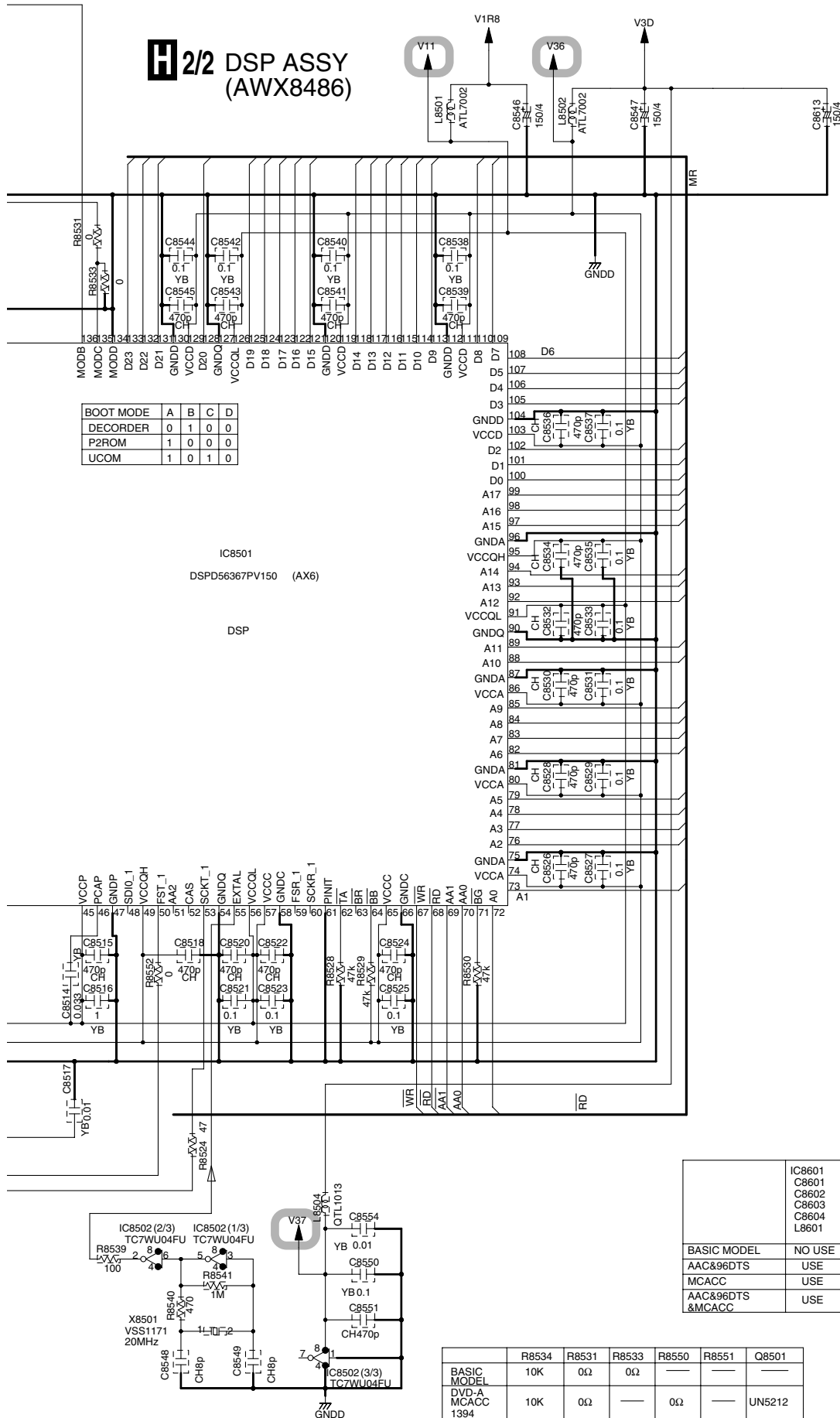
1

2

3

4

# H 2/2 DSP ASSY (AWX8486)



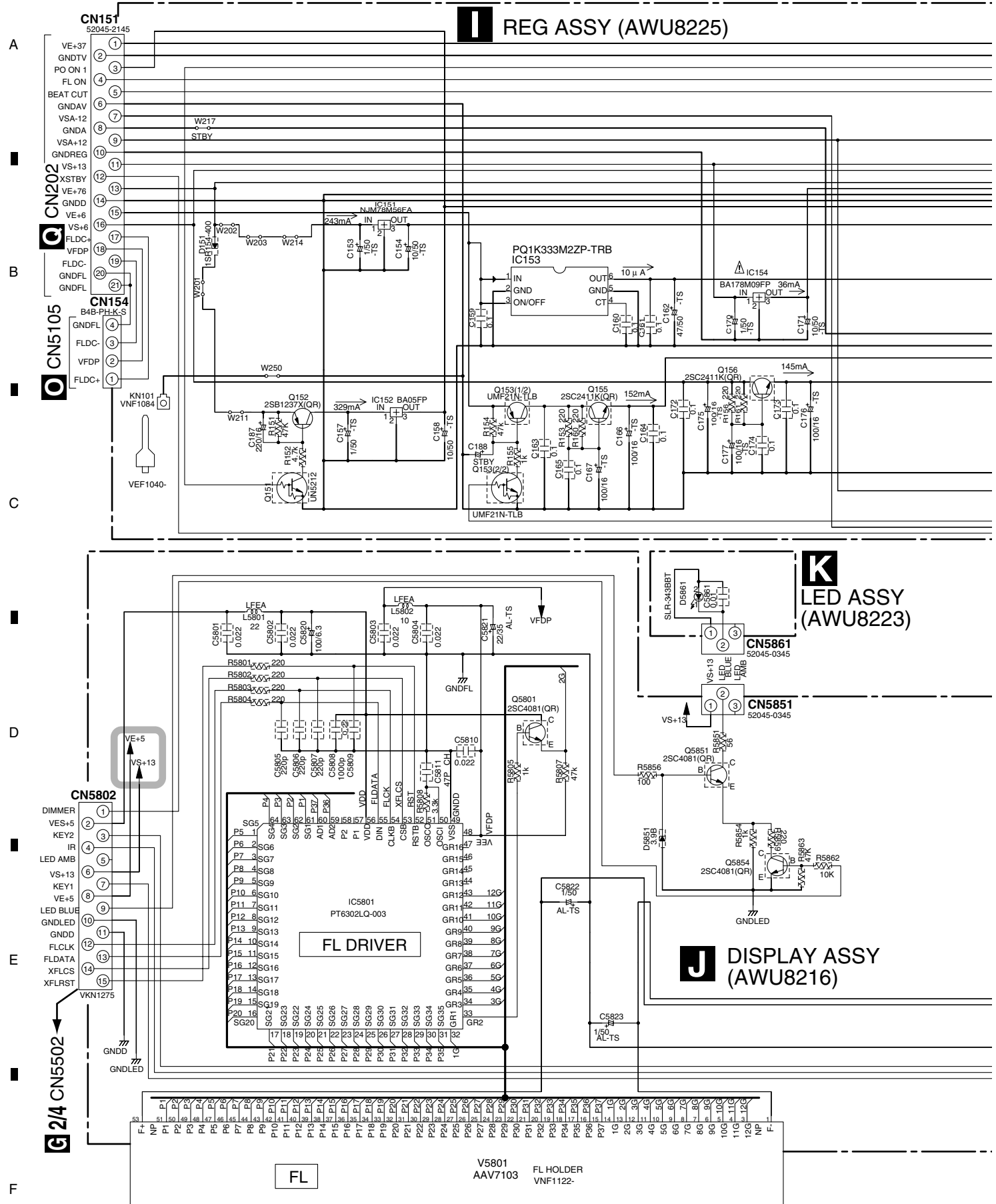
BOOT MODE	A	B	C	D
DECORDER	0	1	0	0
P2FROM	1	0	0	0
UCOM	1	0	1	0

IC8501  
DSP56367PV150 (AX6)  
  
DSP

	IC8601 C8601 C8602 C8603 C8604 L8601	IC8602 C8605 C8606 C8607 C8608 L8602	IC8603 C8609 C8610 L8603	R8523
BASIC MODEL	NO USE	NO USE	NO USE	NO USE
AAC&96DTS	USE	USE	NO USE	USE
MCACC	USE	NO USE	USE	USE
AAC&96DTS &MCACC	USE	USE	USE	USE

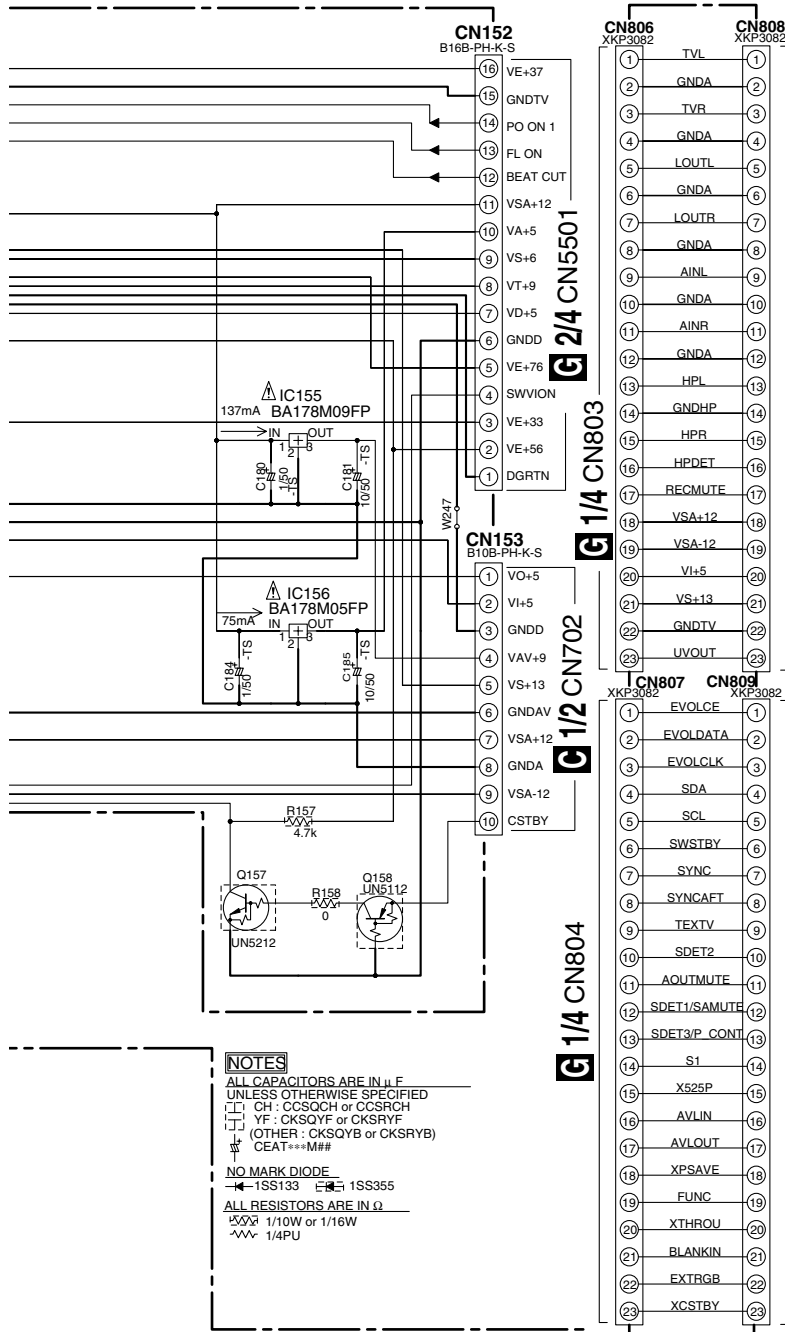
	R8534	R8531	R8533	R8550	R8551	Q8501
BASIC MODEL	10K	0Ω	0Ω	—	—	—
DVD	10K	0Ω	—	0Ω	—	UN5212
MCACC	1394	—	—	—	—	—

# 3.18 REG, DISPLAY, LED, TRADE, F. JACK, IR, KEY L and KEY R ASSYS



**I J K**

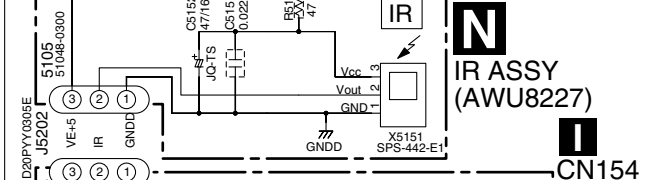
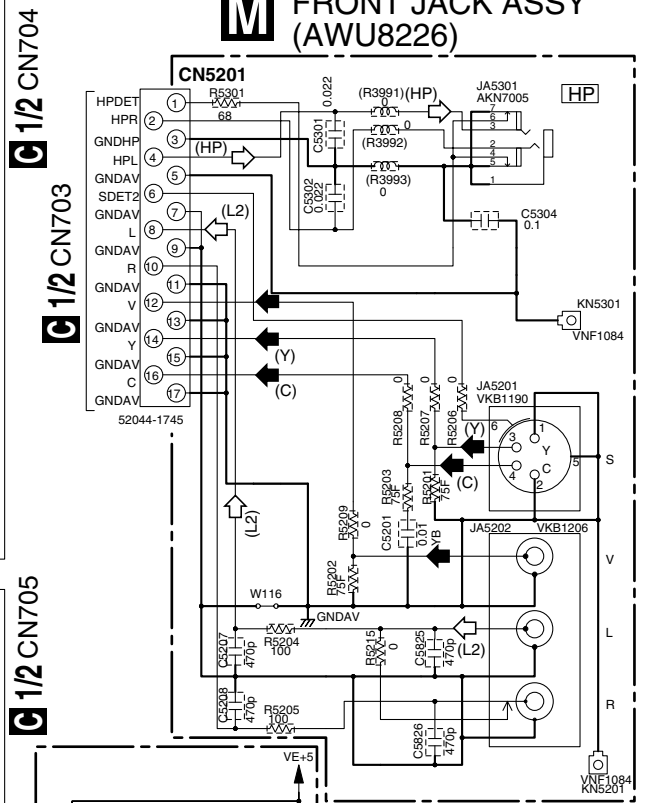




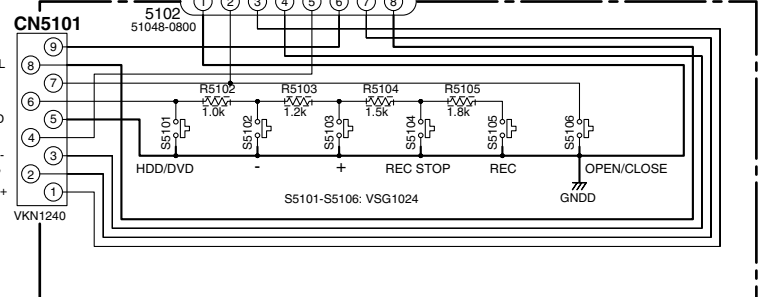
**NOTES**  
 ALL CAPACITORS ARE IN μF UNLESS OTHERWISE SPECIFIED  
 CH : CCSQCH or CCSRCH  
 YF : OKSQYF or OKSRYF  
 (OTHER : OKSQYB or OKSRYB)  
 CEAT\*\*\*M##  
 NO MARK DIODE  
 1SS133 1SS355  
 ALL RESISTORS ARE IN Ω  
 1/10W or 1/16W  
 1/4PU

**L TRADE ASSY (AWU8224)**

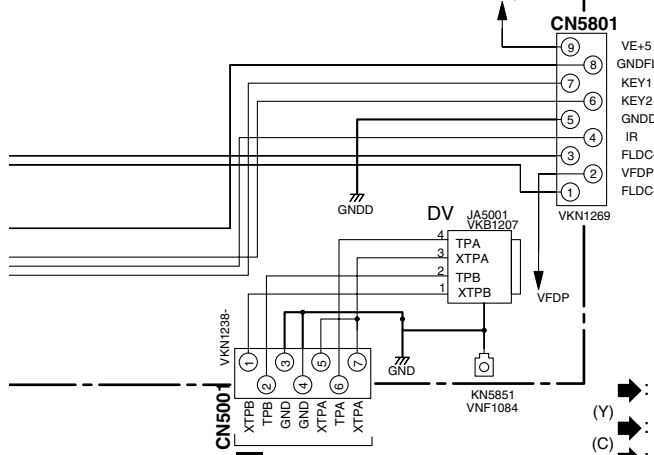
**M FRONT JACK ASSY (AWU8226)**



**O KEY L ASSY (AWU8221)**



**P KEY R ASSY (AWU8222)**



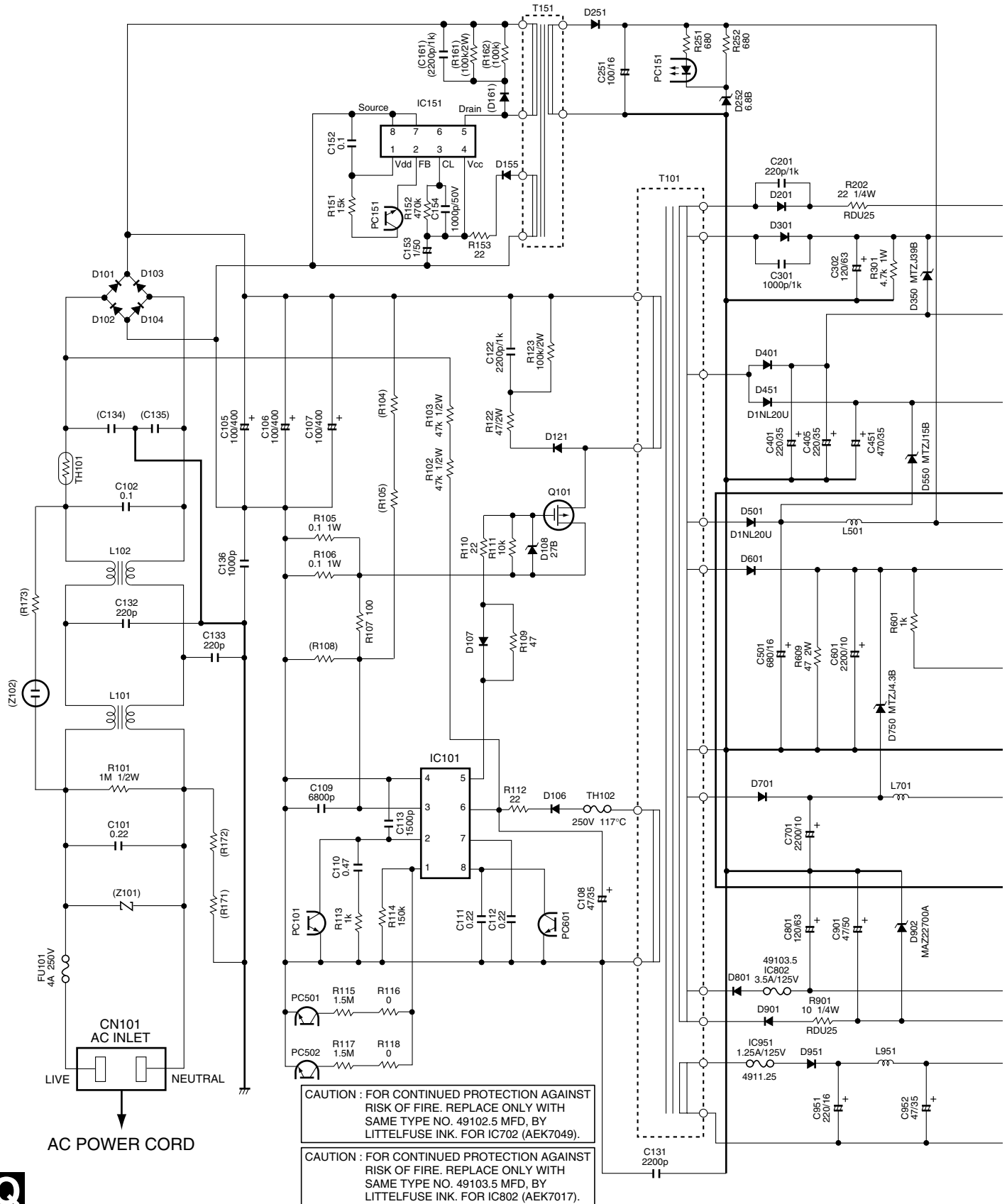
- KEY R ASSY**  
 S5101 : HDD/DVD  
 S5102 : - /  
 S5103 : + /  
 S5104 : □ STOP REC  
 S5105 : ■ REC  
 S5106 : ▲ OPEN/CLOSE
- Switches KEY L ASSY**  
 S5107 : STANDBY/ON  
 S5108 : VOLUME -  
 S5109 : VOLUME +  
 S5110 : ▶ PLAY  
 S5111 : ■ STOP

- (Y) Video Signal Route (Y)
- (C) Video Signal Route (C)
- (L2) Audio Signal Route (LINE 2)
- (HP) Audio Signal Route (H.P)

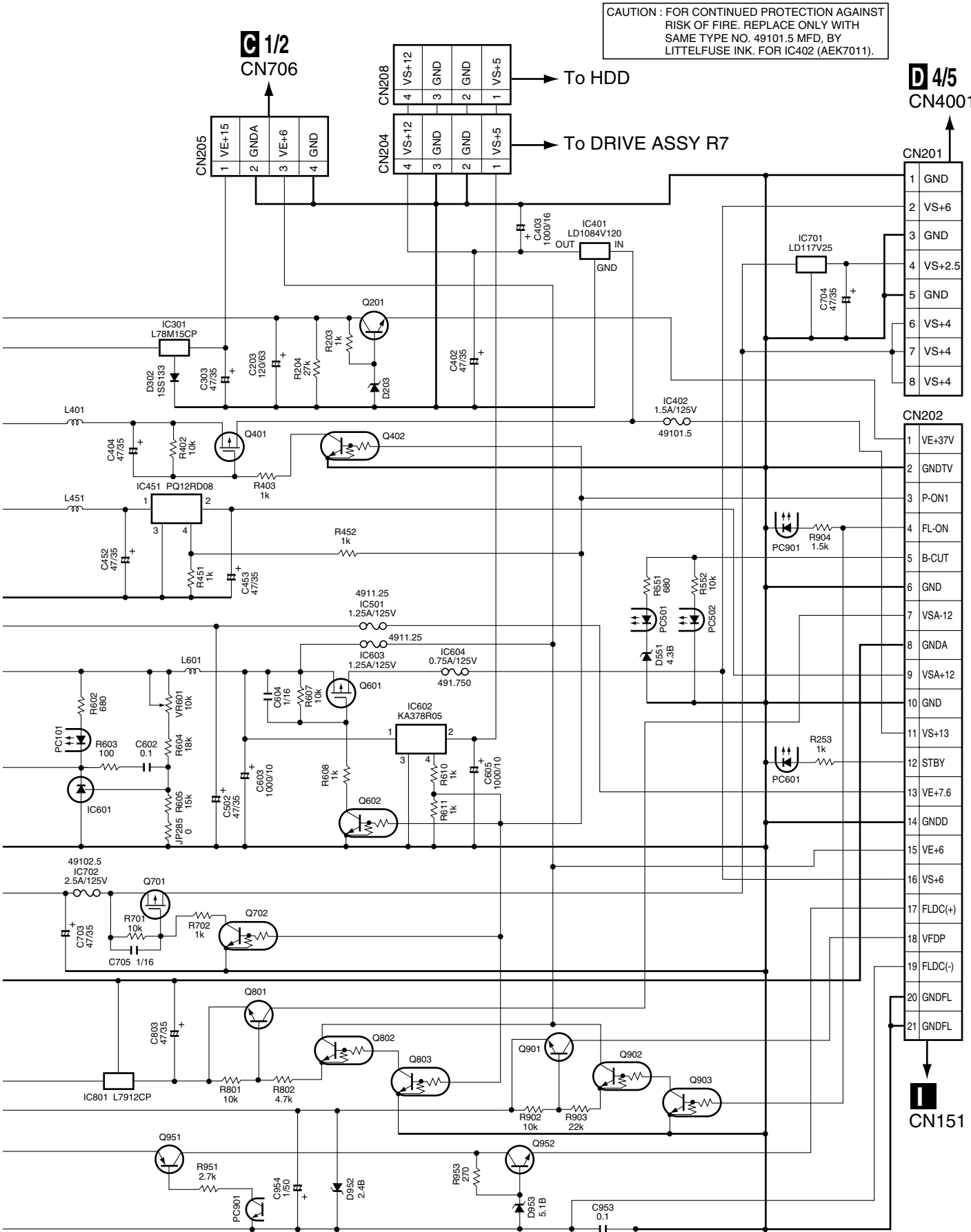


# 3.19 POWER SUPPLY UNIT

## POWER SUPPLY UNIT (AWR7013)



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 49101.5 MFD, BY LITTELFUSE INK. FOR IC402 (AEK7011).



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4911.25 MFD, BY LITTELFUSE INK. FOR IC501, IC603, IC951 (AEK7048).

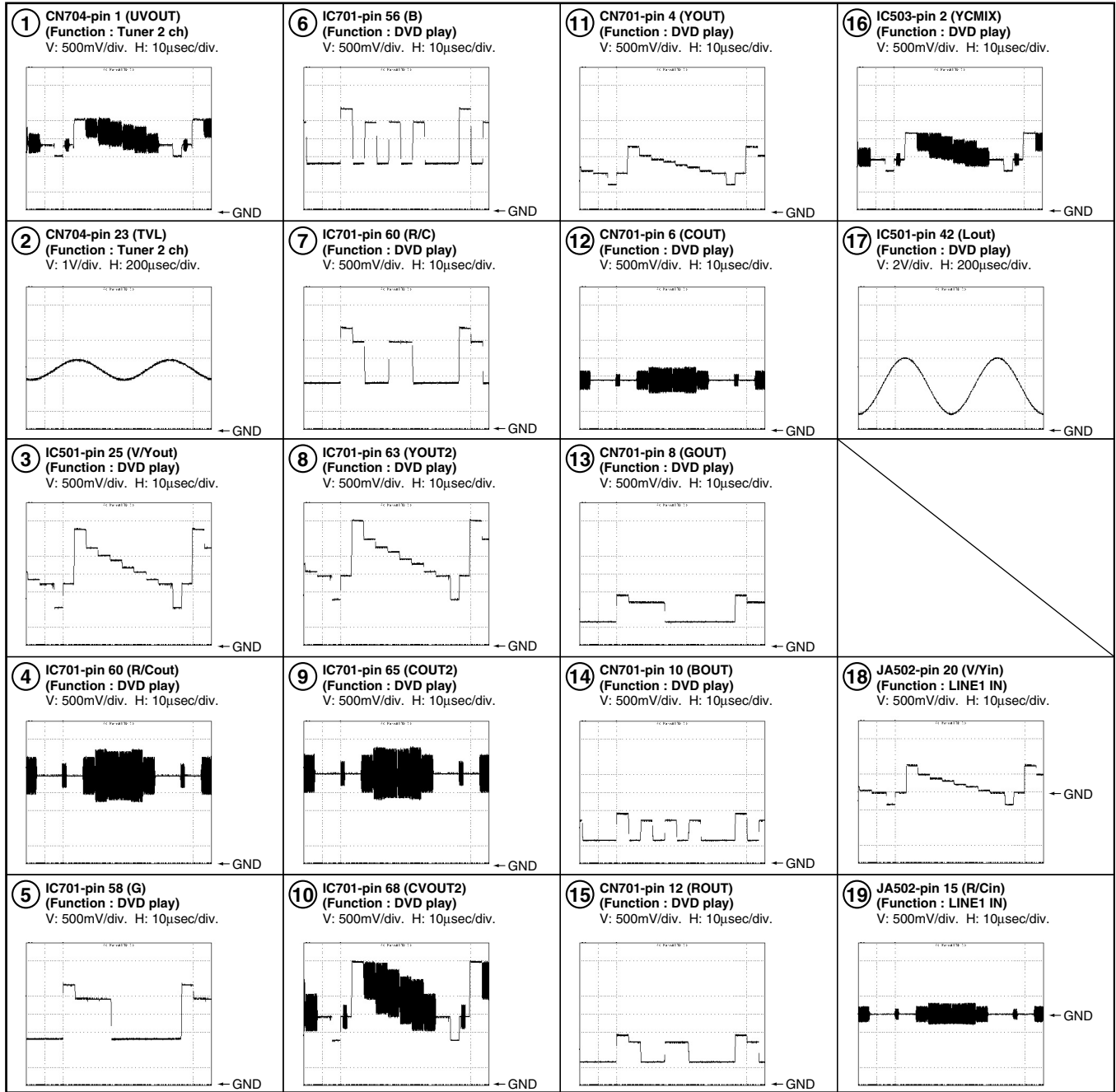
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.750 MFD, BY LITTELFUSE INK. FOR IC604 (AEK7062).

# 3.20 WAVEFORMS

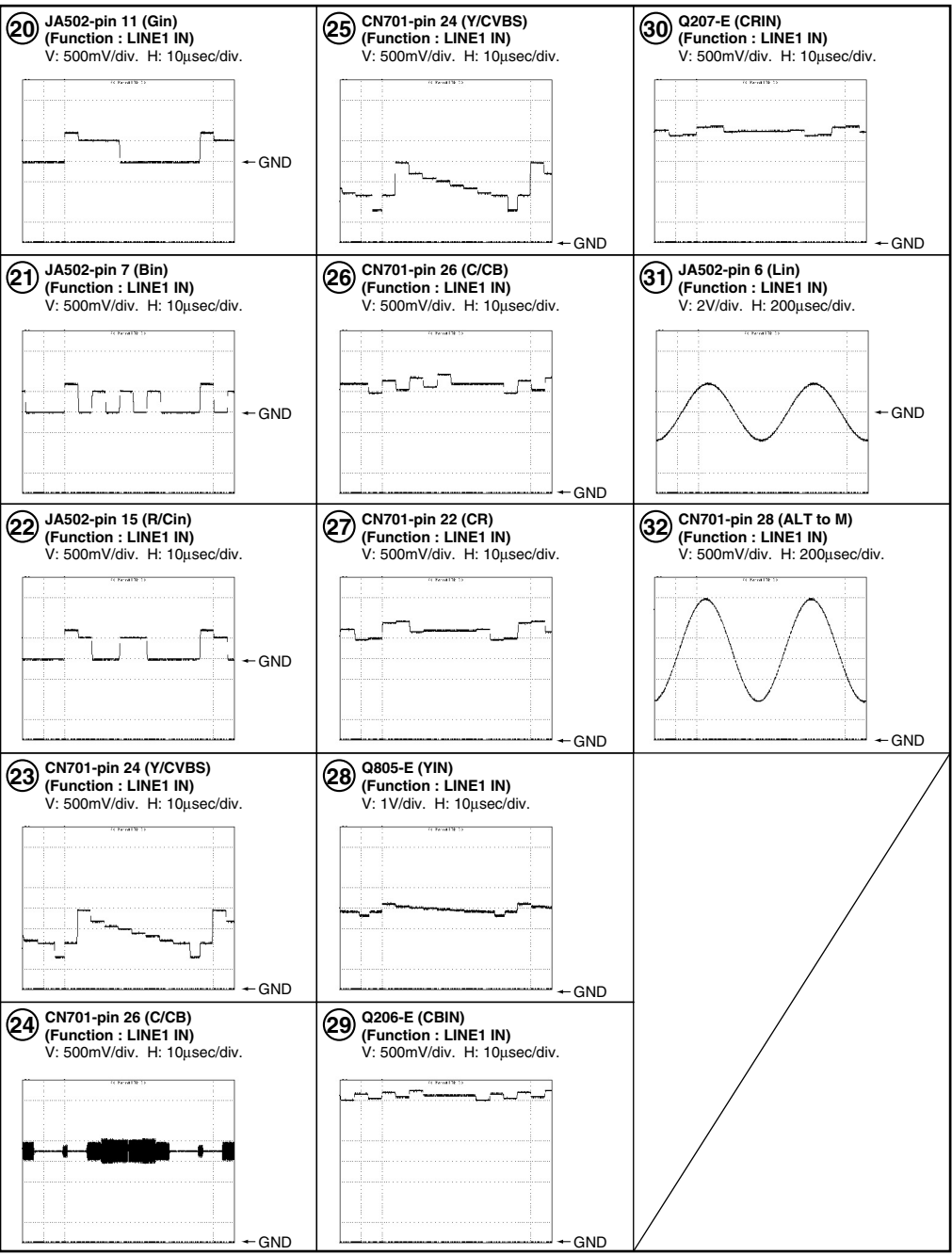
Note : The encircled numbers denote measuring point in the schematic diagram.

## C JACK ASSY

Measurement condition ;  
 No.1, No.18 to No.30 : 75% Color-bar  
 No.3, No.16 : 75% Color-bar, APX disc 1-24  
 No.2, No.31, No.32 : 1kHz, 2Vrms  
 No.17 : 1kHz, 2Vrms, APX disc 1-1



# C JACK ASSY



A  
B  
C  
D  
E  
F

# D MAIN ASSY

Measurement condition ;

No.3 to No.8, No.10 to No.13 : 75% Color-bar, A1 disc 2-20

No.15, No.16 : 75% Color-bar

No.9, No.14 : 1kHz, 2Vrms, A1 disc 2-1

No.17 : 1kHz, 2Vrms

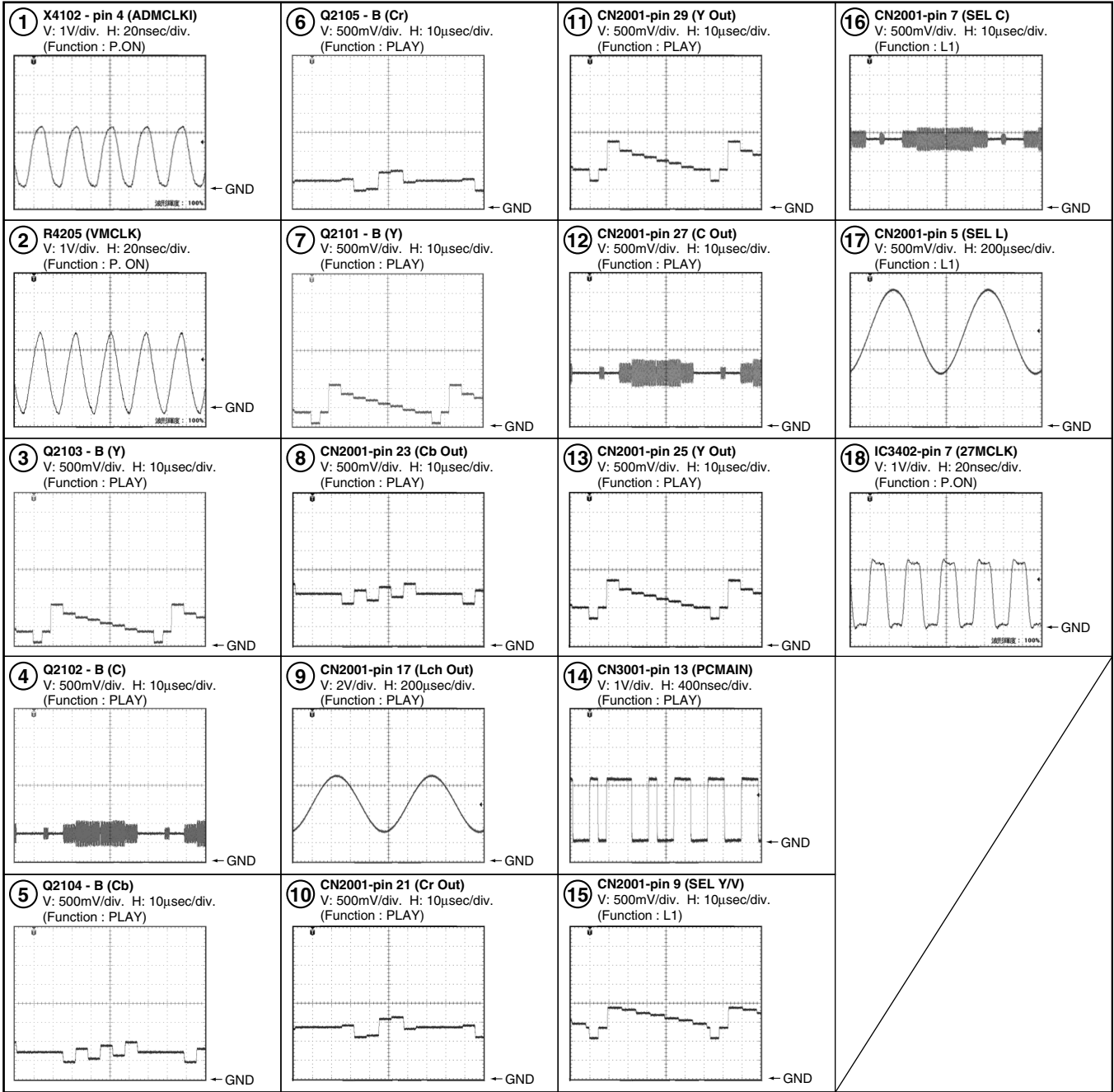
B

C

D

E


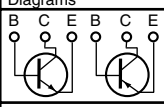

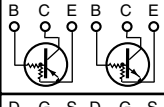

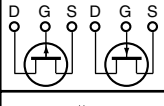

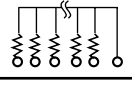


F



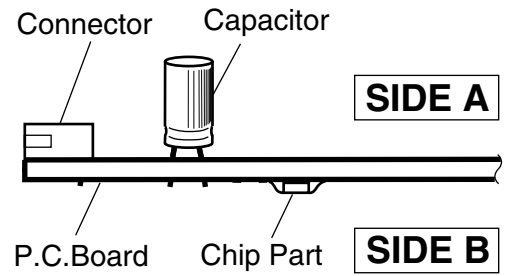
# 4. PCB CONNECTION DIAGRAM

## NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.  
For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



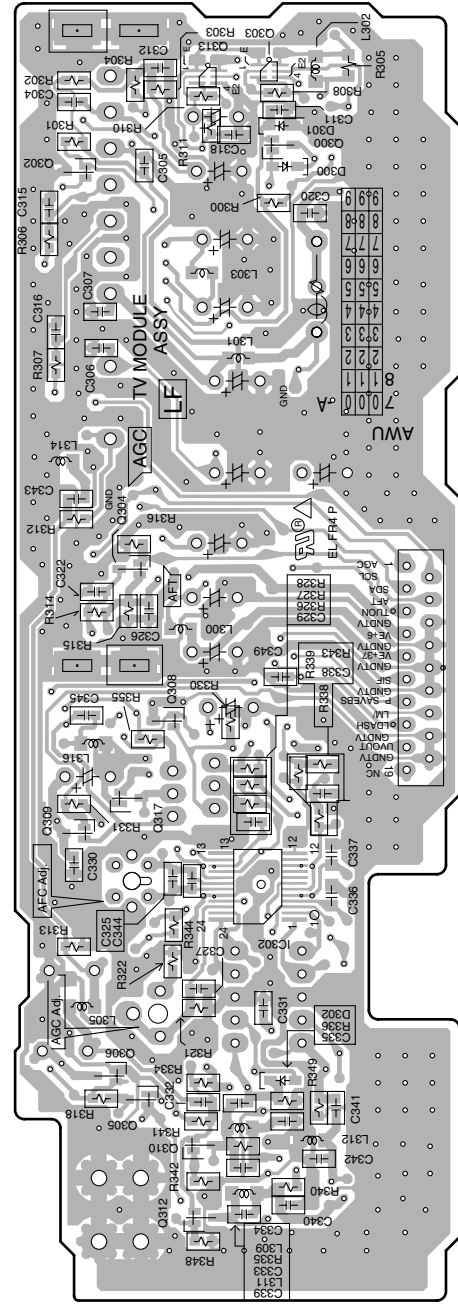
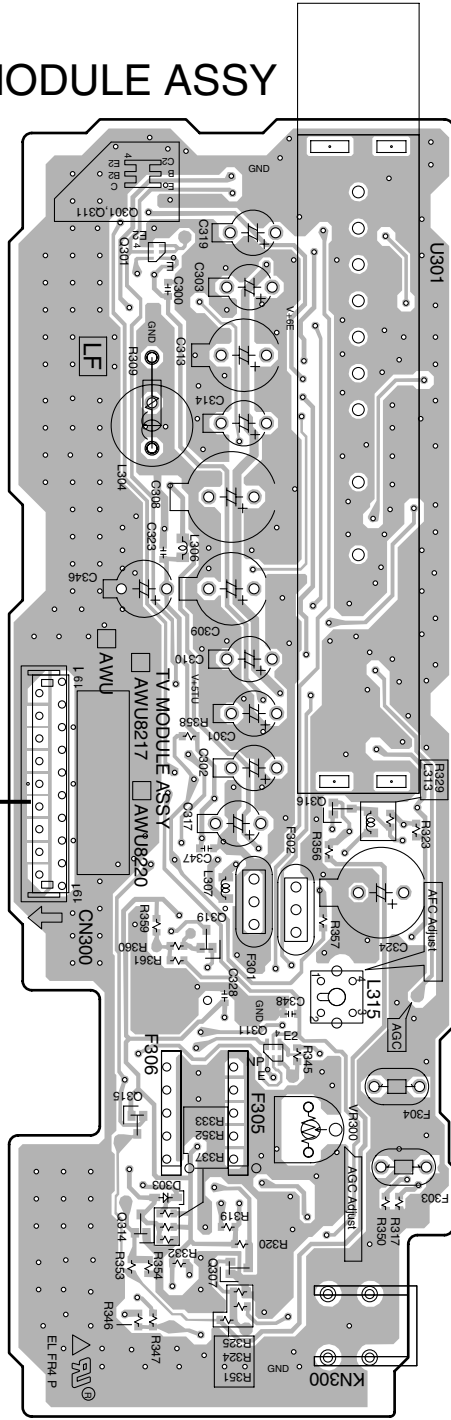
# 4.1 TV MODULE ASSY

**SIDE A**

**SIDE B**

**A** TV MODULE ASSY

**A** TV MODULE ASSY



Q300  
Q316  
Q311  
Q319  
Q314  
Q315  
Q30D

Q300  
IC302  
Q303  
Q313  
Q308  
Q310  
Q317  
Q306  
Q305  
Q304  
Q302  
Q309



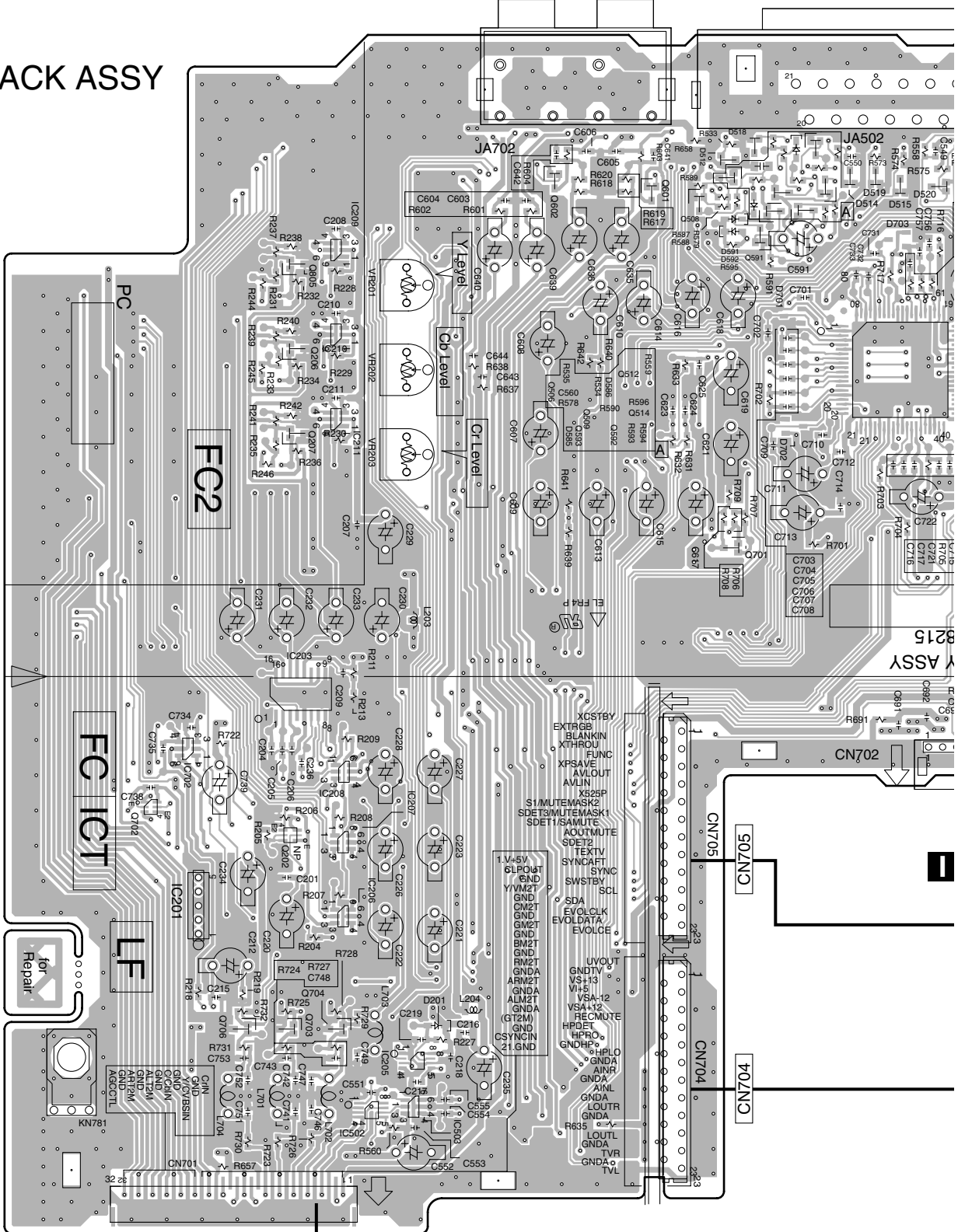


# 4.3 JACK and TRADE ASSYS

**SIDE A**

**C** JACK ASSY

- IC504
- Q601
- Q602
- Q513
- IC209
- Q510
- Q508
- Q511
- Q591
- Q805
- IC701
- Q515
- Q206
- IC210
- Q506
- Q512
- Q502
- Q509
- Q501
- Q593
- Q592
- Q514
- Q207
- IC211
- Q785
- IC202
- Q784
- Q783
- IC651
- Q701
- Q505
- Q504
- Q782
- Q503
- IC203
- Q781
- IC702
- IC207
- IC208
- Q702
- Q202
- IC206
- IC201
- Q704
- Q703
- Q706
- IC205
- IC503
- IC502

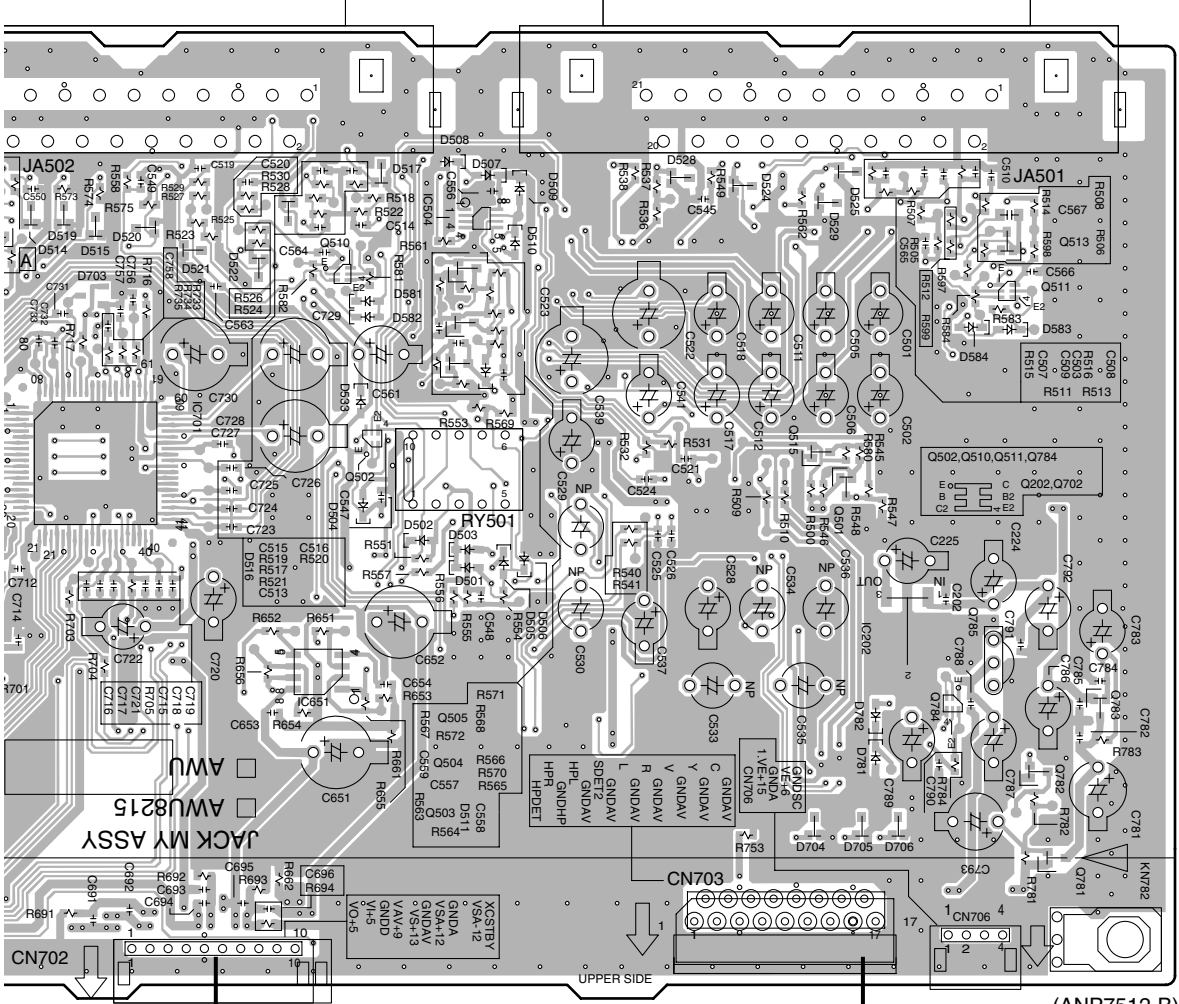


**D** CN2001

XV-DVR9H

**SIDE A**

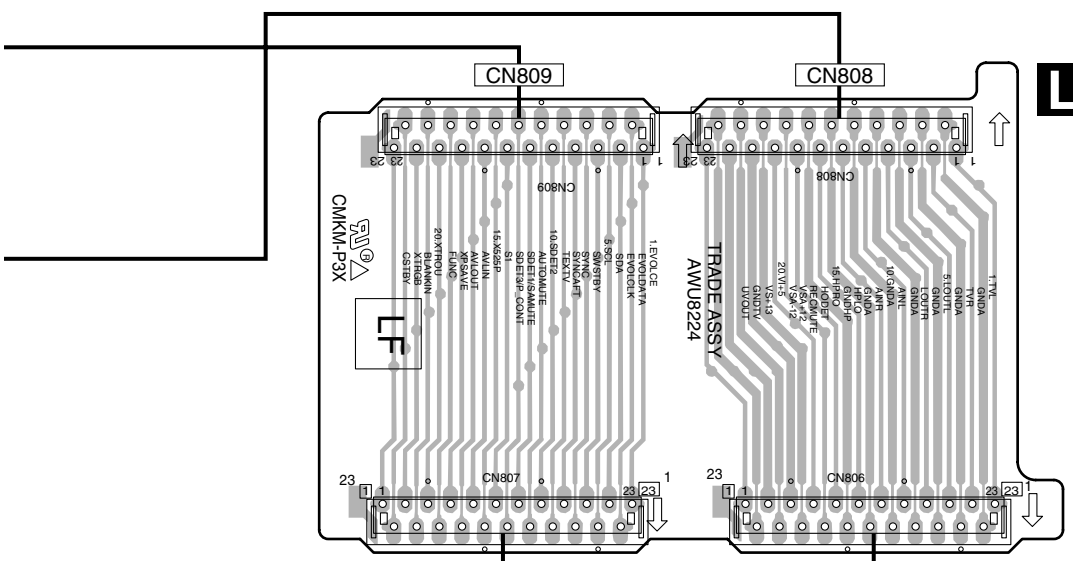
A  
B  
C  
D  
E  
F



(ANP7512-B)

**I** CN153

**M** CN5201



**L** TRADE ASSY

(ANP7514-B)

**G** CN804

**G** CN803

XV-DVR9H

**C L**

**SIDE B**

**C JACK ASSY**

A

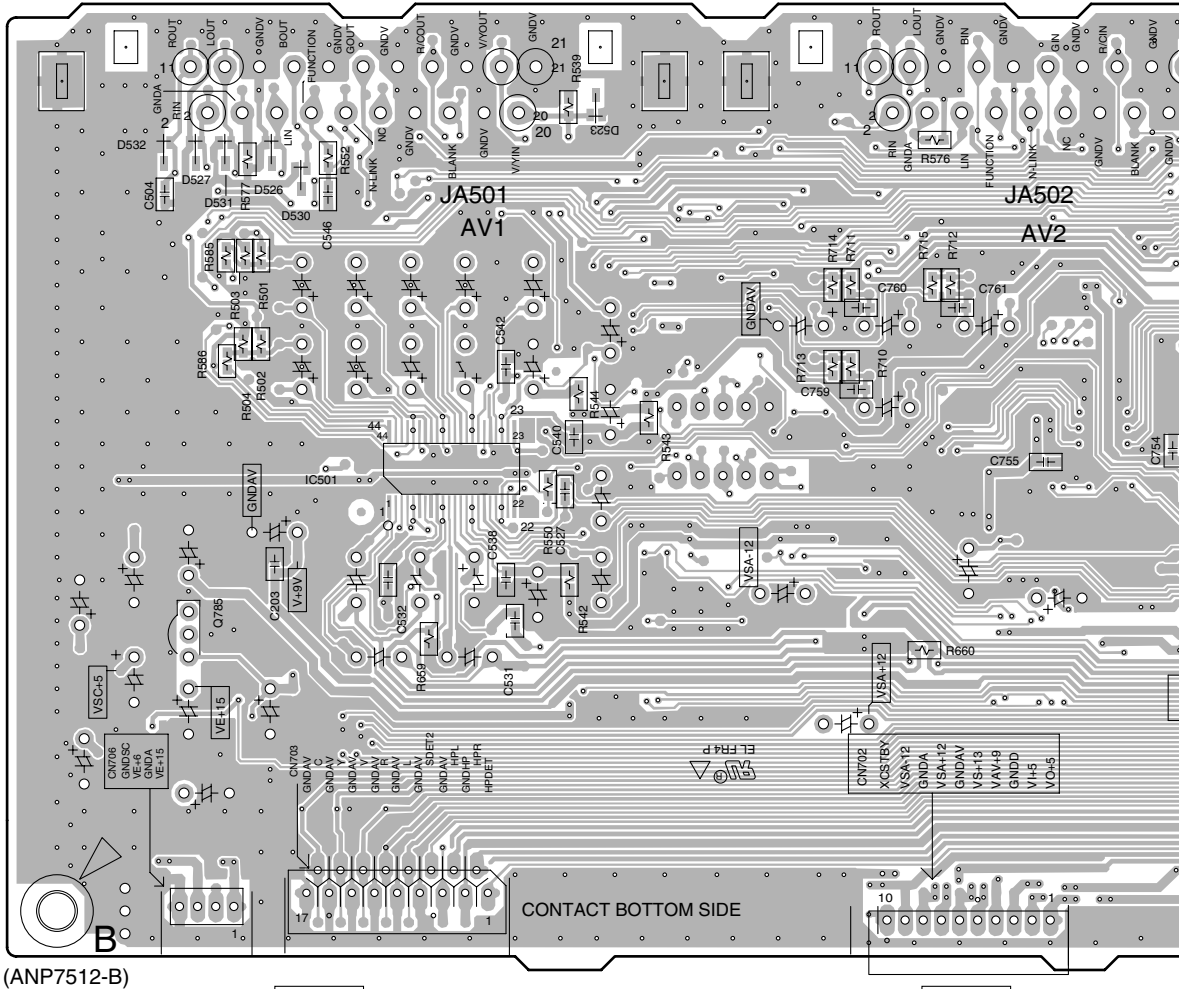
B

C

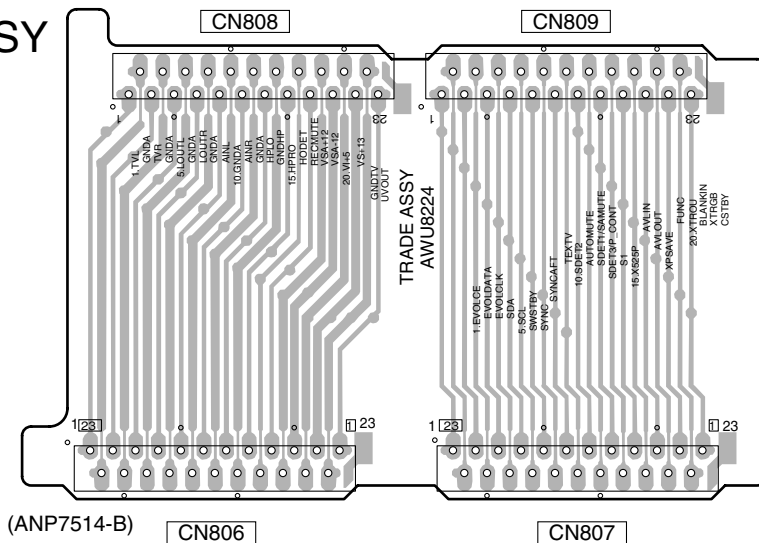
D

E

F

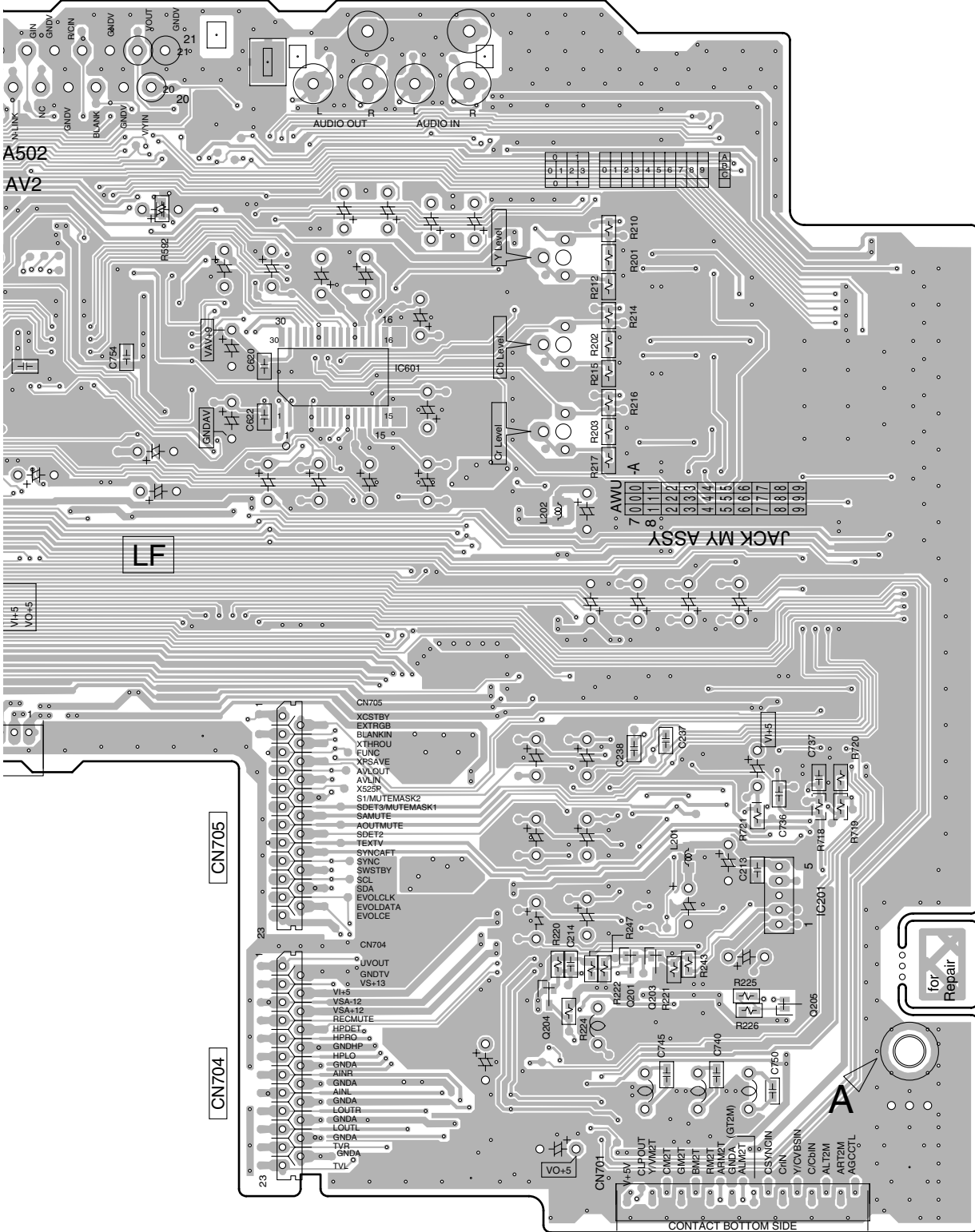


**L TRADE ASSY**



**SIDE B**

A  
B  
C  
D  
E  
F



IC601  
IC501

Q201  
Q203  
Q205  
Q204

CN701



# 4.4 MAIN ASSY

**SIDE A**

**D** MAIN ASSY

**J**

CN5001

CN5102

A

B

B

C

C

D

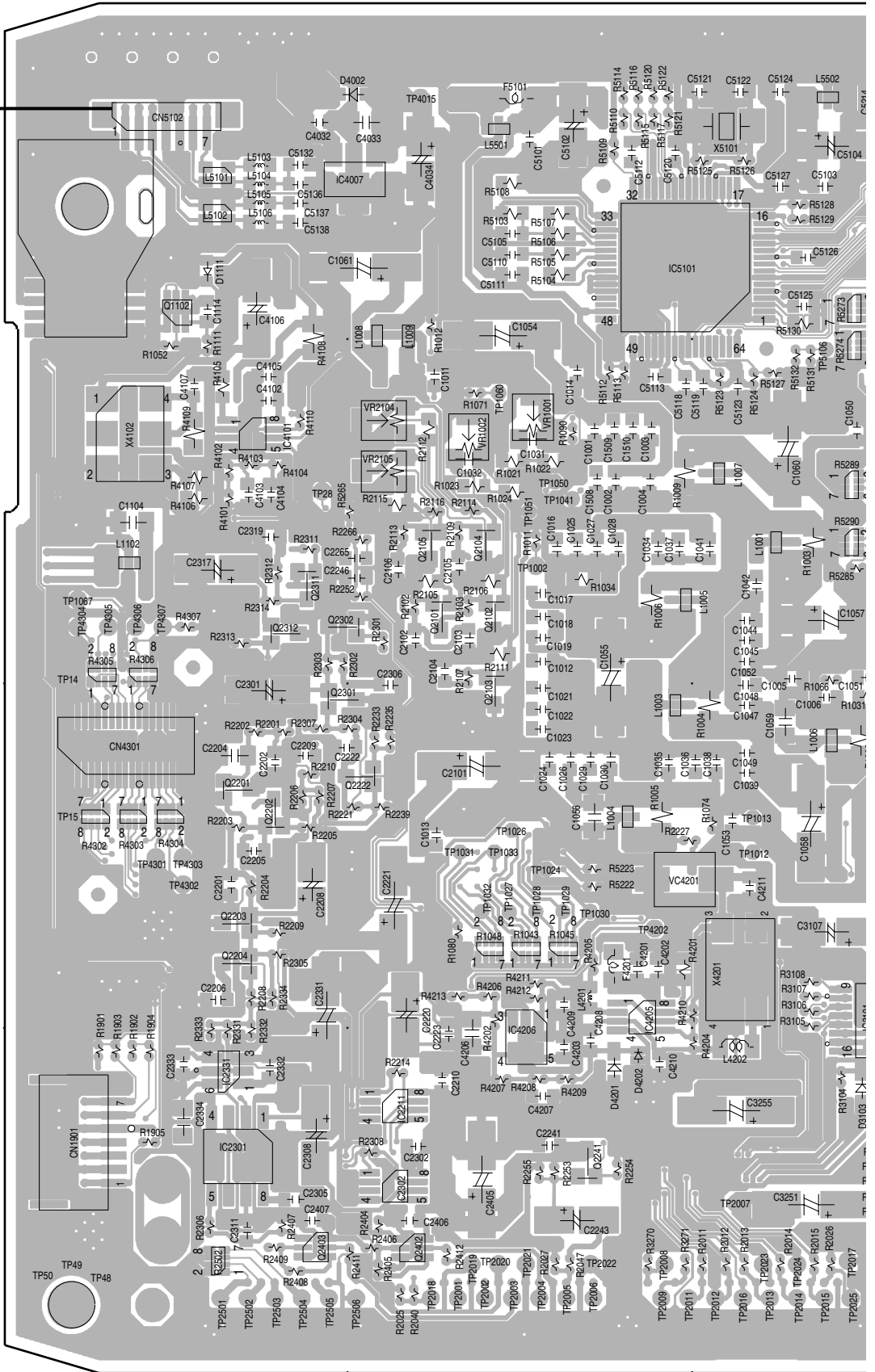
D

E

E

F

F



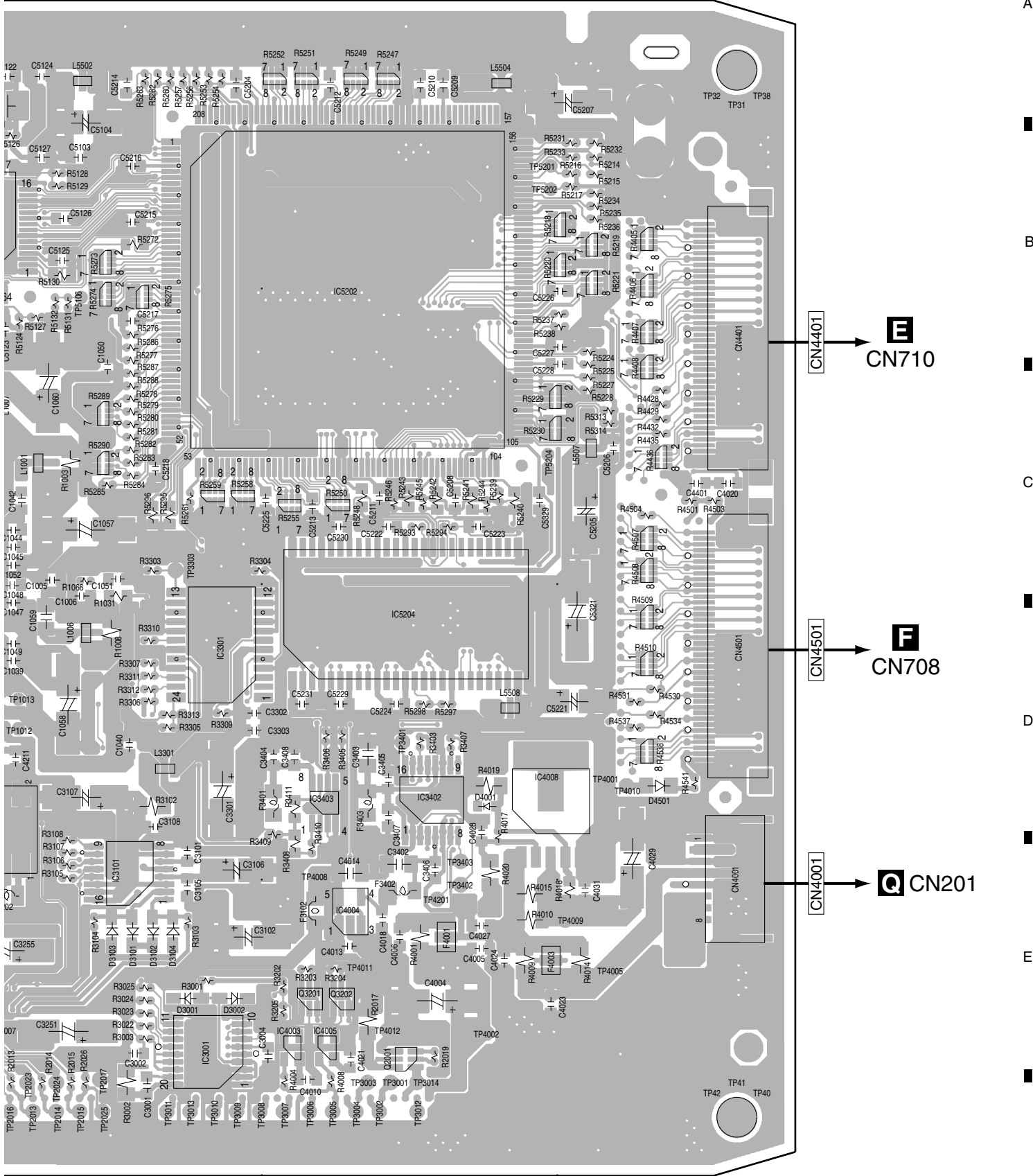
1

2

3

4

This PCB is six layer structure.



(VNP1960-C)



SIDE B

D MAIN ASSY

A

B

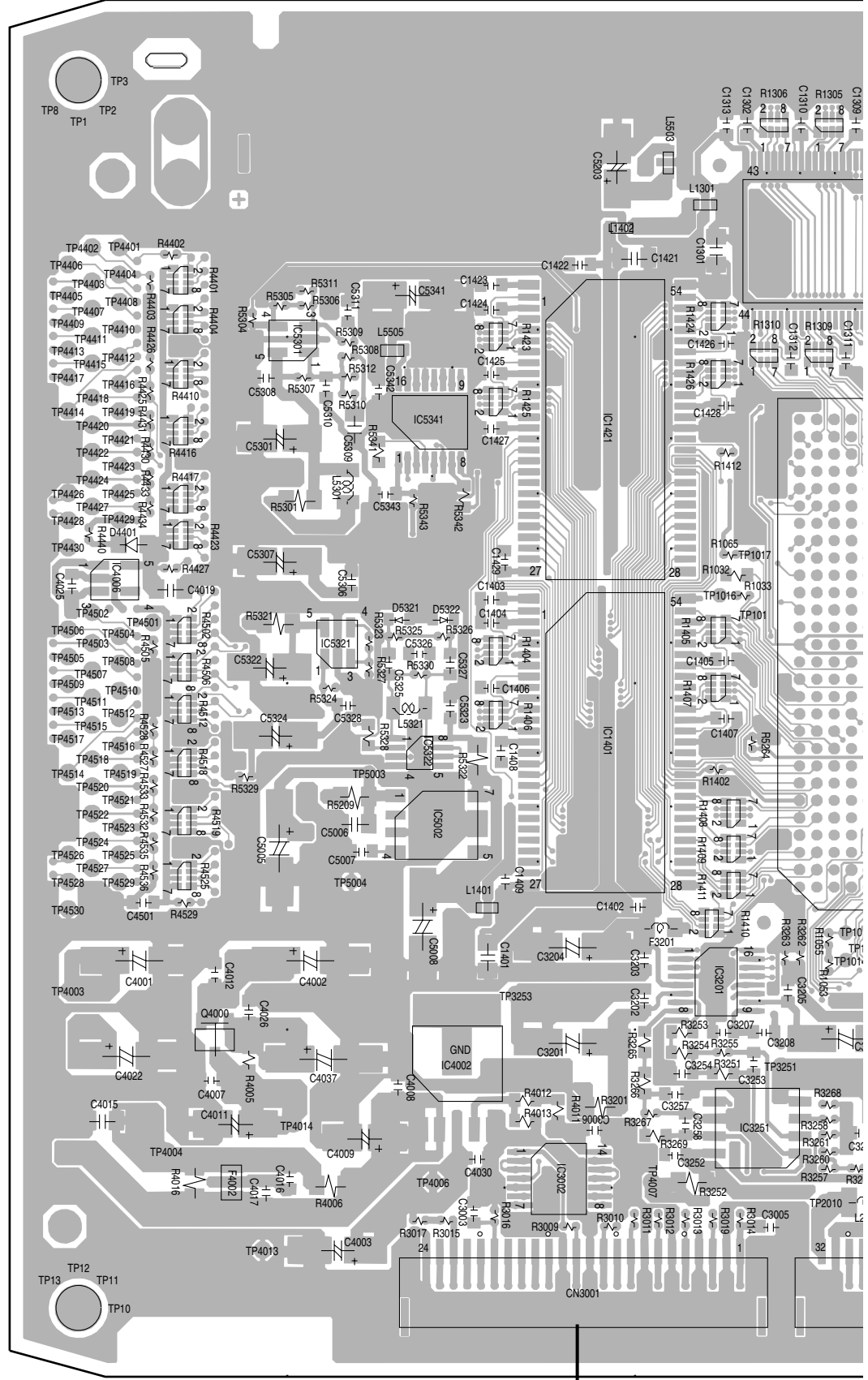
C

D

E

F

- IC1103
- IC1104
- IC1301
- IC5301
- IC5341
- IC1421
- IC1102
- IC4006
- IC5321
- IC1001
- IC5322
- IC1401
- IC5002
- IC1101
- IC3201
- Q4000
- IC4002
- IC1201
- IC2501
- IC3251
- IC3002



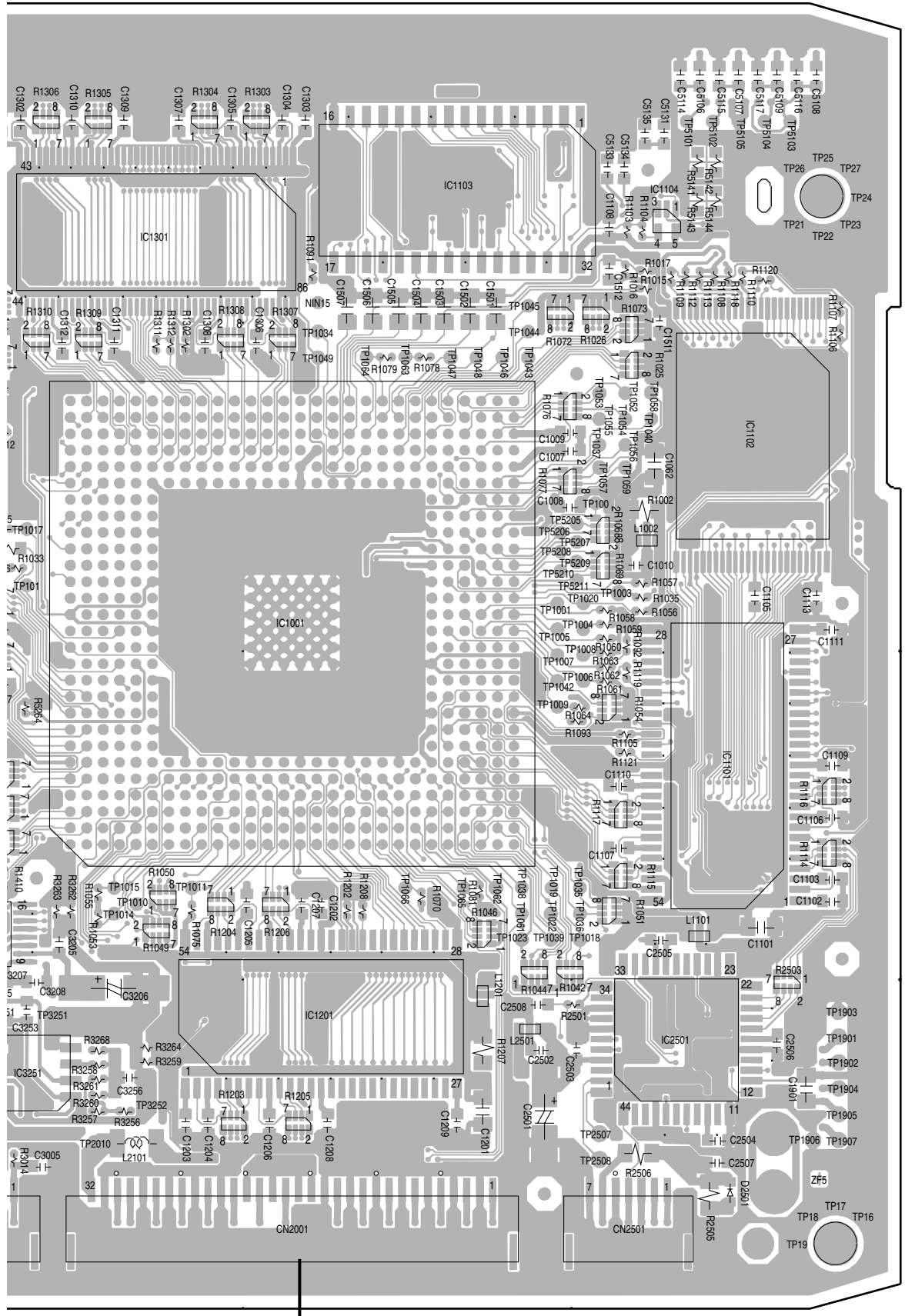
CN3001

G CN801



**SIDE B**

This PCB is six layer structure.



**CN2001**

(VNP1960-C)

**C** CN701

XV-DVR9H

**D**

# 4.5 CONTROL ASSY

**SIDE A**

## CONTROL ASSY

Fan Motor

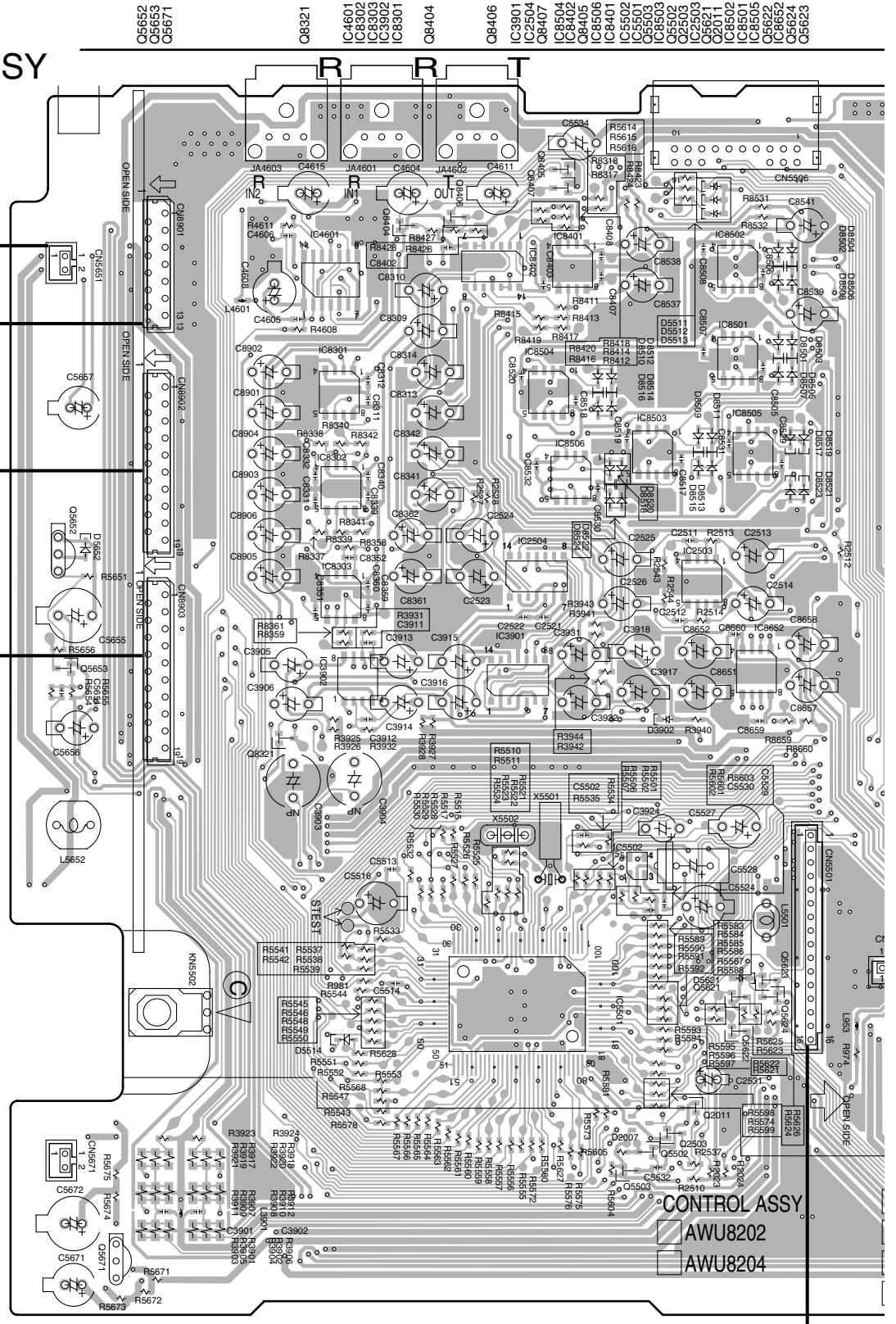
**H** CN8003

**H** CN8007

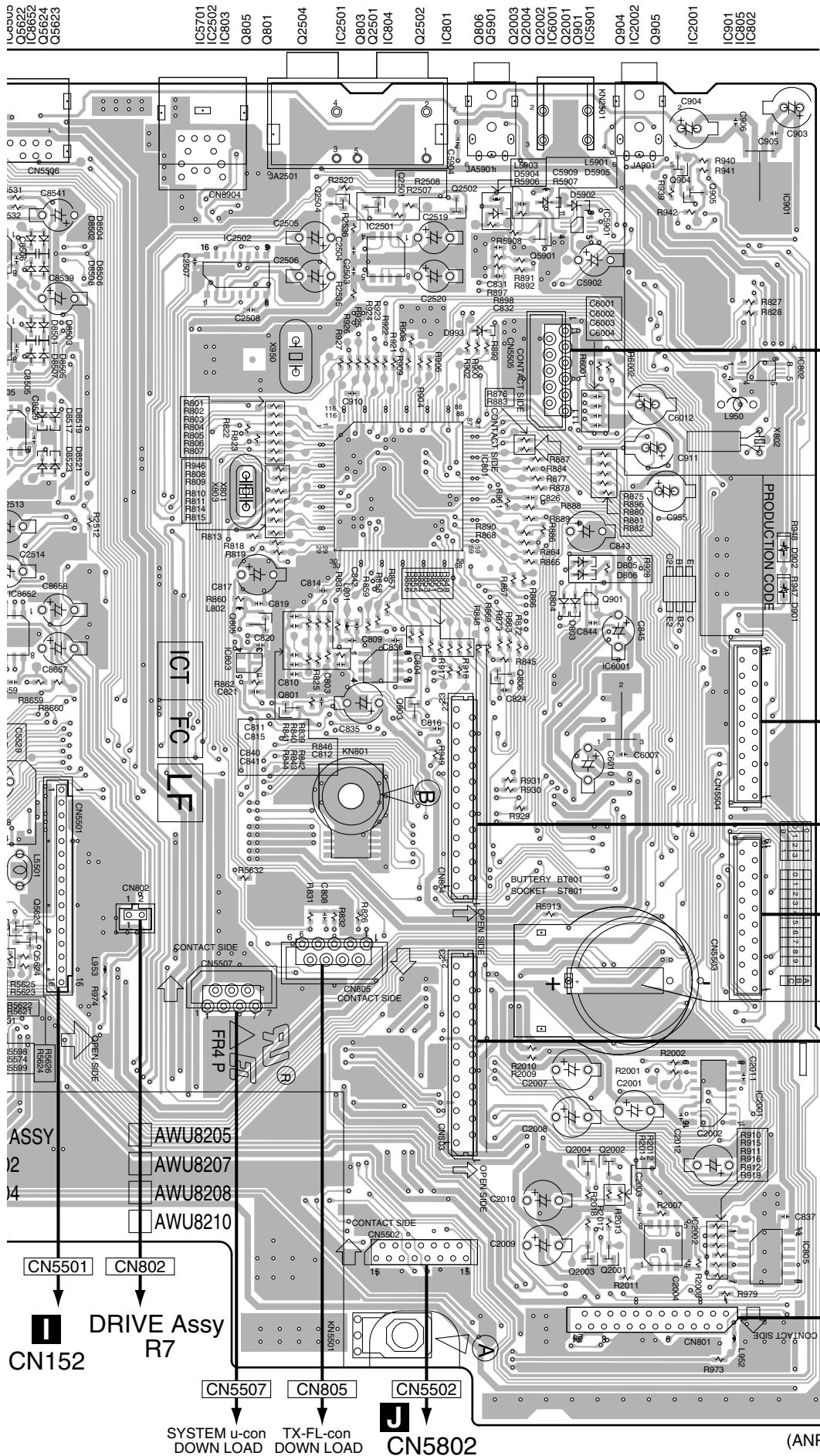
**H** CN8011

CONTROL ASSY  
AWU8202  
AWU8204

CN5501  
**I** DRI  
CN152



SIDE A



→ CN5505 → FM/AM TUNER Unit

→ CN5504 → **B** CN471

→ CN804 → **L** CN807

→ CN5503 → **B** CN361

→ CN803 → **L** CN806

⚠ Lithium Battery

→ CN801 → **D** CN3001

AWU8205  
AWU8207  
AWU8208  
AWU8210

→ CN5501 → **L** DRIVE Assy R7  
→ CN802

→ CN5507 → SYSTEM u-con DOWN LOAD  
→ CN805 → TX-FL-con DOWN LOAD  
→ CN5502 → **J** CN5802

(ANP7510-C)

XV-DVR9H



SIDE B

# G CONTROL ASSY

Q803  
Q802  
Q802

Q2010  
Q851  
Q8001  
Q2009

IC950

Q811

Q807

Q804  
Q802

Q8501  
CN804

A

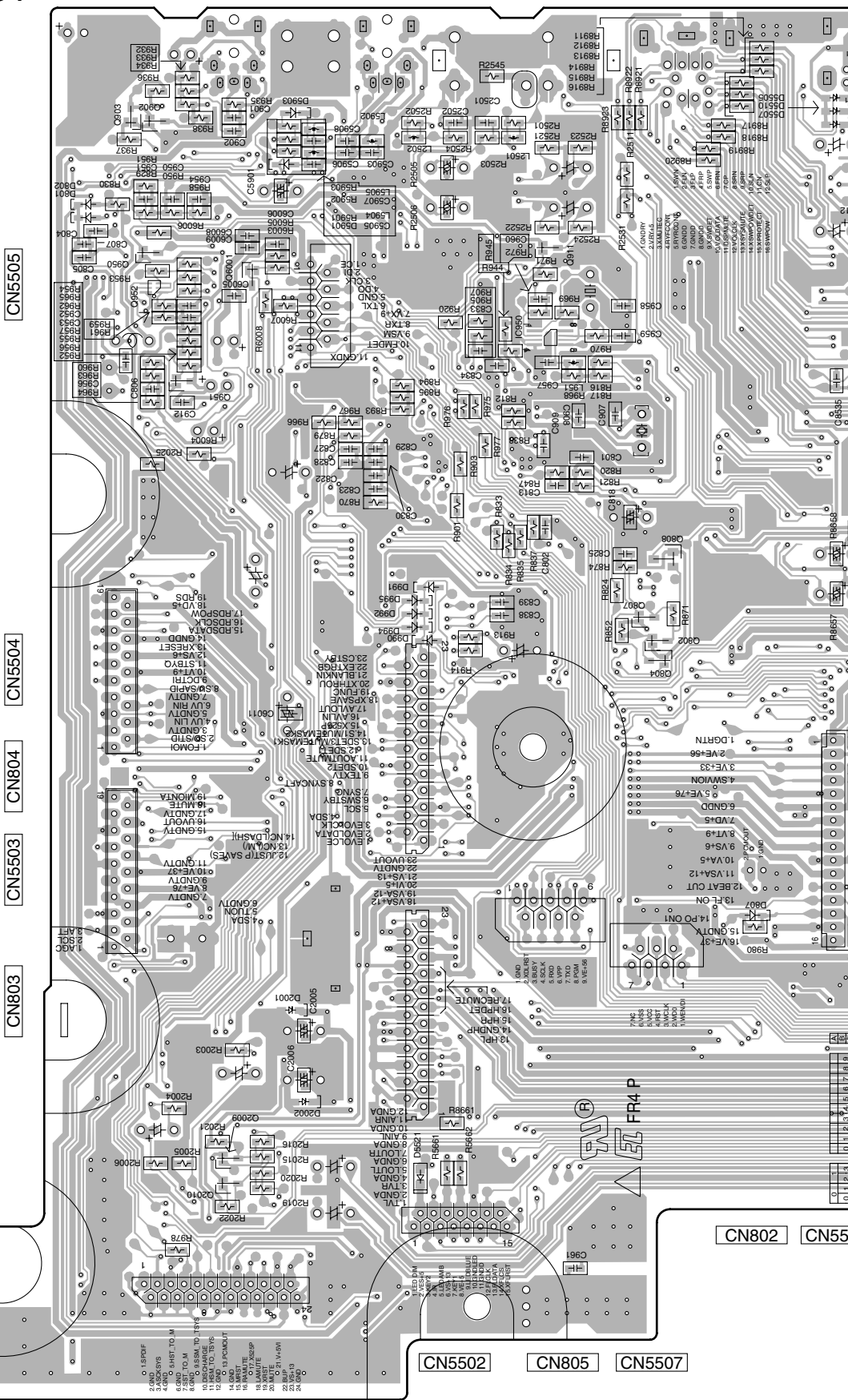
B

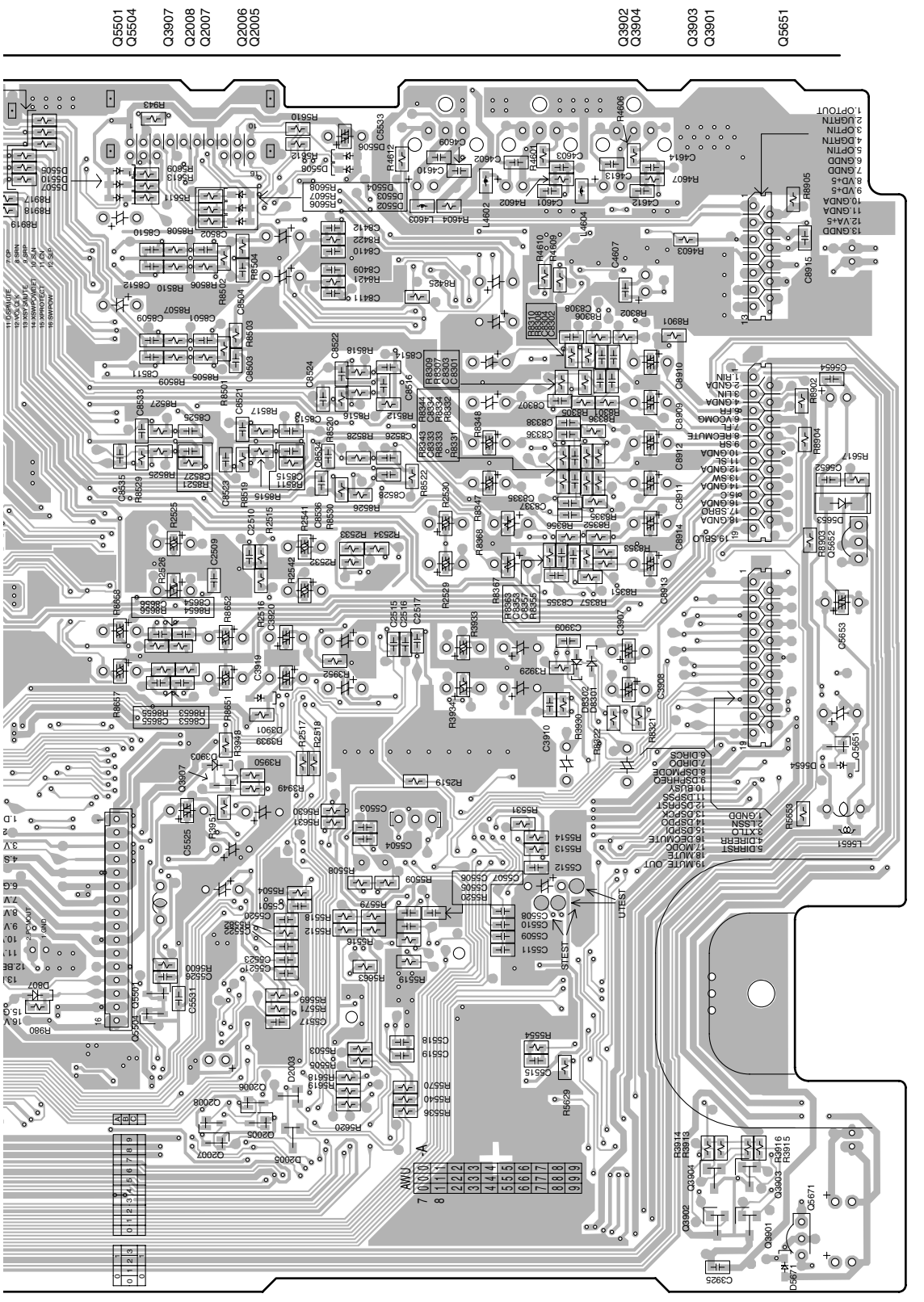
C

D

E

F





CN8901 CN5651

CN8902

CN8903

(ANP7510-C)

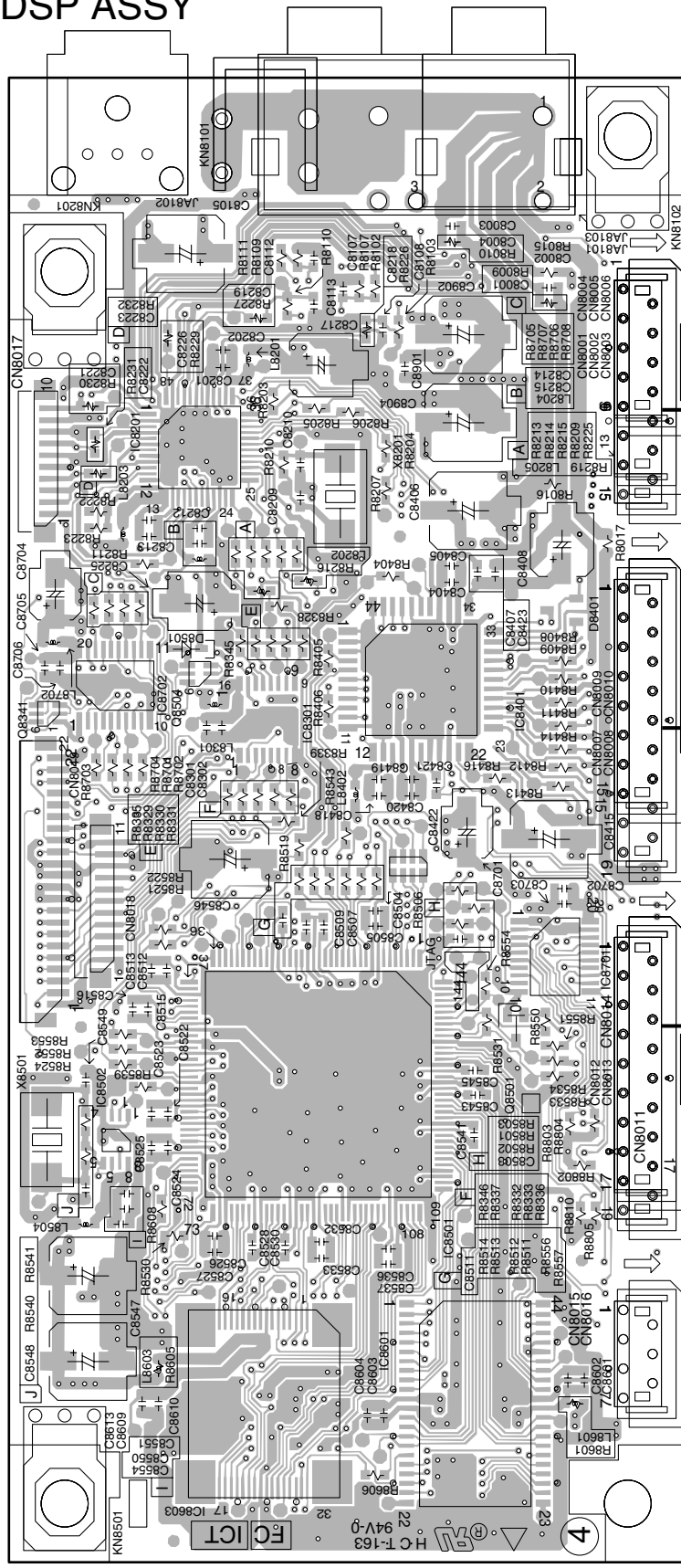
A B C D E F

4.6 DSP ASSY

SIDE A

DSP ASSY

SIDE A



→ CN8003  
G CN8901

→ CN8007  
G CN8902

→ CN8011  
G CN8903

(ANP2022-B)

Q8341

IC8502

IC8201

Q8702

IC8603

IC8301

IC8601

IC8501

Q8501

IC8401

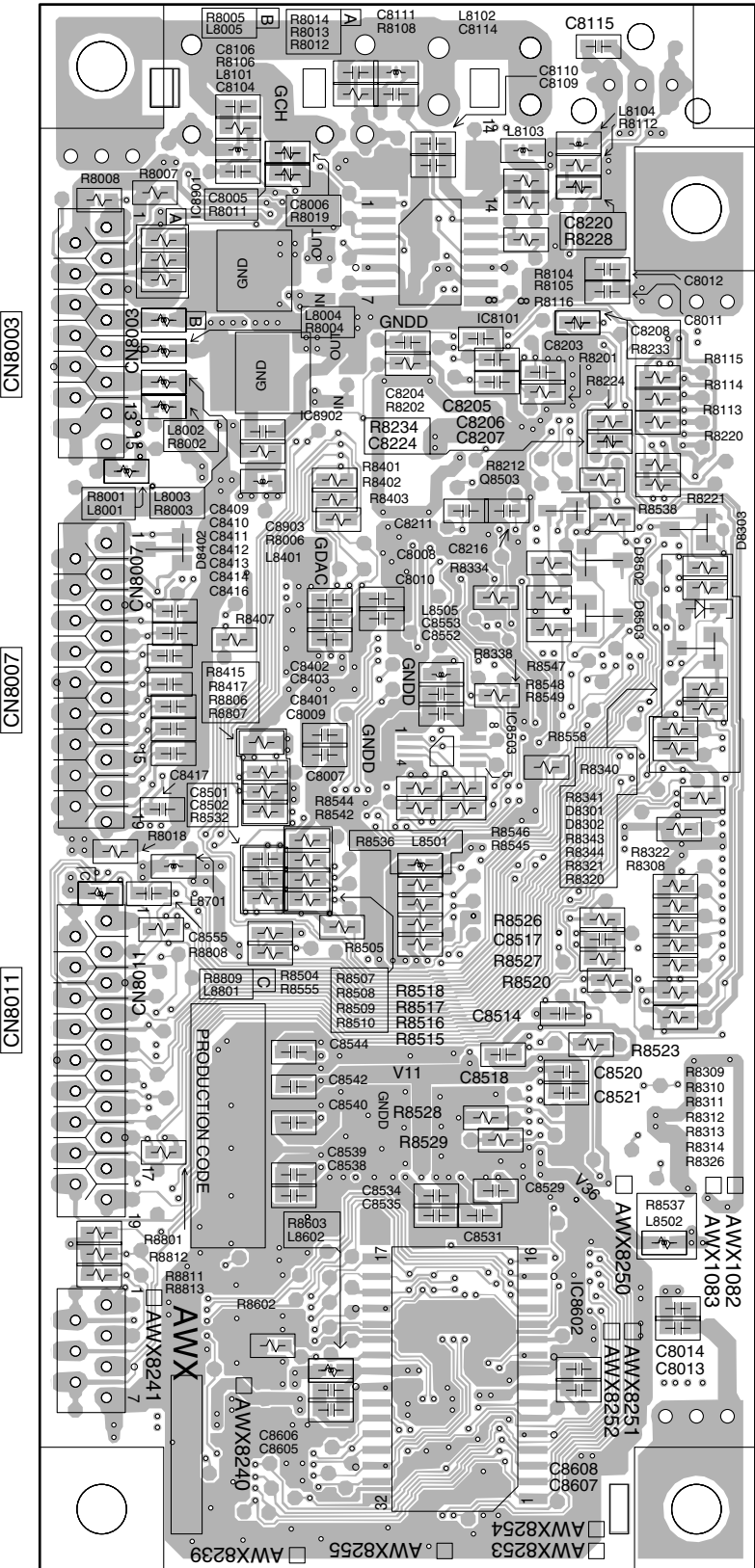
IC8701

XV-DVR9H

SIDE B

SIDE B

# DSP ASSY



(ANP2022-B)



XV-DVR9H





# 4.8 DISPLAY and LED ASSYS

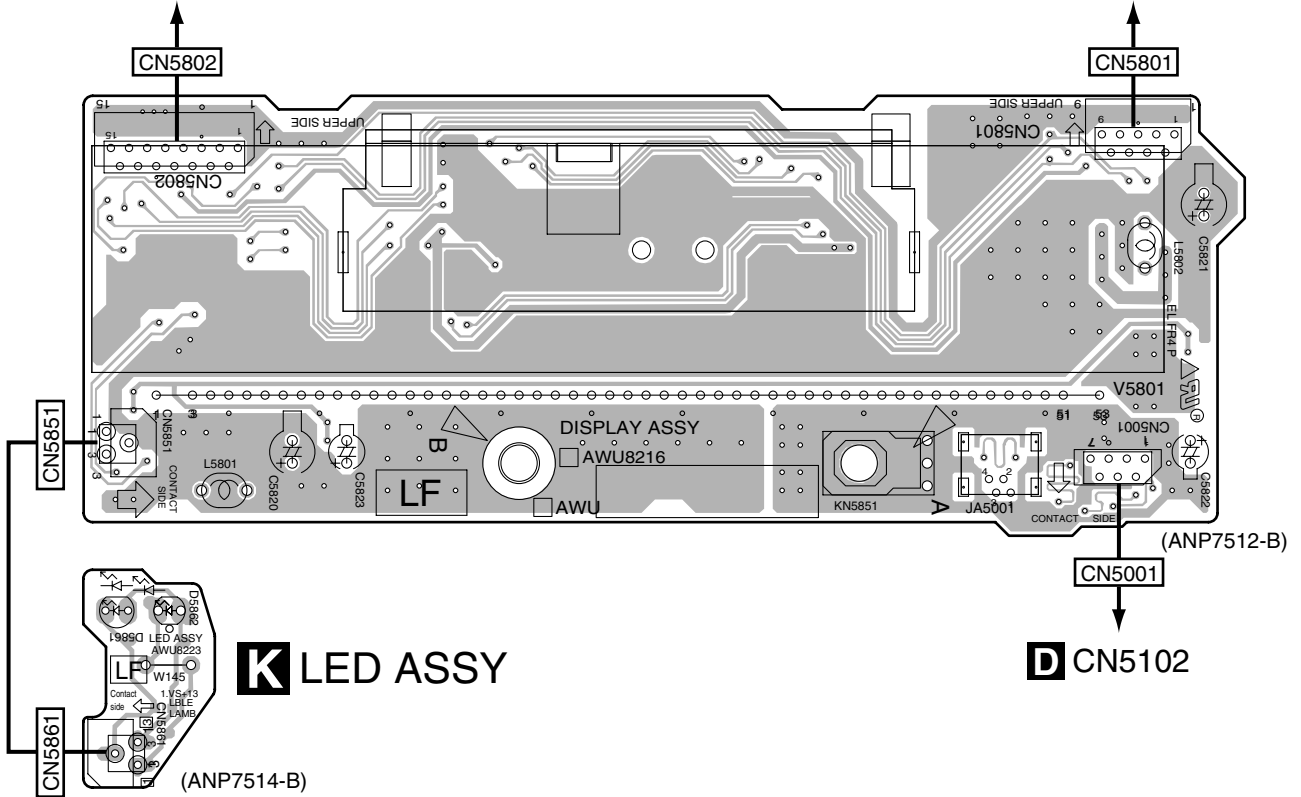
**SIDE A**

**SIDE A**

## **J** DISPLAY ASSY

**J** CN5502

**P** CN5101

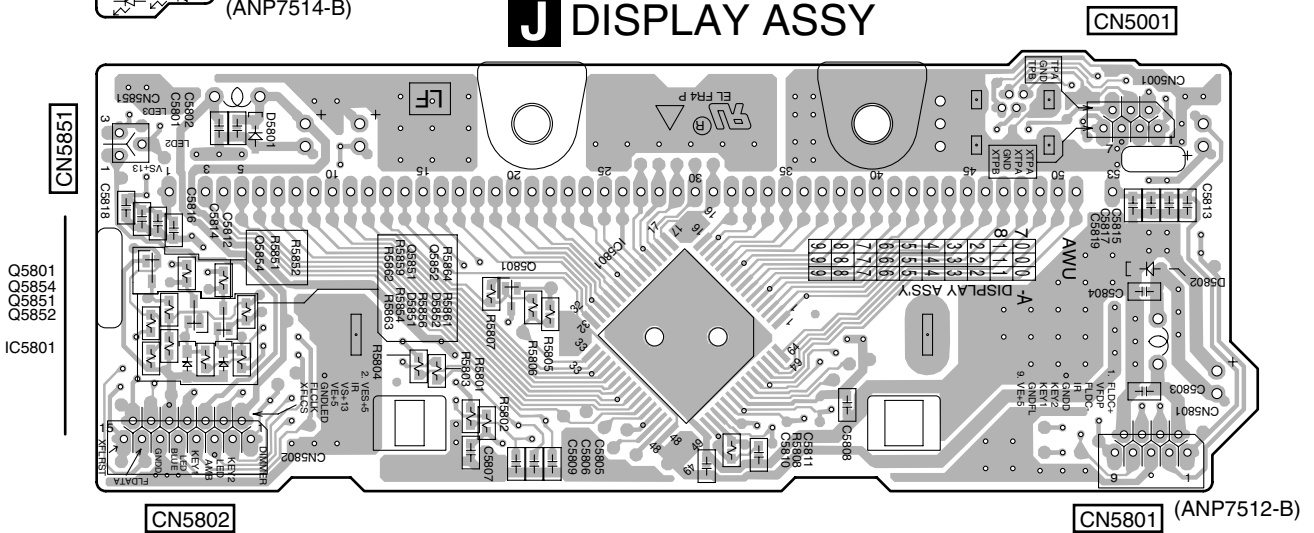
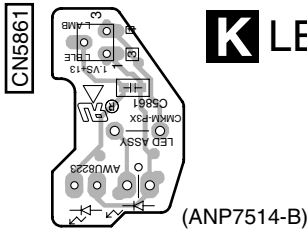


**SIDE B**

**SIDE B**

## **K** LED ASSY

## **J** DISPLAY ASSY



**J K**

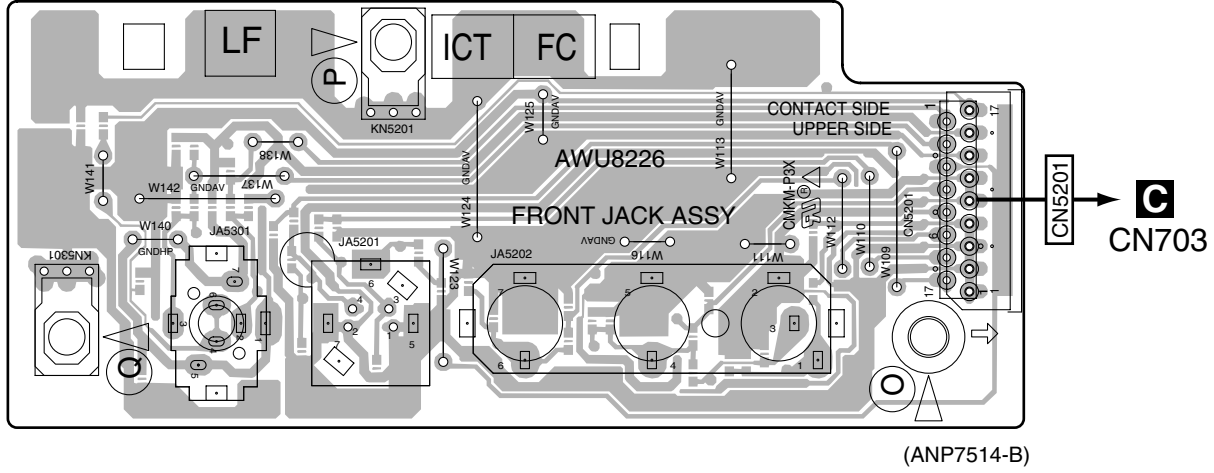
**J K**

# 4.9 FRONT JACK ASSY

**SIDE A**

**SIDE A**

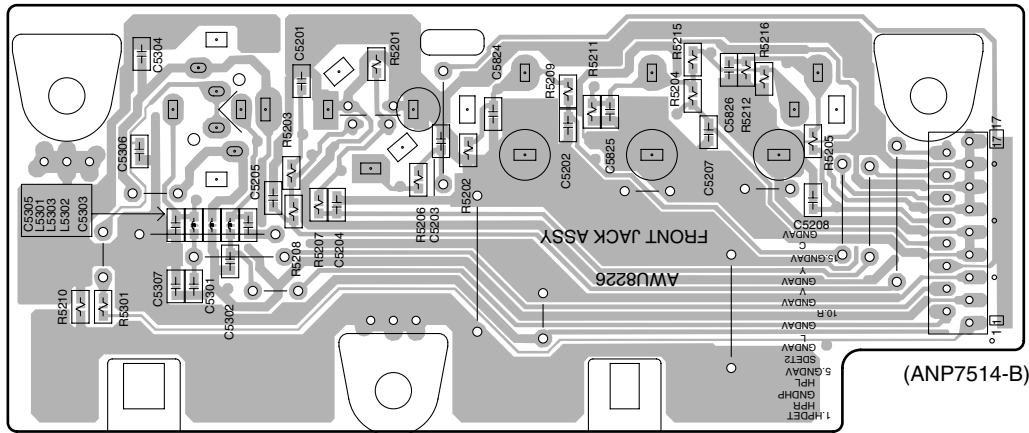
## M FRONT JACK ASSY



**SIDE B**

**SIDE B**

## M FRONT JACK ASSY

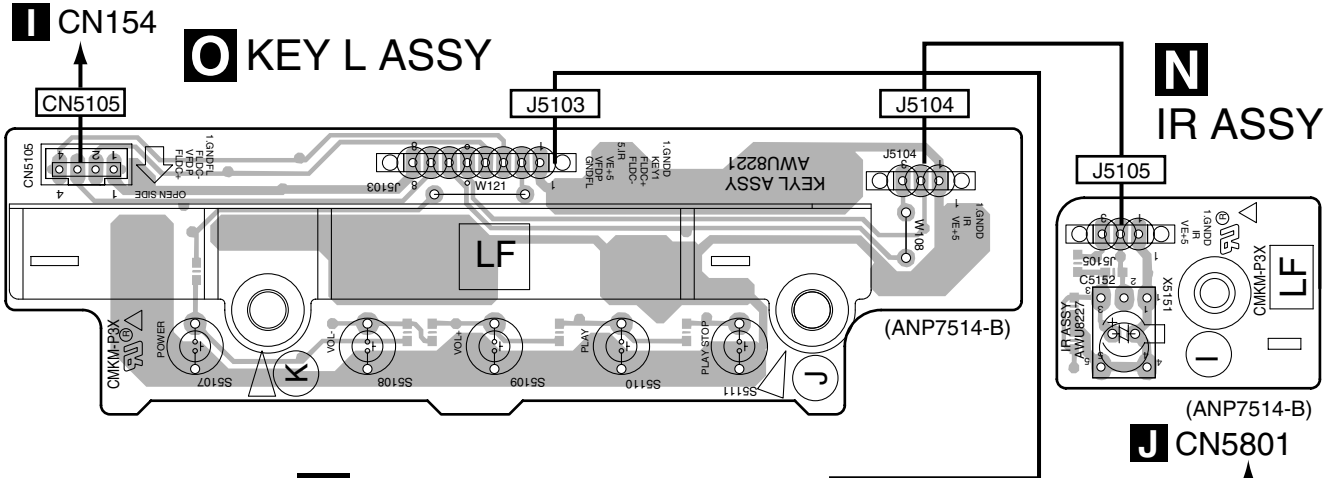


**M**

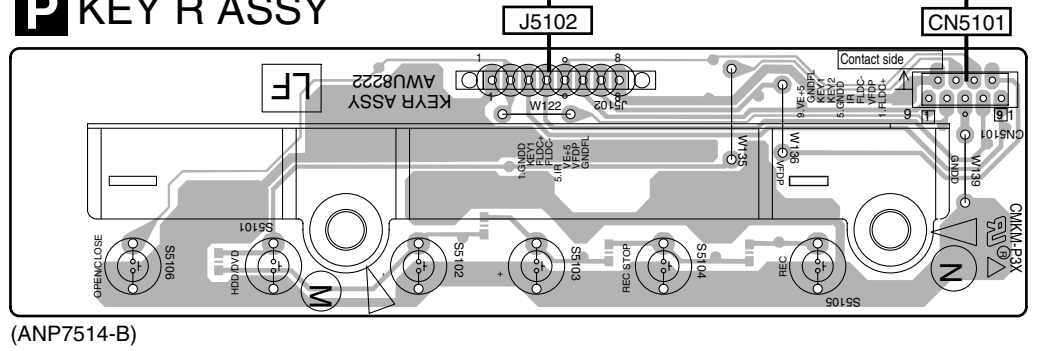
**M**

# 4.10 IR, KEY L and KEY R ASSYS

**SIDE A**

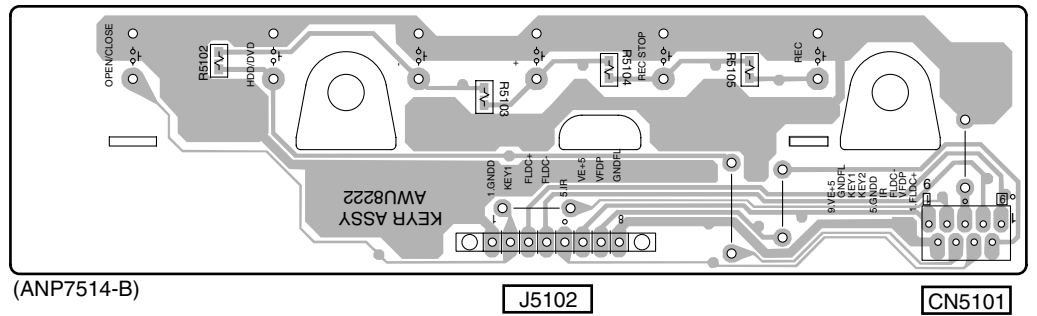


**P** KEY R ASSY

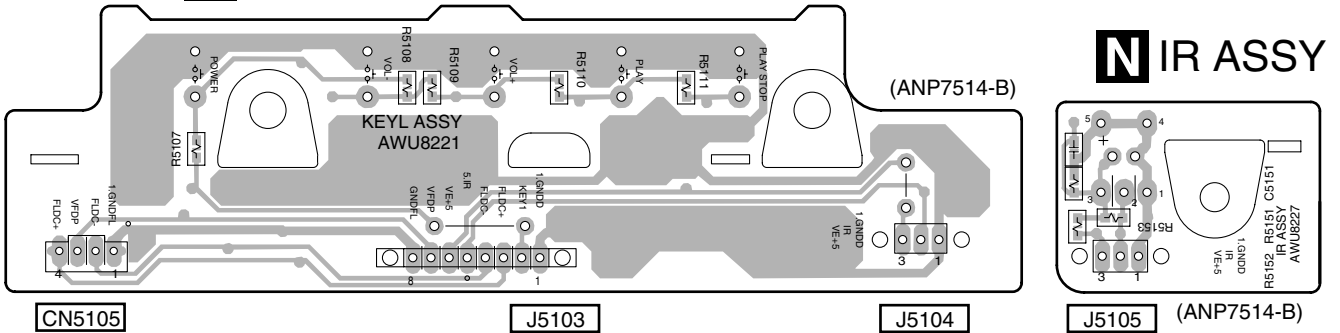


**SIDE B**

**P** KEY R ASSY



**O** KEY L ASSY



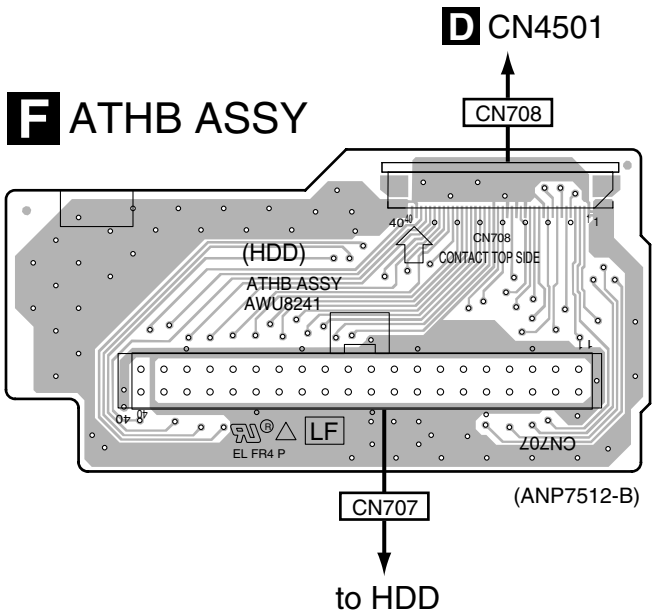
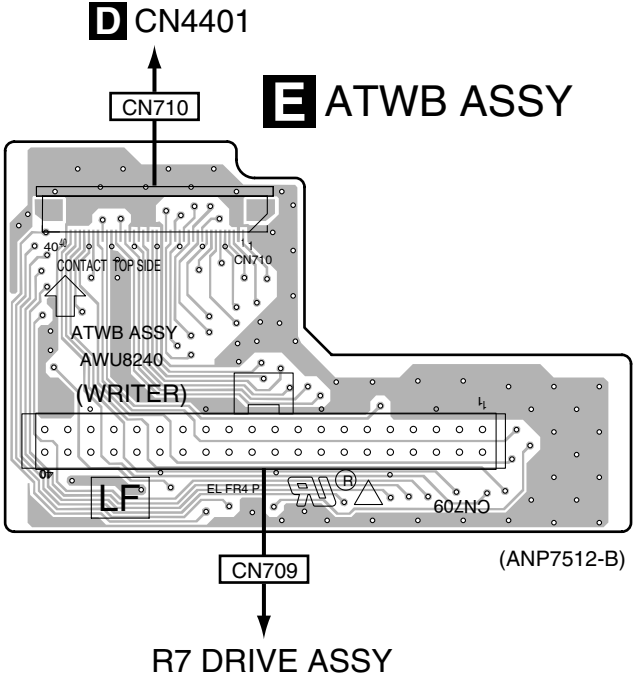
**N O P**

**N O P**

# 4.11 ATWB and ATHB ASSYS

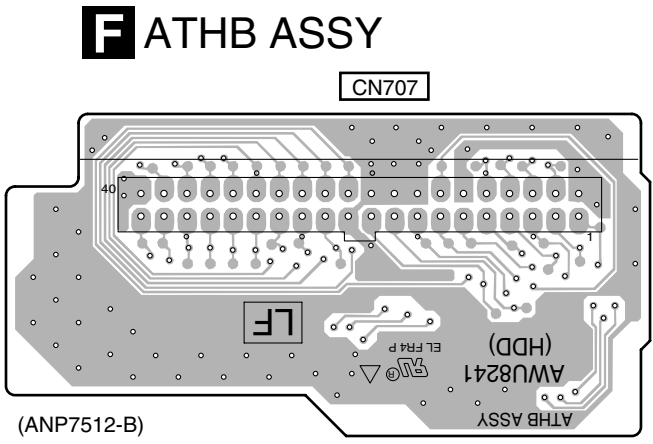
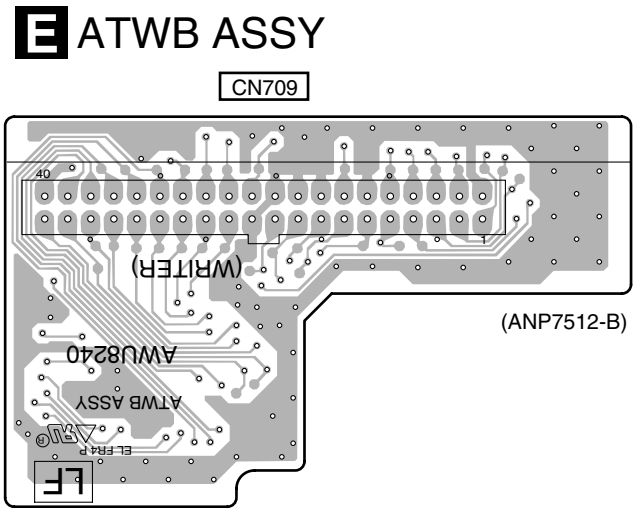
**SIDE A**

**SIDE A**



**SIDE B**

**SIDE B**



**E F**

**E F**

# 5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

●The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

●When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560  $\Omega$   $\rightarrow$  56 x 10<sup>1</sup>  $\rightarrow$  561 ..... RD1/4PU 561J  
 47k  $\Omega$   $\rightarrow$  47 x 10<sup>3</sup>  $\rightarrow$  473 ..... RD1/4PU 473J  
 0.5  $\Omega$   $\rightarrow$  R50 ..... RN2H R50K  
 1  $\Omega$   $\rightarrow$  1R0 ..... RS1P 1R0K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k  $\Omega$   $\rightarrow$  562 x 10<sup>1</sup>  $\rightarrow$  5621 ..... RN1/4PC 5621F

## LIST OF ASSEMBLIES

Mark No.	Description	Part No.
1..DVD CONTROL ASSY		AWM7914
2..CONTROL ASSY		AWU8202
2..TV CONNECT ASSY		AWU8203
1..JACK ASSY		AWM7922
2..JACK ASSY		AWU8215
2..DISPLAY ASSY		AWU8216
2..TV MODULE ASSY		AWU8217
2..ATWB ASSY		AWU8240
2..ATHB ASSY		AWU8241
1..COMPLEX ASSY		AWM7924
2..KEY L ASSY		AWU8221
2..KEY R ASSY		AWU8222
2..LED ASSY		AWU8223
2..TRADE ASSY		AWU8224
2..REG ASSY		AWU8225
2..FRONT JACK ASSY		AWU8226
2..IR ASSY		AWU8227
1..DSP ASSY		AWX8486
1..MAIN ASSY		VWV2013
$\Delta$ 1..POWER SUPPLY UNIT		AWR7013
1..FM/AM TUNER UNIT		AXX7170

## TV MODULE ASSY

### SEMICONDUCTORS

IC302	TDA9818TS
Q302,Q308,Q319	2SA1576A
Q300,Q304,Q306,Q307	2SC4081
Q310,Q312	2SC4082
Q305,Q315	DTA124EUA
Q311	RN1903
Q301	RN4903
Q303,Q313	UMF21N
D300	1SS355
D302	1SS356
D301	UDZS33(B)

### COILS AND FILTERS

L304 RADIAL INDUCTOR	ATH1109
L315 VCO COIL	ATL7011
L301,L303,L306	CTF1399
L316	LCKAW330J2520

Mark No.	Description	Part No.
L305		LCKAWR22J2520
L311,L314		LCKAWR47J2520
L307		LCYA150J2520
L309		LCYAR68J2520
F306 SAW FILTER		VTF1177
F305 SAW FILTER		VTF1179
F304 IF TRAP FILTER		VTF1180
F303 IF TRAP FILTER		VTF1181
F301 TRAP FILTER		VTF1183
L391,L392 CHIP BEADS		VTL1081

### CAPACITORS

C333,C345	CCSRCH150J50
C339	CCSRCH220J50
C343	CCSRCH270J50
C315,C316	CCSRCH330J50
C325	CCSRCH7R0D50
C344	CCSRUJ4R0C50
C301,C346	CEAT100M50
C319	CEAT101M16
C308	CEAT102M6R3
C303	CEAT330M25
C313,C324	CEAT471M6R3
C336,C337	CKSQYB225K10
C332,C334,C335,C340,C341	CKSRYB102K50
C322,C323,C327	CKSRYB103K50
C329,C349	CKSRYB104K16
C304,C305,C328,C331	CKSRYB222K50
C338	CKSRYB224K10
C307,C326,C330	CKSRYF104Z25
C311	CKSRYF104Z50

### RESISTORS

R399	RS1/10S0R0J
R305	RS1/10S150J
VR300 (10k)	VCP1156
Other Resistors	RS1/16S###J

### OTHERS

300 SCREW PLATE	VNE1948
U301 TV TUNER PACK	VXF1023
CN300 19P SOCKET	XKP3080

## B TV CONNECT ASSY

### SEMICONDUCTORS

$\Delta$ IC451	BA06FP
IC5701	BU1924F

**Mark No. Description****Part No.**

IC401  
Q401,Q404-Q406  
Q402,Q403

MSP3417G  
2SA1576A  
2SC4081

A

Q400  
D400

2SD1664  
1SS355

**COILS AND FILTERS**

L400  
L402,L403  
L404  
L401

CTF1399  
LCYA150J2520  
LCYA4R7J2520  
LCYA8R2J2520

**CAPACITORS**

C424  
C431  
C439,C440  
C5709,C5710  
C5712

CCSRCH121J50  
CCSRCH181J50  
CCSRCH220J50  
CCSRCH270J50  
CCSRCH271J50

B

C423  
C426,C428  
C5713  
C427  
C430

CCSRCH470J50  
CCSRCH560J50  
CCSRCH561J50  
CCSRCH5R0C50  
CCSRCH680J50

■

C432  
C452,C453,C5711  
C400,C401,C403,C406,C415  
C5707  
C416

CCSRCH6R0D50  
CEAL100M50  
CEAL101M16  
CEAL470M16  
CEAT100M50

C

C412,C417  
C408  
C410

CEAT101M16  
CEJQ100M50  
CEJQ3R3M50  
CKSRYP102K50  
CKSRYP103K50

■

C402,C404,C405,C407,C409  
C411,C413,C418,C422,C425  
C429,C438  
C419,C420

CKSRYP104K25  
CKSRYP104K25  
CKSRYP104K25  
CKSRYP472K50

D

**RESISTORS**

R406,R407  
R402  
R451  
Other Resistors

RS1/10S0R0J  
RS1/10S100J  
RS1LMF3R3J  
RS1/16S###J

**OTHERS**

X400  
CERAMIC RESONATOR (18.432MHz)  
X5701 CRYSTAL RESONATOR  
CN361,CN471 19P CONNECTOR  
KN401 WRAPPING TERMINAL  
  
CN351 19P PLUG

VSS1189  
ASS7004  
VKN1775  
VNF1084  
  
XKP3069

E

**JACK ASSY  
SEMICONDUCTORS**

IC202  
IC651  
IC201  
IC501  
IC701

BA178M09FP  
BA4558F-HT  
LA7213  
LA73026AV  
LA73033M

F

IC601  
IC206-IC208  
IC702

LC75342M  
MM1501XN  
MM1504XN

**Mark No. Description****Part No.**

IC503  
IC203

MM1511XN  
TA1287FG

IC502,IC504  
IC205  
Q203,Q205-Q207,Q501  
Q703,Q704,Q706,Q805  
Q781

TC7W53FU  
TC7WH123FU  
2SA1576A  
2SA1576A  
2SA1577

Q785  
Q503-Q505,Q508,Q513  
Q783  
Q204,Q509,Q514  
Q201,Q506,Q512,Q782

2SC1740S  
2SC4081  
2SC4097  
DTA124EUA  
DTC124EUA

Q601,Q602  
Q702  
Q510,Q511  
Q202  
Q502,Q784

DTC643TU  
HN1B04FU  
HN1C03FU  
RN2903  
RN4903

D502-D511,D533,D581-D586  
D782  
D512,D514-D532,D704-D706  
D501  
D781

1SS355  
1SS355  
DF3A5.6FU  
RB501V-40  
UDZS12(B)

**COILS AND FILTERS**

L701,L702,L704  
L703  
L201

LAU220J  
LAU2R2J  
LCYA220J2520

**SWITCHES AND RELAYS**

RY501

VSR1017

**CAPACITORS**

C217,C219,C623-C625,C737  
C509,C510,C515,C516  
C741,C746,C751  
C525,C526  
C214,C215,C557,C559

CCSRCH101J50  
CCSRCH102J25  
CCSRCH180J50  
CCSRCH220J50  
CCSRCH221J50

C742,C747,C752  
C738  
C503,C504,C507,C508  
C513,C514,C519,C520  
C545,C546,C549,C550

CCSRCH390J50  
CCSRCH470J50  
CCSRCH471J50  
CCSRCH471J50  
CCSRCH471J50

C603,C604,C643,C644  
C749  
C641,C642  
C529,C530,C533-C536  
C221-C223,C226-C228

CCSRCH471J50  
CCSRCH680J50  
CCSRCH821J50  
CEANP100M16  
CEAT100M50

C607-C610,C613-C618  
C635,C636,C639,C640,C787  
C220,C229,C234,C235,C552  
C711,C713,C720,C722,C783  
C225,C230,C537,C539,C541

CEAT100M50  
CEAT100M50  
CEAT101M10  
CEAT101M10  
CEAT101M16

C619,C621,C651,C652,C789  
C792  
C522,C523,C728-C730  
C528  
C501,C502,C505,C506

CEAT101M16  
CEAT101M16  
CEAT102M6R3  
CEAT1R0M50  
CEAT220M25

C511,C512,C517,C518,C786  
C739  
C561  
C212  
C521,C524,C527,C531,C532

CEAT220M25  
CEAT220M50  
CEAT221M16  
CEAT3R3M50  
CKSRYP103K50

5  
**Mark No. Description**

6  
**Part No.**

C554  
 C201-C207,C209,C213,C216  
 C218,C236-C238,C547,C551  
 C553,C556,C558,C620,C622  
 C653,C654,C701,C702

CKSRYB103K50  
 CKSRYB104K25  
 CKSRYB104K25  
 CKSRYB104K25  
 CKSRYB104K25

C704-C710,C714,C718,C721  
 C723-C727,C731,C733,C734  
 C782,C785,C788,C791  
 C540,C542,C555,C735,C736  
 C538

CKSRYB104K25  
 CKSRYB104K25  
 CKSRYB104K25  
 CKSRYB105K10  
 CKSRYB224K16

**RESISTORS**

R231  
 R233,R241  
 R553,R569  
 R235  
 R237,R239

RS1/16S1001F  
 RS1/16S1201F  
 RS1/16S1500F  
 RS1/16S1801F  
 RS1/16S2001F

R242  
 R723,R726,R730  
 R533,R534,R536,R539,R548  
 R573-R575,R710-R712,R729  
 Other Resistors

RS1/16S2200F  
 RS1/16S6800F  
 RS1/16S75R0F  
 RS1/16S75R0F  
 RS1/16S###J

**OTHERS**

CN703 17P FFC CONNECTOR  
 JA501,JA502 RGB CONNECTOR  
 JA702 4P PIN JACK  
 CN702 CONNECTOR POST 10P  
 CN706 CONNECTOR POST 4P

52044-1745  
 AKB7157  
 AKB7170  
 S10B-PH-K  
 S4B-PH-K-R

CN701 32P FFC CONNECTOR  
 KN781,KN782 WRAPPING TERMINAL  
 CN704,CN705 23P PLUG

VKN1815  
 VNF1084  
 XKP3071

**D MAIN ASSY SEMICONDUCTORS**

IC3101  
 IC2301  
 IC1103  
 IC5204  
 IC1101

AK5357VT  
 BA7655AF  
 CY62148VLL-70ZI  
 K4S161622D-TC80  
 K4S281632E-TC75

IC1401,IC1421  
 IC1001  
 IC5002  
 △ IC4007  
 IC1301

K4S561632E-TC75  
 M65673WG-A  
 MM1562FF  
 MM1603DP  
 MT48LC4M32B2TG-7

△ IC4004,IC4006  
 IC4206,IC5301,IC5321  
 IC3201

NJM2872F05  
 NJU7013F  
 PCM1742KE

△ IC4008  
 △ IC4002

PQ015YZ01ZP  
 PQ070XZ02ZP

IC4003  
 IC4005  
 IC3301  
 IC3402  
 IC2211,IC2302,IC4101

PST3428U  
 PST3809U  
 SM5950AM  
 SM8707KV  
 SN74AHC2G53HDCT

IC3001  
 IC3002  
 IC5341  
 IC1104  
 IC3403,IC4205,IC5322

TC74LCX541FT  
 TC74VHC14FT  
 TC74VHC157FT  
 TC7SZ126FU  
 TC7WHU04FU

7  
**Mark No. Description**

IC3251  
 IC5101  
 IC5202  
 IC1102  
 IC1201

Q2101-Q2105,Q2201,Q2203,Q2301  
 Q2312  
 Q4000  
 Q2202,Q2222,Q2241  
 Q2302,Q2311

Q2402,Q2403  
 Q3201,Q3202  
 Q1102  
 Q2001  
 D3001,D3101-D3104

D5321  
 D5322  
 D4201  
 D3002  
 D1111

**COILS AND FILTERS**

F3102,F3401-F3403,F4201,F5101  
 L1001-L1009,L1101,L1102,L1301  
 L1401,L1402,L3301,L5501-L5505  
 L5507,L5508 EMI FILTER  
 L5301,L5321

L4202  
 F3201  
 L2101  
 L4201  
 L5103-L5106

8  
**Part No.**

UPC4570G2-A  
 UPD72852AGB-8EU-A  
 UPD72893BGD-LML  
 VYW2176  
 W986416DH-6

2SA1576A  
 2SA1576A  
 2SC2411K  
 2SC4081  
 DTC114EUA

HN1B04FU  
 RN1903  
 RN4982  
 UMF21N  
 1SS355

HVC359  
 HVC362  
 MA2ZV05  
 RB501V-40  
 RB521S-30

DTF1069  
 DTL1106  
 DTL1106  
 DTL1106  
 LCYA100J2520

LCYA1R2J2520  
 VTF1096  
 VTL1067  
 VTL1079  
 VTL1082

**CAPACITORS**

C5311,C5329  
 C3253,C3258  
 C4208  
 C5105  
 C5325,C5327

C3207  
 C5131-C5138  
 C5326  
 C3254,C3257  
 C5121,C5122

C2208,C2317,C4034,C5322  
 C3251,C3255,C4001,C4002,C4004  
 C4029,C4037  
 C2101,C2221,C2405,C3201,C3204  
 C3206

C2301  
 C1061,C4022  
 C3106  
 C5321  
 C2308,C3102,C3107,C4003,C5341

C5301  
 C2220,C2243  
 C1031,C1032,C1503-C1506  
 C2204,C4206,C5309  
 C1901,C4014,C4019,C4033,C5006

C1004,C1012,C1014,C1029,C1034  
 C1040,C1044,C1049,C1051  
 C1110,C1111,C1207,C1208,C1307

CCSRCH100D50  
 CCSRCH101J50  
 CCSRCH240J50  
 CCSRCH271J50  
 CCSRCH330J50

CCSRCH331J50  
 CCSRCH4R0C50  
 CCSRCH5R0C50  
 CCSRCH681J50  
 CCSRCH8R0D50

CEVW100M16  
 CEVW101M16  
 CEVW101M16  
 CEVW101M6R3  
 CEVW101M6R3

CEVW220M6R3  
 CEVW221M4  
 CEVW2R2M50  
 CEVW470M16  
 CEVW470M6R3

CEVW4R7M35  
 CEVWNP100M10  
 CKSQYB104K16  
 CKSQYB105K10  
 CKSQYB225K10

CKSRYB102K50  
 CKSRYB102K50  
 CKSRYB102K50

**Mark No. Description****Part No.****Mark No. Description****Part No.**C1311,C1313,C1407,C1408  
C1427,C1428,C3303,C3408CKSRYB102K50  
CKSRYB102K50R3102,R3201,R3252,R4001,R4006  
R4009,R4014,R4016,R4108,R4109  
R5209,R5322  
R4019RS1/10S0R0J  
RS1/10S0R0J  
RS1/10S0R0J  
RS1/10S1001D

A

C1003,C1027,C1037,C1052,C1109  
C1206,C1305,C1308,C1310,C1406  
C1425,C2305,C3003,C3004,C4018  
C4020,C4207,C5214,C5222,C5224  
C1508-C1510,C2311,C4104,C5306CKSRYB103K50  
CKSRYB103K50  
CKSRYB103K50  
CKSRYB103K50  
CKSRYB104K16R5321  
R1501  
R4020  
R1031,R1032,R1034,R4105-R4107  
R4201,R5130,R5141-R5144,R5248RS1/10S101J  
RS1/10S2202F  
RS1/10S5600D  
RS1/16S0R0J  
RS1/16S0R0JC4103  
C5328  
C2202  
C1002,C1005,C1007-C1010,C1016  
C1018,C1019,C1021-C1023CKSRYB223K50  
CKSRYB473K25  
CKSRYB563K16  
CKSRYF104Z25  
CKSRYF104Z25R5295,R5328  
R4013  
R4005  
R5272  
R4012RS1/16S0R0J  
RS1/16S1001F  
RS1/16S101J  
RS1/16S102J  
RS1/16S1200F

B

C1025,C1026,C1028,C1030,C1035  
C1038,C1041,C1042,C1047,C1102  
C1105,C1106,C1108,C1114,C1202  
C1204,C1302,C1304,C1312,C1402  
C1404,C1422,C1424,C2102-C2106CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25R4011  
R1022  
R1024  
R1021,R1023  
R3408RS1/16S1501F  
RS1/16S151J  
RS1/16S181J  
RS1/16S2201F  
RS1/16S220JC2201,C2206,C2210,C2222,C2241  
C2302,C2306,C2319,C2406,C2407  
C3101,C3105,C3108,C3202,C3203  
C3205,C3252,C3256,C3302  
C4006-C4008,C4010,C4012,C4013CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25R2105,R2106,R2111,R2112,R2115  
R4018  
R5240-R5243,R5296,R5341,R5342  
R5104-R5107  
R3026RS1/16S3300F  
RS1/16S3600D  
RS1/16S470J  
RS1/16S56R0D  
RS1/16S681J

C

C4017,C4021,C4024-C4026,C4032  
C4202,C4203,C4209,C5113,C5118  
C5120,C5125-C5127,C5204,C5215  
C5218,C5225-C5228,C5230,C5308  
C5310,C5323,C5342,C5343CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25  
CKSRYF104Z25

Other Resistors

RS1/16SS###J

C1001,C1006,C1048,C1103,C1107  
C1203,C1205,C1209,C1303,C1306  
C1309,C1403,C1405,C1409,C1423  
C1426,C1429,C3001,C3006  
C3404-C3407,C4027,C4030,C4105CKSRYF105Z10  
CKSRYF105Z10  
CKSRYF105Z10  
CKSRYF105Z10  
CKSRYF105Z10**OTHERS**CN5102 7P FFC CONNECTOR  
CN4401,CN4501  
40P FFC CONNECTOR  
CN1901 7P FFC CONNECTOR  
CN4001 8P FFC CONNECTORVKN1411  
VKN1811  
VKN1812  
VKN1813C4107,C4201,C4401,C4501,C5110  
C4028  
C3402,C3403,C4015  
C1054,C1060,C3301 (150/4V)  
VC4201 (10pF)CKSRYF105Z10  
DCH1200  
VCG1045  
VCH1234  
VCM1012CN3001 24P FFC CONNECTOR  
CN2001 32P FFC CONNECTOR  
KN3 EARTH METAL FITTING  
X4201 CRYSTAL RESONATOR  
(27.000MHz)VKN1814  
VKN1815  
VNF1109  
VSS1146

D

**RESISTORS**R1025,R1026,R1042-R1046  
R1048-R1051,R1054,R1068,R1069  
R1072,R1073,R5218-R5221  
R5229,R5230,R5247,R5249-R5252  
R5255,R5258,R5259,R5273-R5275RAB4CQ103J  
RAB4CQ103J  
RAB4CQ103J  
RAB4CQ103J  
RAB4CQ103JX5101 CRYSTAL RESONATOR  
(24.576MHz)  
X4102 VCXO (27MHz)VSS1184  
VSS1195R5289,R5290  
R1408-R1411  
R4401,R4404,R4410,R4416,R4417  
R4423,R4502,R4506,R4512  
R4518,R4519,R4525RAB4CQ103J  
RAB4CQ220J  
RAB4CQ223J  
RAB4CQ223J  
RAB4CQ223J**E ATWB ASSY****OTHERS**CN709 40P ATA CONECTOR  
CN710 40P FFC CONNECTORVKN1816  
VKN1879

E

R1114-R1117,R4405-R4408,R4436  
R4507-R4510,R4538  
R1303-R1310,R1404-R1407  
R1423-R1426  
R1203-R1206RAB4CQ330J  
RAB4CQ330J  
RAB4CQ560J  
RAB4CQ560J  
RAB4CQ680J**F ATHB ASSY****OTHERS**CN707 40P ATA CONECTOR  
CN708 40P FFC CONNECTORVKN1816  
VKN1879

F

R3254,R3266  
R3253,R3265  
R3251,R3269  
R5103  
R5108RN1/16SE1002D  
RN1/16SE1201D  
RN1/16SE2202D  
RN1/16SE5101D  
RN1/16SE9101D**G CONTROL ASSY**  
**SEMICONDUCTORS**△ IC901  
△ IC6001  
IC8301-IC8303,IC8401,IC8501-IC8506  
IC8652  
IC3901BA178M05FP  
BA178M09FP  
BA4558F-HT  
BA4558F-HT  
BD3812F

R1207,R1502,R1507,R2017,R3002

RS1/10S0R0J



5	6	7	8
Mark No.	Description	Part No.	Part No.
IC804	BR24L32F-W	C955	CEAL100M50
IC2001	BU4052BCF	C2007,C2008,C6012	CEAL470M16
IC8402	BU4066BCF	C3903,C3904	CEANP101M16
IC2002	NJM4558MD	C3915-C3918,C8309,C8310	CEAT100M50
IC3902	NJM4560M	C8313,C8314,C8341,C8342	CEAT100M50
IC5501	PDC117B	C8361,C8362,C8537,C8538	CEAT100M50
IC801	PEG014A	C8651,C8652,C8657,C8658	CEAT100M50
IC803	PST3245	C4604,C4611,C5657	CEAT101M16
IC802	RS5C372A	C6010	CEAT1ROM50
IC805	TC74HCT7007AF	C3905,C3906,C3913,C3914	CEAT470M16
IC5901	TC7WH08FU	C3931,C3932	CEAT470M16
IC950	TC7WU04FU	C5655	CEAT471M16
Q5901	2SA1037K	C5516,C5524,C5527,C817,C835	CEHAZA101M10
Q3907,Q5624	2SA1576A	C843	CEHAZA101M10
△ Q5652	2SB1238X	C3901,C3902,C5512,C5909	CKSRYB102K50
Q5503	2SB1689	C2003-C2006,C5502,C5505,C5506	CKSRYB103K50
Q2001-Q2004,Q5501,Q5504	2SC4081	C5508,C5525,C8311,C8312	CKSRYB103K50
Q5621-Q5623,Q5653,Q6001	2SC4081	C8339,C8340,C8359,C8360	CKSRYB103K50
Q801,Q802,Q951	2SC4081	C8402,C8403,C8407,C8408,C841	CKSRYB103K50
Q3901-Q3904,Q805,Q808	2SD2114K	C8505-C8512,C8517-C8524	CKSRYB103K50
Q2009,Q2010,Q803,Q807,Q950	DTA124EUA	C8529-C8536,C8659,C8660	CKSRYB103K50
Q804,Q806,Q911	DTC124EUA	C909,C910,C960,C961	CKSRYB103K50
Q952	HN1C01FU	C3925,C4601,C4602,C5514,C5521	CKSRYB104K25
Q901	RN4903	C5526,C5531,C5653,C5654,C5901	CKSRYB104K25
Q2005,Q2007,Q8321,Q8404,Q8406	UN5112	C5904,C6007,C803,C810	CKSRYB104K25
Q5502,Q8405,Q8407	UN5212	C819-C821,C824,C825,C833	CKSRYB104K25
D5653	1SR154-400	C836,C837,C840,C842	CKSRYB104K25
D3903,D5521,D5901-D5905	1SS355	C905,C906,C950,C952-C954	CKSRYB104K25
D802-D804,D8301,D990-D995	1SS355	C957	CKSRYB104K25
D2003,D2005	DAP202K	C807,C967	CKSRYB105K10
D801	RB501V-40	C802,C809,C822,C829,C830	CKSRYB105K6R3
D5621	UDZS3R0(B)	C834	CKSRYB105K6R3
D2001,D2002	UDZS6R2(B)	C8331-C8334,C8351,C8353	CKSRYB152K50
D3901,D3902	UDZS6R8(B)	C8352	CKSRYB332K50
D5502-D5508,D5510-D5513	UDZS8R2(B)	C4609,C4610	CKSRYB473K25
<b>COILS AND FILTERS</b>		C8901-C8906	VCH1241
L5651 CHIP COIL	LCKAW100J2520	<b>RESISTORS</b>	
L5501	LFEA220J	R947,R948	RS1/10S0R0J
L950	LFEA470J	R3901-R3912,R3917-R3922	RS1/10S101J
L5652	LTA102J	R8501,R8502,R8505,R8506	RS1/16S1002F
L5901 CHIP SOLID INDUCTOR	QTL1013	R8511,R8512,R8515,R8516	RS1/16S1002F
L4602,L4603 CHIP BEADS	VTL1076	R8521,R8522,R8525,R8526	RS1/16S1002F
L801 CHIP BEADS	VTL1081	Other Resistors	RS1/16S###J
<b>CAPACITORS</b>		<b>OTHERS</b>	
C5528	ACH1246	X5502 CERAMIC RESONATOR (10MHz)	ASS7034
C951	CCSRCH100D50	X803 CRYSTAL OSCILLATOR	CSS1599
C3909,C3910,C5509,C5510,C808	CCSRCH101J50	X950 CRYSTAL OSCILLATOR (4.433619MHz)	VSS1176
C812,C813,C816	CCSRCH101J50	X5501,X802 CRYSTAL RESONATOR (32kHz)	VSS1197
C806	CCSRCH120J50	CN5503,CN5504 19P CONNECTOR	19R-1.25FJ
C907,C908	CCSRCH180J50	CN5507 7P FFC CONNECTOR	52045-0745
C5503,C5504,C958,C959	CCSRCH220J50	CN805 9P FFC CONNECTOR	52045-0945
C5651	CCSRCH221J50	CN5505 11P FFC CONNECTOR	52045-1145
C8301,C8302	CCSRCH331J50	CN8904 12P CONNECTOR	AKP7131
C3911,C3912,C811,C814,C815	CCSRCH470J50	CN5506 16P SOCKET	AKP7195
C956	CCSRCH561J50	CN5501 16P CONNECTOR	B16B-PH-K
C8307,C8308	CCSRCH680J50		
C8303,C8304,C8337,C8338,C8357	CCSRCH821J50		
C3924	CEAL100M16		
C2001,C2002,C2009,C2010,C911	CEAL100M50		

**Mark No. Description****Part No.**

CN5651,CN802

B2B-PH-K

CONNECTOR POST 2P

JA4601 OPT. LINK IN  
 JA4602 OPT. LINK OUT 12MB/S  
 BT801 LITHIUM BATTERY (CR2032)  
 CN5502 15P FFC CONNECTOR

GP1FA513RZB  
 GP1FA513TZ  
 VEM1034  
 VKN1246

CN801 24P FFC CONNECTOR  
 ST801 BATTERY SOCKET  
 KN2501 SCREW PLATE  
 KN5501,KN5502  
 WRAPPING TERMINAL

VKN1255  
 VKX1015  
 VNE1948  
 VNF1084

KN801 EARTH METAL FITTING  
 JA5901 MINI JACK(4P)  
 CN8901 13P PLUG  
 CN8902,CN8903 19P PLUG  
 CN803,CN804 23P PLUG

VNF1109  
 XKN3015  
 XKP3066  
 XKP3069  
 XKP3071

**H DSP ASSY  
SEMICONDUCTORS**

IC8201  
 IC8401  
 IC8501  
 IC8901  
 IC8902

AK4114VQ  
 AK4628VQE  
 DSPD56367PV150  
 NJM2391DL1-33  
 NJU7223DL1-18

IC8701  
 IC8702  
 IC8502  
 Q8504  
 Q8503

TC74LVX244FT  
 TC74VHCT244AFT  
 TC7WU04FU  
 UMD2N  
 UN5112

D8501  
 D8401  
 D8402,D8502,D8503

1SS355  
 DAN202K  
 DAP202K

**COILS AND FILTERS**

L8002,L8004,L8501,L8502  
 L8201,L8203,L8204,L8401,L8402  
 L8504,L8701,L8702

ATL7002  
 QTL1013  
 QTL1013

**CAPACITORS**

C8217,C8225,C8408 (100/4V)  
 C8209,C8210  
 C8421  
 C8007,C8008,C8201,C8212,C8214  
 C8404,C8409-C8414,C8416,C8417

ACH7231  
 CCSRCH100D50  
 CCSRCH101J50  
 CCSRCH471J50  
 CCSRCH471J50

C8419,C8505,C8507,C8509  
 C8511,C8512,C8515,C8518,C8520  
 C8522,C8524,C8526,C8528,C8530  
 C8532,C8534,C8536,C8537,C8541  
 C8543,C8545,C8551,C8703,C8706

CCSRCH471J50  
 CCSRCH471J50  
 CCSRCH471J50  
 CCSRCH471J50  
 CCSRCH471J50

C8548,C8549  
 C8701,C8704  
 C8406,C8415,C8902,C8904  
 C8204,C8555  
 C8009,C8405,C8418,C8517,C8554

CCSRCH8R0D50  
 CEVW100M16  
 CEVW101M16  
 CKSRYB102K50  
 CKSRYB103K50

C8010,C8202,C8207,C8213,C8215  
 C8407,C8420,C8422,C8504,C8513  
 C8521,C8523,C8525,C8527,C8529  
 C8531,C8533,C8535,C8537,C8538  
 C8540,C8542,C8544,C8550,C8702

CKSRYB104K16  
 CKSRYB104K16  
 CKSRYB104K16  
 CKSRYB104K16  
 CKSRYB104K16

C8705,C8901,C8903

CKSRYB104K16

**Mark No. Description****Part No.**

C8516  
 C8514  
 C8203  
 C8546 (150/4V)

CKSRYB105K6R3  
 CKSRYB333K16  
 CKSRYB473K50  
 VCH1234

C8547,C8613 (150/4V)

VCH1246

**RESISTORS**

R8506  
 R8201  
 Other Resistors

RAB4C101J  
 RS1/16S1802F  
 RS1/16S###J

**OTHERS**

X8501 CRYSTAL RESONATOR  
 (20MHZ)  
 X8201 CRYSTAL RESONATOR  
 (24.576MHz)  
 KN8101 SCREW PLATE  
  
 CN8003 13P SOCKET  
 CN8007,CN8011 19P SOCKET

VSS1171  
  
 XSS3003  
  
 VNE1948  
  
 XKP3077  
 XKP3080

**I REG ASSY  
SEMICONDUCTORS**

IC152  
 ⚠ IC156  
 ⚠ IC154,IC155  
 IC151  
 IC153

BA05FP  
 BA178M05FP  
 BA178M09FP  
 NJM78M56FA  
 PQ1K333M2ZP

Q152  
 Q155,Q156  
 Q153  
 Q158  
 Q151,Q157

2SB1237X  
 2SC2411K  
 UMF21N  
 UN5112  
 UN5212

D151

1SR154-400

**CAPACITORS**

C154,C158,C171,C181,C185  
 C166,C167,C175-C177  
 C153,C157,C170,C180,C184  
 C187  
 C162

CEAT100M50  
 CEAT101M16  
 CEAT1R0M50  
 CEAT221M16  
 CEAT470M50

C159-C161,C163-C165  
 C172-C174

CKSRYB104K25  
 CKSRYB104K25

**RESISTORS**

Other Resistors

RS1/16S###J

**OTHERS**

CN151 21P FFC CONNECTOR  
 CN153 CONNECTOR 10P  
 CN152 CONNECTOR 16P  
 CN154 CONNECTOR 4P  
 PCB BINDER

52045-2145  
 B10B-PH-K  
 B16B-PH-K  
 B4B-PH-K  
 VEF1040

KN101 WRAPPING TERMINAL

VNF1084

**J DISPLAY ASSY  
SEMICONDUCTORS**

IC5801  
 Q5801,Q5851,Q5854  
 D5851

PT6302LQ-003  
 2SC4081  
 UDZS3R9(B)

5	6
Mark No. Description	Part No.
<b>COILS AND FILTERS</b>	
L5802	LFEA100J
L5801	LFEA220J
<b>CAPACITORS</b>	
C5805-C5807	CCSRCH221J50
C5811	CCSRCH470J50
C5820	CEJQ101M6R3
C5822,C5823	CEJQ1R0M50
C5821	CEJQ220M35
C5808	CKSRYB102K50
C5801-C5804,C5810	CKSRYB223K50
C5809	CKSRYB224K10

5	6
RESISTORS	Part No.
Other Resistors	RS1/16S###J

5	6
OTHERS	Part No.
CN5851 WRAPPING TERMINAL	52045-0345
V5801 FL TUBE	AAV7103
JA5001 DV-TERMINAL	VKB1207
CN5001 7P FFC CONNECTOR	VKN1238
CN5801 9P FFC CONNECTOR	VKN1269
CN5802 15P FFC CONNECTOR	VKN1275
KN5851 3P FFC CONNECTOR	VNF1084
5802 FL HOLDER	VNF1122

5	6
<b>K</b> LED ASSY SEMICONDUCTORS	Part No.
D5861	SLR-343BBT(GHJ)

5	6
CAPACITORS	Part No.
C5861	CKSRYB103K50

5	6
OTHERS	Part No.
CN5861 3P FFC CONNECTOR	52045-0345

5	6
<b>L</b> TRADE ASSY OTHERS	Part No.
CN806-CN809 23P SOCKET	XKP3082

5	6
<b>M</b> FRONT JACK ASSY CAPACITORS	Part No.
C5207,C5208,C5825,C5826	CCSRCH471J50
C5201	CKSRYB103K50
C5304	CKSRYB104K25
C5301,C5302	CKSRYB223K50

5	6
RESISTORS	Part No.
R5201-R5203	RS1/16S75R0F
Other Resistors	RS1/16S###J

5	6
OTHERS	Part No.
CN5201 17P FFC CONNECTOR	52044-1745
JA5301 MINITURE JACK	AKN7005
JA5201 YC CONNECTOR(VERTICAL)	VKB1190
JA5202 3PIN JACK(VERTICAL)	VKB1206
KN5201,KN5301	VNF1084
WRAPPING TERMINAL	

7	8
Mark No. Description	Part No.
<b>N</b> IR ASSY CAPACITORS	
C5152	CEJQ470M16
C5151	CKSRYB223K50

7	8
RESISTORS	Part No.
Other Resistors	RS1/16S###J

7	8
OTHERS	Part No.
5105 3P CABLE HOLDER	51048-0300
X5151 REMOTE RECEIVER UNIT	SPS-442-E1

7	8
<b>O</b> KEY L ASSY SWITCHES AND RELAYS	Part No.
S5107-S5111	VSG1024

7	8
RESISTORS	Part No.
Other Resistors	RS1/16S###J

7	8
OTHERS	Part No.
5104 3P CABLE HOLDER	51048-0300
5103 8P CABLE HOLDER	51048-0800
CN5105 CONNECTOR 4P	B4B-PH-K
J5202 JUMPER WIRE	D20PYY0305E

7	8
<b>P</b> KEY R ASSY SWITCHES AND RELAYS	Part No.
S5101-S5106	VSG1024

7	8
RESISTORS	Part No.
Other Resistors	RS1/16S###J

7	8
OTHERS	Part No.
5102 8P CABLE HOLDER	51048-0800
J5201 JUMPER WIRE	D20PYY0840E
CN5101 9P CONNECTOR	VKN1240

7	8
<b>Q</b> POWER SUPPLY UNIT SEMICONDUCTORS	Part No.
⚠ IC402 FUSE 1.5A/125V	AEK7011
⚠ IC501 FUSE 1.25A/125V	AEK7048
⚠ IC603 FUSE 1.25A/125V	AEK7048
⚠ IC604 FUSE 0.75A/125V	AEK7062
⚠ IC702 FUSE 2.5A/125V	AEK7049

⚠ IC802 FUSE 3.5A/125V	AEK7017
⚠ IC951 FUSE 1.25A/125V	AEK7048
⚠ D302	1SS133
⚠ D350	MTZJ39B
⚠ D451,D501	D1NL20U

⚠ D550	MTZJ15B
⚠ D750	MTZJ4.3B

# 6. ADJUSTMENT

## 6.1 TV MODULE ADJUSTMENT

\* It is not necessary to adjust the ASSY normally when exchanging the ASSY. But the adjustment is necessary when exchanging the Front End (U301) and IC302 VIF/SIF IC.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	VCO freerun frequency (AFC voltage) adjustment	L315	The solder land named "AFT"	1.90V ± 0.20V Note1	Terrestrial tuner input /through output. Any channel, RF Input ≥ 60dBu System = B/G, I or D/K AFT = OFF Note1
2	AGC start point adjustment	VR300	The solder land named "AGC"	3.80V ± 0.20V	Terrestrial tuner input Ch = E9(203.25MHz), Video= Blackburst RF Input = 60.0 ± 1.0dBu System = B/G, I or D/K

Note 1 : The adjustment spec. is defined without the thermal drift after the power on.  
Therefore, start the adjustment at least 10 minutes after the power on.

### A TV MODULE ASSY

**SIDE A**

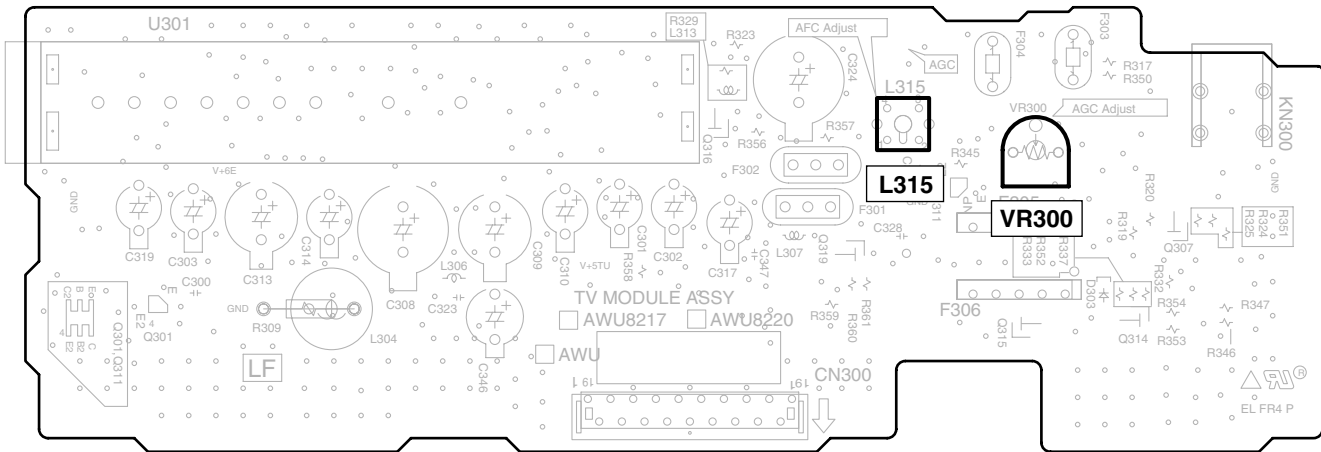


Fig.1 Adjustment Points (TV MODULE ASSY)

### A TV MODULE ASSY

**SIDE B**

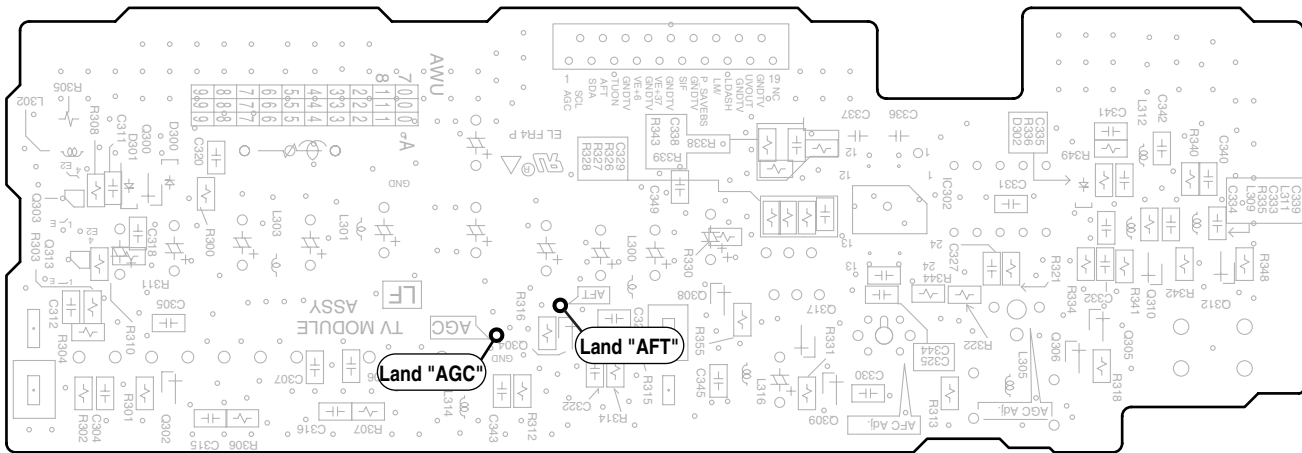


Fig.2 Measurement Points (TV MODULE ASSY)



# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### Service Diagnosis List

#### 7.1.1 CPRM ID NUMBER AND DATA SETTING

The Setting is necessary

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the FLASH ROM is exchanged.

#### 7.1.2 MODEL SETTING

#### 7.1.3 DOWNLOAD METHOD

The Setting is necessary

- When the MAIN ASSY is replaced.
- When the CONTROL ASSY is replaced.
- When the MAIN ASSY and CONTROL ASSY is replaced.

#### 7.1.4 SERVICE MODE

[First Screen] (Version information, etc)

[Sub Screen 1]

[Sub Screen 2] (Result of error-rate measurement)

[Sub Screen 3] (HDD information)

[Second Screen] (ATA/ATAPI debug screen)

[Sub Screen 3] (writer maintenance information of ATA/ATAPI DEBUG OSD)

[Sub Screen 4] (ATA/ATAPI DEBUG OSD\_LD degradation judgement)

[Third Screen] (DV debug screen)

[Sub Screen 1] (DV/1394 debug OSD)

[Fourth Screen] (VR-recording error log)

[Sub Screen 4] (Error log for VR recording)

[Sub Screen 6] (R-Zone information)

[Fifth Screen] (Error log for VR playback)

[Sub Screen 2] (Error log for VR playback)

#### 7.1.5 SERVICE SPECIFICATIONS OF PT MICROCOMPUTER

#### 7.1.6 SPECIFICATIONS OF DSP DISPLAY

#### 7.1.7 VIDEO ADJUSTMENT FOR SPECIFIC AREA

##### Purposes:

Depending on the area, jitter may appear in a picture received by the tuner, as conditions of signals received by the tuner are different from area to area. To correct this kind of problem, the function of the System Codec AVIO control section for adjusting signals received by the tuner can be used.

#### 7.1.8 AGING MODE

### ■ Entering the ID Number and ID Data for DVD Recorder

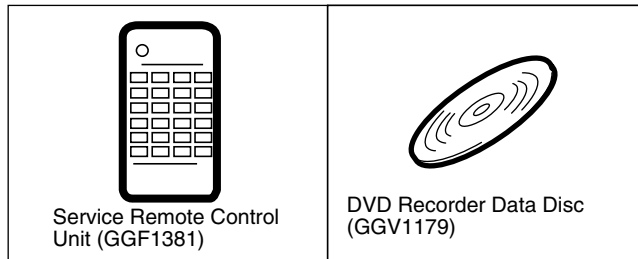
For the DVD recorder, it is necessary with the recoding/playback of DVD-RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, operations in the future may not be guaranteed. You will find the ID number to be set on the ID label on the rear panel.

**Important:** If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

### ■ The Input is Necessary When:

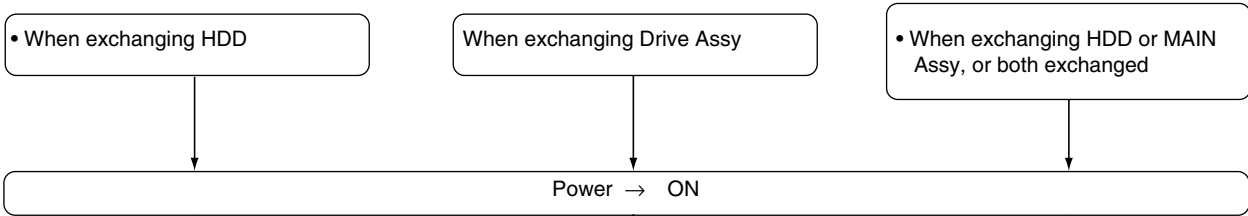
- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the HDD is exchanged.

#### JIGS AND MEASURING INSTRUMENTS

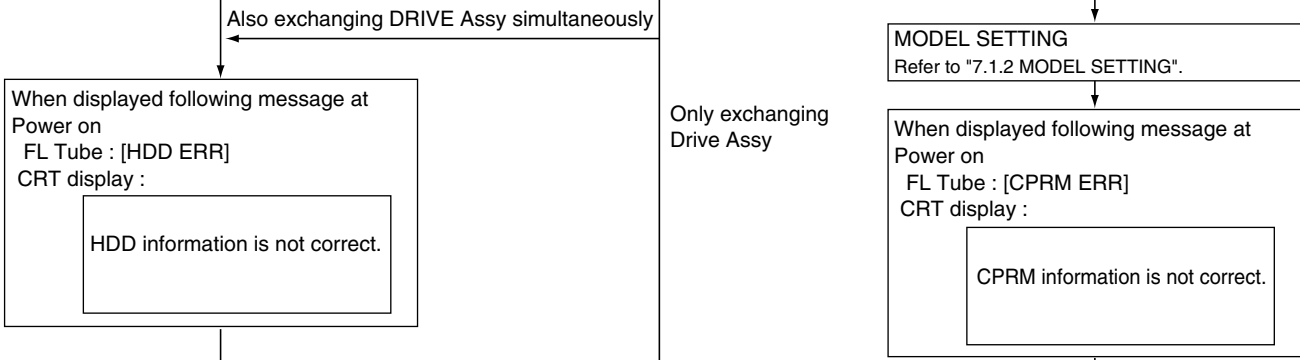


### Input Flow of the ID No. and ID data when exchanging HDD, MAIN Assy or Drive Assy

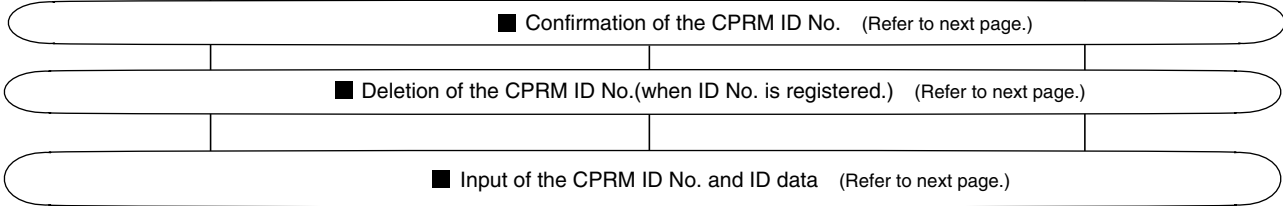
A



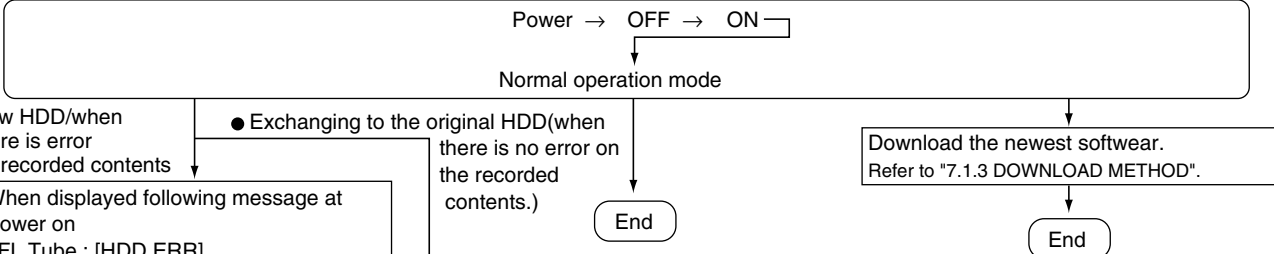
B



C

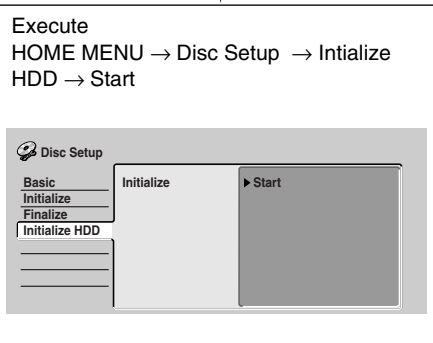


D



E

\*Use Remote Control of the model



F

**[CAUTION]**  
 All recorded data are deleted if the HDD is intialized.  
 Take care that restoration of the user's data recorded on the HDD is totally impossible.  
 Before servicing, **OBTAIN THE USER'S PRIOR CONSENT** to that effect.

\*Goes to normal operation with no caution



## How to Input the ID Number and ID Data

### Note:

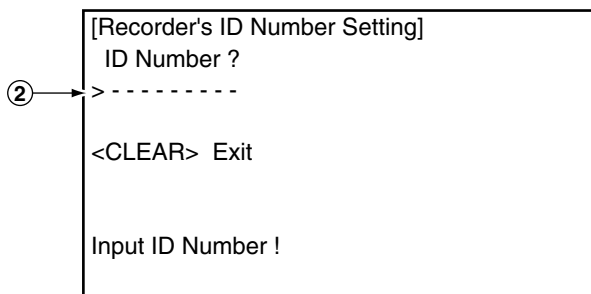
Be sure to enter the ID number in Stop mode.

Use the service remote control (GGF1381) for operations. Only opening/closing of the tray are performed from the player. The ID data disc is swept out automatically after the recorder has read the data from it.

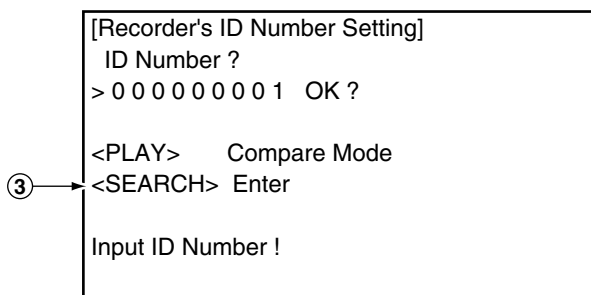
- ① To enter the input mode, press **[ESC]**+**[STEREO]** sequentially in a status with no ID number set, such as after FLASH-ROM downloading.



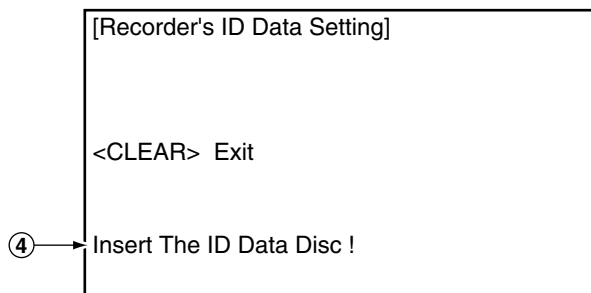
- ② As number input is enabled when the unit enters the input mode, input the 9-digit ID number. (The entered number is also displayed on the FL display.)



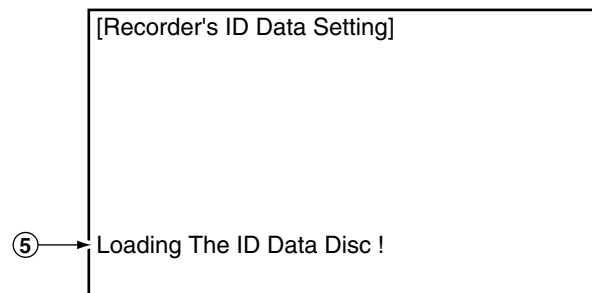
- ③ After inputting the number, press **[SEARCH]** to register the ID number.



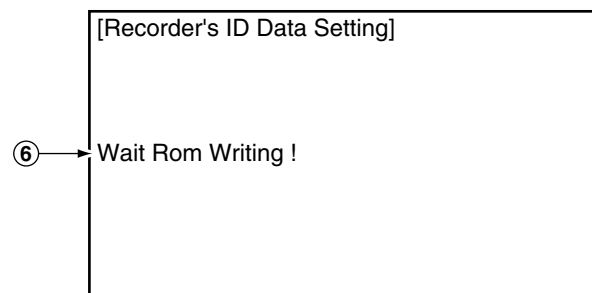
- ④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.") In this condition, place the ID data disc on the tray and close the tray using the CLOSE key **[■/▲]** on the player.



- ⑤ While the data are being read, the message shown in the figure at left is displayed on the screen. (The FL display indicates "LOAD ID.")

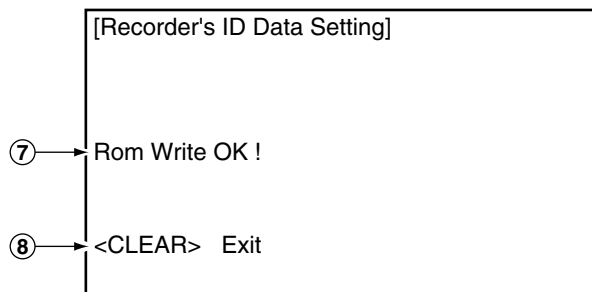


- ⑥ When the ID data have been read, the data are written to the FLASH-ROM. (The FL display indicates "WRITE ID.")



- ⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen. (The FL display indicates "ID DATA OK.")

- ⑧ After confirming this message, press **[CLEAR]** to exit the input mode.



### How to Confirm the ID Number

A

- ① Press **ESC**+**STEREO** sequentially with an ID number already set, and the unit enters the ID number confirmation mode.
- ② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.
- ③ To exit this mode, press **CLEAR**.

B

```

[Recorder's ID Number Setting]
ID Number ?
[ 0 0 0 0 0 0 0 0 1]
Compare
> *****
③ → <CLEAR> Exit
Input ID Number !
  
```

### How to Clear the ID Number

C

- ① Press **ESC**+**STEREO** sequentially with an ID number already set, and the unit enters the ID number confirmation mode.
- ② Input the same number as the ID number you have set.

- ③ After inputting the number, press **STOP**. Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode. If the numbers do not match, you must return to step 2. (**STOP** is not accepted until 9 digits are entered.)

D

```

[Recorder's ID Number Setting]
ID Number ?
[ 0 0 0 0 0 0 0 0 1]
Compare
② → > *****
<CLEAR> Exit
<STEREO> ID Data Setting Mode
Input ID Number !
  
```



```

[Recorder's ID Number Setting]
ID Number ?
[ 0 0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 0 1 OK ?
③ → <PLAY> Enter
<STOP> Memory Clear
<STEREO> ID Data Setting Mode
Input ID Number !
  
```

E

F

## 7.1.2 MODEL SETTING

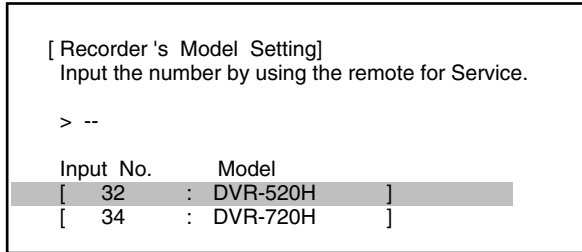
### • The Setup is Necessary When :

- When the MAIN Assy is replaced
- When the CONTROL Assy is replaced
- When the MAIN Assy and CONTROL Assy are replaced

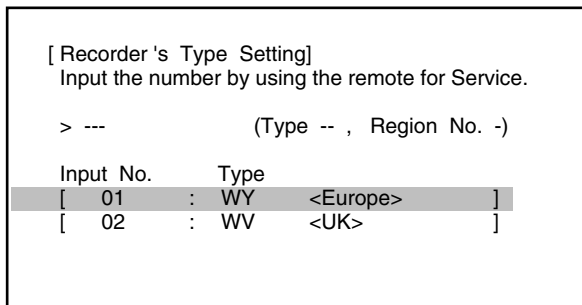
Note : Make sure of setting the correct number.

### • How to Setup the Model

- After power on, the following screen is displayed on TV monitor.  
Press " 32 " by using the remote control unit for service(GGF1381).



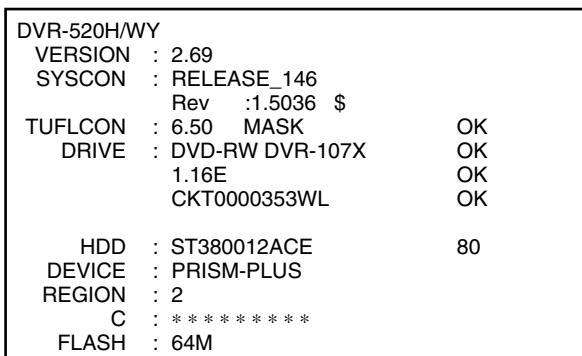
- After 1), the following screen is displayed on TV monitor.  
Press " 012 " by using the remote control unit for service.



Note : For WV type, press " 022 " .

The setting complete when OSD is disappeared.

- Unplug the power cable.
- Reset the recorder to all its factory settings.
  - Make sure that the recorder is on.
  - Press and hold [STOP] and press [STANDBY/ON] key on the front panel.  
The recorder turns off with all settings reset.
- Enter the Service Mode and then confirm the Model Name " DVR-520H/WY " .
  - Make sure that the recorder is on.
  - Press [ESC] then [DISP] keys by using the remote control unit for Service.



\* XV-DVR9H is displayed as " DVR-520H/(Destination) " .

\* TUFLCON for XV-DVR9H/(WY/WV) is displayed as " 6.xx " .

### Notes :

- After the setting complete, you can NOT CLEAR the setting data.  
Make sure the pressing number.
- " NG " is appeared on TV when unsuitable number is pressed.  
In such a case, please unplug the power cable and plug it again. Then restart the model setting.

## 7.1.3 DOWNLOAD METHOD

### • The Download is Necessary When :

- a) After model setting
- b) When "NG" is displayed at First screen (version information, etc)

### [Notes]

Be sure NOT to turn off the unit during downloading.

If the unit is turned off during downloading, the SYSCON, TUFLCON, and DRIVE programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again. If that happens, repair the unit, as described below, then perform downloading again:

- In a case where the power to the unit was shut off during rewriting of the SYSCON program:  
The SYSCON program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-1" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the FLASH ROM.
- In a case where the power to the unit was shut off during rewriting of the DRIVE program:  
The DRIVE program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-2" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the DRIVE ASSY.
- In a case where the power to the unit was shut off during rewriting of the TUFLCON program (only for the flash-type TUFLCON microcomputers):  
The TUFLCON program will not function properly if the power to the unit is forcibly shut off while the message "DOWNLOAD-3" is displayed on the FL display during downloading. If downloading of the programs from the disc or through serial communication becomes impossible, replace the TUFLCON microcomputer.

## 1. DISC DOWNLOAD METHOD

### • How to Download

This is disc download method to save the initial setting data and user setting data.

However, the following data is deleted after downloading by this method.

- \* REC mode
- \* Last channel (Before turn unit off)

- 1) Open a disc tray in the " DVD " function.
- 2) Put the download disc on the tray.
- 3) Press and hold a " STOP REC " button for playback,  
then press a " STOP " button on a front panel.
  - The disc tray closes automatically and the disc is loaded.
  - The disc tray opens automatically after loading.
- 4) Take out the Download Disc.
  - " DISC DWLD " is displayed on FL and download is started.
  - The display on FL changes to " DOWNLOAD-1 "
  - The display on FL changes to " DOWNLOAD-2 "
  - The display on FL changes to " DOWNLOAD-3 " (\*)
  - After download is completed, the power turns off, and turns on and a disc tray closes automatically.
  - \* It takes for about 5 minutes until download is completed.
- 5) Press and hold a " ESC ", then press " DISP " on a test mode remote control unit for the release version confirmation.
- 6) Confirm a firmware release version.
- 7) Press " ESC " on a test mode remote control unit in order to exit the test mode.

(\*) : " DOWNLOAD-3" is displayed only when the TuFL u-com is FLASH type.

## 2. Serial DOWNLOAD METHOD

### [Notes]

This method is secondary way when the disc loading is impossible.

### • JIGS

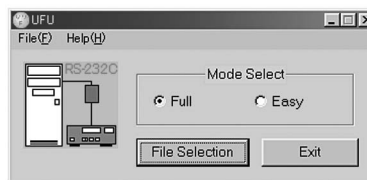
- \* PC with serial port
- \* RS232C straight cable
- \* RS232C I/F jig (GGF1348)
- \* 7P FFC (VDA1681)
- \* Download program (UFU.exe)
- \* Firmware

### • Connection

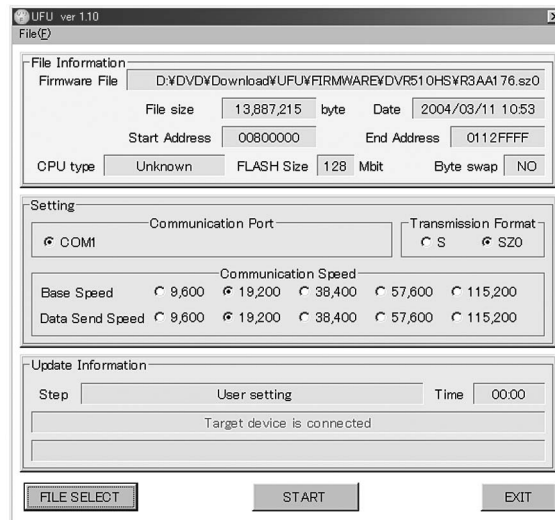
PC ↔ RS232C cable ↔ RS232C I/F ↔ 7P FFC ↔ DVD Recorder

### • How to Download

- 1) Connect the 232C I/F JIGS above way.
- 2) Turn on the PC and start the " UFU.exe ".



- 3) Select the Firmware file. ("sz0" file)
- 4) Turn the DVD recorder on and start the download program.  
" Target Device is connected" is appeared on the screen.



- 5) Select the Communication Speed (Baud Rate)

- a) Base Speed 38,400
- b) Data Send Speed 115,200

- 6) START

- \* Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and download may fail. In this case, please click "START" again.
- \* Other factors can be considered if download fails 3 times or more.
- \* And it takes about an hour for updating the firmware.

## 7.1.4 SERVICE MODE

For service operations, use the GGF1381 remote control unit for service.

The Service-mode screens consist of nine mode screens, which are classified into such rough categories as recording system and VR playback system, and their subscreens.

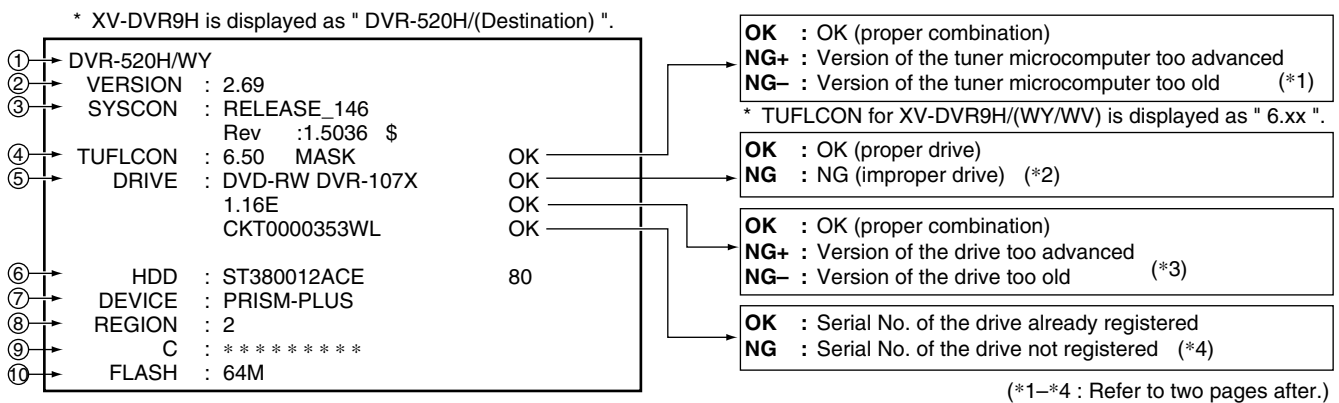
- **How to enter Service mode** : Press the ESC then DISP keys in turn while no GUI is displayed. The first screen (version information, etc.) shown below is displayed.
- **How to exit Service mode** : Press the ESC key.
- **How to advance to the next Service-mode screen** : While the first screen is displayed, press directly one of the keys 1-9. For service, use the keys 2 to 5, as shown below.
- **How to advance to a subscreen within the same Service-mode screen** : Press the DIG/ANA key.

### The Service-mode screens to be used for service are as follows:

- 1 = First screen: Version information, etc.
- 2 = Second screen: ATA/ATAPI debug screen (Writer data)
- 3 = Third screen: DV debug screen
- 4 = Fourth screen: Error log for the VR recording system
- 5 = Fifth screen: Error log for the VR playback system

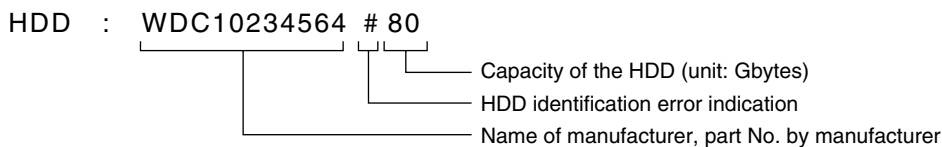
## Description of Each Service-mode screen

### 1. First screen (version information, etc.)



- |   |   |
|---|---|
| ① Model name/destination  | ⑤ Information on the built-in drive (Model name, version No., model type, serial No.) |
| ② Version of the recorder software  | ⑥ Data of the built-in HDD, capacity of the HDD                                       |
| ③ Revision No. of the system-control computer software (Edition administration No. [from top to bottom, common software, firmware, application software]) | ⑦ Version No. of PRISM  |
| ④ Version No. of the tuner microcomputer, Mask or Flash Result of the combination ckeck with system u-com   | ⑧ Region No.  |
|   | ⑨ CPRM data (CPRM key No.)  |
|   | ⑩ FLASH ROM information (64M)   |

### Details on HDD data are described below:



If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

**Table 1: HDD data indications according to various HDD connection statuses**

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	
Physical identification of HDD possible, but not identified	WDC 10234564 # 80	"#" is displayed as HDD identification error
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 80	"!" is displayed as HDD identification error
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 80	

While the first screen shown above is displayed, press the DIG/ANA key to enter the subscreen shown below.

**Note:** Each time the DIG/ANA key is pressed, the display changes between the first screen and its subscreen.

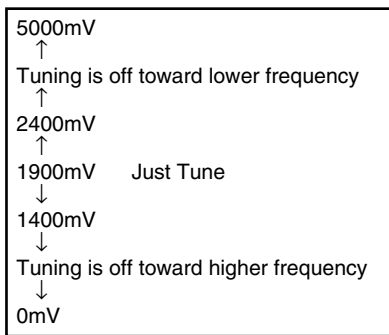
### • Subscreen 1: Simple diagnosis of the RF level

By checking the AFT and AGC voltages in this debug mode, the status of the RF signal received by the UV tuner can be checked.

MODEL : DVR-520H/WY		* XV-DVR9H is displayed as " DVR-520H/(Destination) ".
VERSION : 2.69		
TUFLCON : 6.50 MASK	OK	* TUFLCON for XV-DVR9H/(WY/WV) is displayed as " 6.xx ".
DRIVE : DVD-RW DVR-107X	OK	
1.16E	OK	
DADL000219WL	OK	
DEVICE : PRISM-PLUS		
REGION : 2		
C : *****		
INPUT CH : a8ch		
AFT VOL : 2000 mV	←	AFT Voltage
AGC VOL : 5000 mV	←	AGC Voltage

### 1) AFT voltage (AFT VOL)

How much tuning is off is monitored, as shown below:



### 2) AGC voltage (AGC VOL)

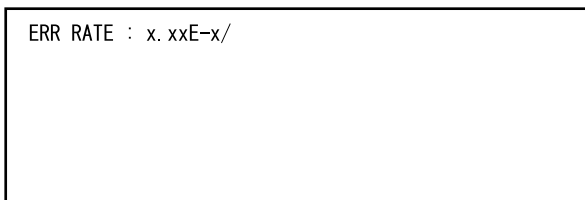
The gain controlled by the tuner is monitored to infer the input electric field intensity. (The accuracy of inference differs depending on the product.)

	Field Intensity	AGC VOL
Intense field area (Clear image)	70 dB $\mu$ or more	2700 mV or less
Less intense field area (Noise may be generated.)	50 dB $\mu$ or more 70 dB $\mu$ or less	2700mV - 4300mV
Weak field area (Much noise. EPG/VPS/PDC sometimes cannot be obtained.)	30 dB $\mu$ or more 50 dB $\mu$ or less	4300mV or more Distinction is impossible at weak field or less.
Very weak field area (Image damaged. EPG/VPS/PDC cannot be obtained.)	30 dB $\mu$ or less	4300 mV or more

#### Tips:

For good reception, the field intensity must be 50 dB $\mu$  or more (AGC VOL 3100 mV or more).  
For accurate measurement, use a field intensity meter.

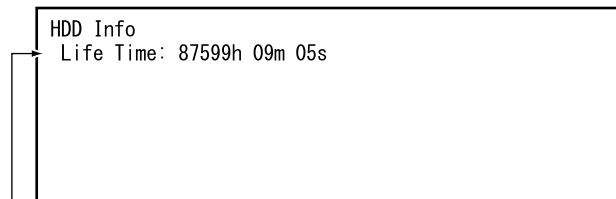
### • Subscreen 2: Result of error-rate measurement



**Note:** Be sure to start playback after displaying this subscreen to calculate the error rate.

During playback in VR mode, the average error rate of the past 10 VOBUs is displayed, and the rotation rate of the drive (/: normal speed, no display = double speed) is also displayed.

### • Subscreen 3: HDD information



Cumulative HDD-on time



### • How the data on cumulative HDD-on time are processed in memory

Storage place: Backup SRAM, Flash ROM

Timing of referring to the data on cumulative HDD-on time: When the power is turned on, the backup SRAM is referred to regarding the data on cumulative HDD-on time, and the data are stored in the RAM. If referring to the backup SRAM fails, the flash ROM is referred to.

Timing of updating the data on cumulative HDD-on time: While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the backup SRAM. When the power is turned off, the data are stored in the flash ROM.

### How to clear the data on cumulative HDD-on time

Backup SRAM: When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the ESC then the STEREO keys), or when the HDD is initialized by pressing the "ESC" key then the "one-shot memory" key.

**Notes:** The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.

The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

Flash ROM: The data on cumulative HDD-on time cannot be cleared (they are not cleared even if resetting to factory-preset values is performed or if the system-control computer software is downloaded).

**Note:** The data on cumulative HDD-on time in the flash ROM can be cleared if you clear the data in the backup SRAM following the above-mentioned procedures then turn off the power of the unit, because the data in the backup SRAM are stored in the flash ROM when the power is turned off.

### • When "NG" is displayed at First screen (version information, etc)

(\*1) NG+ : Version of the tuner microcomputer too advanced

NG- : Version of the tuner microcomputer too old

#### 1. When TUFL $\mu$ -com is MASK type

NG+ : Download the firmware.

NG- : Replace the TUFL  $\mu$ -com or JCKB ASSY.

#### 2. When TuFL $\mu$ -com is FLASH type

NG+ : Download the firmware.

NG- : Download the firmware.

(\*2) NG : NG (improper drive)

Replace the correct Drive Assy.

(\*3) NG+ : Version of the drive too advanced

NG- : Version of the drive too old

NG+ : Download the firmware.

NG- : Download the firmware.

(\*4) NG : Serial No. of the drive not registered

Check the part No. and replace the correct Drive Assy.

## 2. Second screen (ATA/ATAPI debug screen)

- A Subscreen 1 of the second screen is displayed when the ESC, DISP, then "2" keys are pressed, in that order.  
**Note:** Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 4.

### • Subscreen 1: Command log (ALL) of ATA/ATAPI DEBUG OSD

```
ATA/ATAPI History - ALL
32 010000000000A000 OK
32 2A00000DEBB000063000 OK
32 2A00000DF1E000063000 OK
32 2A00000DF81000063000 OK
32 2A00000DFE4000062000 OK
32 2A00000E046000063000 OK
32 2A00000E0A9000063000 OK
32 2A00000E10C000063000 OK
> 32 2A00000E16F000062000 23A00
```

(Not for Service)

### • Subscreen 2: Command log (ERROR) of ATA/ATAPI DEBUG OSD

(Not for Service)

### • Subscreen 3: Writer maintenance information of ATA/ATAPI DEBUG OSD

- C The cumulative power-on time and error log that are administered by the writer are displayed. Such information is obtained when the power is turned on. Thereafter, each time the SEARCH key on the remote control unit for service is pressed while subscreen 3 is displayed, the updating command is sent, and the data on the subscreen are updated. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.

```
ATA/ATAPI Writer MaintenanceInfo
① Power ON : 00 00 00 0000 00000000
   0102:56: 01 00 00 0000 00000000
   DVD      : 02 00 00 0000 00000000
② R 0053:48: 03 00 00 0000 00000000
③ W 0022:16: 04 00 00 0000 00000000 ← Error log for the Writer
   CD      : 05 00 00 0000 00000000
④ R 0034:04: 06 00 00 0000 00000000
⑤ W 0000:00: 07 00 00 0000 00000000
   00-00
```

(Not for Service)

- ① Power-on time/cumulative power-on time
- ② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
- ③ Duration of emission of the LD for DVD-W/DVD while writing
- ④ Duration of emission of the LD for CD-R/CD while reading
- ⑤ Duration of emission of the LD for CD-W/CD while writing (This function is not used for this model.)

### • Subscreen 4: ATA/ATAPI DEBUG OSD\_LD degradation judgment

The degrees of degradation of the LD (laser diode) for the writer (LDs for CD and DVD separately), temperature, and RF level are displayed. To update the data on the subscreen, press the SEARCH key on the remote control unit for service while subscreen 4 is displayed. See Table 1 below for a description of each item and the conditions for updating data.

ATA/ATAPI – LD Degrade		
①	CD :0070	104 % OK
②	DVD:0068	96 % OK
③	TMP:00A3	41 °C
④	ADJ:0067	26 °C
⑤	RF :3D70	
⑥	TLT:FFD5	

**Table 1: Description of each item and conditions for updating data**

No.	Item	Description	Conditions for updating by pressing the SEARCH key	Remarks
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray	*1
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray	*1
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray	*1
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray	*1
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium	*2
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is displayed when the writer is not adjusted.)	No condition	

\*1 : For correct judgment, after leaving the unit at a normal temperature (25°C typ.) for some time, judgment must be performed immediately after the unit is turned on with no disc loaded.

\*2 : Use this item only for confirmation before and after lens cleaning, as the lens becomes dirty with dust.

### 3. Third screen (DV debug screen)

Subscreen 1 of the second screen is displayed when the ESC, DISP, then "3" keys are pressed, in that order.

#### • Subscreen 1: DV/1394 debug screen

```

① (DV/1394) Init:OK AV:01 DV:01      INT4:02
② [Recorder] GUID:00E0360001600001 IRM
③ iPCR:C03F0000 oPCR:0000007A
④ [DV]      GUID:0080880303480E96
⑤ VN:VICTOR  MN:GR-D50K
⑥ TM:C3 TS:75 CT:32 WP:01 PS:FF OS:00
⑦ CA:A00002020 CV:FF MD:VTR
⑧ [DVdecode:Yes]
⑨ TC:00h20m35s02f RD:02/02/05 RT:10h34m50s
⑩ ASPECT:4:3 CGMS:000000 APSTB:00 DEC:525-60
⑪ SF:32kHz QU:12bit AMODE:4) Stereo
⑫ [DVencode:No]
⑬ TC:--h--m--s--f RD:--/--/-- RT:--h--m--s
⑭ ASPECT:----- CGMS:-- APSTB:--

```

Boldface alphanumerics : Fixed indications  
 Nonboldface alphanumerics : Variable indications

No.	Item	Description	Remarks
①	Init	Whether the initialization of uPD72893B (1394LINK & DVcodec IC) has been completed (OK) or not (NG)	In a case of NG, communication with uPD72893B may have failed.
	AV	Number of AV devices on the local bus	
	DV	Number of DV devices on the local bus	If the number does not become 01 even if a DV device is connected, identification of that device fails.
	INT4	Number of executing INT4(PIO) interrupt processing routines until a POWER ON notification arrives from uPD72893B (normally, 02)	
②	GUID	GUID set in ConfigROM of the unit	In a case of ROOT (IRM), IRM is displayed at the rightmost of the GUID indication
③	iPCR	iPCR value of the unit	
	oPCR	oPCR value of the unit	
④	GUID	GUID set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. If the connected DV device is ROOT (IRM), IRM is displayed at the rightmost of the GUID indication
⑤	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
⑥	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Copy-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑦	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	CV	Camera/VTR data obtained from the DV device	
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.

No.	Item	Description	Remarks
⑧	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV
⑨	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when playback in the forward direction is performed. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑩	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch2, bits 3-2: Audio ch1, and bits 1-0: Video)	Recording of DV input cannot be performed unless the value of CGMS is 00.
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑪	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	
⑫	[DVencode:XXX]	Whether Yes (in the process of requesting DV output) or No is indicated in XXX	Normally, Yes is indicated only with HDD or DVD playback
⑬	TC	TIME CODE of DVencode stream	
	RD	REC DATE of DVencode stream	
	RT	REC TIME of DVencode stream	
⑭	ASPECT	Aspect Ratio of DVencode stream	
	CGMS	CGMS of DVencode stream (common to video, audio ch1 and audio ch2)	Normally, sources other than CGMS=00 are not output.
	APSTB	APS trigger bit of DVencode stream	

## Simple Diagnosis

Symptoms	Location in the Debug Screen	Items to be Checked, and Conditions	Possible causes
No operation for either DV input or output	①	<p>Check the init indication:            OK: Initialization of DV-related LSIs (IC5101, IC5202) appropriately completed            NG: Communication failure between DV-related LSIs (IC5101, IC5202) and HOST microcomputer (IC1001). Initialization of DV-related LSIs (IC5101, IC5202) has not been completed properly.</p> <p>Check the number of DV devices when one DV device is connected to the recorder:            01 : The connected DV device is correctly identified.            Other than 01 : The connected DV device is not correctly identified.</p> <p>Check of DV decoding when the recorder channel is set to DV:            Yes: The recorder is in the process of a DV input operation            No: The recorder is not executing a DV input operation</p>	<p>Defective IC, defective soldering, defective power supply, etc.</p> <p>Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective cables, an IEEE 1394 device other than the DV device connected</p> <p>Defective IC, defective soldering, defective power supply, etc.</p>
No picture nor sound for DV input	⑧	<p>Check DEC:            525-60: An NTSC DV signal is input from the DV device.            625-50: A PAL DV signal is input from the DV device.            No: No DV signal is input from the DV device.</p>	<p>Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective source device  <b>Note:</b> As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.</p>
DV input recording impossible	⑩	<p>Check CGMS:            00: A copy-permitted source is being input.            Other than 00: A copy-protected source is being input.</p>	<p>Recording cannot be performed for a copy-protected source.</p>
No sound for DV input	⑪	<p>Check SF:            32 khz: An audio signal with 32-kHz sampling frequency is being input.            48 khz: An audio signal with 48-kHz sampling frequency is being input.            44 khz: An audio signal with 44.1-kHz sampling frequency is being input.</p>	<p>An audio signal with 44.1-kHz sampling frequency is muted.</p>
No picture nor sound for DV output	⑫	<p>Check DVencode during DVD/HDD playback:            Yes: The recorder is in the process of a DV output operation            No: The recorder is not executing a DV output operation            (No is also displayed during playback of copy-prohibited sources or simultaneous-recording/playback.)</p>	<p>Defective IC, defective soldering, defective power supply, etc.</p>

#### 4. Fourth screen (VR-recording-related error log)

Subscreen 1 of the fourth screen is displayed when the ESC, DISP, then "4" keys are pressed, in that order.

**Note:** Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 11.

##### • Subscreen 1:

```
RunFnc:--- Ecl:***** Rate:**
_____
_____
_____
_____
_____
_____
_____
_____
```

##### • Subscreens 2 and 3:

These subscreens are not for service use.

##### • Subscreen 4: Error log for VR recording

```
① Recording Error History Display
01-06-01 20:05:30 No SysHdr IN
01-06-02 00:22:10 Write Error
```

- ① Recording-related error log for the last 18 errors, divided into 2 screens (generation time [year-month-day, hour:minute:second], error data in simplified description)

##### Notes:

- For details on error messages, see Table 1 "Description of VR-recording-related errors".
- The two error-log screens can be switched by pressing the SPEED+ or SPEED- key.

##### • Subscreens 6: R-Zone information

Set the DVD-R disc, then display the subscreen 6.

```
R-Zone num:*** ver:0020
nwa:***** sa:***** st:**
nwa:***** sa:00003000 st:**
nwa:***** sa:***** st:**
nwa:***** sa:***** st:**
nwa:***** sa:***** st:**
```

```
ver: TMP VMGI Ver
0010 : TMP VMGI Ver1.0 disc
0020 : TMP VMGI Ver2.0 disc

sa:
00000600 : TMP VMGI Ver1.0
00003000 : TMP VMGI Ver2.0
```

##### • Subscreens 5, 7 to 11:

These subscreens are not for service use.

**Table 1: Description of VR-recording-related errors****● Error related to MPEG Encoder**

Error Message	Description
Stream NG	Inappropriate input stream data
Strm Start NG	Failure to start encoding (reasons not clear)
AVEnc Hang	AVEncoder failed
No SysHdr IN	System packet is not input periodically
Strm Start NG	Timeout waiting for system packet input at the beginning
IN Encode *	Changes cannot be made in the process of encoding

**● Error related to Drive system**

Error Message	Description
BUF Overflow	Overflow of the Stream Buffer
Drive Hang	The Drive is hung up.
Write Err	The Drive failed to write and could not be recovered.
Read Err	Reading failed, ECC failed, etc.
Drv Hard Err	Abnormality in the drive hardware or firmware
Mech No Res	No response from the mechanical-control computer
Drv TimeOut	Timeout waiting for drive operation
NWA Exhaust	NWA surpassed and impossible to use
MKB Invalid	MKB reading error
Drv Err	General error of the drive
Fail Repair	Repair failed
ReadOnly DISC *	Because some data are invalid, data cannot be written
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.
Rzn Rsv NG	Reserve RZone failed
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Bdr Opn NG	Open Border failed
Bdr Cls NG	Close Border failed
Format NG	Format failed
OPC NG	OPC failed
PCA Full	PCA has been used up.
RMA Full	RMA has been used up.
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI Wr Err	Video Mode VTSI Write Error
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
CLS Rzon Fail	Video Mode Close Rzone failure

**● Error related to Dubbing**

Error Message	Description
Mem get NG	Video Mode Copy Memory has not ensured.
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed
VCHDD Info NG	Obtaining Video Mode Copy HDD Cell information failed
VC Pck Anl NG	Analyzing Video Mode Copy Pack failed
VC VOBu SizeE	Video Mode Copy VOBu Size NG
Tracon Trn NG	Video Mode Copy Tracon tranfer has not been completed.



● **Error related to Dubbing (continued)**

<b>Error Message</b>	<b>Description</b>
Strm TransfNG	Video Mode Copy Stream Transfer NG
VC FlushC NG	Video Mode Copy Flush Cache NG
VC Transf Stp	Video Mode Copy Transfer Stop
VC CopyCancel	Video Mode Copy Copy Cancel
VC Idling NG	Video Mode Copy idling NG
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.
VC Cell Max	Maximum number for Video Mode copy Cells exceeded
VC HDD Inf NG	No information on Video Mode Copy HDD
VC HDD C Err	Inappropriate Video Mode Copy HDD content
V2H SRC Prot	VR →HDD copy prohibited material
V2H Aud Ch NG	VR →HDD Audio Channel NG
V2H Aud Stm N	VR →HDD Audio Stream number NG
V2H Aud Md NG	VR →HDD Audio Mode NG
V2H V Reso NG	VR →HDD Video resolution NG
V2H Unknown	VR →HDD other NG
H2D CP SomeNG	VR →HDD copy and other NG

● **Other Errors**

<b>Error Message</b>	<b>Description</b>
DRAM NG	Abnormality in access to the Work DRAM
SRAM NG	Abnormality in access to the backup work SRAM
CPRM IC NG	Inappropriate CPRM IC
Drive Destroy	The drive has crashed.
MKB REVOKED	Error in gaining data
WM Cracked	WM Cracked
VBR-SRAM NG	Abnormality in VBR SRAM
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been written on the File Sys.
VOBU Info NG	Inappropriate VOBU information
EncModul Hang	Encoder routine is hung up.
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
WaterMark Det	Watermark detected
No Video	No video input (not locked)
Disc Full	No further data can be written because the disc is full.
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
Limit Over *	Standard maximum limit exceeded
Rec Pause *	No operation permitted during recording pause
Invalid Param *	Invalid parameter
Protect Src *	Source to be recorded is copy-protected.
Now Busy *	In the process of the emergency processing
Invalid Disc *	The disc cannot be recognized.
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid TMVMG	Invalid TMP_VMG content
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
Virgin DISC	Virgin Disc

### ● Other Errors (continued)

Error Message	Description
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
NV Pck MK Err	Error in creating NaviPack
NV Pck DMA Er	Inappropriate NaviPack DMA
Cell Close NG	Cell Close NG
Relocation Do	VR-recording data was relocated
Something *	undetermined error
Status NG *	Abnormality in change of statuses
Irr Action *	Incorrect action
Abort *	Cancellation
BusReset Done	Bus Reset has been executed.
Repair Excec	Repairing has been executed.
Format Excec	Formatting has been executed.
BUG	Some bugs
PARAM NO ACCP	Recording parameter is not matched.
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext TY NG	Type NG
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
Over Heat	Abnormal temperatute

### ● Error related to HDD

Error Message	Description
HDD unauthor	Inconsistent HDD serial No.
HDD Destroy	HDD is not recognized on the bus.
TT Rec Over	Title recording time full
HDDReset Done	HDD Reset executed
Task No Activ	Task has not been activated.
HDD Buff High	High-level process executed for the HDD Buffer
HDD Trans Err	DMA error in HDD copy transfer
HDD Zero WR	MBR readout generated
HDD Initialize	HDD initialized
HDD MBR NG	Inconsistent MBR data
HDD SIG NG	Inconsistent HDD Management Data Magic
HDD INFO BAD	Incorrect HDD Management Data
HDD IRRG POFF	Abnormal power off
HDD SMART NG	Inappropriate HDD SMART

### ● No Error

Error Message	Description
Non Err *	Normal

#### Notes;

- Any error message marked with \* is displayed "RecErr : -----" on the Subscreen 1 of the fourth screen.
- In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

#### Abbreviations:

ECC = 4 byte Code for Error Correction  
 UDF = Universal Disc Format  
 PCA = Power Calibration Area  
 OPC = Optical Power Control  
 NWA = Next Writable Address

VMG = Video Manager  
 RMA = Recording Management Area  
 MKB = Media Key Block  
 TMP\_VMG1 = Temporary Video Manager Information  
 Border = from Lead-in to Lead-out

## 5. Fifth screen (Error log for VR playback)

Subscreen 1 of the fifth screen is displayed when the ESC, DISP, then "5" keys are pressed, in that order.

**Note:** Each time the DIG/ANA key is pressed, the display changes cyclically among subscreens 1 to 4.

### • Subscreen 1:

```
G:001-01 00h00m00s00#-. -e-- 00.00M
Tgt:STOP Now:STOP Spd: 0
Man:STOP Sub:0 VBF:000 ABF:00
TrMd:STOP TrSt:0 TNo: Ver:00
RvMd:STOP RvSt:0 DNo: Aer:00
CcSt:STOP Id:00000000
Stc:00000000 Tpp-Av1:+-0 V-A:+-0
MPEG2 720x480 AO AC-3 2ch 0256k
NT ASP:43 CGMS:0 APS:0 Src:0
END:00h00m00s00 Cell:000
```

### • Subscreen 2: Error log for VR playback

```
① G:01-01 00m00s#-. -e-- 00000000
      h m s Message      h m s Err
;G001:000000 Tr:Nullb|k
② ;L002:001230 Tr:SchLate
;L002:004103 Tp:VobDif+
;L002:004104-Tp:VobDif-
```

#### ① Data on location of the display

Original(G)/play list (L), title No., chapter No. (X:XXX-XX), time of the display (hour, min, sec, frame [XXhXXmXXsXX]), busy mark of the virtual mechanical-control computer (#), error rate of the transfer data (X.XeXX), playback logical address (ID [XXXXXXXXXX])

#### ② Error message log

Original(G)/play list (L), title No., time of generation (min, sec [XXX:XXXX]), playback-related error log for the last 8 errors (XXX:XXXXXXXX)

#### Notes:

- For details on error messages, see Table 2 "Description of VR-playback-related errors".
- If a VR-playback-related error is generated, a problem in data reading from the disc may be suspected. (The possibility of a problem on the drive side is high.)

### • Subscreens 3 and 4:

These subscreens are not for service use.

**Table 2: Description of VR-playback-related errors**

Error Message	Description
Tr : NullBlk	Transfer task: NULL at the top block (Detecting NG stream made at the DVR-1000 series and starting protection process.)
Tr : ReadErr	Transfer task: ATA read error
Tr : SchLate	Transfer task: ATA search late
Tr : SemTOvr	Transfer task: Timeout for gaining semaphore (no synchronization with the display)
Tr : NaviErr	Transfer task: Inconsistency between NAVI (navigator) of management data and actual NAVI
Tr : OrderEr	Transfer task: Inconsistent order
Mn : Av1Hang	Main task: Detects hang-up of AV decoder and starts recovery
ERR_RCV!	TPP task: Detects hang-up of AV decoder and starts recovery
Tp : VobDif+	TPP task: The decoder STC advances by 1 VOB hour.
Tp : VobDif-	TPP task: The STC of the management information advances
Tp : midNULL	TPP task: The management information pointer designated was NULL.
Tp : ScanNg	TPP task: Failure to set the TPP memory when scanning was canceled.
Tp : RStepEr	TPP task: Although the reverse step had failed, the operation was forcibly terminated because the top cell was located.
Tp : tppErr	TPP task: Inconsistency occurred.
Rv : 1stTOvr	Reverse playback task: Timeout for waiting for interruption to the top VOB immediately after starting decoding
Rv : OpnTOvr	Reverse playback task: Timeout for waiting for B-picture of the open GOP immediately after starting decoding
Rv : OpiTOvr	Reverse playback task: Timeout for waiting for I-picture of the open GOP immediately after starting decoding
Rv : LnkTOvr	Reverse playback task: Timeout for waiting for link
Rv : LnkFail	Reverse playback task: Starts compensation by detecting link failure
Rv : R2FTOvr	Reverse playback task: Starts retrial after detecting timeout from reverse pause to forward pause
Rv : TopVbEr	Reverse playback task: Forced termination because of a possible error of the top data during reverse normal playback
Rv : OrderEr	Reverse playback task: Inconsistent order
Av : B/CTOvr	AV1: Buffer-clear timeout
Av : StrmOvr	AV1: Timeout for waiting for stream ready
Av : TpmTOvr	AV1: Timeout for TP mode change
Av : SpmTOvr	AV1: Timeout for a step command
CC_OS_ERR	Closed caption task: OS error

**Abbreviations:**

STC = System Time Clock

VOBU = Video Object Unit

GOP = Group Of Picture

B-picture = Bidirectionally predictive-picture

I-picture = Intra-picture

P-picture = Predictive-picture

TP mode change = AV1 term (Trick Play mode change)

## 7.1.5 ERROR RATE MEASUREMENT

### How to enter Error-Rate Measurement mode

Press the ESC key then the SIDE-B key of the remote control unit for service to enter Error-Rate Measurement mode. During playback of DVD-VIDEO, Error-Rate Measurement mode can also be entered by pressing the ESC key then the PLAY key.

### How to exit Error-Rate Measurement mode

Press the ESC key. The error-rate display disappears, and Error-Rate Measurement mode is exited.

**Note:** The error rate cannot be measured in VR mode or during CD playback.

### Functions

#### ① Video-mode recording (recording medium)

In this mode, DVD recording is automatically performed for 10 seconds, the recorded DVD title is played back while the error rate is being measured, then as soon as playback of the recorded DVD title is finished, playback stops.\*1 After error-rate measurement is finished, the average error rate will be displayed on the FL display and OSD. Only in a case in which the calculation of the average error rate fails, the tray will open.

#### ② DVD-VIDEO (playback medium)

Only during playback, when the ESC key then the SIDE-B key (or the ESC key then the PLAY key) are pressed, the error rate is calculated and displayed on the FL display and OSD.(\*2) Only in a case in which the calculation of the average error rate fails, the tray will open.

## Changes of display

**Table 1: Video mode (recording medium)**

Operation	Display	
	FL Display	OSD (On Screen Display)
"ERROR RATE" is displayed on the FL display for an instant.	E R R O R R A T E	
DVD recording starts.	E R R O R R A T E	
DVD recording is performed for 10 seconds.	x x x x x	
The recorded DVD title is played back while the error rate is being measured, then as soon as playback is finished it stops.	E R x . x E - x	ERR RATE : x.xE-x -
After error-rate measurement is finished (*1), the average error rate, the measurement-finish mark (*), and the OK/NG-judgment result (*3) will be displayed on the FL display and OSD. (If the tray opens as a result of NG judgment, the display on the FL display and OSD will be retained.)	E R x . x E - x	ERR RATE : x.xE-x * OK

**Table 2: DVD-Video (playback medium)**

Operation	Display	
	FL Display	OSD (On Screen Display)
Only during playback, when the corresponding keys are pressed, the error rate is calculated and displayed on the FL display and OSD. (*2)	E R x . x E - x	ERR RATE : x.xE-x -
After error-rate measurement is finished (*1), the average error rate, the measurement-finish mark (*), and the OK/NG-judgment result (*3) will be displayed on the FL display and OSD. (If the tray opens as a result of NG judgment, the display on the FL display and OSD will be retained.)	E R x . x E - x	ERR RATE : x.xE-x - OK

\*1 : Whether error-rate measurement is finished or not is judged, as shown in Table 3 below.

**Table 3: On judgment whether error-rate measurement is finished or not**

Recording Mode	Judgment whether error-rate measurement is finished or not	Recording/playback duration required for error-rate measurement
Video mode	After playback of a certain amount (*) of data Measurement of the 16 ECC blocks is performed 16 times, then the grand sum is used for calculation of the error rate. The capacity is as follows: 16 ECC blocks × 16 sectors × 2048 bytes × 16 times = 8388608 bytes = 67108864 bits	The time required for completion of error-rate measurement varies, depending on the input video signal to be recorded. (The more the motion in the input video signal to be recorded is animated, the shorter the playback time required for completion of error-rate measurement becomes.)

\*2 : During DVD-VIDEO error-rate measurement, even after error-rate measurement is finished, playback continues, and the display of the error rate results is retained. In this playback mode, if Error-Rate Measurement mode is exited by pressing the ESC key, then it is reentered by pressing the ESC and SIDE-B keys (or ESC and PLAY keys), the error rate will not be updated, and the previous value is displayed. To reset the previous error rate, stop disc playback.

\*3 : OK/NG judgment

In DVD/VIDEO and Video Mode recording, OK/NG judgment is displayed under the following conditions:

**Table 4: List of OK/NG threshold values**

Disc Type	Recording Mode	Finalized or not finalized	Reference Value	Display
DVD-VIDEO			$8.0 \times 10^{-4}$	OK / NG
DVD-R	Video mode	Finalized	$1.0 \times 10^{-3}$	OK / NG
		Not finalized	$1.0 \times 10^{-3}$	OK / NG
DVD-RW	Video mode	Finalized	$1.0 \times 10^{-3}$	OK / NG
		Not finalized	$1.0 \times 10^{-3}$	OK / NG

## 7.1.6 SERVICE SPECIFICATIONS OF THE PT MICROCOMPUTER (PDC117A-K)

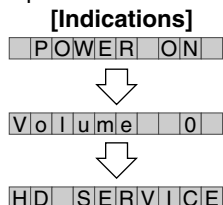
### 1. Conditions during checking

- Ignore whether Protection mode is activated.
- Even if the unit was automatically shut down after detecting that the Protection circuit had been activated in Normal mode, you can turn the unit on without waiting for one minute.
- Only this unit can be operated without the subwoofer. (The VOLUME operations can be performed.)

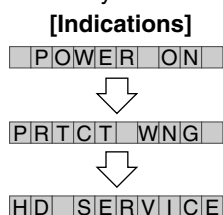
### 2. How to enter Test mode

- Turn the AC power of the DVD-RW TUNER on while holding the OPEN/CLOSE and HDD/DVD keys of the unit pressed simultaneously.
  - Then turn on the unit by pressing the STANDBY/ON key.
- The indications displayed on the FL display when Test mode is entered differ according to whether the unit was previously turned off normally or the unit was shut down because the Protection circuit had been activated, as shown below:

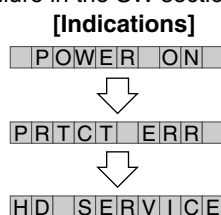
[After the power was turned off normally]



[After the power was shut down because of an abnormality in the SW section]



[After the power was shut down because of a failure in the SW section]



- To quit Test mode, turn the unit off by pressing the STANDBY/ON key then turn the AC power of the DVD-RW TUNER off.
- Upon quitting Test mode, the unit initializes only the data on the protection error in RAM.

### 3. Operations

- Basically, operations in Test mode are the same as those in Normal mode. However, to clearly demonstrate that it is in Test mode, when a function is switched, the indications on the FL display are as shown below:

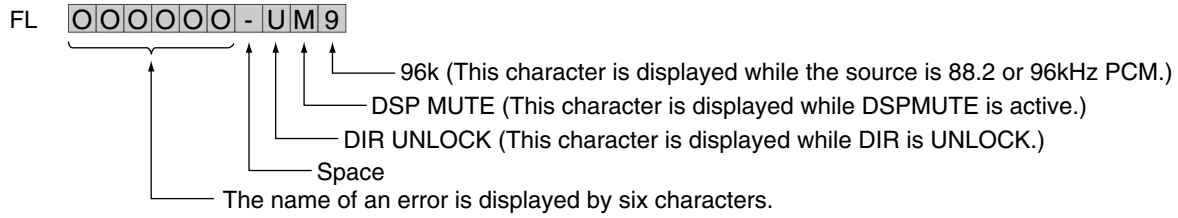
[Function]	[Indication]
HDD/DVD	HD SERVICE
TUNER	TX SERVICE
ANALOG	AN SERVICE
DIGITAL	D1 SERVICE (Europe)

### 4. DSP error indication

- Each time the DISPLAY key on the remote control unit is pressed while the power is on, the DSP error indication and normal indication are switched alternately.

# 7.1.7 SPECIFICATIONS OF THE DSP DISPLAY

## A • Specification of DSP error display



## B Example)

ERR. 0 [D I R E R R] - U M

ERR. 1 [D S P E R R] - U M

ERR. 2 [H R E Q] - U M

ERR. 3 [D S P N G] - U M

C ERR. 4 [D M U T E] - M

NO ERR [D S P O K] - 9  
(The source is 88.2/96kHz.)

NO ERR [D S P O K] -  
(The source is 88.2/96kHz.)

## • DSP error message mode

D Press the "DISPLAY" key in service test mode, to select the mode that DSP error messages are displayed. Press the "DISPLAY" key again to select the normal service test mode. For this reason, make the usual function of "display" not effective in the service test mode.

E

F



## Detectable DSP Errors

The following conditions are assumed,

in order to eliminate causes other than "DSP-assy" and "between DSP-assy and microcomputers".

- Electric power is correctly supplied to DSP-assy.
- The SPDIF signal is coming to the input port of DIR.
- There is no audio output from DSP-assy, or audio output is unusual.

- **ERR\_0 : –Cannot receive data from DIR–** FL **DIRERR:UM** \* "U", "M" display below is a sample.  
Those character display ON/OFF depends on the state.  
→ Communication fault has occurred somewhere between DIR (IC8201 PinNo.32 CDTO)–Level Shifter (IC8702)–μ-com (IC5501 PinNo.58 DIRDO).  
→ Communication fault has occurred somewhere between the μ-com-port (\*1) which has sent the signal and each IC.
- **ERR\_1 : –Cannot receive data from DSP–** FL **DSPERR:UM**  
→ Communication fault has occurred somewhere between DSP (IC8501 PinNo.144 MISO)–Level Shifter (IC8702)–μ-com (IC5501 PinNo.24 DSPDO).  
→ Communication fault has occurred somewhere between the μ-com-port (\*1) which has sent the signal and each IC.  
→ Communication fault has occurred somewhere between the DIR and DSP.
- **ERR\_2 : –There is no return value of HREQ.–** FL **HREQ:UM**  
→ Communication fault has occurred somewhere between DSP (IC8501 PinNo.3 HREQ)–Level Shifter (IC8702)–μ-com (IC5501 PinNo.59 DSPHREQ).  
→ Communication fault has occurred somewhere between the μ-com-port (\*1) which has sent the signal and each IC.  
→ Communication fault has occurred somewhere between the DIR and DSP.
- **ERR\_3 : –ERR information from DSP–** FL **DSPNG:UM**  
→ Communication fault has occurred somewhere between the μ-com-port (\*1) which has sent the signal and each IC. (especially the fault inside DSP)  
→ Communication fault has occurred somewhere between the DIR and DSP.
- **ERR\_4 : –DECOMUTE continues being LOW(MUTE).–** FL **DMUTE:M**  
→ Communication fault has occurred somewhere between DSP (IC8501 PinNo.21 PB12 MUTE)–Level Shifter (IC8702)–μ-com (IC5501 PinNo.60 DECMUTE).  
→ Communication fault has occurred somewhere between the μ-com-port (\*1) which has sent the signal and each IC.  
→ Communication fault has occurred somewhere between the DIR and DSP.

Although the following are not errors, they are displayed separately and are helpful in finding a solution.

- **INFO\_0 : –DIRERR is HIGH (UNLOCK) in digital function.–** FL **DSPOK:UM**  
If DIRERR continues being HIGH (UNLOCK) without the above-mentioned error display.  
→ Communication fault has occurred in somewhere between DIR (IC8201 PinNo.36 INT0)–Level Shifter (IC8702)–μ-com (IC5501 PinNo.57 DIRERR).
- **INFO\_1 : –DSPMUTE is LOW (MUTE).–** FL **DSPOK:M**  
If DSPMUTE continues being LOW (MUTE) without the above-mentioned error display.  
→ Communication fault has occurred in somewhere between μ-com (PinNo.62 XDSPMUTE)–connector (CN8011 No.19 MUTEOUT).
- **INFO\_2 : –Loading 88.2kHz/96kHz PCM–** FL **DSPOK:9**  
DSP function is limited when this information is displayed.

Notes :

Only the high priority error (near to ERR\_0) is displayed when the multiple errors have occurred.

When the analog audio output of a DSP module is unusual but the above error information is not displayed, the fault is probably in the CODEC IC (IC8401) and the peripheral circuits.

As the μ-com has not received data from the CODEC IC, it cannot detect the fault and display the error information.

\*1 :  $\mu$ -com-port which has sent the signal to IC

A

IC5501 $\mu$ -com port		IC8201 DIR port	IC8401 CODEC port
Pin No.	Pin Name	Pin No.	Pin Name
No.25	DSPCLK	No.34	CCLK
No.23	DSPDI	No.33	CDTI
No.67	DIRCS	No.35	CSN
No.66	DIRRST	No.31	PDN

B

IC5501 $\mu$ -com port		IC8501 DSP port	
Pin No.	Pin Name	Pin No.	Pin Name
No.25	DSPCLK	No.1	SCK
No.23	DSPDI	No.143	MOSI
No.63	DSPSS	No.2	$\overline{SS}$
No.64	XDSPRST	No.44	$\overline{RESET}$
No.65	DSPMODE	No.137	MODA

C

IC5501 $\mu$ -com port		IC8201 DIR port	
Pin No.	Pin Name	Pin No.	Pin Name
No.58	DIRDO	No.32	CDTO
No.57	DIRERR	No.36	INT0

IC5501 $\mu$ -com port		IC8501 DSP port	
Pin No.	Pin Name	Pin No.	Pin Name
No.24	DSPDO	No.144	MISO
No.59	DSPHREQ	No.3	HREQ
No.60	DECMUTE	No.21	PB12 MUTE

D

E

F

## 7.1.8 VIDEO ADJUSTMENT FOR SPECIFIC AREA

**Purposes:** Depending on the area, jitter may appear in a picture received by the tuner, as conditions of signals received by the tuner are different from area to area. To correct this kind of problem, the function of the System Codec AVIO control section for adjusting signals received by the tuner can be used.

**How to enter setting modes:** To enter General Setting mode, press the ESC key then the CHP/TIM key of the remote control

unit for service. To enter Specific Channel Setting mode, press the DIG/ANA key in General Setting mode.

**How to exit setting modes:** Press the ESC key. The setting mode is exited, the OSD disappears.

### 1. General Setting mode

This mode can be entered only during recording/playback stop. In this mode, each item and its current settings are displayed on the OSD. The currently selected input mode (TUNER or LINE) is displayed. If L1, L2, L3 or DV is selected for input, general settings for the line input can be made, and if TUNER is selected, general settings for the tuner input can be made.

**[General Setting mode]** (A picture from the tuner can be viewed using the semitransparent OSD display.)

AVIO Specific Area Mode	Ver *.*.**
Input - [ TUNER ]	
Sync AGC :ON	*
Threshold :Normal	*
V-Sync Det :Normal	*
Std Det :Normal	*
HD Err Det :Normal	*

\* : setting is the default.

**Table 1: Key operations in General Setting mode** (effective only during recording/playback stop)

Key	Operation	Setting (*: Default)	Remarks
INPUT SELECT, CHANNEL +/- (*R) (*2)	Switches inputs or channels.	TUNER / LINE	-
[SIDE A], [SIDE B] (*1)	Sets Sync AGC.	ON (*) / OFF	-
[Rev x3], [x3 Fwd] (*1)	Sets Threshold level.	(*) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	-
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd] (*1)	Sets Threshold level.	According to the setting of Threshold, the values can be changed within the range mentioned below.	-
		• Normal: The value is fixed, with no display of the value.	-
		• Auto Threshold Level: 0-8 (Default: 0)	-
		• Manual Threshold Level: 0-8 (Default: 0)	-
[Rev SCAN], [SCAN Fwd] (*1)	Sets V-Sync Det.	Normal (*) /Short/Long	-
[Rev STILL STEP], [STILL STEP Fwd] (*1)	Sets Std Det.	Normal (*) /Non STD	-
[SPEED +], [SPEED -] (*1)	HD Err Det	Normal (*) /Fast/Stop	-
CLEAR (*1)	Initializes the setting of General Setting mode.	-	Pressing the key resets all settings (①-③ of Table 2) of General Setting mode to the initial values. Settings of Specific Channel Setting mode are not affected (they are retained).
ESC	Exits AVIO setting for specific areas, clearing the OSD. (Tuner screen appears)	-	-

\*R: Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

\*1 : If a setting value is changed, that is immediately reflected, and the data are written to nonvolatile memory. The setting data to be stored in nonvolatile memory in General Setting mode are as shown in Table 2 below:

**Table 2: Setting data to be stored in nonvolatile memory in General Setting mode**

Selectable settings for TUNER/LINE Setting item	TUNER	LINE
① Sync AGC	ON or OFF	Same as TUNER
② Threshold	Normal, Auto Threshold Level, Manual Threshold Level, or Pedestal Level	Same as TUNER
③ Threshold LEVEL	0 - 8	Same as TUNER
④ V-Sync Det	Normal, Short, or Long	Same as TUNER
⑤ Std Det	Normal or Non STD	Same as TUNER
⑥ HD Error	Normal, Fast, or Stop	Same as TUNER

\* The setting values will not be reset to default even if resetting to the state at the time of shipment is performed.

\* If the software for the system-control computer is downloaded, the setting values are initialized to default regardless of its having or not having the function of resetting to the state at the time of shipment. If the software for the system-control computer is downloaded to a disc, initialization of setting values in General Setting mode is performed as follows:

- (i) When the software for the system-control computer with the function of resetting to the state at the time of shipment is downloaded to a disc: The setting values in General Setting mode are initialized to default.
- (ii) When the software for the system-control computer without the function of resetting to the state at the time of shipment is downloaded to a disc: The setting values in General Setting mode are not initialized to default (The setting values before downloading will be retained).

\*2 In General Setting mode, when the displayed channel has its individual settings, the indications on the screen are as shown in below:

**[Display in General Setting mode when the channel currently displayed has specific settings]**

AVIO Specific Area Mode	Ver*. **
Input - [ TUNER ]	
Sync AGC : ON	*
Threshold : Normal	*
V-Sync Det : Normal	*
Std Det : Normal	*
HD Err Det : Normal	*
This channel is set up individually.	

## 2. Specific Channel Setting mode

This mode is entered when the DIG/ANA key is pressed in General Setting mode. In this mode, specific settings can be made for up to 12 channels. For channels that do not have specific settings, the settings of General Setting mode are applied.

**[Display in Specific Channel Setting mode]** (A picture from the tuner can be viewed using the semitransparent OSD display.)

AVIO Specific Area Mode	
Input - [ TUNER ]	
Sync AGC : ON	*
Threshold : Pedestal Level	
Threshold Level : 1	
Individual setting state	
Input Channel - [ 1CH ]	
Sync AGC : --	
Threshold : ----	
Threshold Level : -h	
* : setting is the default.	

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (--). If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.

**Table 3: Key operations in Specific Channel Setting mode**

(effective only during recording/playback stop)

Key	Operation	Setting (*: Default)	Remarks
DIG/ANA	General Setting mode and Specific Channel Setting mode are alternately selected.	–	–
INPUT SELECT, CHANNEL +/- (*R)	Each time the Input Selector or channel is changed, the general setting data and specific channel setting data on the display are changed.	–	On the display of General Setting mode, only the selected input, i.e., TUNER or LINE is changed.
[Rev x3], [x3 Fwd] (*3)	Sync AGC setting for an individual channel is performed.	ON (*) / OFF	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd] (*3)	The Threshold type can be selected.	(*) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	When the Threshold type is changed, the corresponding Threshold Level is displayed.
[Rev SCAN], [SCAN Fwd], [Rev STILL STEP], [STILL STEP Fwd] (*3)	The Threshold Level can be set.	According to the selected Threshold type, the value can be changed in the range shown below:	–
		• In a case of Normal: The level is fixed, with no indication of its level.	–
		• In a case of Auto Threshold Level: 0-8 (Default: 0)	◀   STILL STEP: Each time this key is pressed, the number decreases one by one in the range of 0-8, cyclically. STILL STEP ▶▶: Each time this key is pressed, the number increases one by one in the range of 0-8, cyclically.
		• In a case of Manual Threshold Level: 0-8 (Default: 0)	
• In a case of Pedestal Level: 0-8 (Default: 0)			
PLAY (*3)	All channels that have individual setting data will be canceled, and the individual data that have been stored in nonvolatile memory will be reset to default.	–	All data stored in nonvolatile memory shown in ① to ④ of Table 4 will be initialized. The General Setting data will not be changed (will be retained).
CLEAR (*3)	If the currently selected channel has its individual setting, that setting will be canceled. By canceling the individual setting for that channel, the number of remaining channels that can have individual settings will be increased by one.	–	All the individual channel setting data for the currently selected channel are reset to the initial values. The General Setting data will not be changed (will be retained).
PAUSE (*3)	The specific-channel-setting data for the currently selected channel are reset to default.	–	The General Setting data will not be changed (will be retained).
ESC	To quit the AVIO setting mode for specific-area setting and clear the On-Screen Display (the screen will return to that for the tuner)	–	–

\*R: Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

\*3 : Setting data to be stored in nonvolatile memory in General Setting mode are shown in Table 4:

**Table 4: Setting data to be stored in General Setting mode**

Setting Item	Selectable Value
① Channel stored in memory	Any channel among all tuner or line channels (min: 0, max: 12)
② SYNC AGC	ON or OFF (stored in memory for each channel that has individual settings)
③ Threshold	Normal, Auto Threshold Level, Manual Threshold Level, or Pedestal Level (stored in memory for each channel that has individual settings)
④ Threshold LEVEL	0-8 (stored in memory for each channel that has individual settings)

\* The setting values will not be reset to default even if resetting to the state at the time of shipment is performed.

\* If the software for the system-control computer is downloaded, the setting values are initialized to default regardless of its having or no having the function of resetting to the state at the time of shipment. If the software for the system-control computer is downloaded to a disc, initialization of setting values in Specific Channel Setting mode is performed as follows:

(i) When the software for the system-control computer with the function of resetting to the state at the time of shipment is downloaded to a disc: The setting values in Specific Channel Setting mode are initialized to default.

(ii) When the software for the system-control computer without the function of resetting to the state at the time of shipment is downloaded to a disc: The setting values in Specific Channel Setting mode are not initialized to default (The setting values before downloading will be retained).

#### • Indication when the maximum number (12) of channels have individual settings

When 12 channels have individual settings, and if a channel that has individual settings is currently selected [see Fig. 3-(a)], the setting data for that channel are displayed on the screen, and they can be changed. When a channel that does not have individual settings is currently selected, the indication will be as shown in Fig. 3-(b), and the setting data cannot be changed. (If you wish to set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.)

#### [When 12 channels have individual settings, and if a channel that has individual settings is currently selected]

```

AVIO Specific Area Mode
Input - [ TUNER ]
Sync AGC      : ON          *
Threshold     : Manual Threshold Level
Threshold Level : 2
Individual setting state
Input Channel - [ 1CH ]
Sync AGC      : ON          *
Threshold     : Manual Threshold Level
Threshold Level : 3

```

#### [When 12 channels have individual settings, and if a channel that does not have individual settings is currently selected]

```

AVIO Specific Area Mode
Input - [ TUNER ]
Sync AGC      : ON          *
Threshold     : Manual Threshold Level
Threshold Level : 3
Individual setting state
Sorry !
You can store only 12 channels
for Specific Area mode.

```

## 7.1.9 AGING MODE

### Notes:

Commands from the remote control unit are accepted during Aging mode.

If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.

Cancel timer settings before entering Aging mode.

Set the recording rate beforehand. It cannot be changed during Aging mode.

\* **Be aware that all recorded data are deleted when the aging for the DVD-RW and HDD is executed.**

**Table 1: Aging for the DVD-RW and DVD-R**

	Aging for the DVD-RW	Aging for the DVD-R
To enter Aging mode	Press the DVD key to switch to DVD. Install a recordable DVD-RW disc. After disc detection, press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.	Press the DVD key to switch to DVD. Install a recordable DVD-R disc. After disc detection, press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.
To quit Aging mode	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: <ul style="list-style-type: none"> <li>• If during recording: Recording is stopped.</li> <li>• If during playback: Playback is paused.</li> <li>• If during initialization: The unit stops after initialization is finished.</li> <li>• If the tray is being opened/closed: The unit stops after the tray is opened/closed.</li> </ul>	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: <ul style="list-style-type: none"> <li>• If during recording: Recording is stopped.</li> <li>• If during playback: Playback is paused.</li> </ul>
Function	<p>During Aging mode, the following operations are repeated in the order shown below.</p> <ol style="list-style-type: none"> <li>① The tray opens.</li> <li>② The tray closes.</li> <li>③ Initialization</li> <li>④ Recording for 60 minutes</li> <li>⑤ Playback for 45 minutes</li> </ol> <p>③ Initialization is performed according to the setting specified in "DVD-RW automatic initialization" (accessed by selecting "Unit Setting" then "Option").</p> <p>During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001]</p> <p>If an error is generated, the aging operation stops. <b>Note:</b> Indications on the FL display are retained, and this information is also retained as an OSD.</p>	<p>During Aging mode, the following operations are repeated in the order shown below.</p> <ol style="list-style-type: none"> <li>① The tray opens.</li> <li>② The tray closes.</li> <li>③ Recording for 1 minute</li> <li>④ Recording pause for 6 minutes</li> <li>⑤ Recording stops.</li> <li>⑥ Playback for 1 minute</li> <li>⑦ Playback pause for 6 minutes</li> <li>⑧ Playback stops.</li> </ol> <p><b>Note:</b> A continuous test of the above operations is possible for approximately 23 hours.</p> <p>After ② the tray closes, disc detection is performed, and if 99 titles have already been registered, the unit stops there. The number of loops is retained and indicated on the FL display. An error indication is retained as an OSD.</p> <p>During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001]</p> <p>If an error is generated, the aging operation stops. <b>Note:</b> Indications on the FL display are retained, and this information is also retained as an OSD.</p> <p><b>Note:</b> Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.</p>

A **Table 2: Aging for the HDD**

<b>Aging for the HDD</b>	
To enter Aging mode	Press the HDD key to switch to HDD. Press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.
To quit Aging mode	Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode. This also results in the following: <ul style="list-style-type: none"> <li>• If during recording: Recording is stopped.</li> <li>• If during playback: Playback is paused.</li> <li>• If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.</li> </ul>
Function	<p>During Aging mode, the following operations are repeated in the order shown below.</p> <ol style="list-style-type: none"> <li>① Erasure of all the memory data from the HDD</li> <li>② Recording for 60 minutes</li> <li>③ Playback for 60 minutes</li> </ol> <p>During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001]</p> <p>If an error is generated, the aging operation stops.</p> <p><b>Note:</b> Indications on the FL display are retained, and this information is also retained as an OSD.</p>

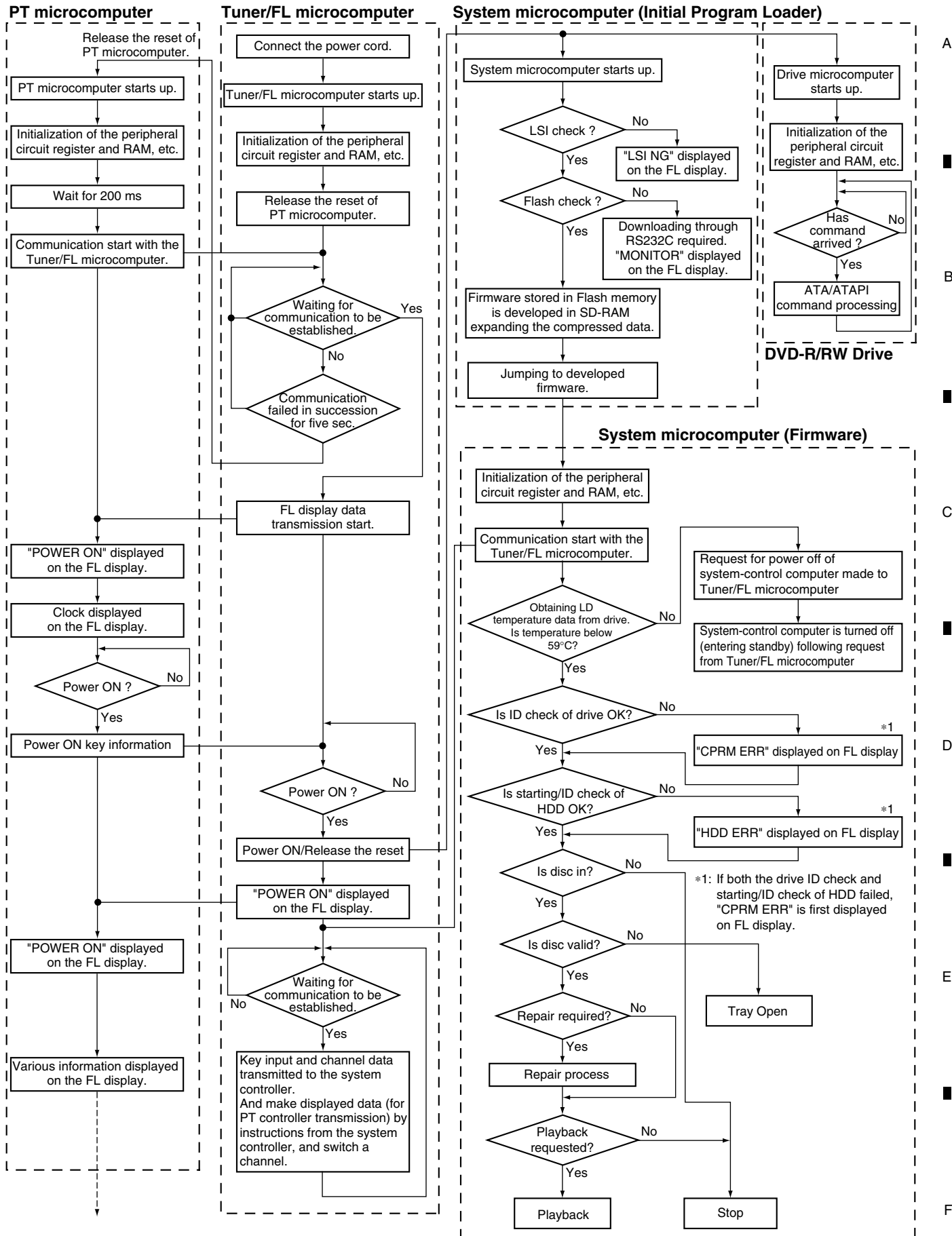
D

E

F



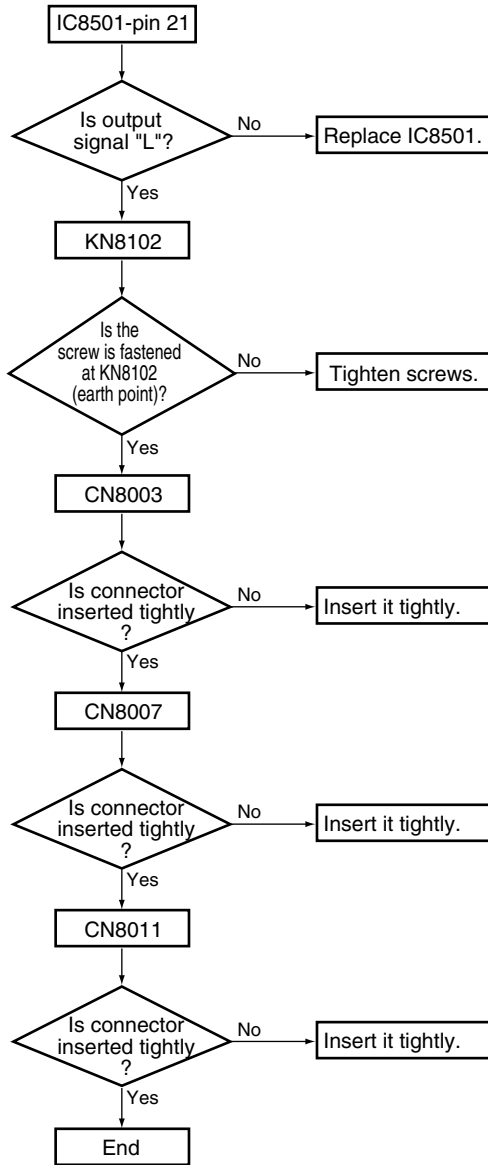
# 7.1.10 SETUP SEQUENCE



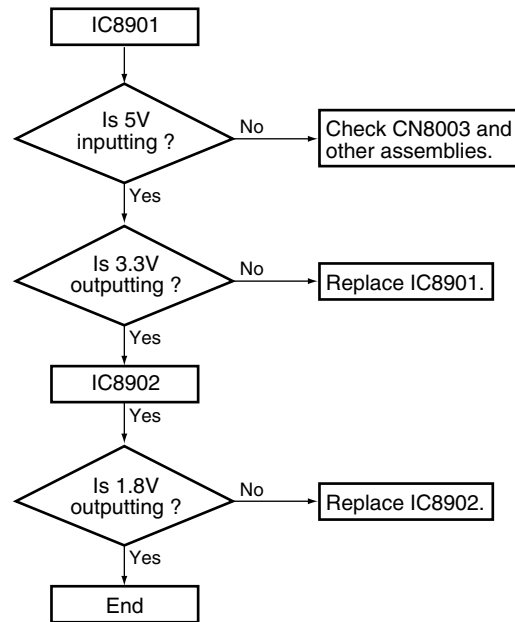
## 7.1.11 DSP TROUBLE SHOOTING

- When a sound is not out in the surround mode with the digital signal input.
- Suppose C,R parts to be poor contact and that is not damaged.
- This shows failure analysis of DSP Assy.

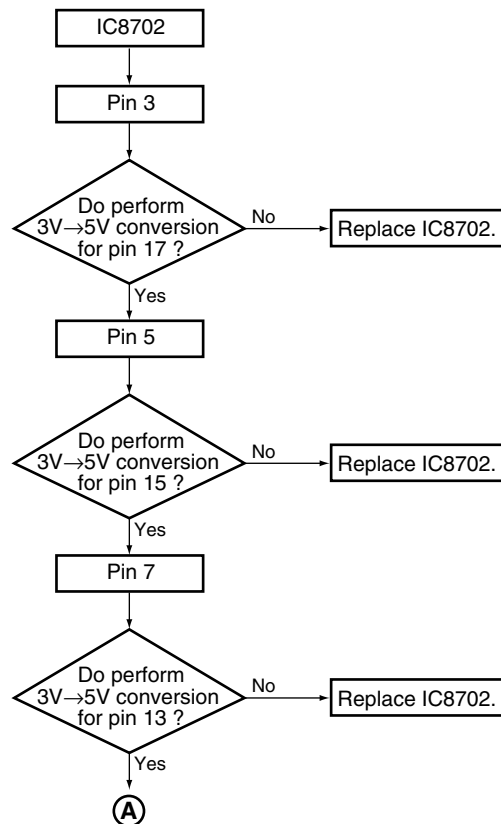
### Step 1

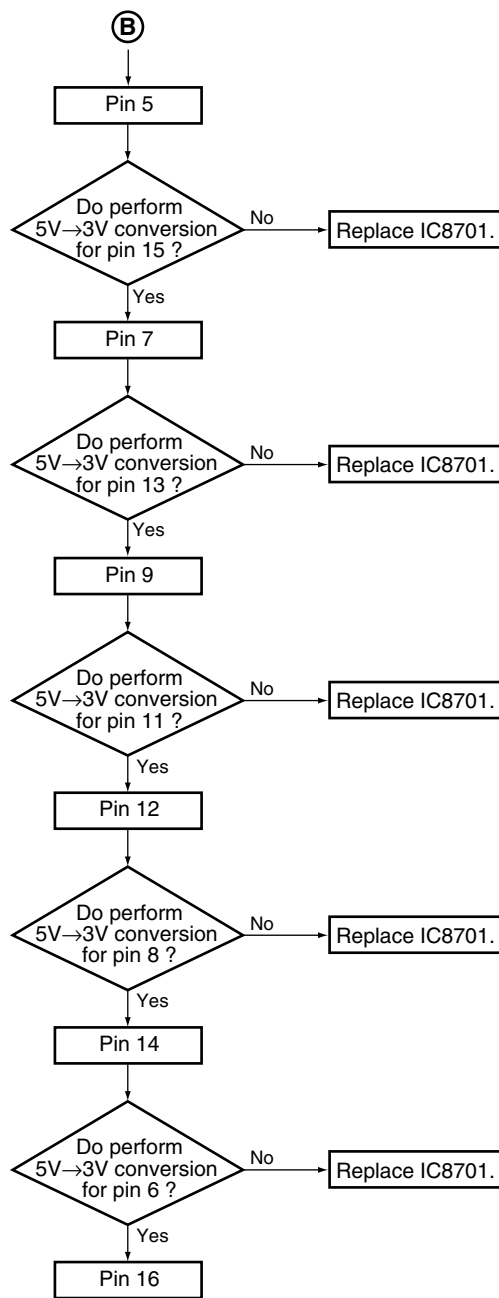
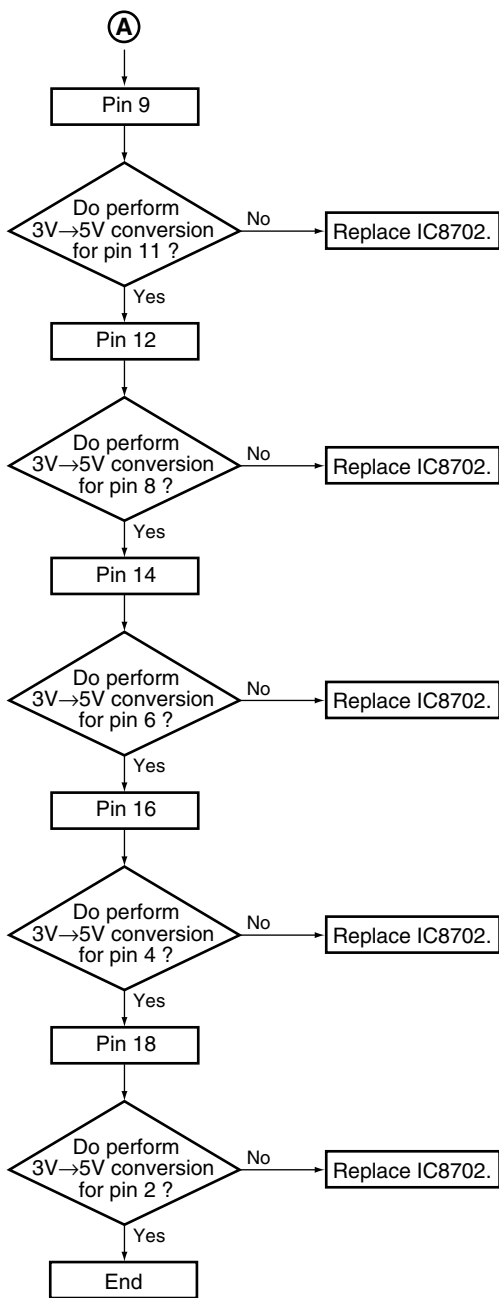


### Step 2

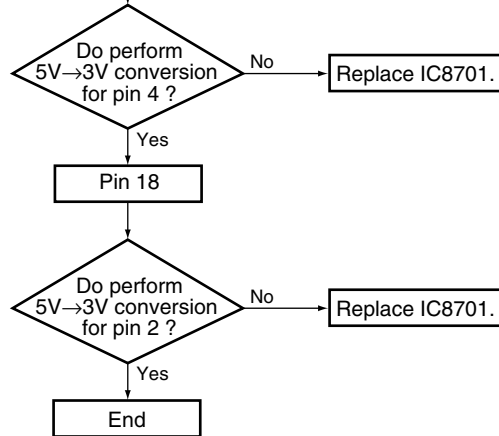
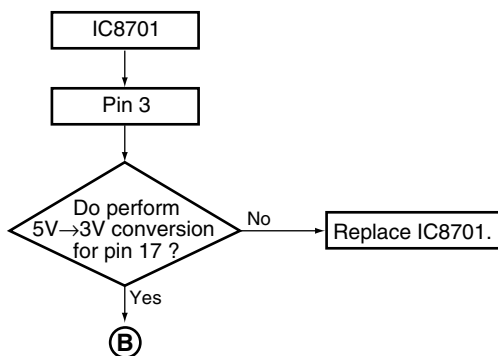


### Step 3





**Step 4**



### Step 5

A

IC8201

Is SPDIF signal coming?  
(be different with Function)

Check the DVD/CD  
(pin 7).

No → Check the other assemblies.  
(AF Assy or DVDM Assy)

Yes

B

Check the OPTICAL IN  
(pin 48).

No → Check the OPTICAL IN line between VIDEO ASSY and DSP ASSY.  
(Optical Input Jack or Connectors)

Yes

Is MCKO1 (pin 23)  
outputting it?

No → Is input signal of PDN  
(pin 31) "H"?

No → Check the other assemblies.  
(periphery of microcomputer on the AF Assy)

Yes

C

Do not oscillate of XTO  
(pin 29)?

No → Is output signal of INT0  
(pin 36) "H"?

No → Replace IC8201.

Note: X8201 oscillates only in analog input.

Yes

Is LRCK (pin 24)  
outputting it?

No → Replace IC8201.

Yes

D

Is SDTO (pin 25)  
outputting it?

No → Replace IC8201.

Yes

Is BCK (pin 26)  
outputting it?

No → Replace IC8201.

Yes

E

IC8502-pin2

Is 20MHz clock  
outputting it?

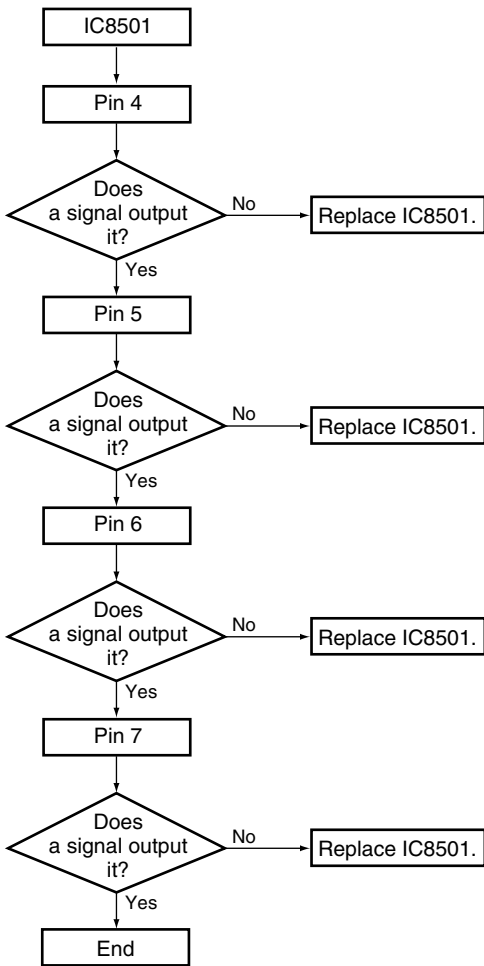
No → Replace IC8502 or X8501.

Yes

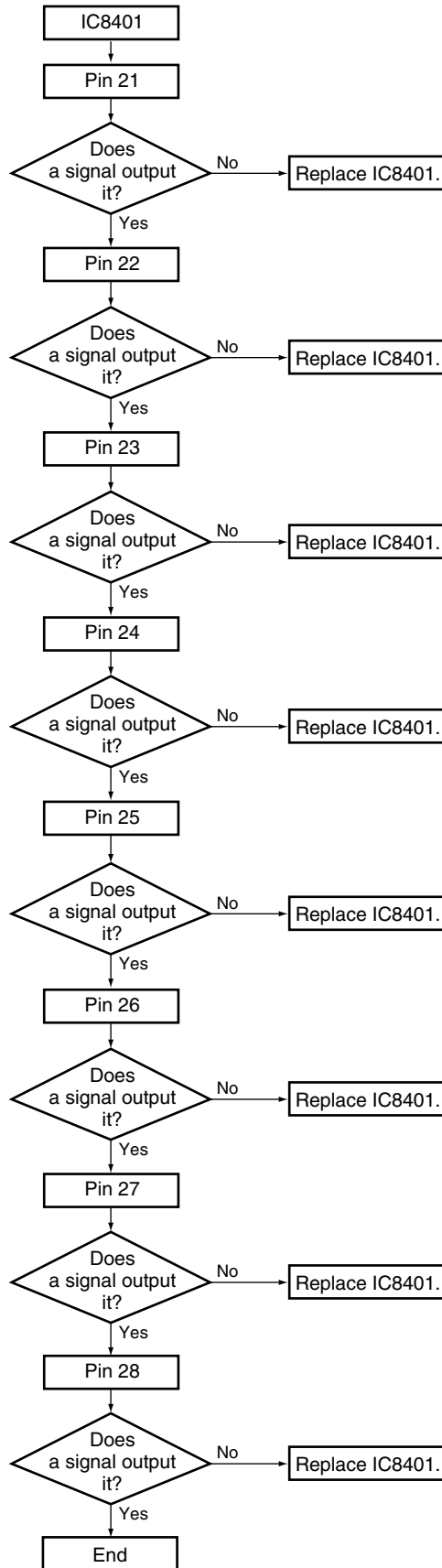
End

F

Step 6



Step 7



A  
B  
C  
D  
E  
F

## 7.1.12 DISASSEMBLY

**Note 1 :** Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

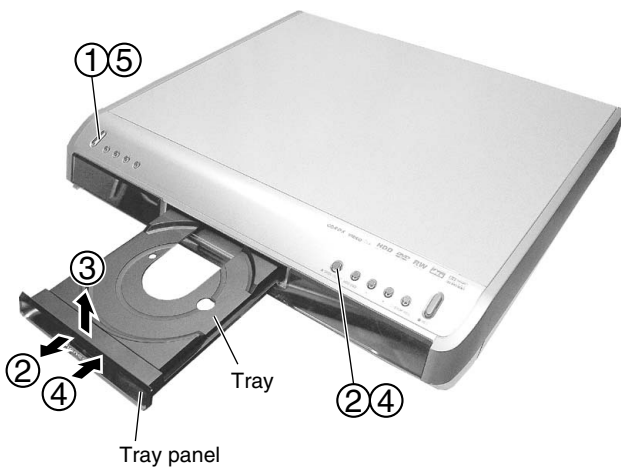
**Note 2 :** For performing the diagnosis shown below, the following jigs for service are required:

- Jig cable : GGD1315 (x2)

### Diagnosis of the MAIN Assy

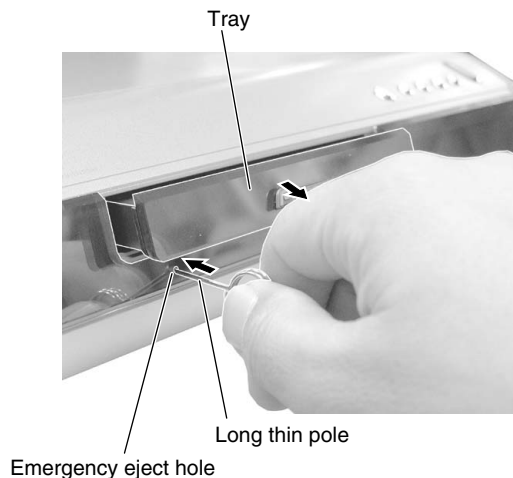
#### 1 Tray panel

- 1 Press the **⏻** STANDBY/ON button to turn on the power.
- 2 Press the **▶** OPEN/CLOSE button to open the tray.
- 3 Remove the tray panel.
- 4 Press the **▶** OPEN/CLOSE button to close the tray.
- 5 Press the **⏻** STANDBY/ON button to turn off the power.



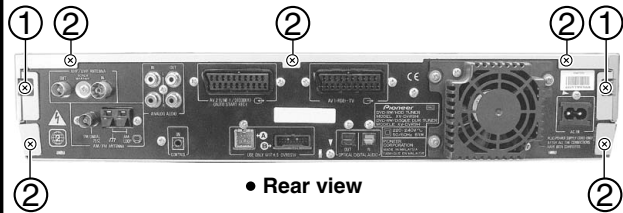
#### • How to open the tray when the power cannot be on

When the player cannot eject tray due to power failure or any other reasons, use a long thin pole and push the emergency eject hole under the tray panel to eject. If the tray pops out a little, fully pull it out by a hand.

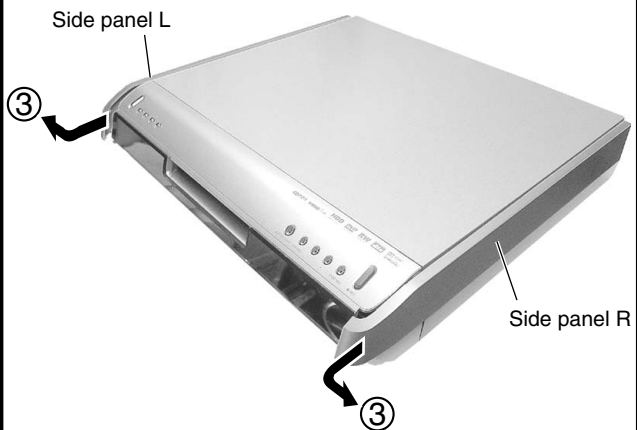


#### 2 Side panel L, R and Bonnet case

- 1 Remove the two screws.
- 2 Remove the five screws.



- 3 Remove the side panel L and R.



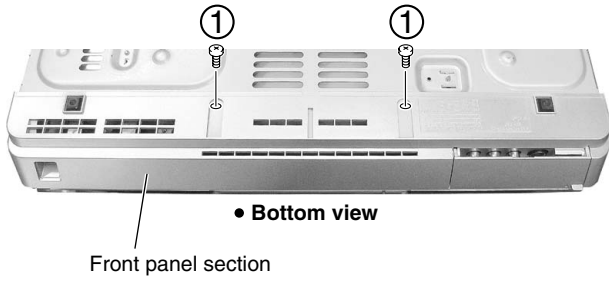
- 4 Remove the four screws.



- 5 Remove the bonnet case.

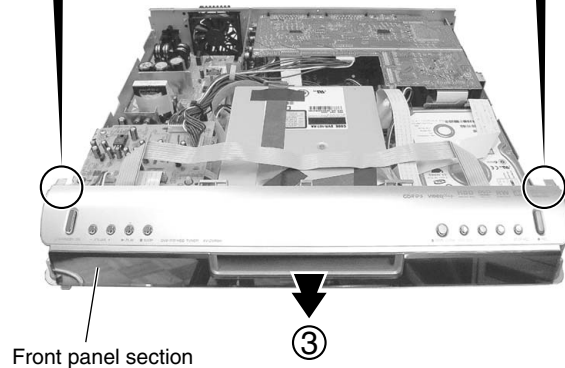
### 3 Front panel section

① Remove the two screws.



② Unhook the two hooks.

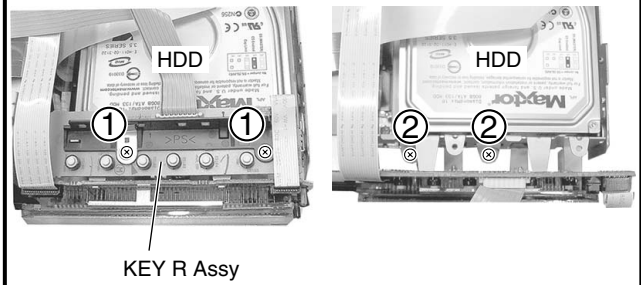
③ Remove the front panel section



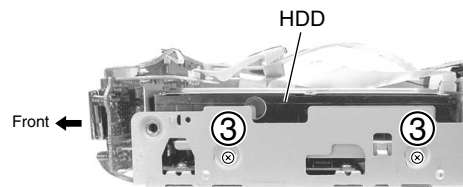
### 4 HDD section

① Remove the KEY R Assy by removing the two screws.

② Remove the two screws.

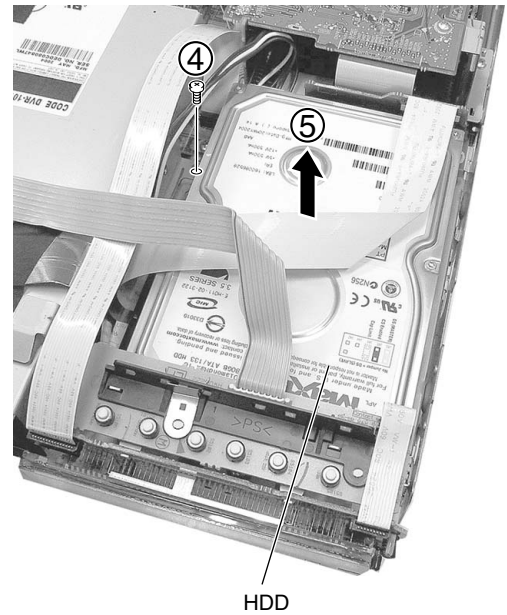


③ Remove the two screws.



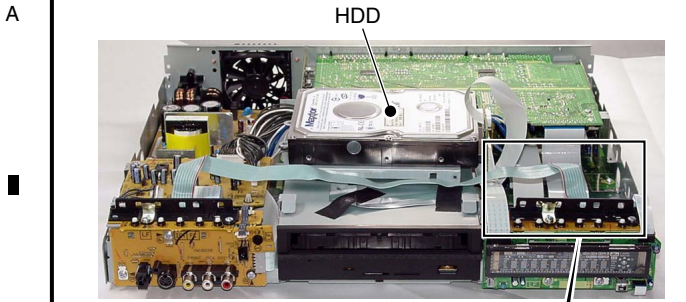
④ Remove the one screw.

⑤ Remove the HDD with HDD base.

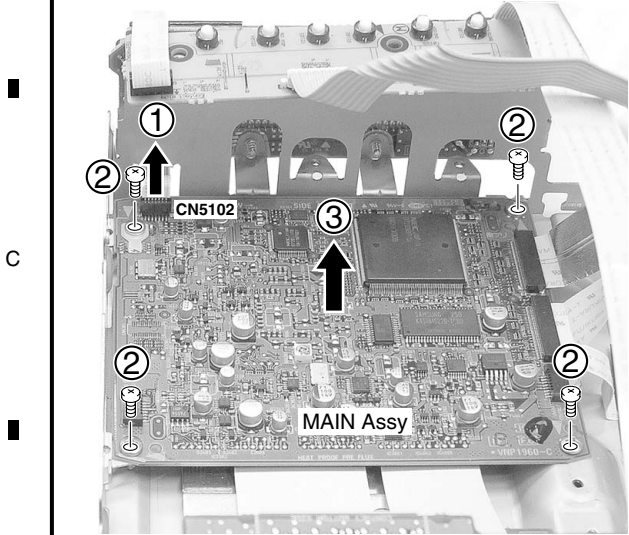


A  
B  
C  
D  
E  
F

### 5 MAIN Assy



- ① Disconnect the one connector.
- ② Remove the four screws.
- ③ Stand the MAIN Assy.



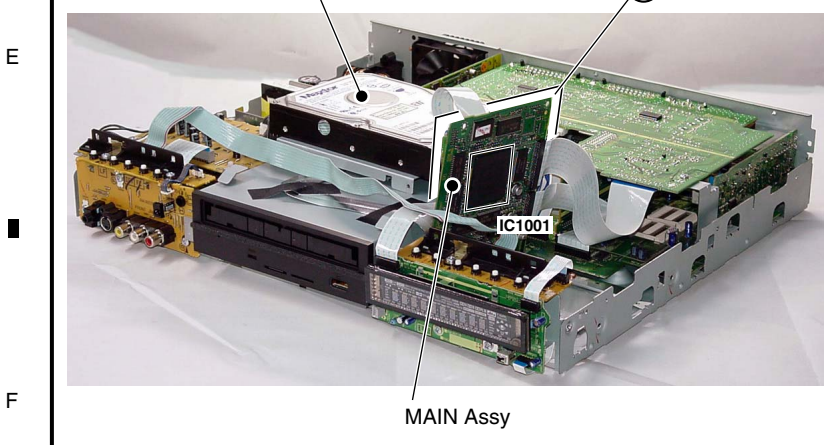
• Rear view



- ④ Insert the insulation sheet between the MAIN Assy and HDD.
- ⑤ Arrange the unit as shown in the photo below.

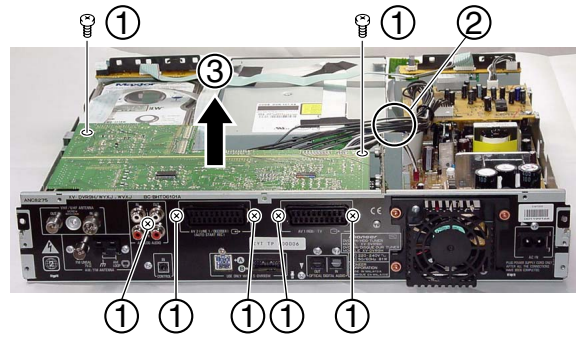


**Diagnosis**

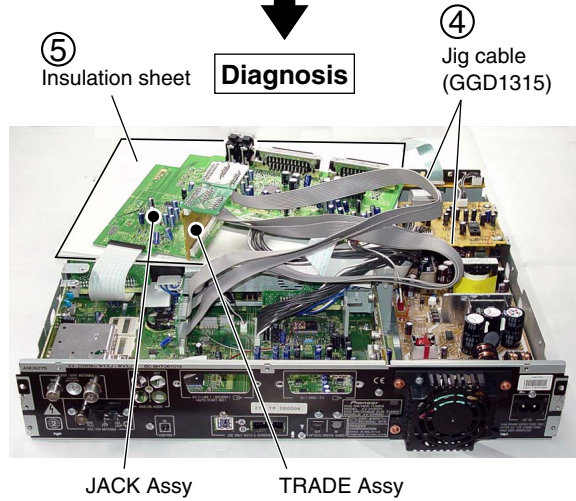


### 6 JACK Assy

- ① Remove the seven screws.
- ② Remove the wires from Wire Saddle.
- ③ Remove the JACK Assy and TRADE Assy.



- ④ Connect the jig cable.
- ⑤ Insert the insulation sheet between the JACK Assy and DRIVE Assy R7.
- ⑥ Arrange the unit as shown in the photo below.

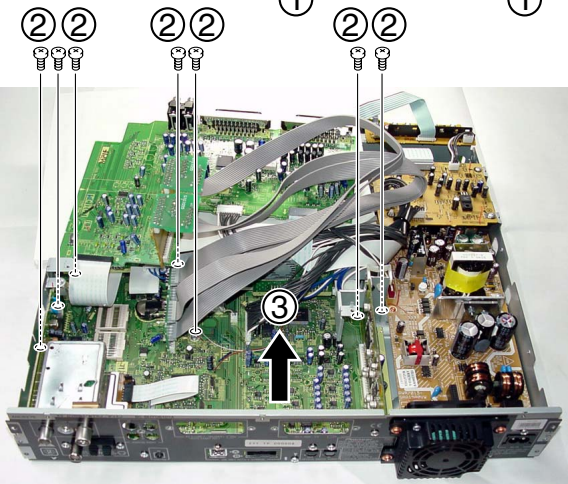
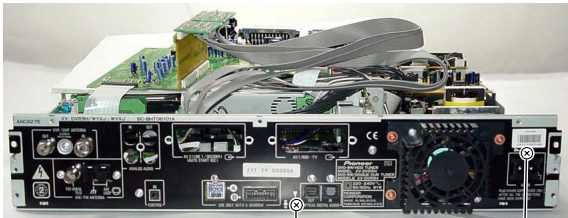


**Caution :**  
Main IC (IC1001) on the MAIN Assy generate heat to around 80 degrees. Be careful when works.

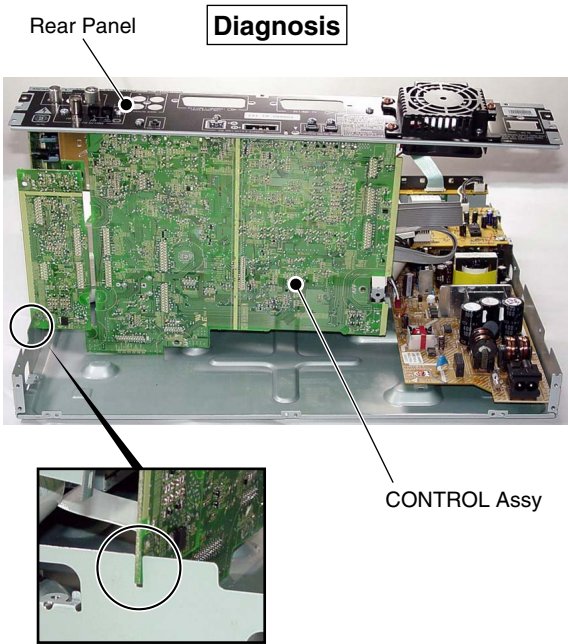


### 7 CONTROL Assy

- ① Remove the two screws.
- ② Remove the seven screws.

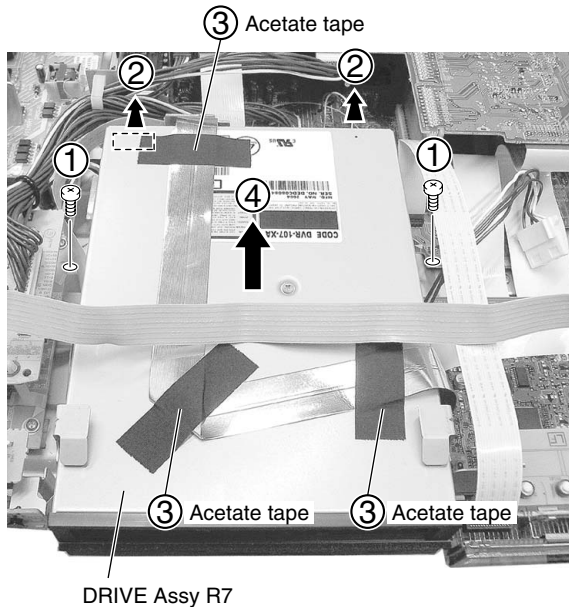


- ③ Stand the CONTROL Assy.
- ④ Arrange the unit as shown in the photo below.



### 8 DRIVE Assy R7 (DVD-R/RW Writer)

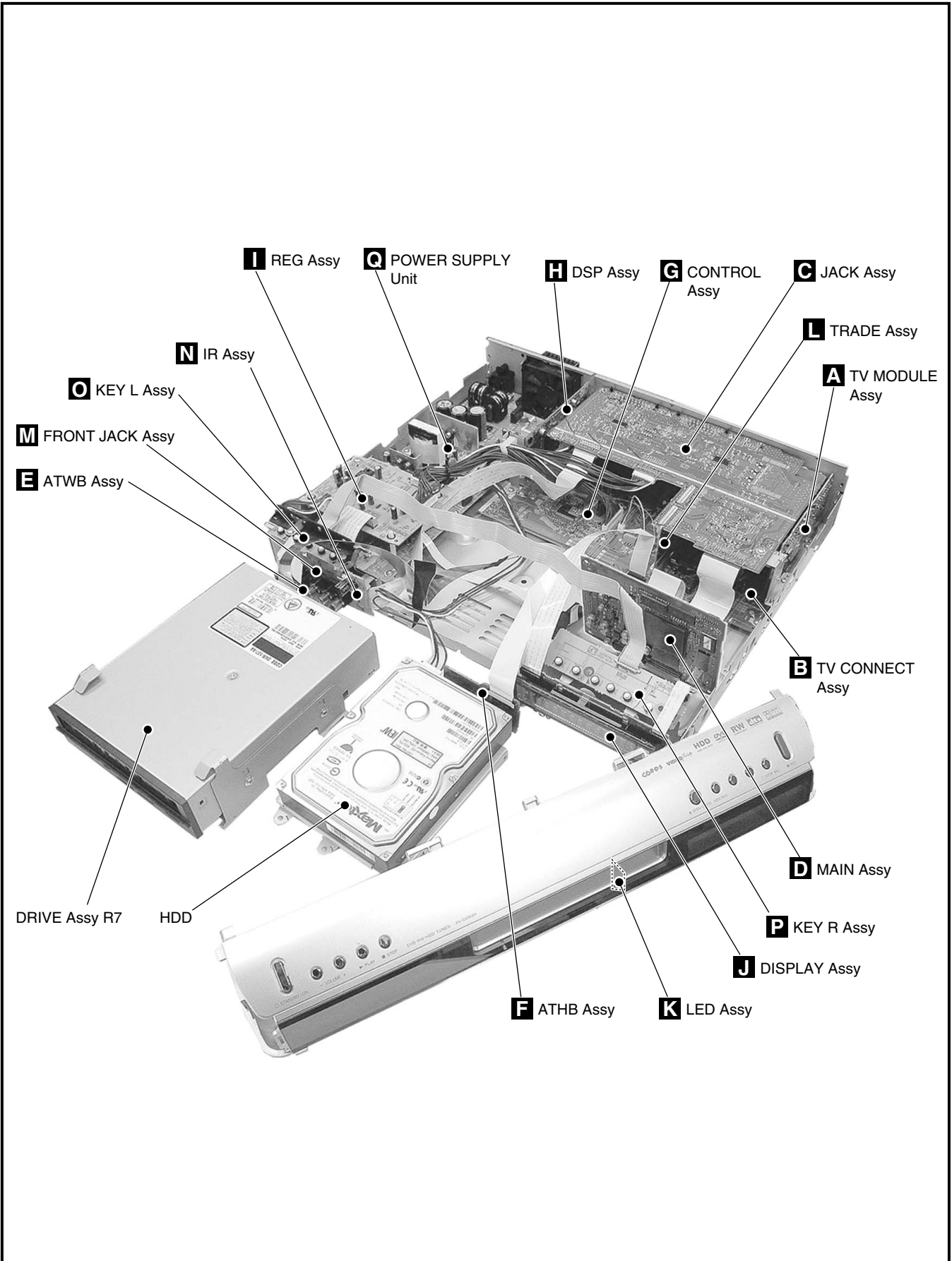
- ① Remove the two screws.
- ② Disconnect the two connectors.
- ③ Remove the three acetate tapes.
- ④ Remove the DRIVE Assy R7.



A  
B  
C  
D  
E  
F

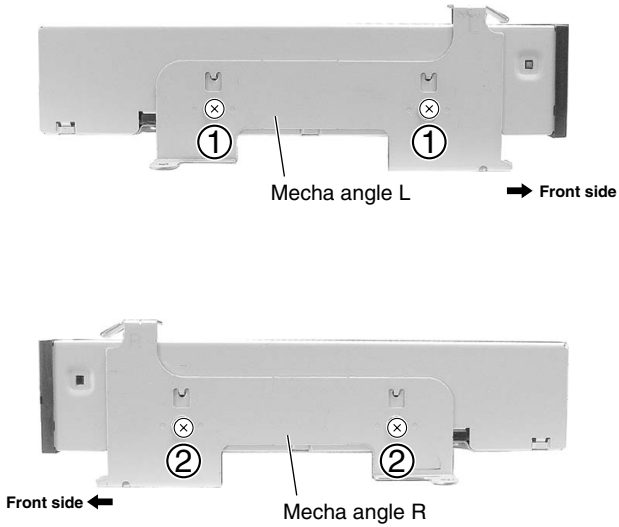
### PCB Location

A  
B  
C  
D  
E  
F

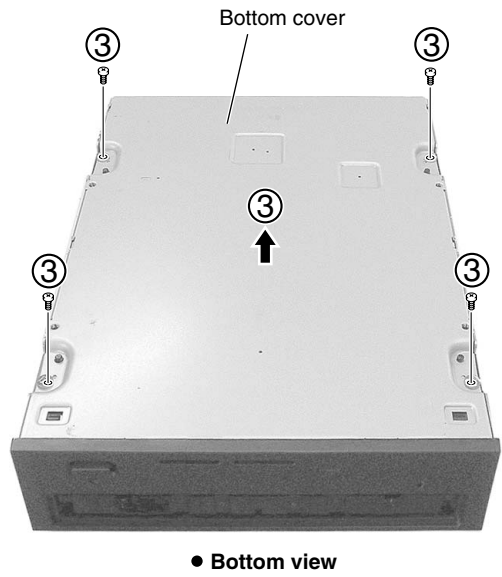


### Cleaning the pickup lens

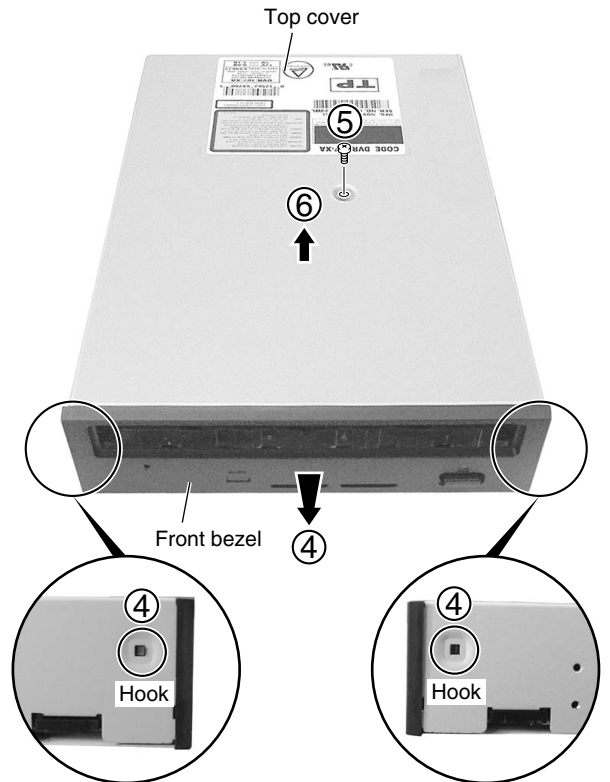
- ① Remove the mecha angle L by removing the two screws.
- ② Remove the mecha angle R by removing the two screws.



- ③ Remove the bottom cover by removing the four screws.

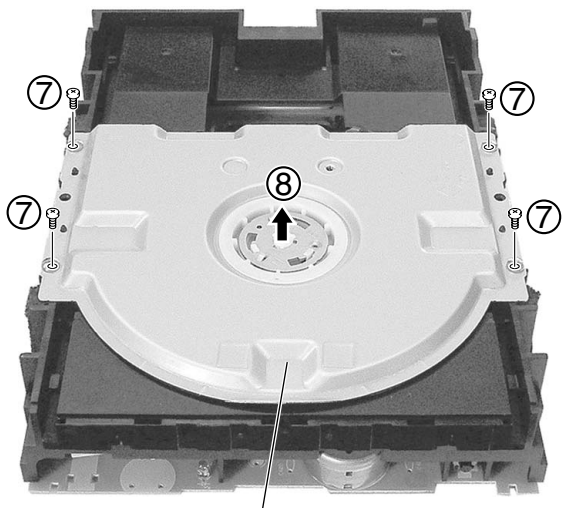


- ④ Remove the front bezel by unhooking the two hooks.
- ⑤ Remove the one screw.
- ⑥ Remove the top cover.



A

- ⑦ Remove the four screws.
- ⑧ Remove the clamper section.



Clamper section



C

- ⑨ Clean the pickup lens.

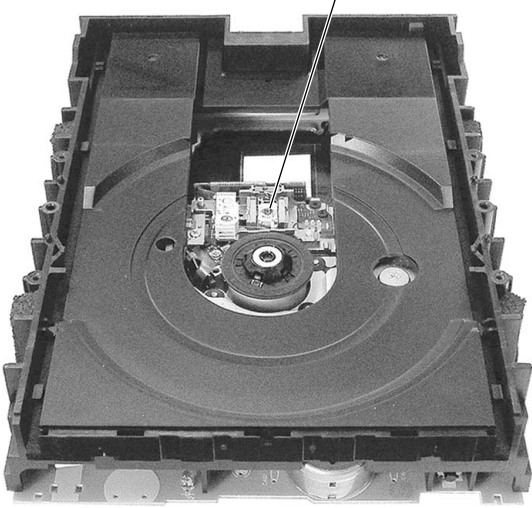


Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools :

- Cleaning liquid : GEM1004
- Cleaning paper : GED-008

D

Pickup lens



E

F

## 7.2 PARTS

### 7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

#### ● List of IC

PEG014A-K, PDC117B-K, TDA9818TS, LA73026AV, RS5C372A, LC75342M, LA73033M, AK5357VT, PST3428U, PST3809U, M65673WG-A, UPD72852AGB-8EU, UPD72893AGD-LML

#### ■ PEG014A-K (CONTROL ASSY: IC801)

• TUFL Microcomputer

#### ● Pin Function

No.	Pin Name	Signal Name	I/O	Function
1	P95/ANEX0/CLK4	XSCK_TTOA	O	Communication line of AMP controller (clock)
2	P94/DA1/TB4in	SYNC	I	C-Sync of input video (for Auto-Rec video judgement)
3	P93/DA0/TB3in	AVLINKIN	I	Input line of NextViewLink
4	P92/TB2in/Sout3	IR	I	Pulse input of remote control (no input signal for system product)
5	P91/TB1in/Sin3	J_CLOCK	I	Input audio for Just clock (pulse input of tuner audio)
6	P90/TB0in/CLK3	SYNCAFT	I	C-Sync of input video
7	BYTE	BYTE	I	Pull-down
8	CNVss	PGM	I	Communication line L: Normal, H: Download
9	P87/XCin	NC	(O)	
10	P86/XCout	LATCH_D	O	Communication line of AMP controller (Latch)
11	-RESET	XRESETIN	I	Microcomputer reset L: Reset, H: Normal
12	Xout	XOUT	O	
13	Vss	GND	-	Ground
14	Xin	XIN	I	
15	Vcc	VCC	-	Power supply
16	P85/-NMI	NMI	I	Pull-up
17	P84/-INT2	JOGA	I	Phase VOL input
18	P83/-INT1	SLICEONFB	I	Feedback from SLICEON pin
19	P82/-INT0	XINTRA	I	Alarm/interval interruption
20	P81/TA4in	LED_HDD	(O)	HDD LED LED ON with H active at HDD (NC)
21	P80/TA4out	LED_DVD	(O)	DVD LED LED ON with H active at HDD (duty 100%) (NC)
22	P77/TA3in	PSAVE_MUTE	O	For noise suppression when controlling SCART power (L: Mute ON, H: Mute OFF)
23	P76/TA3out	FANPWM	O	FAN power control High speed: H fixed, Low speed: 39kHz, Stop: L fixed (NC)
24	P75/TA2in	GLINK IN	(O)	(NC)
25	P74/TA2out	GLINK OUT	(O)	(NC)
26	P73/-CTS2/-RTS2/TA1in	NC	(O)	
27	P72/CLK2/TA1out	AVLINKOUT	O	Output line of NextViewLink
28	P71/RxD2/SCL/TA0in/TB5in	SCL	I/O	I2C communication (clock) Nch open-drain
29	P70/TxD2/SDA/TA0out	SDA	I/O	I2C communication (data) Nch open-drain
30	Vss2	GND	-	Ground
31	LP2	LP2	O	
32	LP3	LP3	O	
33	LP4	LP4	O	
34	Vdd2	VDD2	-	Power supply
35	M2	M2	I	Mode switch L: Normal, H: Download
36	M1	M1	I	Pull-down
37	P11/SLICEON	SLICEON	O	Slicer operating signal
38	P67/TxD1	TXD	O	Communication line for firmware download/monitor
39	P66/RxD1	RXD	I	Communication line for firmware download/monitor

A

No.	Pin Name	Signal Name	I/O	Function	
40	P65/CLK1	SCLK	(O)	Communication line for firmware download/monitor	
41	P64/-CTS1/-RTS1/CLKS1	BUSY	O	Communication line for firmware download/monitor	
42	P63/TxD0	SSTTOM	O	System controller communication line (Tuner → Main)	
43	P62/RxD0	SSMTOT	I	System controller communication line (Main → Tuner)	
44	P61/CLK0	SCK	I	System controller communication line (clock)	
45	P60/-CTS0/-RTS0	HSTTOM	O	Tuner → System handshake	
46	P57/-RDY/CLKout	DLCONT	O	Voltage supply SW of FLASH-ROM writing L=Download, H=Normal operation	
47	P56/ALE	WRT	O	Write signal	
B	48	P55/-HOLD	SDAEEP	I/O	SDA line for EEPROM
49	P54/-HLDA	SCLEEP	O	SCL line for EEPROM	
50	P53/BCLK	VOLCE	O	Communication line CE	
51	P52/-RD	VOLDATA	O	Communication line DATA	
52	P51/-WRH/-BHE	VOLCLK	O	Communication line CLK	
53	P50/-WRL/-WR	DLCE	I	Signal for serial I/O mode selection (10k ohm pulled-up)	
54	P47/-CS3	NC	(O)		
55	P46/-CS2	NC	(O)		
56	P45/-CS1	NC	(O)		
C	57	P44/-CS0	BLANK	I	BLANK signal input
58	P43/A19	XTHROU	O	Through control of SCART1/2 L=Through, H=Connect to TV	
59	P42/A18	NC	(O)		
60	P41/A17	EXTRGB	O		
61	P40/A16	SWVION	O	Independent source SW for video I/O output circuit L=OFF, H=Power ON	
62	P37/A15	SWSTBY	O	Standby mode of video input selector L=Normal, H=Standby mode	
63	P36/A14	NC	(O)		
64	P35/A13	BS15SRT	I		
65	P34/A12	SCTHRU	O	SCART loop through control during power OFF L=Through during power OFF, H=Normal	
D	66	P33/A11	NC	(O)	
67	P32/A10	NC	(O)		
68	P31/A9	SDET2	I	S terminal detection of Video input 2	
69	Vcc	VCC	-	Power supply	
70	P30/A8	NC	I		
71	Vss	GND	-	Ground	
72	P27/A7	DDL_INFO1	O	DISC DOWNLOAD information	
73	P26/A6	DDL_INFO2	O	DISC DOWNLOAD information	
74	P25/A5	DDL_INFO3	O	DISC DOWNLOAD information	
E	75	P24/A4	NC	(O)	
76	P23/A3	P_SAVEBS	O	RF through output switch L=Through OFF, H=Through ON	
77	P22/A2	NC	(O)		
78	P21/A1	NC	(O)		
79	P20/A0	P_CONT	O	System Power ON L=Standby, H=Power ON	
80	P17/D15/-INT5	HSATOT	I	Amp → Tuner handshake	

F

No.	Pin Name	Signal Name	I/O	Function
81	P16/D14/-INT4	HSMTOT	I	SYS → Tuner handshake
82	P15/D13/-INT3	DCTRI	I	Change detection of audio condition
83	P14/D12	NC	(O)	
84	P13/D11	SU/SAPID	I	J: Bilingual detection, US: SAP detection
85	P12/D10	ST/STID	I	J: Stereo detection, US: Stereo detection (STID)
86	P11/D9	XRESET	O	System Reset output L=Reset, H=Normal
87	P10/D8	LDASH	O	ColorSystem distinction signal L=Others, H=L'
88	P07/D7	STBYQ	O	EU multiplex decoder standby mode L=Standby, H=Power ON
89	P06/D6	LM/	O	ColorSystem distinction signal L=Others, H=L/L' (for EU); M/N (for IBD)
90	P05/D5	I/BG	O	ColorSystem distinction signal L=Others, H=I
91	P04/D4	XP_SAVE	O	Power save control (SCART) L=Power save (thru OFF), H=Normal (thru ON)
92	P03/D3	TUON	O	Tuner power L=Standby, H=Power ON
93	P02/D2	NC	(O)	
94	P01/D1	RSTCTL	O	Reset signal mask from the system controller
95	P00/D0	XRST_TTOA	O	Reset output to Amp controller
96	P107/AN7/-KI3	MODEL1	A/D IN	Input for destination judgment
97	P106/AN6/-KI2	MODEL2	A/D IN	Input for destination judgment
98	P105/AN5/-KI1	AGC	A/D IN	Field intensity detection
99	P104/AN4/-KI0	FUNC	A/D IN	Function signal input
100	P103/AN3	KEY2	A/D IN	Main unit key input (No use)
101	P102/AN2	KEY1	A/D IN	Main unit key input (No use)
102	P101/AN1	C/N	A/D IN	
103	Avss	GND	–	Ground
104	P100/AN0	AFT	A/D IN	AFT voltage input
105	VREF	VREF	–	Reference voltage
106	AVcc	AVCC	–	Power supply
107	P97/-ADTRG/Sin4	SSATOT	I	Communication line of Amp controller (AMP → Tuner)
108	Vdd1	VDD1	–	Power supply
109	SYNCIN	SYNCTEXT	I	Video input for sync. sep.
110	SVREF	SLICE	I	Slice level input
111	Vss1	GND	–	Ground
112	Vdd3	VDD3	–	Power supply
113	CVIN1	CVIN1	I	Video input for teletext
114	Vss3	GND	–	Ground
115	FSCIN	FSCIN	I	Fsc input
116	P96/ANEX1/Sout4	SSTOA	O	Communication line of Amp controller (Tuner → AMP)

## ■ PDC117B-K (CONTROL ASSY: IC5501)

• PT Microcomputer

### ● Pin Function

No.	Pin Name	Signal Name	I/O	Function
1	PA3	ATT6dB	O	Control ATT 6dB for AUDIO IN
2	PA4	ATT10dB	O	Control ATT 10dB for AUDIO IN
3	PA5	NC	O	
4	P70/INT0/T0LCP/AN8	XPDOWNDET	I	Power failure detection input(Interruption)
5	P71/INT1/T0HCP/AN9	XWMUTE	O	WIRE LESS MUTE request
6	P72/INT2/T0IN	RDSCLK	I(O)	Clock input from RDS decoder (without RDS: Low output)
7	P73/INT3/T0IN	REMOCON	I	REMOCON signal input(Interruption)
8	RES#	XRESET	I	Microcomputer reeset input
9	XT1/AN10	XT1	-	(When this port don't use, please connect VDD)
10	XT2/AN11	XT2	-	(When this port don't use, please set open)
11	VSS1	VSS1	-	Ground
12	CF1	CF1	-	
13	CF2	CF2	-	
14	VDD1	VDD1	-	Power supply
15	P80/AN0	SIMUKE	I	Destination distinction input
16	P81/AN1	NC	O	
17	P82/AN2	NC	O	
18	P83/AN3	KEY1	I	Key1 input
19	P84/AN4	KEY2	I	Key2 input
20	P85/AN5	NC	O	
21	P86/AN6	(TEMP)	O	
22	P87/AN7	XPROTECT	I	Protection and Fan Error detection input
23	P10/SO0	DSPDI	O	Data output to DSP (MOTOROLA) and DIR
24	P11/SI0/SB0	DSPDO	I	Data input from DSP (MOTOROLA)
25	P12/SCK0	DSPCLK	O	Clock output to DSP (MOTOROLA) and DIR
26	P13/SO1	FLCS	O	Chip enable for FL driver
27	P14/SI1/SB1	FLDAT	O	Data for FL driver & LED DRIVER
28	P15/SCK1	FLCLK	O	Clock for FL driver & LED DRIVER
29	P16/T1PWML	LATCH	I	DVDRW LATCH input
30	P17/T1PWMH/BUZ	HPDET	I	Detect to insert headphone
31	PE0	XRDY	O	DVDRW XRDY output
32	PE1	XAVOUTMUTE	O	AV OUTPUT AUDIO MUTE ON/OFF
33	PE2	STEST	I	Set SERVICE TEST MODE for service (Perform the LINE TEST MODE with remote control unit)
34	PE3	UTEST	I	Set UNITCHECK for checker
35	PE4	XHPMUTE	O	HP MUTE ON/OFF
36	PE5	XRECMUTE	O	AUDIO OUTPUT MUTE ON/OFF
37	PE6	MUTEMASK1	O	EURO SCART AV1 AUDIO OUT MUTE MASK
38	PE7	MUTEMASK2	O	EURO SCART AV2 AUDIO OUT MUTE MASK
39	VSS4	VSS4	-	Ground
40	VDD4	VDD4	-	Power supply



No.	Pin Name	Signal Name	I/O	Function
41	PF0	LED BLUE	O	BLUE LED
42	PF1	LED AMB	O	AMBER LED
43	PF2	RYR	O	REAR RELAY ON/OFF
44	PF3	RYFSC	O	FRONT/SW/CENTER RELAY ON/OFF
45	PF4	XFLRST	O	Reset for FL driver
46	PF5	FLPOW	O	FL power sw control
47	PF6	(SYSPOW)	O	
48	PF7	DTSDMIX	O	Cntrl of gain-up for dts down-mix
49	SI2P0/SO2	SO	O	DVDRW data output (AMP side output)
50	SI2P1/SI2/SB2	SI	I	DVDRW data input (AMP side input)
51	SI2P2/SCK2	XSCK	I	DVDRW clock input
52	SI2P3/SCK20	SWFMIX	O	Control for subwoofer mix
53	PWM1	NC	-	
54	PWM0	FANCONT	O	fan control1
55	VDD2	VDD2	-	Power supply
56	VSS2	VSS2	-	Ground
57	P00	DIRERR	I	LOCK/UNLOCK from DIR
58	P01	DIRDO	I	Data input from DIR
59	P02	DSPHREQ	I	Error detection from DSP (MOTOROLA)
60	P03	DECMUTE	I	Detection of 1stDSP boot success from DSP MODULE
61	P04	XTLO	O	Selection X'tal to DIR
62	P05/CKO	XDSPMUTE	O	MUTE request to DSP MODULE
63	P06/T6O	DSPSS	O	Slave selection to DSP (MOTOROLA)
64	P07/T7O	XDSPRST	O	RESET to DSP (MOTOROLA) MODULE
65	P20/INT4/T1IN	DSPMODE	O	MODE selection(ROM/RAM) to DSP(MOTOROLA)
66	P21/INT4/T1IN	DIRRST	O	Reset to DIR
67	P22/INT4/T1IN	DIRCS	O	Chip select to DIR
68	P23/INT4/T1IN	XSWDET	I	SW DETECT
69	P24/INT5/T1IN	(FANERR)	I	(STANDBY) Fan Error detection input
70	P25/INT5/T1IN	(FANCONT)	O	fan control1
71	P26/INT5/T1IN	BEATCUT2	O	BEATCUT Control 2
72	P27/INT5/T1IN	DLINF1	I	Download Information1
73	P30/PWM4	DLINF2	I	Download Information2
74	P31/PWM5	DLINF3	I	Download Information3
75	P32/UTX1	SR+Tx	O	UART Tx of SR+ function
76	P33/URX1	SR+Rx	I	UART Rx of SR+ function
77	P34/UTX2	BEATCUT1	O	BEATCUT Control 1
78	P35/URX2	DIGSEL	O	SW for Digital 1/2 select
79	P36	SWPOW	O	SW power sw control
80	PB7	TXCLK	O	Clock for tuner LSI
81	PB6	TXODATA	O	Data for tuner LSI

A

No.	Pin Name	Signal Name	I/O	Function	
82	PB5	WSEL	O	WIRE LESS OUTPUTSELECT	
83	PB4	TXCE	O	Chip enable for tuner LSI	
84	PB3	RDSPOW	O	Control power supply of RDS (L: POWER ON)	
85	PB2	XSWPOWDET	I	SW POWER DETECT (L: SW POWER DETECT)	
86	PB1	RDSDATA	I(O)	Input RDS data (without RDS : Low output)	
87	PB0	TXIDATA	I	Input data from tuner LSI	
88	VSS3	VSS3	-	Ground	
89	VDD3	VDD3	-	Power supply	
B	90	PC7	XMUTE	O	Cch MUTE ON/OFF
91	PC6	INPUTSELB	O	AUDIO INPUT SELECT B	
92	PC5	INPUTSELA	O	AUDIO INPUT SELECT A	
93	PC4	DIMMER	O	Control for DIMMER	
94	PC3	XSYSTEMUTE	O	Control mute of system	
95	PC2	(VOLMUTE)	O	(Mute for E-vol IC) (STANDBY)	
96	PC1	VOLCLK	O	Clock for E-vol IC/HP-vol IC/Wireless-vol IC	
97	PC0	VOLDATA	O	Data for E-vol IC/HP-vol IC/Wireless-vol IC	
98	PA0	FLASHE/D	-	for FLASH writing	
C	99	PA1	FLASHDO	-	for FLASH writing
100	PA2	FLASHCLK	-	for FLASH writing	

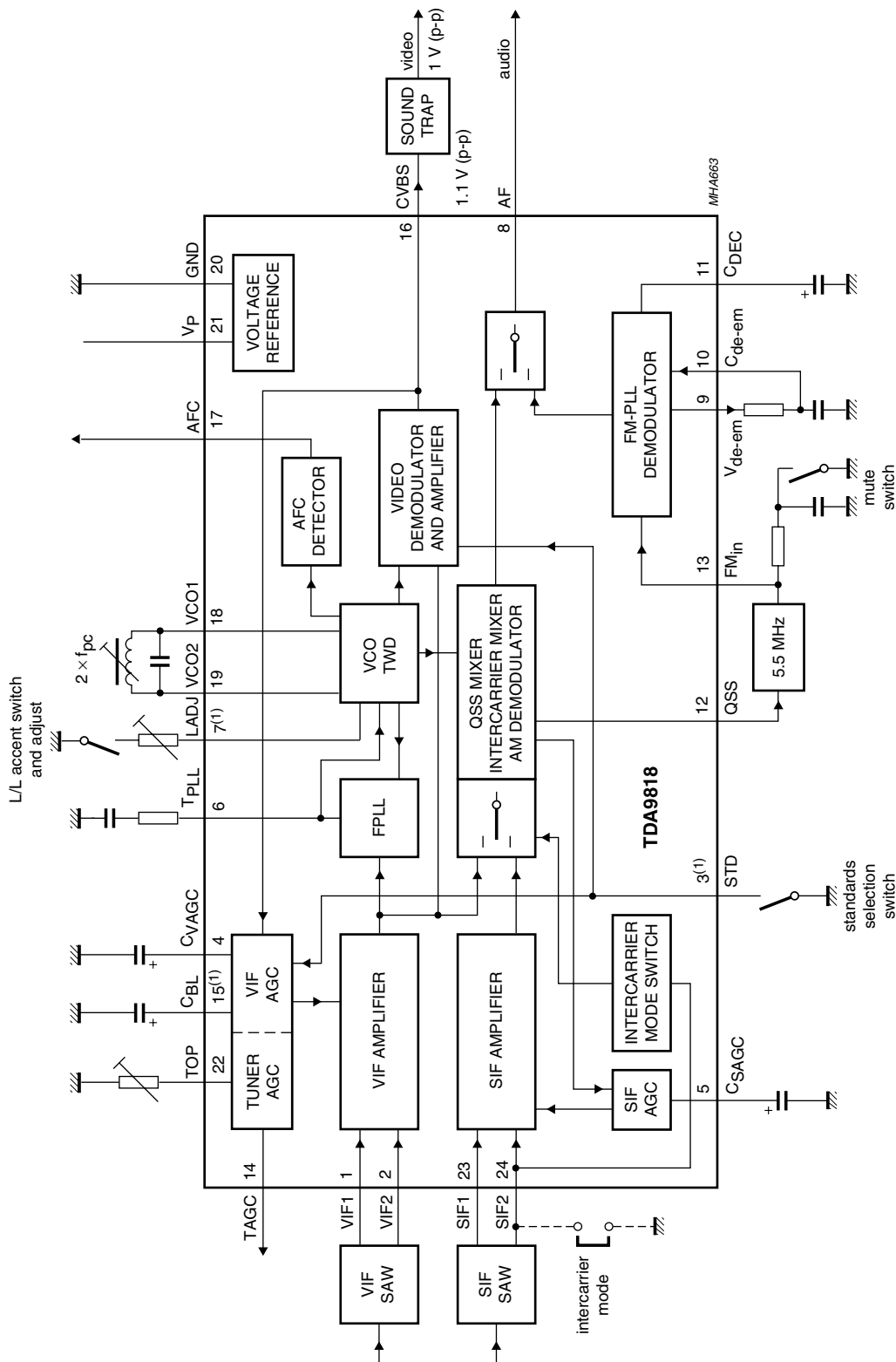
D

E

F

# TDA9818TS (TV MODULE ASSY : IC302)

• VIF/SIF IC



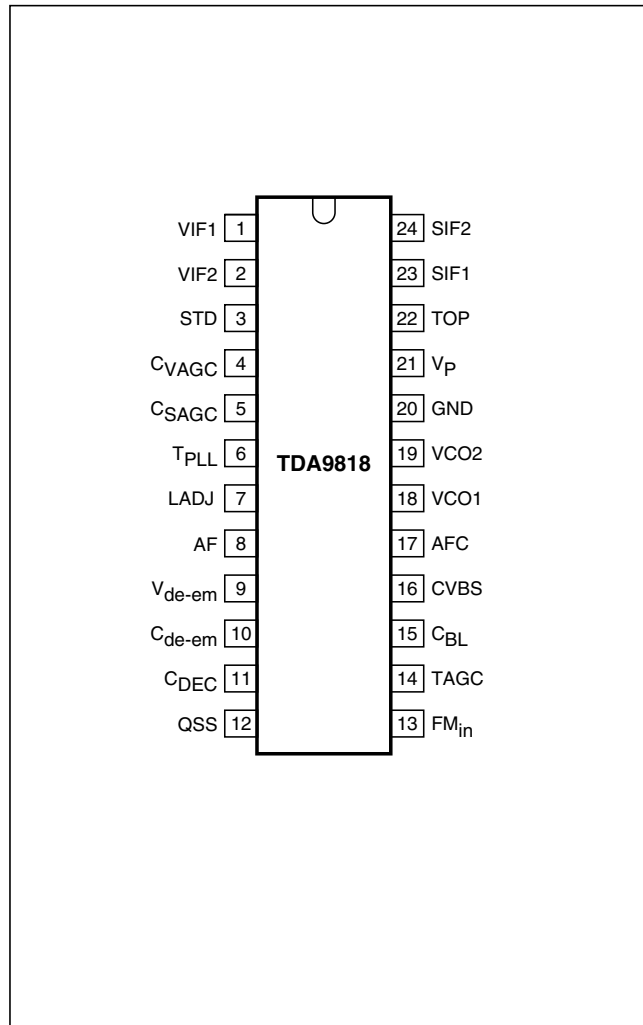
A B C D E F

A

## ● PIN FUNCTION

SYMBOL	PIN	DESCRIPTION
VIF1	1	VIF differential input signal voltage 1
VIF2	2	VIF differential input signal voltage 2
STD	3	standards selection switch; note 1
C <sub>VAGC</sub>	4	VIF AGC capacitor
C <sub>SAGC</sub>	5	SIF AGC capacitor
T <sub>PLL</sub>	6	PLL filter
LADJ	7	L/L accent switch and adjust
AF	8	audio output
V <sub>de-em</sub>	9	de-emphasis output
C <sub>de-em</sub>	10	de-emphasis input
C <sub>DEC</sub>	11	decoupling capacitor
QSS	12	single reference QSS/intercarrier output voltage
FM <sub>in</sub>	13	sound intercarrier input voltage
TAGC	14	tuner AGC output
C <sub>BL</sub>	15	black level detector
CVBS	16	composite video output voltage
AFC	17	AFC output
VCO1	18	VCO1 resonance circuit
VCO2	19	VCO2 resonance circuit
GND	20	ground
V <sub>P</sub>	21	supply voltage
TOP	22	tuner AGC takeover point adjust
SIF1	23	SIF differential input signal voltage 1
SIF2	24	SIF differential input signal voltage 2

## ● PIN LAYOUT



D

E

F

## LA73026AV (JACK ASSY : IC501)

• Dual SCART Interface IC

### ● Pin Function

No.	Pin Name	DC Voltage	Function
1 2 10 11 15 16 33 34 36 37	AIN1R AIN1L AIN2R AIN2L AIN3R AIN3L AIN4L AIN4R AIN5L AIN5R	5.58V	Audio input terminal
3 4 19 35	EXTCTL1 EXTCTL2 EXTCTL3 EXTCTL4	2.5mA, ON →0.75V  OFF →OPEN	General purpose output Opencollector
5	VOUT	1.10V	Video output terminal Push-pull output/Low-impedance
6 17 27 32 38	GND GND EXT-75ΩDR-GND DEC-75Ω-GND GND	0V	
7 13 18 23 28	VIN1 VIN2 VIN3 VIN4 VIN5	1.8V	Video input terminal Sync-tip clamp Input/Hi-impedance
8	PWRSVA	0.2V	Power save mode select pin OPEN : L
9	AUMUTE	0.05V	Control terminal for audio mute OPEN : L
12	REFFIL	4.94V	Terminal for Ref_DC ripple removing
14	VCC12		Vcc for audio
20	FSSOUT	H : Vcc-0.5V M : 6V L : 0V	FSS control terminal Output H, M, L 3 values with serial control
21	DATA		Confirmed to IIC BUS. Data input terminal
22	CLOCK		Confirmed to IIC BUS. Clock input terminal
24	VCC5A		Control Vcc for Video
25 26	VOU75A VOU75B	1.10V	Video driver output terminal Push-pull output/Low-impedance
29	VCC5B		Always VCC for Video
30 31 42 43	AOUT2L AOUT2R AOUT3L AOUT3R	4.91V	Audio output terminal Push-pull output/Low-impedance
39 40	AOUT1L AOUT1R	4.91V	Audio output terminal Push-pull output/Low-impedance
41 44	PWRMUTE1 PWRMUTE2	0V	Output terminal of audio muting

● Block Diagram

A

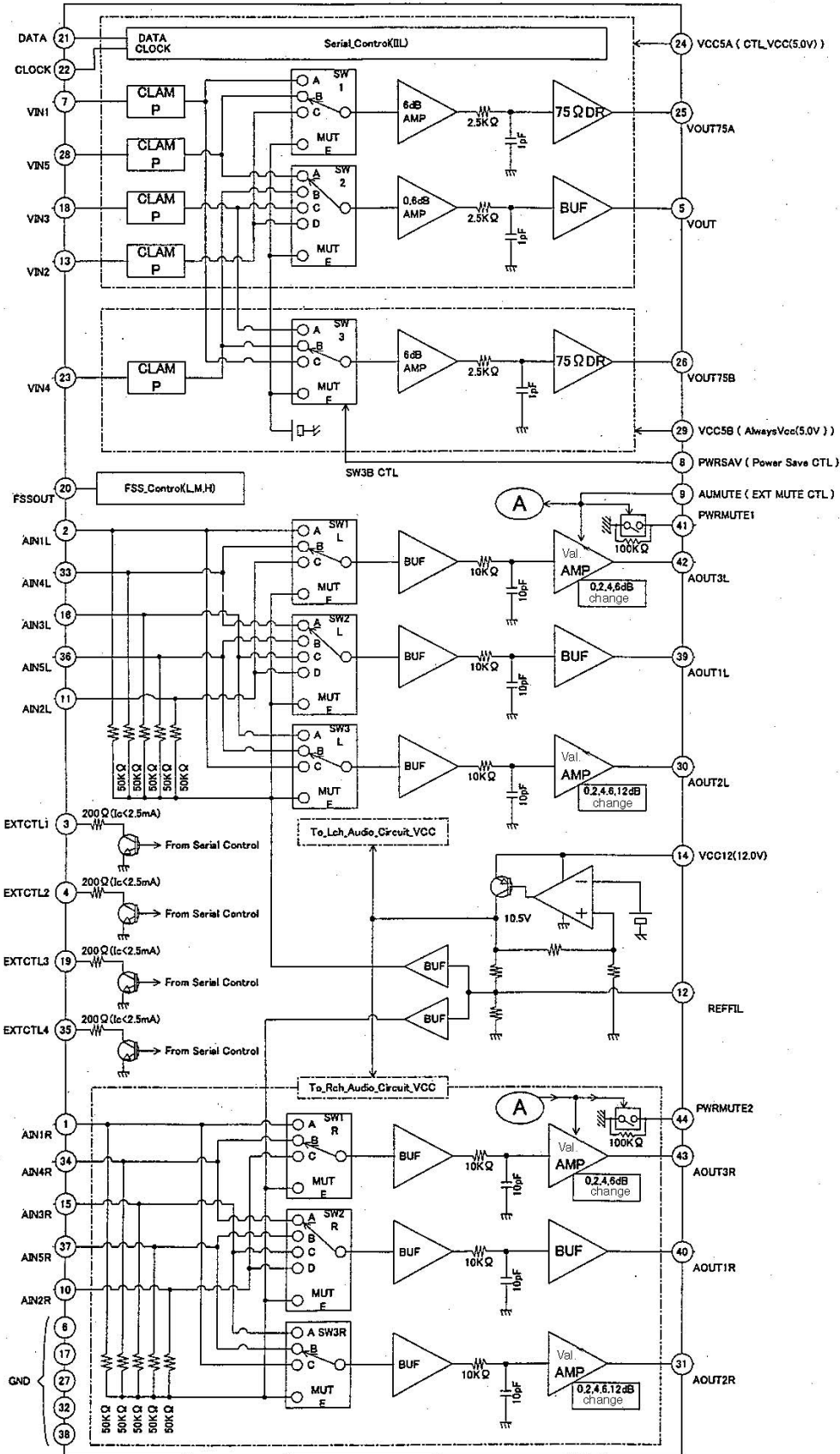
B

C

D

E

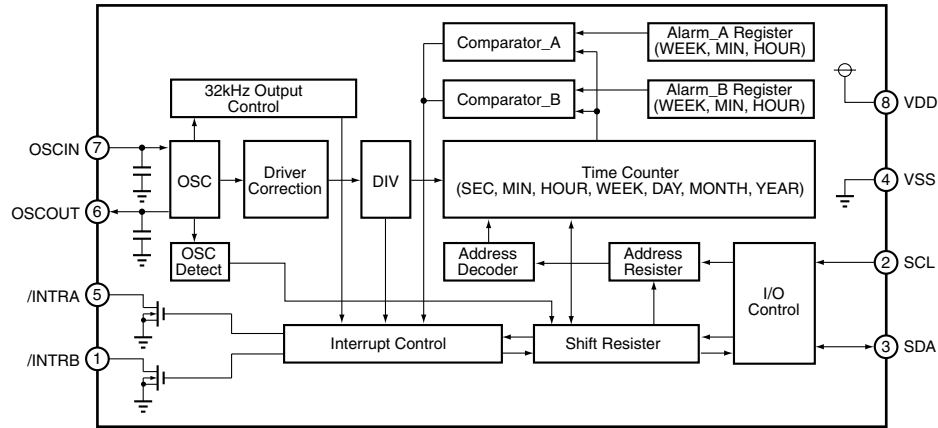
F



## ■ RS5C372A (CONTROL ASSY : IC802)

• Real Time Clock IC

### ● Block Diagram



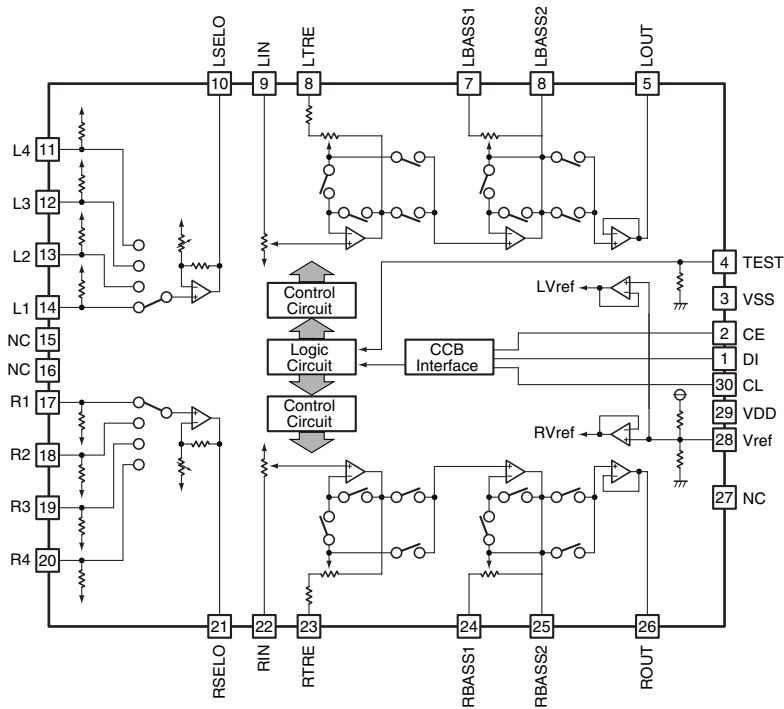
### ● Pin Function

No.	Pin Name	I/O	Function
1	/INTRB	O	Interruption output B The output of 32.768kHz (in 32768Hz crystal use), cycled interrupt for CPU, or output alarm interrupt (ALARM_B). This pin output 32.768kHz when activated power from 0V. Nch open drain output.
2	SCL	I	Shift clock input Synchronize with this clock, and input and output data from a SDA terminal. Exceed VDD, and can input to 6V.
3	SDA	I/O	Serial input and output Synchronize with SCL, and input and output writing data or readout data. Exceed VDD, and can input to 6V. Nch open drain output in the output.
4	VSS	-	Ground pin
5	/INTRA	O	Interruption output A Cycled interrupt for CPU, or output alarm interruption (ALARM_A, ALARM_B). This pin becomes an OFF state when activated power from 0V. N ch open drain output.
6	OSCOU	O	Oscillation circuit output
7	OSCIN	I	Oscillation circuit input
8	VDD	-	Positive supply input

## LC75342M (JACK ASSY : IC601)

• Electric Volume IC

### • Block Diagram



### • Pin Function

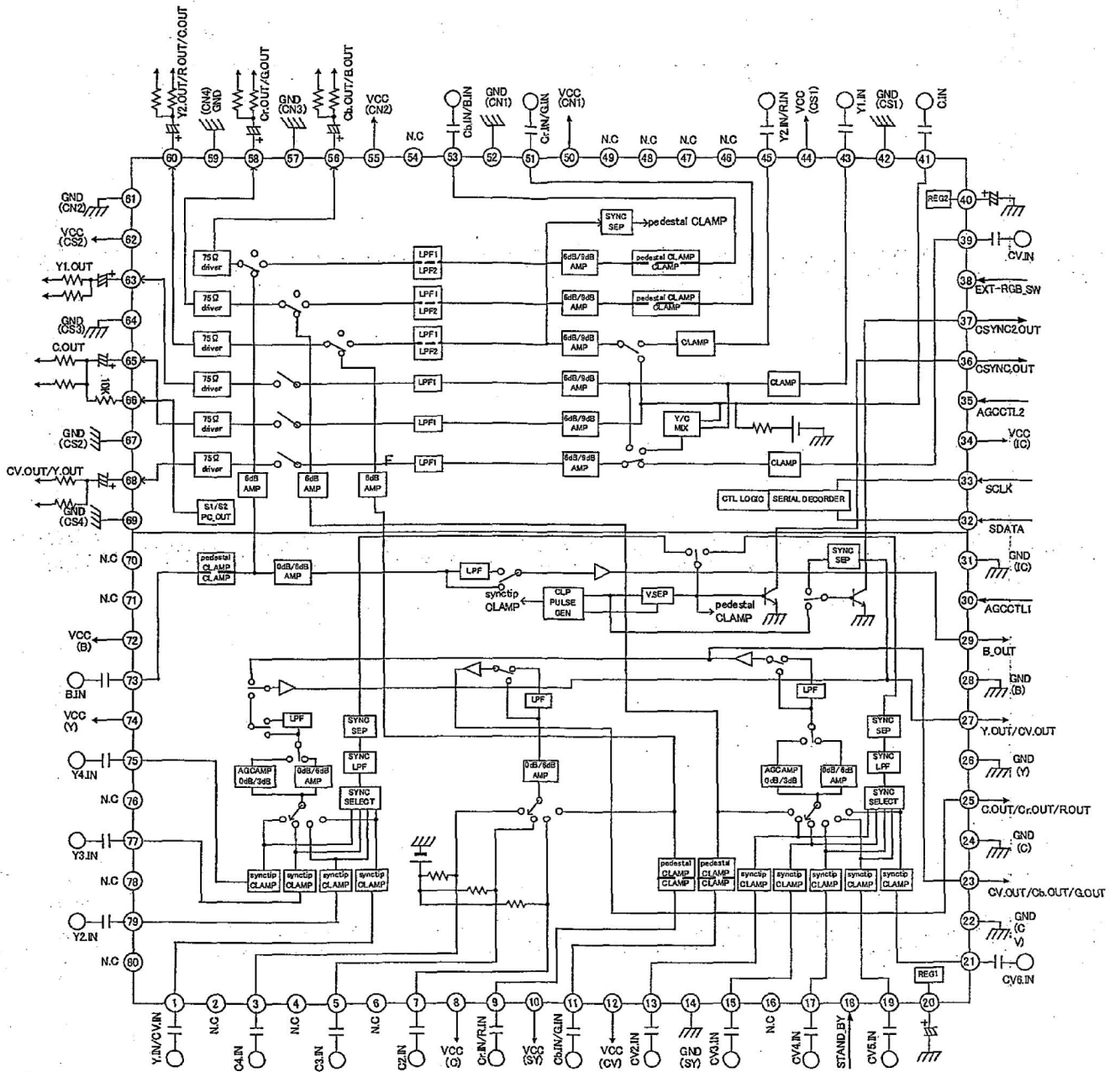
No.	Pin Name	Function	No.	Pin Name	Function
1	DI	Serial data input for control	16	NC	Not connected
2	CE	Chip enable pin Data are written in the internal latch by a timing of "H" → "L", and each analog switch works. Data transfer is enabled by "H" level.	17	R1	Input signal pin
3	VSS	Ground pin	18	R2	
4	TEST	Pin for electronic volume test Set to VSS electric potential.	19	R3	
5	LOUT	Volume and equalizer output pin	20	R4	
6	LBASS2	Capacitor and resistor connection pins for bus bandpass filter	21	RSELO	Input selector output pin
7	LBASS1	Capacitor and resistor connection pins for bus bandpass filter	22	RIN	Volume and equalizer input pin
8	LTR	Capacitor connection pin for treble bandpass filter	23	RTRE	Capacitor connection pin for treble bandpass filter
9	LIN	Volume and equalizer input pin	24	RBASS1	Capacitor and resistor connection pins for bus bandpass filter
10	LSELO	Input selector output pin	25	RBASS2	
11	L4	Input signal pins	26	ROUT	Volume and equalizer output pin
12	L3		27	NC	Not connected
13	L2		28	Vref	0.5XVDD voltage generation block
14	L1		29	VDD	Power supply pin
15	NC	Not connected	30	CL	Clock input pin for control



# LA73033M (JACK ASSY : IC701)

• Video selector and Video driver

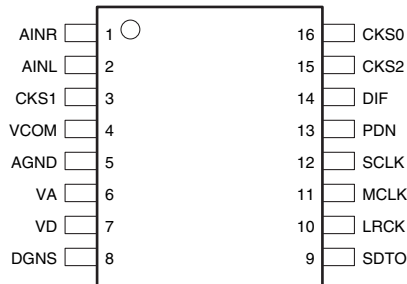
## • Block Diagram



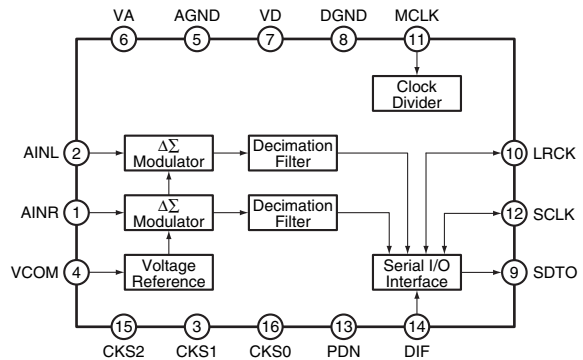
## AK5357VT (MAIN ASSY : IC3101)

• 96kHz 24 bit  $\Delta\Sigma$  ADC

### ● Pin Arrangement (Top view)



### ● Block Diagram



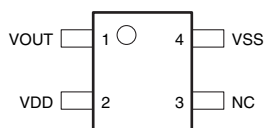
### ● Pin Function

No.	Pin Name	I/O	Function
1	AINR	I	R ch analog input
2	AINL	I	L ch analog input
3	CKS1	I	Mode select 1
4	VCOM	O	Common voltage output, bias voltage of VA/2 and ADC input
5	AGND	-	Analog ground
6	VA	-	Analog power supply, 2.7 to 5.5V
7	VD	-	Digital power supply, 2.7 to 5.5V
8	DGND	-	Digital ground
9	SDTO	O	Audio serial data output, outputs "L" in the power down mode.
10	LRCK	I/O	Channel clock I/O, outputs "L" by master mode in the power down mode.
11	MCLK	I	Master clock input
12	SCLK	I/O	Audio serial data clock, outputs "L" by master mode in the power down mode.
13	PDN	I	Power down mode "H": power up, "L": power down
14	DIF	I	Audio interface format, "H" : 24 bit I2S compatibility, "L" : 24 bit MSB justify
15	CKS2	I	Mode select 2
16	CKS0	I	Mode select 0

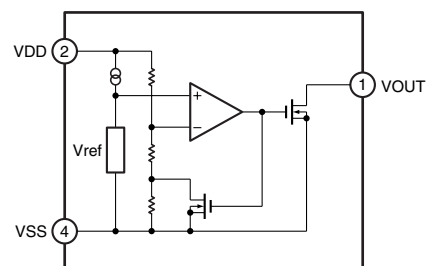
## ■ PST3428U (MAIN ASSY : IC4003)

• Reset IC

### ● Pin Arrangement (Top view)



### ● Block Diagram



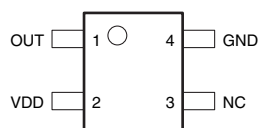
### ● Pin Function

No.	Pin Name	Function
1	VOUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	VSS	VSS

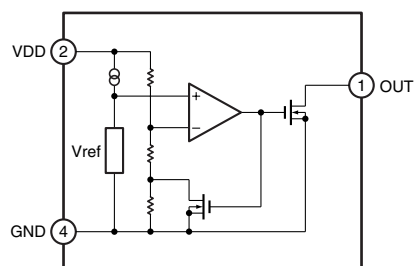
## ■ PST3809U (MAIN ASSY : IC4005)

• Reset IC

### ● Pin Arrangement (Top view)



### ● Block Diagram



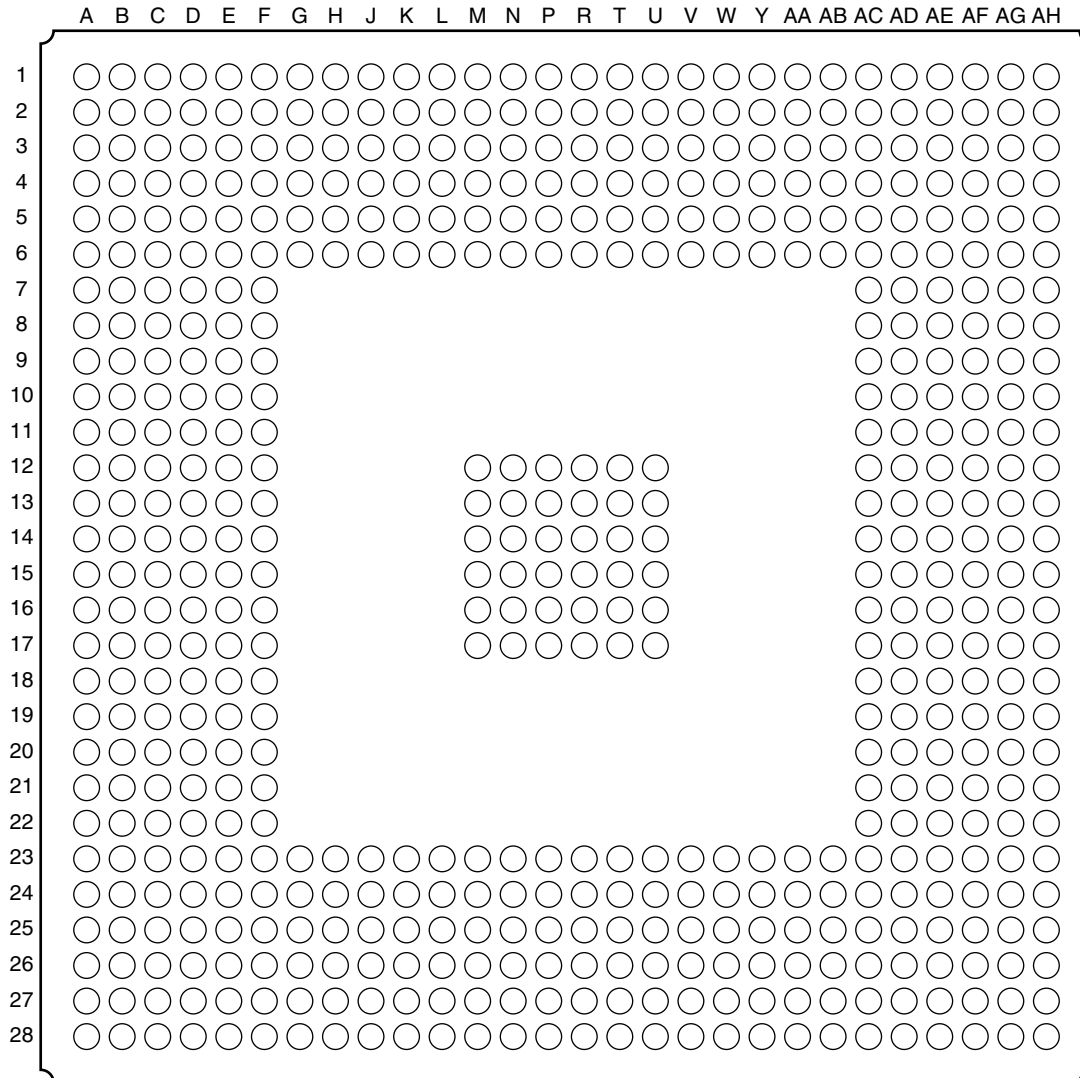
### ● Pin Function

No.	Pin Name	Function
1	OUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	GND	Ground

## M65673WG-A (MAIN ASSY : IC1001)

• Signal Processing IC for DVD Recorder

### ● Pin Arrangement (Top view)



### ● I/O buffer list

Buffer Name	Main Function	Remarks
PDIDGZ	Input buffer (5V tolerant)	
PDUDGZ	Input buffer (5V tolerant), pull-up	
PDDDGZ	Input buffer (5V tolerant), pull-down	
PDO04CDG	Output buffer, 4mA	
PDO08CDG	Output buffer, 8mA	
PDO0204DGZ	Output buffer, 2/4mA	
PDO0406DSGZ	Output buffer, 4/6mA	For SDRAM IF
PDO0406DSGZx2	Output buffer, 8/12mA	For SDRAM IF
PDT0204DGZ	3 state output buffer, 2/4mA	
PDB04DGZ	Bidirectional buffer, 4mA	
PDB08DGZ	Bidirectional buffer, 8mA	
PDB0204DGZ	Bidirectional buffer, 2/4mA	
PDB0406DSGZ	Bidirectional buffer, 4/6mA	For SDRAM IF



## ● Pin Function

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
1	VDD3	VDD3	–	3.3V I/O power supply	56	V26	VRT10	–	TOP side reference voltage
2	GND	GND	–	Ground	57	V28	VRM10	–	Common voltage
3	VDD	VDD	–	1.2V LOGIC power supply	58	U25	VRB10	–	Bottom side reference voltage
4	AH28	VDD	–	1.2V LOGIC power supply	59	U26	VRBD10	I/O	Analog test bus (for debugging)
5	AF26	ACCCTL	O		60	U27	DVSSAD10	–	ADC part digital ground
6	AF27	PEDCTL	O	VIDEO-Analog, Output buffer	61	T24	DVDDAD10	–	ADC part digital power supply (3.3V)
7	AG28	HKEYPLS	O	VIDEO-Analog, Output buffer	62	GND	GND	–	Ground
8	GND	GND	–	Ground	63	VDD	VDD	–	1.2V LOGIC power supply
9	AE26	WM1DTI[7]	I/O	WM/VWM, Bidirectional buffer	64	U28	AVDDAD8	–	
10	AD25	WM1DTI[6]	I/O	WM/VWM, Bidirectional buffer	65	T25	AVSSAD8	–	
11	AC24	WM1DTI[5]	I/O	WM/VWM, Bidirectional buffer	66	T26	CIN	I	VIDEO-Analog
12	AE27	WM1DTI[4]	I/O	WM/VWM, Bidirectional buffer	67	T27	VRT8	–	VIDEO-Analog
13	AF28	WM1DTI[3]	I/O	WM/VWM, Bidirectional buffer	68	T28	VRB8	–	VIDEO-Analog
14	AD26	WM1DTI[2]	I/O	WM/VWM, Bidirectional buffer	69	R25	AVDDAD8	–	
15	AE28	WM1DTI[1]	I/O	WM/VWM, Bidirectional buffer	70	R24	AVSSAD8	–	
16	AC25	WM1DTI[0]	I/O	WM/VWM, Bidirectional buffer	71	R26	CRIN	I	VIDEO-Analog
17	AB24	WM1DTO[7]	I/O	WM/VWM, Bidirectional buffer	72	R28	BG8	–	VIDEO-Analog
18	VDD	VDD	–	1.2V LOGIC power supply	73	P28	AVDDAD8	–	
19	GND	GND	–	Ground	74	P27	AVSSAD8	–	
20	AD27	WM1DTO[6]	I/O	WM/VWM, Bidirectional buffer	75	R27	GIN	I	VIDEO-Analog
21	AC26	WM1DTO[5]	I/O	WM/VWM, Bidirectional buffer	76	P26	DVSSAD8	–	
22	AD28	WM1DTO[4]	I/O	WM/VWM, Bidirectional buffer	77	P25	DVDDAD8	–	
23	AA24	WM1DTO[3]	I/O	WM/VWM, Bidirectional buffer	78	GND	GND	–	Ground
24	AB25	WM1DTO[2]	I/O	WM/VWM, Bidirectional buffer	79	P24	EDATA[15]	I/O	SDRAM ENC, Bidirectional buffer
25	VDD	VDD	–	1.2V LOGIC power supply	80	VDD3	VDD3	–	3.3V I/O power supply
26	AC27	WM1DTO[1]	I/O	WM/VWM, Bidirectional buffer	81	N28	EDATA[0]	I/O	SDRAM ENC, Bidirectional buffer
27	GND	GND	–	Ground	82	N27	EDATA[1]	I/O	SDRAM ENC, Bidirectional buffer
28	AC28	WMCKLO	O	WM/VWM, Output buffer	83	N26	EDATA[2]	I/O	SDRAM ENC, Bidirectional buffer
29	VDD3	VDD3	–	3.3V I/O power supply	84	VDD	VDD	–	1.2V LOGIC power supply
30	AB26	WM1DTO[0]	I/O	WM/VWM, Bidirectional buffer	85	N25	EDATA[13]	I/O	SDRAM ENC, Bidirectional buffer
31	AA25	WM2DTO[7]	O	WM/VWM, Output buffer	86	GND	GND	–	Ground
32	AB27	WM2DTO[6]	O	WM/VWM, Output buffer	87	M28	EDATA[3]	I/O	SDRAM ENC, Bidirectional buffer
33	AB28	VDD	–	1.2V LOGIC power supply	88	GND	GND	–	Ground
34	Y24	WM2DTO[5]	O	WM/VWM, Output buffer	89	N24	EDATA[14]	I/O	SDRAM ENC, Bidirectional buffer
35	AA27	WM2DTO[4]	O	WM/VWM, Output buffer	90	M27	EDATA[4]	I/O	SDRAM ENC, Bidirectional buffer
36	AA26	WM2DTO[3]	O	WM/VWM, Output buffer	91	M26	EDATA[5]	I/O	SDRAM ENC, Bidirectional buffer
37	AA28	WM2DTO[2]	O	WM/VWM, Output buffer	92	VDD3	VDD3	–	3.3V I/O power supply
38	W24	WM2DTO[1]	O	WM/VWM, Output buffer	93	M25	EDATA[11]	I/O	SDRAM ENC, Bidirectional buffer
39	GND	GND	–	Ground	94	L28	EDATA[6]	I/O	SDRAM ENC, Bidirectional buffer
40	Y25	WM2DTO[0]	O	WM/VWM, Output buffer	95	L27	EDATA[7]	I/O	SDRAM ENC, Bidirectional buffer
41	GND	GND	–	Ground	96	VDD	VDD	–	1.2V LOGIC power supply
42	Y26	SYNC	I/O	TS OUT, Bidirectional buffer	97	M24	EDATA[12]	I/O	SDRAM ENC, Bidirectional buffer
43	Y27	STREAM	I/O	TS OUT, Bidirectional buffer	98	GND	GND	–	Ground
44	Y28	PACKETEN	I/O	TS OUT, Bidirectional buffer	99	L26	EDATA[8]	I/O	SDRAM ENC, Bidirectional buffer
45	VDD3	VDD3	–	3.3V IO power supply	100	GND	GND	–	Ground
46	W25	TSRW	O	TS OUT, Output buffer	101	L25	EDATA[9]	I/O	SDRAM ENC, Bidirectional buffer
47	GND	GND	–	Ground	102	K28	EDQM	O	SDRAM ENC, Output buffer
48	V24	TSCLK	O	TS OUT, Output buffer	103	K27	EWE	O	SDRAM ENC, Output buffer
49	VDD3	VDD3	–	3.3V I/O power supply	104	VDD3	VDD3	–	3.3V I/O power supply
50	W26	NBC10	–	Bias current adjustment terminal	105	K26	ECAS	O	SDRAM ENC, Output buffer
51	W27	VBGR10	I/O	Analog test bus (for debugging)	106	L24	EDATA[10]	I/O	SDRAM ENC, Bidirectional buffer
52	W28	AVDDAD10	–	ADC part analog power supply (3.3V)	107	K25	ECLKEN	O	Output buffer, 4/6mA
53	V25	AVSSAD10	–	ADC part analog Ground	108	VDD	VDD	–	1.2V LOGIC power supply
54	V27	CVBSIN	I	Analog Input	109	J28	ERAS	O	SDRAM ENC, Output buffer
55	U24	VRTD10	–	Input common bias	110	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
111	J27	ECS	O	SDRAM ENC, Output buffer	166	VDD3	VDD3	-	3.3V I/O power supply
112	GND	GND	-	Ground	167	C25	AT1DATA[11]	I/O	ATAPI-DVD, Bidirectional buffer
113	J26	EADRS[11]	O	SDRAM ENC, Output buffer	168	D24	AT1DATA[10]	I/O	ATAPI-DVD, Bidirectional buffer
114	J25	EADRS[8]	O	SDRAM ENC, Output buffer	169	E23	AT1DATA[9]	I/O	ATAPI-DVD, Bidirectional buffer
115	GND	GND	-	Ground	170	GND	GND	-	Ground
116	K24	ECLKO	O	SDRAM ENC, Output buffer	171	A26	AT1DATA[8]	I/O	ATAPI-DVD, Bidirectional buffer
117	VDD3	VDD3	-	3.3V I/O power supply	172	A25	AT1DATA[7]	I/O	ATAPI-DVD, Bidirectional buffer
118	H28	EBS[0]	O	SDRAM ENC, Output buffer	173	B25	AT1DATA[6]	I/O	ATAPI-DVD, Bidirectional buffer
119	H27	EBS[1]	O	SDRAM ENC, Output buffer	174	GND	GND	-	Ground
120	H26	EADRS[10]	O	SDRAM ENC, Output buffer	175	C24	AT1DATA[5]	I/O	ATAPI-DVD, Bidirectional buffer
121	VDD	VDD	-	1.2V LOGIC power supply	176	VDD3	VDD3	-	3.3V I/O power supply
122	G28	EADRS[0]	O	SDRAM ENC, Output buffer	177	E22	AT1DATA[4]	I/O	ATAPI-DVD, Bidirectional buffer
123	GND	GND	-	Ground	178	VDD	VDD	-	1.2V LOGIC power supply
124	J24	EADRS[9]	O	SDRAM ENC, Output buffer	179	D23	AT1DATA[3]	I/O	ATAPI-DVD, Bidirectional buffer
125	GND	GND	-	Ground	180	A24	AT1DATA[2]	I/O	ATAPI-DVD, Bidirectional buffer
126	G27	EADRS[1]	O	SDRAM ENC, Output buffer	181	B24	AT1DATA[1]	I/O	ATAPI-DVD, Bidirectional buffer
127	H25	EADRS[6]	O	SDRAM ENC, Output buffer	182	GND	GND	-	Ground
128	G26	EADRS[2]	O	SDRAM ENC, Output buffer	183	C23	AT1DATA[0]	I/O	ATAPI-DVD, Bidirectional buffer
129	VDD3	VDD3	-	3.3V I/O power supply	184	D22	AT1RESET	O	Output buffer,8mA
130	F27	EDATA[17]	I/O	SDRAM ENC, Bidirectional buffer	185	E21	AT1DMARQ	I	ATAPI-DVD, Input buffer
131	F28	EDATA[16]	I/O	SDRAM ENC, Bidirectional buffer	186	GND	GND	-	Ground
132	H24	EADRS[7]	O	SDRAM ENC, Output buffer	187	B23	AT1DMACK	O	ATAPI-DVD, Output buffer
133	VDD	VDD	-	1.2V LOGIC power supply	188	VDD3	VDD3	-	3.3V I/O power supply
134	G25	EADRS[4]	O	SDRAM ENC, Output buffer	189	A23	AT1DIOW	O	ATAPI-DVD, Output buffer
135	GND	GND	-	Ground	190	VDD	VDD	-	1.2V LOGIC power supply
136	F26	EDATA[30]	I/O	SDRAM ENC, Bidirectional buffer	191	C22	AT1DIOR	O	ATAPI-DVD, Output buffer
137	GND	GND	-	Ground	192	D21	AT1IORDY	I	ATAPI-DVD, Input buffer
138	E27	EDATA[19]	I/O	SDRAM ENC, Bidirectional buffer	193	B22	AT1INTRQ	I	ATAPI-DVD, Input buffer
139	E28	EDATA[18]	I/O	SDRAM ENC, Bidirectional buffer	194	GND	GND	-	Ground
140	F25	EDATA[31]	I/O	SDRAM ENC, Bidirectional buffer	195	E20	AT1ADR[2]	O	ATAPI-DVD, Output buffer
141	VDD3	VDD3	-	3.3V I/O power supply	196	A22	AT1ADR[1]	O	ATAPI-DVD, Output buffer
142	E26	EDATA[29]	I/O	SDRAM ENC, Bidirectional buffer	197	C21	AT1ADR[0]	O	ATAPI-DVD, Output buffer
143	G24	EADRS[5]	O	SDRAM ENC, Output buffer	198	GND	GND	-	Ground
144	D28	EDATA[20]	I/O	SDRAM ENC, Bidirectional buffer	199	B21	AT1CS[1]	O	ATAPI-DVD, Output buffer
145	VDD	VDD	-	1.2V LOGIC power supply	200	VDD3	VDD3	-	3.3V I/O power supply
146	D27	EDATA[21]	I/O	SDRAM ENC, Bidirectional buffer	201	A21	AT1CS[0]	O	ATAPI-DVD, Output buffer
147	GND	GND	-	Ground	202	VDD	VDD	-	1.2V LOGIC power supply
148	C28	EDATA[22]	I/O	SDRAM ENC, Bidirectional buffer	203	E19	AT2DATA[15]	I/O	ATAPI-HDD, Bidirectional buffer
149	GND	GND	-	Ground	204	D20	AT2DATA[14]	I/O	ATAPI-HDD, Bidirectional buffer
150	F24	EADRS[3]	O	SDRAM ENC, Output buffer	205	C20	AT2DATA[13]	I/O	ATAPI-HDD, Bidirectional buffer
151	E25	EDATA[28]	I/O	SDRAM ENC, Bidirectional buffer	206	GND	GND	-	Ground
152	D26	EDATA[26]	I/O	SDRAM ENC, Bidirectional buffer	207	B20	AT2DATA[12]	I/O	ATAPI-HDD, Bidirectional buffer
153	VDD3	VDD3	-	3.3V I/O power supply	208	A20	AT2DATA[11]	I/O	ATAPI-HDD, Bidirectional buffer
154	B28	EDATA[23]	I/O	SDRAM ENC, Bidirectional buffer	209	D19	AT2DATA[10]	I/O	ATAPI-HDD, Bidirectional buffer
155	C27	EDATA[25]	I/O	SDRAM ENC, Bidirectional buffer	210	GND	GND	-	Ground
156	B27	EDATA[24]	I/O	SDRAM ENC, Bidirectional buffer	211	E18	AT2DATA[9]	I/O	ATAPI-HDD, idirectional buffer
157	VDD	VDD	-	1.2V LOGIC power supply	212	VDD3	VDD3	-	3.3V I/O power supply
158	D25	EDATA[27]	I/O	SDRAM ENC, Bidirectional buffer	213	C19	AT2DATA[8]	I/O	ATAPI-HDD, Bidirectional buffer
159	GND	GND	-	Ground	214	VDD	VDD	-	1.2V LOGIC power supply
160	C26	AT1DATA[15]	I/O	ATAPI-DVD, Bidirectional buffer	215	B19	AT2DATA[7]	I/O	ATAPI-HDD, Bidirectional buffer
161	E24	AT1DATA[14]	I/O	ATAPI-DVD, Bidirectional buffer	216	A19	AT2DATA[6]	I/O	ATAPI-HDD, Bidirectional buffer
162	GND	GND	-	Ground	217	D18	AT2DATA[5]	I/O	ATAPI-HDD, Bidirectional buffer
163	A28	VDD	-	1.2V LOGIC power supply	218	GND	GND	-	Ground
164	B26	AT1DATA[13]	I/O	ATAPI-DVD, Bidirectional buffer	219	C18	AT2DATA[4]	I/O	ATAPI-HDD, Bidirectional buffer
165	A27	AT1DATA[12]	I/O	ATAPI-DVD, Bidirectional buffer	220	E17	AT2DATA[3]	I/O	ATAPI-HDD, Bidirectional buffer

A

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
221	B18	AT2DATA[2]	I/O	ATAPI-HDD, Bidirectional buffer	276	VDD3	VDD3	–	3.3V I/O power supply
222	GND	GND	–	Ground	277	C11	AMCLK2	I	CLOCK, Input buffer
223	A18	AT2DATA[1]	I/O	ATAPI-HDD, Bidirectional buffer	278	GND	GND	–	Ground
224	VDD3	VDD3	–	3.3V I/O power supply	279	D11	ARDATA[1]	I/O	SDRAM-ATAPI, Bidirectional buffer
225	D17	AT2DATA[0]	I/O	ATAPI-HDD, Bidirectional buffer	280	VDD3	VDD3	–	3.3V I/O power supply
226	VDD	VDD	–	1.2V LOGIC power supply	281	A10	ARDATA[14]	I/O	SDRAM-ATAPI, Bidirectional buffer
227	C17	AT2RESET	I/O	ATAPI-HDD, Bidirectional buffer	282	VDD	VDD	–	1.2V LOGIC power supply
228	B17	AT2DMARQ	I	ATAPI-HDD, Input buffer	283	B10	ARDATA[15]	I/O	SDRAM-ATAPI, Bidirectional buffer
229	E16	AT2DMACK	O	ATAPI-HDD, Output buffer	284	E11	ARDATA[0]	I/O	SDRAM-ATAPI, Bidirectional buffer
230	GND	GND	–	Ground	285	C10	ARDATA[4]	I/O	SDRAM-ATAPI, Bidirectional buffer
231	A17	AT2DIOW	O	ATAPI-HDD, Output buffer	286	GND	GND	–	Ground
232	D16	AT2DIOR	O	ATAPI-HDD, Output buffer	287	D10	ARDATA[3]	I/O	SDRAM-ATAPI, Bidirectional buffer
233	C16	AT2IORDY	I	ATAPI-HDD, Input buffer	288	A9	ARDATA[11]	I/O	SDRAM-ATAPI, Bidirectional buffer
234	GND	GND	–	Ground	289	B9	ARDATA[12]	I/O	SDRAM-ATAPI, Bidirectional buffer
235	B16	AT2INTRQ	I	ATAPI-HDD, Input buffer	290	GND	GND	–	Ground
236	VDD3	VDD3	–	3.3V I/O power supply	291	C9	ARDATA[13]	I/O	SDRAM-ATAPI, Bidirectional buffer
237	A16	AT2ADR[2]	I/O	ATAPI-HDD, Bidirectional buffer	292	E10	ARDATA[2]	I/O	SDRAM-ATAPI, Bidirectional buffer
238	VDD	VDD	–	1.2V LOGIC power supply	293	D9	ARDATA[6]	I/O	SDRAM-ATAPI, Bidirectional buffer
239	E15	AT2ADR[1]	I/O	ATAPI-HDD, Bidirectional buffer	294	VDD3	VDD3	–	3.3V I/O power supply
240	GND	GND	–	Ground	295	A8	ARDATA[10]	I/O	SDRAM-ATAPI, Bidirectional buffer
241	D15	AT2ADR[0]	I/O	ATAPI-HDD, Bidirectional buffer	296	B8	ARDATA[9]	I/O	SDRAM-ATAPI, Bidirectional buffer
242	VDD	VDD	–	1.2V LOGIC power supply	297	C8	ARWE	O	SDRAM-ATAPI, Output buffer
243	C15	AT2CS[1]	O	ATAPI-HDD, Output buffer	298	VDD	VDD	–	1.2V LOGIC power supply
244	GND	GND	–	Ground	299	A7	ARDATA[8]	I/O	SDRAM-ATAPI, Bidirectional buffer
245	B15	AT2CS[0]	O	ATAPI-HDD, Output buffer	300	E9	ARDATA[5]	I/O	SDRAM-ATAPI, Bidirectional buffer
246	VDD	VDD	–	1.2V LOGIC power supply	301	D8	ARDQM[0]	O	SDRAM-ATAPI, Output buffer
247	A15	AT2MODE	I	ATAPI-HDD, Input buffer	302	GND	GND	–	Ground
248	GND	GND	–	Ground	303	B7	ARDQM[1]	O	SDRAM-ATAPI, Output buffer
249	GND	GND	–	Ground	304	C7	ARCS[0]	O	SDRAM-ATAPI, Output buffer
250	A14	RESET	I	Input buffer (5V tolerant)	305	VDD3	VDD3	–	3.3V I/O power supply
251	VDD3	VDD3	–	3.3V I/O power supply	306	A6	ARCLKO	O	SDRAM-ATAPI, Output buffer
252	B14	VDD	–	1.2V LOGIC power supply	307	GND	GND	–	Ground
253	C14	DBI	I	TEST, Input buffer	308	B6	ARADRS[12]	O	SDRAM-ATAPI, Output buffer
254	GND	GND	–	Ground	309	E8	ARDATA[7]	I/O	SDRAM-ATAPI, Bidirectional buffer
255	D14	TRACE	I	TEST, Input buffer	310	D7	ARRAS	O	SDRAM-ATAPI, Output buffer
256	E14	VDD	–	1.2V LOGIC power supply	311	VDD3	VDD3	–	3.3V I/O power supply
257	A13	PCO	O	CLOCK, 3 state output buffer	312	A5	ARADRS[11]	O	SDRAM-ATAPI, Output buffer
258	GND	GND	–	Ground	313	C6	ARADRS[13]	O	SDRAM-ATAPI, Output buffer
259	B13	PLL3AVSS	–		314	B5	ARADRS[9]	O	SDRAM-ATAPI, Output buffer
260	C13	PLL3AVDD	–		315	VDD	VDD	–	1.2V LOGIC power supply
261	D13	VMCLK	I	CLOCK, Input buffer	316	E7	ARCAS	O	SDRAM-ATAPI, Output buffer
262	E13	PLL1AVDD	–		317	D6	ARADRS[14]	O	SDRAM-ATAPI, Output buffer
263	A12	PLL1AVSS	–		318	C5	ARADRS[1]	O	SDRAM-ATAPI, Output buffer
264	VDD3	VDD3	–	3.3V I/O power supply	319	GND	GND	–	Ground
265	B12	ADCCLKO	O	CLOCK, Output buffer	320	B4	ARADRS[3]	O	SDRAM-ATAPI, Output buffer
266	GND	GND	–	Ground	321	A4	ARADRS[8]	O	SDRAM-ATAPI, Output buffer
267	C12	VDD	–	1.2V LOGIC power supply	322	A3	ARADRS[7]	O	SDRAM-ATAPI, Output buffer
268	VDD3	VDD3	–	3.3V I/O power supply	323	GND	GND	–	Ground
269	D12	DVAMCLKO	O	CLOCK, Output buffer	324	E6	ARCS[1]	O	SDRAM-ATAPI, Output buffer
270	GND	GND	–	Ground	325	D5	ARADRS[0]	O	SDRAM-ATAPI, Output buffer
271	A11	DACCLKO	O	CLOCK, Output buffer	326	C4	ARADRS[2]	O	SDRAM-ATAPI, Output buffer
272	VDD3	VDD3	–	3.3V I/O power supply	327	VDD3	VDD3	–	3.3V I/O power supply
273	E12	DVAMCLKI	I	AUDIO CLOCK, Input buffer	328	A2	ARADRS[5]	O	SDRAM-ATAPI, Output buffer
274	GND	GND	–	Ground	329	B3	ARADRS[6]	O	SDRAM-ATAPI, Output buffer
275	B11	AMCLK1	I	CLOCK, Input buffer	330	B2	ARADRS[4]	O	SDRAM-ATAPI, Output buffer

F



No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
331	GND	GND	–	Ground	386	VDD	VDD	–	1.2V LOGIC power supply
332	E5	ARADRS[10]	O	SDRAM-ATAPI, Output buffer	387	GND	GND	–	Ground
333	D4	SRBCKI	I	AUDIO, Input buffer	388	L3	SPIDATAI	I/O	HOST, Bidirectional buffer
334	VDD3	VDD3	–	3.3V I/O power supply	389	VDD	VDD	–	1.2V LOGIC power supply
335	C3	SRCLRCKI	I	AUDIO, Input buffer	390	M5	SPIDATAO	I/O	HOST, Bidirectional buffer
336	B1	SRCDATAI	I	AUDIO, Input buffer	391	GND	GND	–	Ground
337	A1	VDD	–	1.2V LOGIC power supply	392	L2	SPICLK	I/O	HOST, Bidirectional buffer
338	GND	GND	–	Ground	393	GND	GND	–	Ground
339	C2	SRBCKO	O	AUDIO, Output buffer	394	L1	DDATA[0]	I/O	SDRAM-DEC, Bidirectional buffer
340	VDD	VDD	–	1.2V LOGIC power supply	395	VDD3	VDD3	–	3.3V I/O power supply
341	D3	SRCLRCKO	O	AUDIO, Output buffer	396	M4	DDATA[14]	I/O	SDRAM-DEC, Bidirectional buffer
342	E4	SRCDATAO	O	AUDIO, Output buffer	397	M3	DDATA[15]	I/O	SDRAM-DEC, Bidirectional buffer
343	F5	SPDIFI	I	AUDIO, Input buffer	398	M2	DDATA[2]	I/O	SDRAM-DEC, Bidirectional buffer
344	D2	SPDIFO	O	AUDIO, Output buffer	399	VDD	VDD	–	1.2V LOGIC power supply
345	C1	DVLRCK	I/O	AUDIO, Bidirectional buffer	400	N5	DDATA[11]	I/O	SDRAM-DEC, Bidirectional buffer
346	E3	DVBCK	I/O	AUDIO, Bidirectional buffer	401	GND	GND	–	Ground
347	D1	DVADATA	I/O	AUDIO, Bidirectional buffer	402	M1	DDATA[1]	I/O	SDRAM-DEC, Bidirectional buffer
348	F4	ACMOD[1]	I	AUDIO, Input buffer	403	GND	GND	–	Ground
349	G5	ACMOD[0]	I	AUDIO, Input buffer	404	N4	DDATA[12]	I/O	SDRAM-DEC, Bidirectional buffer
350	E1	LRCKI	I	AUDIO, Input buffer	405	N3	DDATA[13]	I/O	SDRAM-DEC, Bidirectional buffer
351	E2	BCKI	I	AUDIO, Input buffer	406	N2	DDATA[3]	I/O	SDRAM-DEC, Bidirectional buffer
352	GND	GND	–	Ground	407	VDD3	VDD3	–	3.3V I/O power supply
353	F3	ADATAI	I	AUDIO, Input buffer	408	N1	DDATA[4]	I/O	SDRAM-DEC, Bidirectional buffer
354	GND	GND	–	Ground	409	P5	DDATA[8]	I/O	SDRAM-DEC, Bidirectional buffer
355	G4	LRCKO	O	AUDIO, Output buffer	410	P4	DDATA[9]	I/O	SDRAM-DEC, Bidirectional buffer
356	VDD	VDD	–	1.2V LOGIC power supply	411	VDD	VDD	–	1.2V LOGIC power supply
357	H5	BCKO	O	AUDIO, Output buffer	412	P3	DDATA[10]	I/O	SDRAM-DEC, Bidirectional buffer
358	F1	ADATAO	O	DVD-AUDIO, Output buffer	413	GND	GND	–	Ground
359	F2	DVDADT[7]	O	DVD-AUDIO, Output buffer	414	P2	DDATA[6]	I/O	SDRAM-DEC, Bidirectional buffer
360	G2	DVDADT[6]	O	DVD-AUDIO, Output buffer	415	GND	GND	–	Ground
361	G3	DVDADT[5]	O	DVD-AUDIO, Output buffer	416	P1	DDATA[5]	I/O	SDRAM-DEC, Bidirectional buffer
362	J5	DVDADT[4]	O	DVD-AUDIO, Output buffer	417	R1	DDATA[7]	I/O	SDRAM-DEC, Bidirectional buffer
363	H4	DVDADT[3]	O	DVD-AUDIO, Output buffer	418	R2	DDQM[0]	O	SDRAM-DEC, Output buffer
364	G1	DVDADT[2]	O	DVD-AUDIO, Output buffer	419	VDD3	VDD3	–	3.3V I/O power supply
365	H3	DVDADT[1]	O	DVD-AUDIO, Output buffer	420	R3	DWE	O	SDRAM-DEC, Output buffer
366	H2	DVDADT[0]	O	DVD-AUDIO, Output buffer	421	VDD	VDD	–	1.2V LOGIC power supply
367	H1	DVDAADR[1]	O	DVD-AUDIO, Output buffer	422	R4	DDQM[1]	O	SDRAM-DEC, Output buffer
368	K5	DVDAADR[0]	O	DVD-AUDIO, Output buffer	423	GND	GND	–	Ground
369	J4	DVDAREQ	I/O	DVD-AUDIO, Bidirectional buffer	424	R5	DCLKO	O	SDRAM-DEC, Output buffer
370	GND	GND	–	Ground	425	VDD3	VDD3	–	3.3V I/O power supply
371	J3	DVDAACK	O	DVD-AUDIO, Output buffer	426	VDD	VDD	–	1.2V LOGIC power supply
372	VDD	VDD	–	1.2V LOGIC power supply	427	T1	DCAS	O	SDRAM-DEC, Output buffer
373	J2	SCICS[1]	I/O	HOST, Bidirectional buffer	428	GND	GND	–	Ground
374	VDD3	VDD3	–	3.3V I/O power supply	429	T2	DRAS	–	SDRAM-DEC, Output buffer
375	J1	SCICS[0]	I/O	HOST, Bidirectional buffer	430	GND	GND	–	Ground
376	VDD	VDD	–	1.2V LOGIC power supply	431	T3	DCS	O	SDRAM-DEC, Output buffer
377	K4	SCIDATA[1]	I/O	HOST, Bidirectional buffer	432	T4	DADRS[11]	O	SDRAM-DEC, Output buffer
378	GND	GND	–	Ground	433	U1	DBS[0]	O	SDRAM-DEC, Output buffer
379	L5	SCIDATA[0]	I/O	HOST, Bidirectional buffer	434	VDD3	VDD3	–	3.3V I/O power supply
380	K3	VDD	–	1.2V LOGIC power supply	435	T5	DADRS[9]	O	SDRAM-DEC, Output buffer
381	K2	SCICLK[1]	I/O	HOST, Bidirectional buffer	436	U2	DBS[1]	O	SDRAM-DEC, Output buffer
382	GND	GND	–	Ground	437	U3	DADRS[10]	O	SDRAM-DEC, Output buffer
383	K1	SCICLK[0]	I/O	HOST, Bidirectional buffer	438	VDD	VDD	–	1.2V LOGIC power supply
384	GND	GND	–	Ground	439	U4	DADRS[7]	O	SDRAM-DEC, Output buffer
385	L4	SPICS	I/O	HOST, Bidirectional buffer	440	GND	GND	–	Ground

A

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
441	V1	DADRS[0]	O	SDRAM-DEC, Output buffer	496	VDD	VDD	-	1.2V LOGIC power supply
442	GND	GND	-	Ground	497	AD4	HDACK[0]	O	Output buffer, 4mA
443	V2	DADRS[1]	O	SDRAM-DEC, Output buffer	498	AF1	HDREQ[1]	I	HOST, Input buffer
444	VDD	VDD	-	1.2V LOGIC power supply	499	AE3	HDREQ[0]	I	HOST, Input buffer
445	U5	DADRS[8]	O	SDRAM-DEC, Output buffer	500	AC5	HWAIT	I	HOST, Input buffer
446	GND	GND	-	Ground	501	AF2	HOE	O	HOST, Output buffer
447	V3	DADRS[5]	O	SDRAM-DEC, Output buffer	502	VDD3	VDD3	-	3.3V I/O power supply
448	VDD3	VDD3	-	3.3V I/O power supply	503	GND	GND	-	Ground
449	V4	DADRS[6]	O	SDRAM-DEC, Output buffer	504	AE4	VDD	-	1.2V LOGIC power supply
450	W1	DADRS[3]	O	SDRAM-DEC, Output buffer	505	AD5	HCS[5]	O	HOST, Output buffer
451	W2	DADRS[2]	O	SDRAM-DEC, Output buffer	506	AG2	HCS[4]	O	HOST, Output buffer
452	VDD	VDD	-	1.2V LOGIC power supply	507	AF3	HCS[3]	O	HOST, Output buffer
453	W3	DADRS[4]	O	SDRAM-DEC, Output buffer	508	AG3	HCS[2]	O	HOST, Output buffer
454	GND	GND	-	Ground	509	AH2	HCS[1]	O	HOST, Output buffer
455	GND	GND	-	Ground	510	GND	GND	-	Ground
456	GND	GND	-	Ground	511	AF4	HCS[0]	O	HOST, Output buffer
457	V5	INT[7]	I/O	HOST, Bidirectional buffer	512	VDD	VDD	-	1.2V LOGIC power supply
458	VDD	VDD	-	1.2V LOGIC power supply	513	AD6	HADRS[10]	I/O	HOST, Bidirectional buffer
459	W4	INT[6]	I/O	HOST, Bidirectional buffer	514	GND	GND	-	Ground
460	Y1	INT[5]	I/O	HOST, Bidirectional buffer	515	AE5	HADRS[11]	I/O	HOST, Bidirectional buffer
461	Y2	INT[4]	I/O	HOST, Bidirectional buffer	516	AG4	HADRS[13]	I/O	HOST, Bidirectional buffer
462	VDD3	VDD3	-	3.3V I/O power supply	517	AH3	HADRS[30]	I/O	HOST, Bidirectional buffer
463	Y3	INT[3]	I/O	HOST, Bidirectional buffer	518	VDD3	VDD3	-	3.3V I/O power supply
464	GND	GND	-	Ground	519	AF5	HADRS[12]	I/O	HOST, Bidirectional buffer
465	Y4	INT[2]	I/O	HOST, Bidirectional buffer	520	GND	GND	-	Ground
466	VDD	VDD	-	1.2V LOGIC power supply	521	AH4	HADRS[14]	I/O	HOST, Bidirectional buffer
467	W5	INT[1]	I/O	HOST, Bidirectional buffer	522	AE6	HDATA[1]	I/O	HOST, Bidirectional buffer
468	AA1	INT[0]	I/O	HOST, Bidirectional buffer	523	AD7	HADRS[9]	I/O	HOST, Bidirectional buffer
469	AA2	SCLK[1]	I/O	HOST, Bidirectional buffer	524	VDD3	VDD3	-	3.3V I/O power supply
470	AA3	SCLK[0]	I/O	HOST, Bidirectional buffer	525	AG5	HDATA[15]	I/O	HOST, Bidirectional buffer
471	AB1	CTS[3]	I/O	HOST, Bidirectional buffer	526	GND	GND	-	Ground
472	GND	GND	-	Ground	527	AH5	HDATA[14]	I/O	HOST, Bidirectional buffer
473	Y5	CTS[2]	I/O	HOST, Bidirectional buffer	528	GND	GND	-	Ground
474	GND	GND	-	Ground	529	AF6	HDATA[0]	I/O	HOST, Bidirectional buffer
475	AA4	CTS[1]	I/O	HOST, Bidirectional buffer	530	AD8	HDATA[6]	I/O	HOST, Bidirectional buffer
476	VDD	VDD	-	1.2V LOGIC power supply	531	AE7	HDATA[2]	I/O	HOST, Bidirectional buffer
477	AB3	CTS[0]	I/O	HOST, Bidirectional buffer	532	VDD3	VDD3	-	3.3V I/O power supply
478	AB2	RTS[3]	I/O	HOST, Bidirectional buffer	533	AG6	HDATA[12]	I/O	HOST, Bidirectional buffer
479	AC2	RTS[2]	I/O	HOST, Bidirectional buffer	534	VDD	VDD	-	1.2V LOGIC power supply
480	AC1	RTS[1]	I/O	HOST, Bidirectional buffer	535	AH6	HDATA[13]	I/O	HOST, Bidirectional buffer
481	AA5	RTS[0]	I/O	HOST, Bidirectional buffer	536	AG7	HDATA[11]	I/O	HOST, Bidirectional buffer
482	VDD3	VDD3	-	3.3V I/O power supply	537	AF7	HDATA[3]	I/O	HOST, Bidirectional buffer
483	AB4	RX[3]	I/O	HOST, Bidirectional buffer	538	GND	GND	-	Ground
484	GND	GND	-	Ground	539	AE8	HDATA[5]	I/O	HOST, Bidirectional buffer
485	AC3	RX[2]	I/O	HOST, Bidirectional buffer	540	GND	GND	-	Ground
486	VDD	VDD	-	1.2V LOGIC power supply	541	AD9	HDATA[7]	I/O	HOST, Bidirectional buffer
487	AD2	RX[1]	I/O	HOST, Bidirectional buffer	542	AF8	HDATA[4]	I/O	HOST, Bidirectional buffer
488	AD1	RX[0]	I/O	HOST, Bidirectional buffer	543	AH7	HDATA[10]	I/O	HOST, Bidirectional buffer
489	AB5	TX[3]	I/O	HOST, Bidirectional buffer	544	VDD3	VDD3	-	3.3V I/O power supply
490	AC4	TX[2]	I/O	HOST, Bidirectional buffer	545	AG8	HDATA[8]	I/O	HOST, Bidirectional buffer
491	AD3	TX[1]	I/O	HOST, Bidirectional buffer	546	VDD	VDD	-	1.2V LOGIC power supply
492	GND	GND	-	Ground	547	AH8	HDATA[9]	I/O	HOST, Bidirectional buffer
493	AE1	TX[0]	I/O	HOST, Bidirectional buffer	548	AE9	HDWE	O	HOST, Output buffer
494	GND	GND	-	Ground	549	AF9	DQMWS[0]	O	HOST, Output buffer
495	AE2	HDACK[1]	O	HOST, Output buffer	550	GND	GND	-	Ground

F

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
551	AD10	HDCS[1]	O	HOST, Output buffer	606	AG16	TMS	I	TEST, nput buffer
552	GND	GND	-	Ground	607	GND	GND	-	Ground
553	AG9	DQMWS[1]	O	HOST, Output buffer	608	AF16	TDO	O	TEST, Output buffer
554	VDD3	VDD3	-	3.3V I/O power supply	609	VDD	VDD	-	1.2V LOGIC power supply
555	AH9	HCKO	O	HOST, Output buffer	610	AE16	TDI	I	TEST, Input buffer
556	GND	GND	-	Ground	611	VDD3	VDD3	-	3.3V I/O power supply
557	AE10	HDCS[0]	O	HOST, Output buffer	612	AH17	TRST	I	TEST, Input buffer
558	VDD3	VDD3	-	3.3V I/O power supply	613	GND	GND	-	Ground
559	AD11	HADRS[15]	I/O	HOST, Bidirectional buffer	614	AD16	TCK	I	TEST, Input buffer
560	VDD	VDD	-	1.2V LOGIC power supply	615	VDD3	VDD3	-	3.3V I/O power supply
561	AF10	HCAS	O	HOST, Output buffer	616	AG17	PLL2RST	I	CLOCK, Input buffer
562	AG10	HRAS	O	HOST, Output buffer	617	GND	GND	-	Ground
563	AH10	HCKEN	O	HOST, Output buffer	618	AF17	DVCLKO	O	CLOCK, Output buffer
564	GND	GND	-	Ground	619	VDD3	VDD3	-	3.3V I/O power supply
565	AE11	HADRS[16]	I/O	HOST, Bidirectional buffer	620	AE17	PXCLK	O	CLOCK, Output buffer
566	GND	GND	-	Ground	621	GND	GND	-	Ground
567	AF11	HADRS[17]	I/O	HOST, Bidirectional buffer	622	AH18	REC656I[7]	I	VIDEO-Digital, Input buffer
568	AD12	HADRS[27]	I/O	HOST, Bidirectional buffer	623	VDD	VDD	-	1.2V LOGIC power supply
569	AG11	HADRS[20]	I/O	HOST, Bidirectional buffer	624	AG18	REC656I[6]	I	VIDEO-Digital, Input buffer
570	VDD3	VDD3	-	3.3V I/O power supply	625	GND	GND	-	Ground
571	AH11	HADRS[21]	I/O	HOST, Bidirectional buffer	626	AD17	REC656I[5]	I	VIDEO-Digital, Input buffer
572	VDD	VDD	-	1.2V LOGIC power supply	627	AF18	REC656I[4]	I	VIDEO-Digital, Input buffer
573	AE12	HADRS[19]	I/O	HOST, Bidirectional buffer	628	AE18	REC656I[3]	I	VIDEO-Digital, Input buffer
574	AF12	HADRS[18]	I/O	HOST, Bidirectional buffer	629	AH19	REC656I[2]	I	VIDEO-Digital, Input buffer
575	AG12	HADRS[23]	I/O	HOST, Bidirectional buffer	630	AG19	REC656I[1]	I	VIDEO-Digital, Input buffer
576	GND	GND	-	Ground	631	AF19	REC656I[0]	I	VIDEO-Digital, Input buffer
577	AD13	HADRS[28]	I/O	HOST, Bidirectional buffer	632	AH20	DVVIDEO[7]	I/O	VIDEO-Digital, Bidirectional buffer
578	VDD	VDD	-	1.2V LOGIC power supply	633	AD18	DVVIDEO[6]	I/O	VIDEO-Digital, Bidirectional buffer
579	AH12	HADRS[22]	I/O	HOST, Bidirectional buffer	634	AE19	DVVIDEO[5]	I/O	VIDEO-Digital, Bidirectional buffer
580	GND	GND	-	Ground	635	VDD3	VDD3	-	3.3V I/O power supply
581	AE13	HADRS[29]	I/O	HOST, Bidirectional buffer	636	AG20	DVCLKI	I	CLOCK, Input buffer
582	VDD	VDD	-	1.2V LOGIC power supply	637	AF20	PLL2AVDD	-	
583	AF13	HADRS[24]	I/O	HOST, Bidirectional buffer	638	AH21	PLL2AVSS	-	
584	VDD3	VDD3	-	3.3V I/O power supply	639	AD19	R656CLKI	I	CLOCK, Input buffer
585	AG13	HADRS[25]	I/O	HOST, Bidirectional buffer	640	GND	GND	-	Ground
586	GND	GND	-	Ground	641	AE20	ADMCLKI	I	CLOCKI, Input buffer
587	AH13	HADRS[26]	I/O	HOST, Bidirectional buffer	642	VDD3	VDD3	-	3.3V I/O power supply
588	GND	GND	-	Ground	643	AG21	DVVIDEO[4]	I/O	VIDEO-Digital, Bidirectional buffer
589	GND	GND	-	Ground	644	AF21	DVVIDEO[3]	I/O	VIDEO-Digital, Bidirectional buffer
590	AD14	TESTMOD[6]	I	TEST, Input buffer	645	AD20	DVVIDEO[2]	I/O	VIDEO-Digital, Bidirectional buffer
591	AE14	VDD	-	1.2V LOGIC power supply	646	AH22	DVVIDEO[1]	I/O	VIDEO-Digital, Bidirectional buffer
592	AF14	TESTMOD[5]	I	TEST, Input buffer	647	AG22	DVVIDEO[0]	I/O	VIDEO-Digital, Bidirectional buffer
593	GND	GND	-	Ground	648	AE21	REC656O[7]	O	VIDEO-Digital, Output buffer
594	AG14	TESTMOD[4]	I	TEST, Input buffer	649	AF22	REC656O[6]	O	VIDEO-Digital, Output buffer
595	VDD	VDD	-	1.2V LOGIC power supply	650	VDD	VDD	-	1.2V LOGIC power supply
596	AH14	TESTMOD[3]	I	TEST, Input buffer	651	AH23	DVREQ	I	VIDEO-Digital, Input buffer
597	GND	GND	-	Ground	652	GND	GND	-	Ground
598	AH15	TESTMOD[2]	I	TEST, Input buffer	653	AG23	DVACK	O	VIDEO-Digital, Output buffer
599	VDD	VDD	-	1.2V LOGIC power supply	654	GND	GND	-	Ground
600	AG15	TESTMOD[1]	I	TEST, Input buffer	655	AE22	AVSS1DA10	-	
601	GND	GND	-	Ground	656	AD21	GOUT	O	VIDEO-Analog
602	AF15	TESTMOD[0]	I	TEST, Input buffer	657	AH24	AVDD1DA10	-	
603	AE15	CSYNC	I	CLOCK, Input buffer	658	AF23	BOUT	O	VIDEO-Analog
604	AD15	VIPWM	O	CLOCK, Output buffer	659	AE23	AVDD1DA10	-	
605	AH16	PLLON	I	TEST, Input buffer	660	AG24	ROUT	O	VIDEO-Analog

A

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
661	AD22	IREF[0]	-	VIDEO-Analog	669	AD23	REC656O[4]	O	VIDEO-Digital, Output buffer
662	AF24	IREF[1]	-	VIDEO-Analog	670	AH27	REC656O[3]	O	VIDEO-Digital, Output buffer
663	AG25	YOUT	O	VIDEO-Analog	671	AG26	REC656O[2]	O	VIDEO-Digital, Output buffer
664	AH25	AVSS2DA10	-		672	AG27	REC656O[1]	O	VIDEO-Digital, Output buffer
665	AE24	COUT	O	VIDEO-Analog	673	GND	GND	-	Ground
666	AH26	AVDD2DA10	-		674	AD24	REC656O[0]	O	VIDEO-Digital, Output buffer
667	GND	GND	-	Ground	675	AE25	AGCCTL	O	VIDEO-Analog
668	AF25	REC656O[5]	O	VIDEO-Digital, Output buffer					

B

● Others

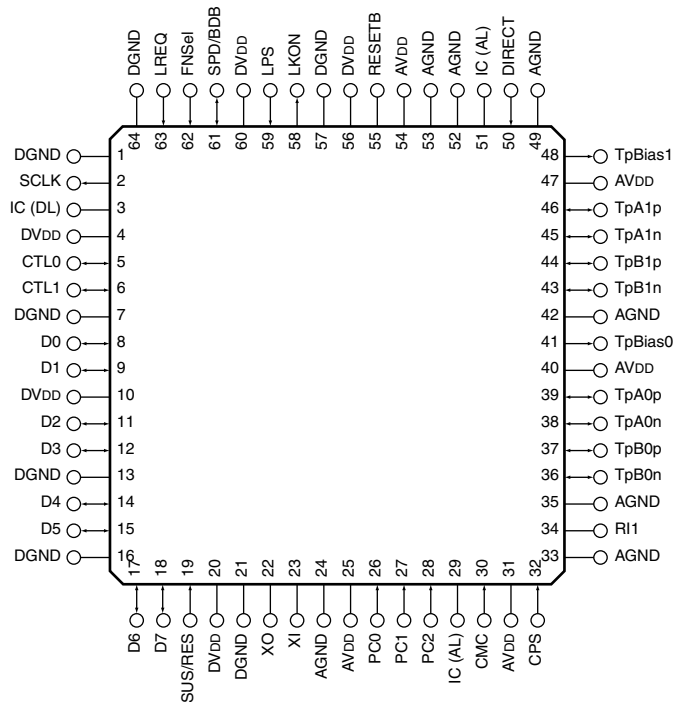
BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name
AA23	GND	P12	GND	AC11	VDD	AB23	VDD3
AA6	GND	P13	GND	AC14	VDD	AB6	VDD3
AC12	GND	P14	GND	AC6	VDD	AC10	VDD3
AC17	GND	P15	GND	AC8	VDD	AC13	VDD3
AC20	GND	P16	GND	L6	VDD	AC16	VDD3
AC9	GND	P17	GND	AC11	VDD	AC19	VDD3
F11	GND	R12	GND	AC14	VDD	AC22	VDD3
F14	GND	R13	GND	AC6	VDD	AC7	VDD3
F17	GND	R14	GND	AC8	VDD	F10	VDD3
F20	GND	R15	GND	L6	VDD	F13	VDD3
F23	GND	R16	GND	P6	VDD	F16	VDD3
F8	GND	R17	GND	U6	VDD	F19	VDD3
H6	GND	R23	GND	Y6	VDD	F22	VDD3
J23	GND	R6	GND	F12	VDD	F7	VDD3
M12	GND	T12	GND	F6	VDD	G23	VDD3
M13	GND	T13	GND	F9	VDD	G6	VDD3
M14	GND	T14	GND	J6	VDD	K23	VDD3
M15	GND	T15	GND	AC15	VDD	K6	VDD3
M16	GND	T16	GND	AC18	VDD	N23	VDD3
M17	GND	T17	GND	AC21	VDD	N6	VDD3
M23	GND	U12	GND	AC23	VDD	T23	VDD3
M6	GND	U13	GND	F15	VDD	T6	VDD3
N12	GND	U14	GND	F18	VDD	W23	VDD3
N13	GND	U15	GND	F21	VDD	W6	VDD3
N14	GND	U16	GND	H23	VDD		
N15	GND	U17	GND	L23	VDD		
N16	GND	V23	GND	P23	VDD		
N17	GND	V6	GND	U23	VDD		
				Y23	VDD		

F

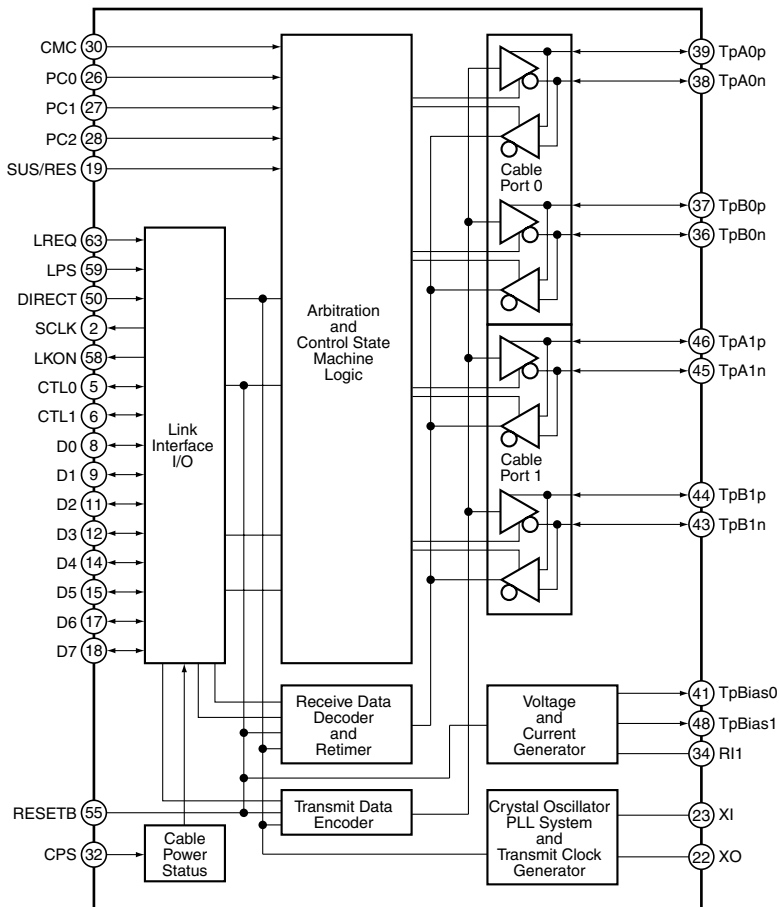
# UPD72852AGB-8EU (MAIN ASSY : IC5101)

• IEEE1394 Physical IC

## ● Pin Arrangement



## ● Block Diagram



## ● Pin Function

### A ● Cable Interface Pins

No.	Pin Name	I/O	Function
39	TpA0p	I/O	Port 0 twisted pair cable A positive phase I/O
38	TpA0n	I/O	Port 0 twisted pair cable A negative phase I/O
37	TpB0p	I/O	Port 0 twisted pair cable B positive phase I/O
36	TpB0n	I/O	Port 0 twisted pair cable B negative phase I/O
46	TpA1p	I/O	Port 1 twisted pair cable A positive phase I/O
45	TpA1n	I/O	Port 1 twisted pair cable A negative phase I/O
44	TpB1p	I/O	Port 1 twisted pair cable B positive phase I/O
B 43	TpB1n	I/O	Port 1 twisted pair cable B negative phase I/O
19	SUS/RES	I	Suspend/Resume function select 1 : Suspend/Resume on (IEEE1394a-2000 compliant) 0 : Suspend/Resume off (P1394a draft 1.3 compliant)
32	CPS	I	Cable power status Connect to the cable through a 390 kΩ resistor and to the GND through a 100 kΩ resistor. 0 : Cable power fail 1 : Cable power on

### C ● Link Interface Pins

No.	Pin Name	I/O	Function
8	D0	I/O	Data input/output (bit 0)
9	D1	I/O	Data input/output (bit 1)
11	D2	I/O	Data input/output (bit 2)
12	D3	I/O	Data input/output (bit 3)
14	D4	I/O	Data input/output (bit 4)
15	D5	I/O	Data input/output (bit 5)
17	D6	I/O	Data input/output (bit 6)
18	D7	I/O	Data input/output (bit 7)
D 5	CTL0	I/O	Link interface control (bit 0)
6	CTL1	I/O	Link interface control (bit 1)
63	LREQ	I	Link request input
2	SCLK	O	Link control output clock LPS 1 : 49.152 MHz output LPS 0 : Clamp to 0 (The clock signal will be output within 25 μsec after change to "0")
59	LPS	I	Link power status input 0 : Link power off 1 : Link power on (PHY/Link direct connection)
E 58	LKON	O	Link-on signal output Link-on signal is 6.1444 MHz clock output.
50	DIRECT	I	PHY/Link isolation barrier control input 0 : Isolation barrier 1 : PHY/Link direct connection

### • Control Pins

No.	Pin Name	I/O	Function
26	PC0	I	Power class set input This pin status will be loaded to Pwr_class bit which allocated to PHY register 4H. IEEE1394a-2000 chapter [4.3.4.1]
27	PC1	I	
28	PC2	I	
30	CMC	I	Configuration manager capable setting This pin status will be loaded to Contender bit which allocated to PHY register 4H. 0 : Non contender 1 : Contender
55	RESETB	I	Power on reset input Connect to GND through a 0.1 $\mu$ F capacitor. 0 : Reset 1 : Normal
61	SPD/BDB	I FNSel = 0	Speed select (UPD72852GB) 0 : MAX. S200 1 : MAX. S400
		O FNSel = 1	BIAS Detected output (Logical Inverse) 0 : BIAS is coming from some port. 1 : BIAS is not coming from any port.

### • IC

No.	Pin Name	I/O	Function
29, 51	IC (AL)	–	Internally Connected (Low Clamped) Connected to GND.
3	IC (DL)	–	Internally Connected (Low Clamped) Connected to GND.

### • Power Supply Pins

No.	Pin Name	I/O	Function
25, 31, 40, 47, 54	AVDD	–	Analog power
24, 33, 35, 42, 49, 52, 53	AGND	–	Analog GND
4, 10, 20, 56, 60	DVDD	–	Digital VDD
1, 7, 13, 16, 21, 57, 64	DGND	–	Digital GND

### • Other Pins

No.	Pin Name	I/O	Function
41	TpBias0	O	Port 0 twisted pair output
48	TpBias1	O	Port 1 twisted pair output
34	RI1	–	Resistor connection pin 1 for reference current generator Please connect to GND pin through the 9.1 k $\Omega$ resistor.
23	XI	–	Crystal oscillator connection XI
22	XO	–	Crystal oscillator connection XO
62	FNSel	I	Function Select 0 : #61 acts as SPD (UPD72852GB compliant) 1 : #61 acts as BDB

# UPD72893BGD-LML (MAIN ASSY : IC5202)

A • IEEE1394 Link IC

## • Pin Arrangement

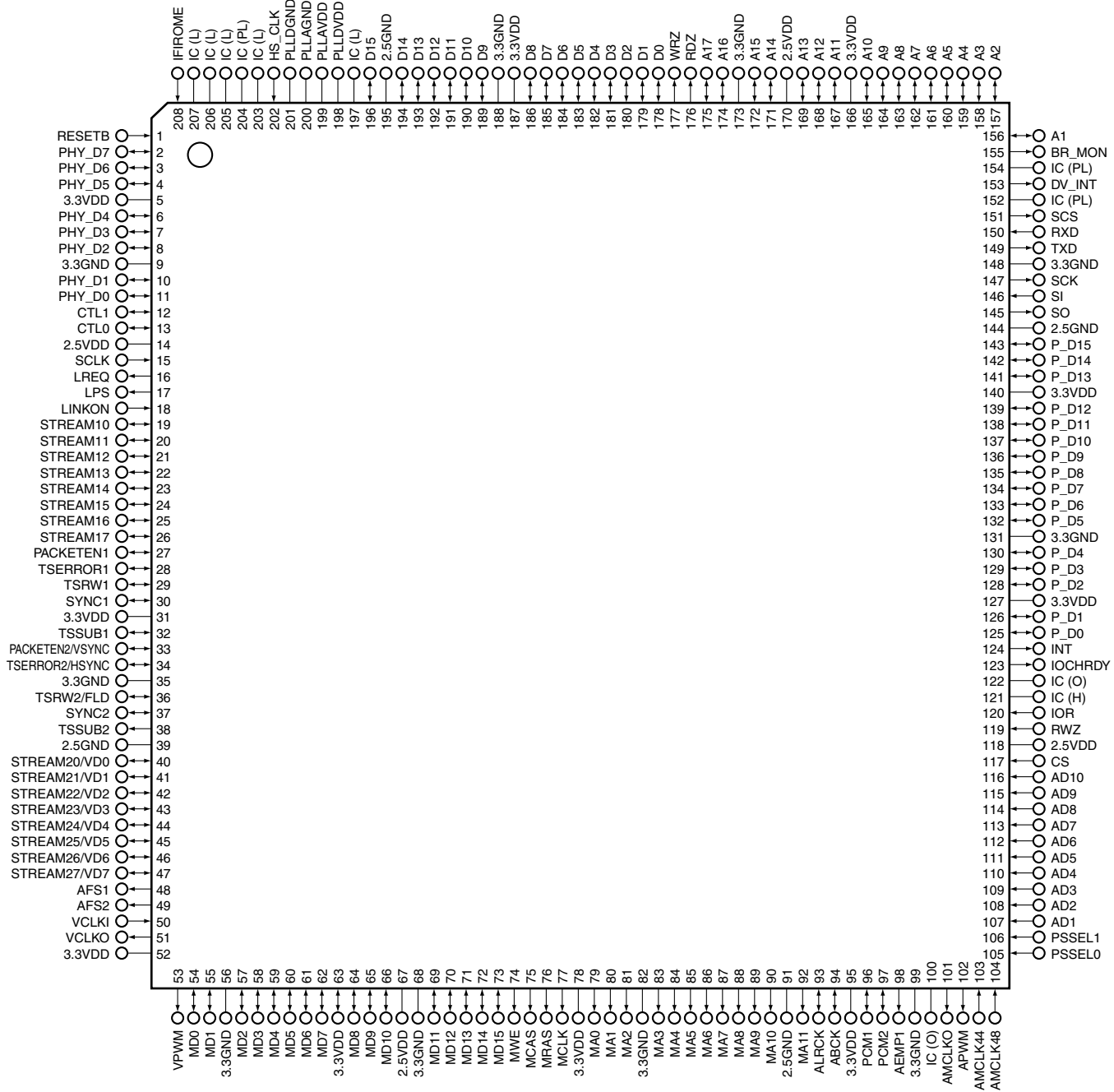
B

C

D

E

F







## ● Pin Function

### (1) Link relation

No.	Pin Name	I/O	Function	Active
18	LINKON	I	Link-on signal input Clock input When LPS is active, input 0.	–
17	LPS	O	Link power status output Link power OFF : 0 Link power ON : 2.7 MHz pulse output (20 dividing of host clock 54 MHz)	–
16	LREQ	O	Link request output	–
15	SCLK	I	Clock input for Link control LPS is active : 49.152 MHz input LPS = 0 0 : fixed	–
12, 13	CTL [1 : 0]	I/O	PHY/Link control signal input/output	–
2-4, 6-8, 10, 11	PHY_D [7 : 0]	I/O	Data input/output between PHY-Link	–
26-19	STREAM1 [7 : 0]	I/O	ISO data bus of stream interface 1	–
27	PACKETEN1	I/O	Packet enable signal input/output of stream interface 1	H/L
28	TSERROR1	I/O	Packet error signal input/output of stream interface 1	H/L
29	TSRW1	I/O	Data read/write enable signal input/output of stream interface 1	–
30	SYNC1	I/O	Frame synchronous signal input/output of stream interface 1	H/L
32	TSSUB1	I/O	Not used Connect to VDD or GND through a resistor.	H/L
47-40	STREAM2 [7 : 0]	I/O	ISO data bus of stream interface 2	–
33	PACKETEN2	I/O	Packet enable signal input/output of stream interface 2	H/L
34	TSERROR2	I/O	Packet error signal input/output of stream interface 2	H/L
36	TSRW2	I/O	Data read/write enable signal input/output of stream interface 2	–
37	SYNC2	I/O	Frame synchronous signal input/output of stream interface 2	H/L
38	TSSUB2	O	Not used Set to open.	–

### (2) Video interface pins

No.	Pin Name	I/O	Function	Active
50	VCLKI	I	Video clock input (27 MHz)	–
51	VCLKO	O	Video clock output (27 MHz)	–
47-40	VD [7 : 0]	I/O	Video data signal	–
33	VSNC	I/O	Video vertical sync. signal	L
34	HSYNC	I/O	Video horizontal sync. signal	L
36	FLD	I/O	Field index signal	–
53	VPWM	O	PWM signal for video PLL	–

**(3) Audio interface pins**

No.	Pin Name	I/O	Function	Active
104	AMCLK48	I	Audio master clock input for sampling frequency 48 kHz	–
103	AMCLK44	I	Audio master clock input for sampling frequency 44 kHz	–
101	AMCKO	O	Audio master clock output	–
96	PCM1	I/O	Audio PCM serial data At 2ch : System 1 (data of audio block 1) At 4ch : System 1 The above is default setting value. Input/output data of PCM 1 and PCM 2 is replaced by Channel swap setting of an AUDIO_FUNC register.	–
97	PCM2	I/O	Audio PCM serial data At 2ch : Mute At 4ch : System 2 (data of audio block 2) The above is default setting value. Input/output data of PCM 1 and PCM 2 is replaced by Channel swap setting of an AUDIO_FUNC register. Note: Cannot use it in DV decode.	–
98	AEMP1	O	PCM1 emphasis ON/OFF in PCM 1 output	H
93	ALRCK	I/O	Audio LR clock L ch : High R ch : Low	–
94	ABCK	I/O	Audio bit clock	–
49, 48	AFS [2 : 1]	O	Audio sampling frequency AFS2 AFS1 44.1 kHz 0 1 48 kHz 0 0 32 kHz 1 0	–
102	APWM	O	PWM signal for audio PLL	–

**(4) SDRAM interface pins**

No.	Pin Name	I/O	Function	Active
77	MCLK	O	CLK pin connection of SDRAM	–
76	MRAS	O	RAS pin connection of SDRAM	–
75	MCAS	O	CAS pin connection of SDRAM	–
74	MWE	O	WE pin connection of SDRAM	–
92, 90-83, 81-79	MA [ 11 : 0]	O	Address pin connection of SDRAM	–
73-69, 66-64, 62-57, 55, 54	MD [ 15 : 0]	I/O	Data pin connection of SDRAM Note: Process of pull-up or pull down is necessary. So connect it to SDRAM directly.	–



## (6) External ROM connection pins

### (a) Flash ROM interface pins

No.	Pin Name	I/O	Function	Active
196, 194-189, 186-178	D [15 : 0]	I/O	External ROM data bus Data bus in the external ROM access. Process of pull-up or pull down is necessary.	–
175, 174, 172, 171, 169-167, 165-156	A [17 : 1]	O	External ROM address bus Address bus in the external ROM access. Can addressing the 256k byte space.	–
176	RDZ	O	ROM read Strobe signal which shows a read cycle for external ROM. It becomes the inactive in the idle state.	L
177	WRZ	O	ROM write Strobe signal which shows a write cycle for external ROM.	L

### (b) EEPROM interface pins

No.	Pin Name	I/O	Function	Active
145	SO	I/O	Serial transmit data output of clock-synchronous system serial interface (CSI)	–
146	SI	I/O	Serial receive data input of clock-synchronous system serial interface (CSI)	–
147	SCK	I/O	Clock output of clock-synchronous system serial interface (CSI)	–
151	SCS	I/O	Chip select output of clock-synchronous system serial interface (CSI)	–

## (7) Clock and reset pins

No.	Pin Name	I/O	Function	Active
1	RESETB	I	Reset RESETB input is asynchronous input. When a signal of fixed low-level width is input without relation to an operation clock, take precedence of all operation, and reset the system. Note: RESETB is low-active.	L
202	HS_CLK	I	Host clock Clock input pin which is supplied to CPU core and built-in peripheral I/O. Please input 27 MHz clock. Perform 2 multiply with internal PLL by 27 MHz clock, 54 MHz clock is supplied to CPU core and internal peripheral I/O.	–

**(8) Power supply and ground pins**

No.	Pin Name	I/O	Function	Active
5, 31, 52, 63, 78, 95, 127, 140, 166, 187	3.3VDD	–	3.3V power supply 3.3V positive power supply pins. Power supply for 3.3V interface I/O.	–
14, 67, 118, 170	2.5VDD	–	2.5V power supply 2.5V positive power supply pins. Power supply for internal each block.	–
39, 91, 144, 195	2.5GND	–	Ground pins Connect all GND pins to the common ground.	–
9, 35, 56, 68, 82, 99, 131, 148, 173, 188	3.3GND			–
199	PLLAVDD	–	Analog power supply for multiply circuit Analog positive power supply pin for PLL. Supply 2.5V.	–
200	PLLAGND	–	Analog ground for multiply circuit Analog ground for PLL	–
198	PLLDVDD	–	Digital power supply for multiply circuit Digital positive power supply pin for PLL. Supply 2.5V.	–
201	PLLDGND	–	Digital ground for multiply circuit Digital ground for PLL	–
121	IC (H)	–	Internally connected pin Connect to VDD directly.	–
197, 203, 205-207	IC (L)	–	Internally connected pin Connect to ground directly.	–
152, 154, 204	IC (PL)	–	Internally connected pin Connect to ground through a resistor.	–
100, 122	IC (O)	–	Internally connected pin Set to open.	–

**(9) Others**

No.	Pin Name	I/O	Function	Active
153	DV_INT	I/O	Interrupt pin to the outside for the DV status read out.	H
155	BR_MON	I/O	Shows the bus reset occurred. There is some delay after real bus reset occurred because of set by the built-in firmware.	H
208	IFIROME	I	ROM operation selection input Set to 1 normally.	–

## 7.3 DIAGNOSIS METHOD OF THE HDD

### How to diagnose failure of the hard disc drive (HDD)

**Purpose:**

With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

**Symptoms of failure in HDD:**

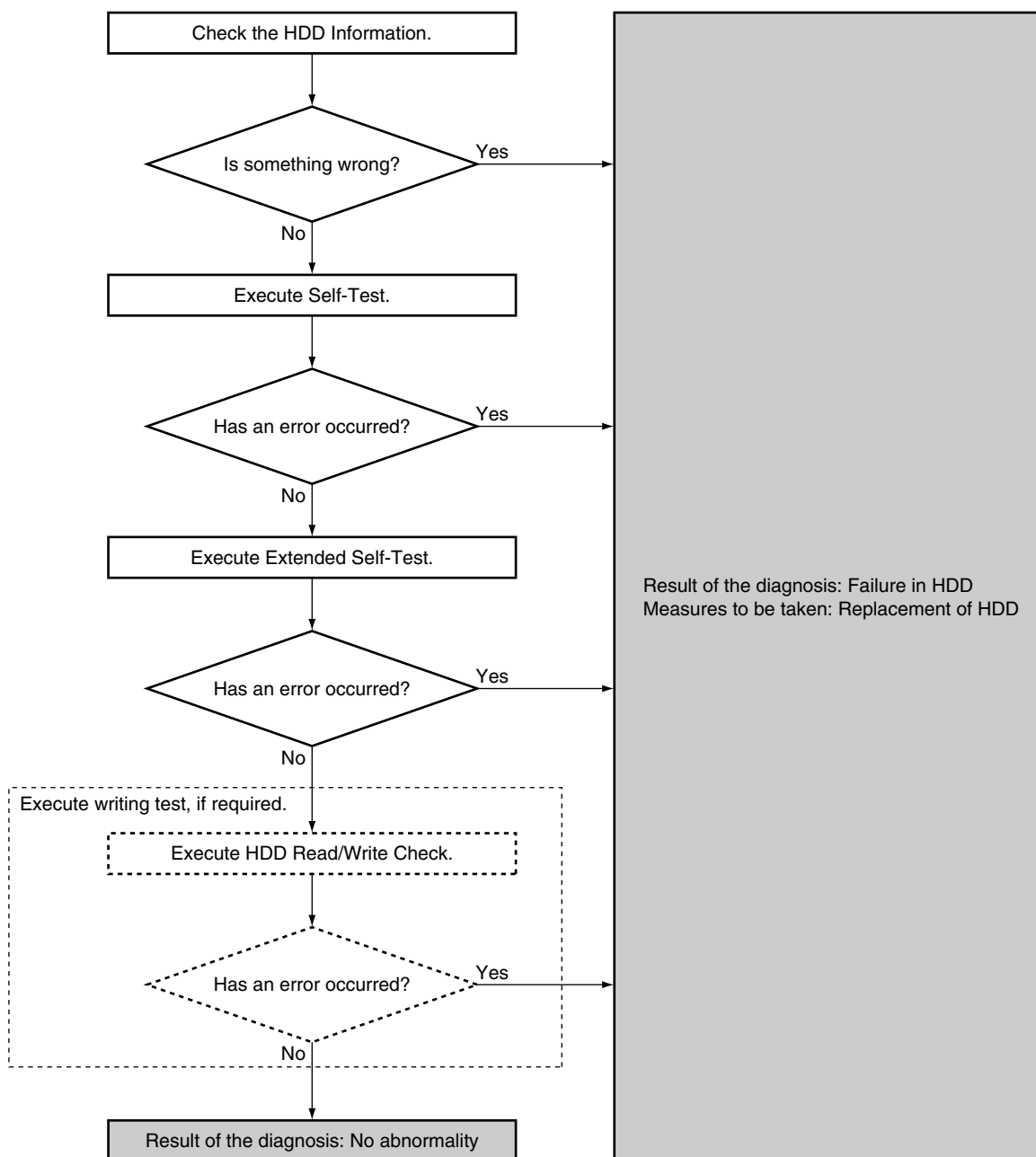
- (1) HDD Error
- (2) Failure in HDD recording or playback
- (3) HDD not recognized

**Tool to be used:**

Remote control unit for servicing (GGF1381)

### 1. Flow of HDD diagnosis

#### (1) Flowchart of HDD diagnosis



## (2) Overview of the diagnosis items

A

### HDD Information

This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life.

Time required for testing: Approx. 30 sec.

### SELF TEST

This is a simplified diagnosis for the HDD.  
A serious failure in the HDD can be detected with this test.  
Time required for testing: Approx. 90 sec.

B

### EXTENDED SELF TEST

This is a reading test across all sectors of the HDD.  
Data recorded on the HDD will not be erased, because no writing operation is performed.

Time required for testing: Approx. 40 min/80 GB

### HDD Read / Write Check

This is a writing, reading, and comparing test across all sectors of the HDD.  
**All data recorded on the HDD will be erased**, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.**

Time required for testing: Approx. 7 hours/80 GB

C

## 2. How to start or terminate the diagnostic program

### How to start/terminate the diagnostic program

Use the remote control unit for servicing.

How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.

How to terminate: Press the "ESC" key.

Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.

The status of the unit recommended during diagnosis is as follows: All stop, no timer recording, and Input selection to L1-L3.

E

F



### 3. Diagnosis procedures

#### ① Display the menu on the screen.

The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"- "4" on the remote control unit for servicing.

```

HDD CHECK MODE      [1-4]

1  HDD Information
2  S. M. A. R. T. Attribute Information
3  S. M. A. R. T. DST
4  HDD R/W Check

```

#### Tests to be executed

- ① HDD Information:  
Check of the HDD information
- ② S.M.A.R.T. DST:  
Executing a simplified test or a reading test of all data
- ③ HDD R/W Check:  
Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

**Note:** "2. S.M.A.R.T. Attribute . . ." is not to be used.

#### ② Check the HDD information.

Press the "1" key on the remote control unit for servicing. Check the following data:

Model: Is the correct model name of the HDD displayed?

Recog. No: Is a positive value displayed?

SMART threshold: Is "not exceeded" displayed?

```

▶ HDD Information
  Cylinders:0x3FFF   Heads:0x0010
  Sec/Track:0x003F
  Model :Maxtor 4R080L0
  Firmware :RAMC1TU0
▶ SN :R22RRL2SE
▶ Major No :ATA/ATAPI-7
  Life Time:33h 10m 30s
  Recog. No:-1
  SMART threshold: not exceeded

```

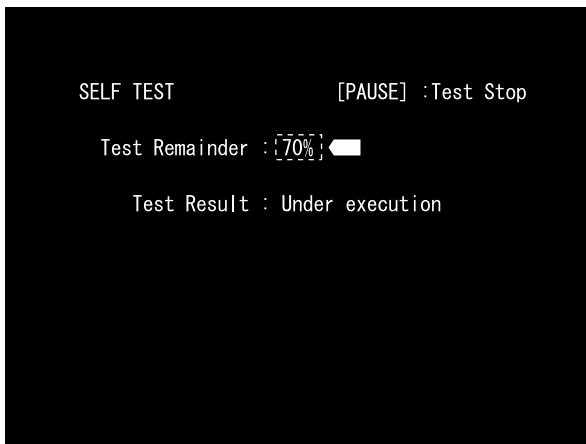
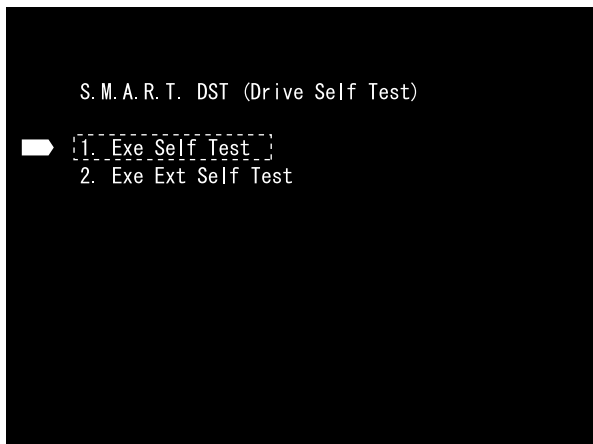
#### Detailed description

- ① Model:  
For the correct model name, refer to the service manual of the unit.
- ② Recog. No:  
Positive value: The HDD has been authenticated.  
Negative value: The HDD has not been authenticated.
- ③ SMART threshold:  
exceeded: The HDD has come to the end or near the end of its service life.  
not exceeded: The HDD has not reached the end of its service life.

To return to the menu screen, press the "Clear" key.

③ Execute Self-Test.

Press the "3" key on the remote control unit for servicing while the menu screen is displayed. When the following screen is displayed, press the "1" key to start the Self-Test.



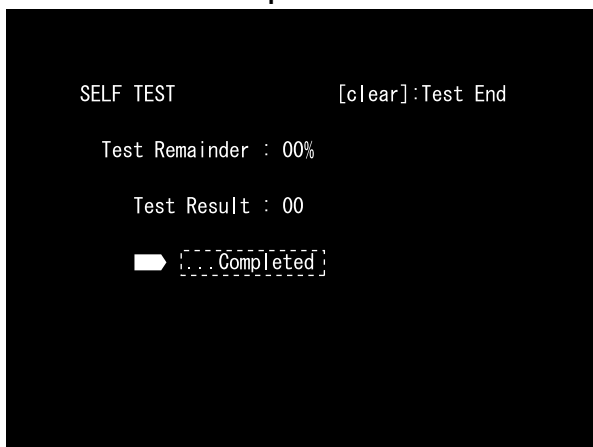
The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

**Diagnosis results**

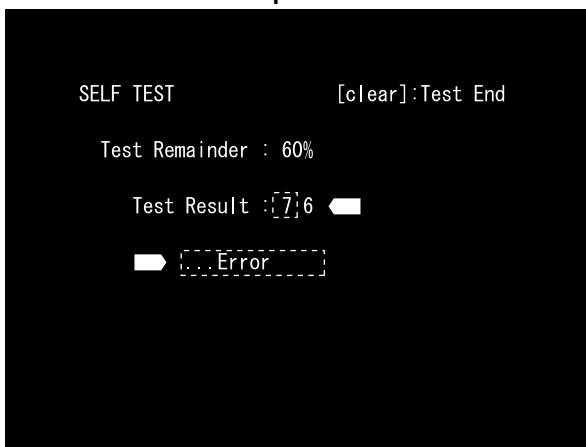
- Without an error: "... Completed" is displayed. Then, proceed to the Extended Self-Test.
- With an error: "... Error" is displayed. Look at the number in Test Result. If the place value for tens is 1 or 2, execute the Self-Test again. If it is from 3 to 7, the HDD must be replaced.

**Note:** If the result of the second test is the same, replacement of the HDD is required.

**Example: No error**

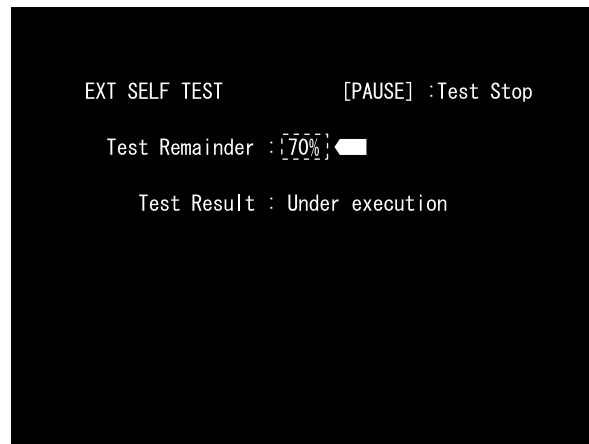


**Example: With an error**



To return to the menu screen, press the "Clear" key.

④ Execute the Ext (Extended) Self-Test.



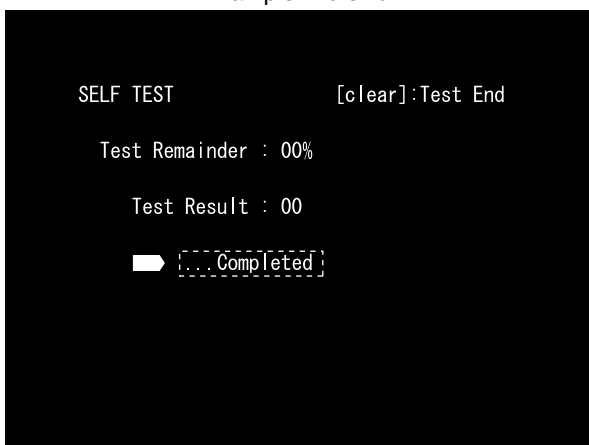
Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing. The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

**Diagnosis results**

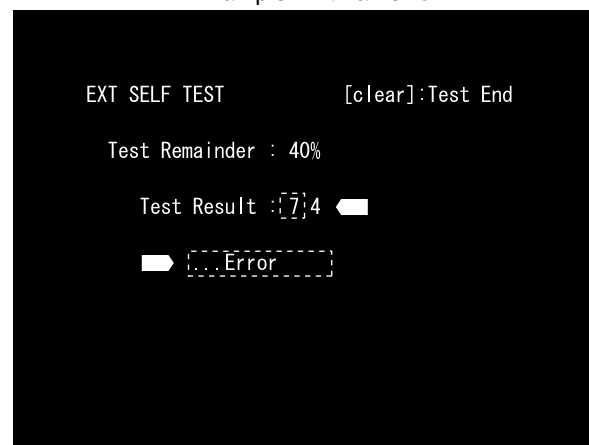
- Without an error: ". . . Completed" is displayed.  
If no error occurs up until this stage, HDD operations are normal except for writing operations.  
If the unit has a failure in HDD playback, a block other than the HDD may be in failure.  
If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: ". . . Error" is displayed.  
Look at the number in Test Result.  
If the place value for tens is 1 or 2, execute the Ext Self-Test again.  
If it is from 3 to 7, the HDD must be replaced.

**Note:** If the result of the second test is the same, replacement of the HDD is required.

Example: No error



Example: With an error



To return to the menu screen, press the "Clear" key.

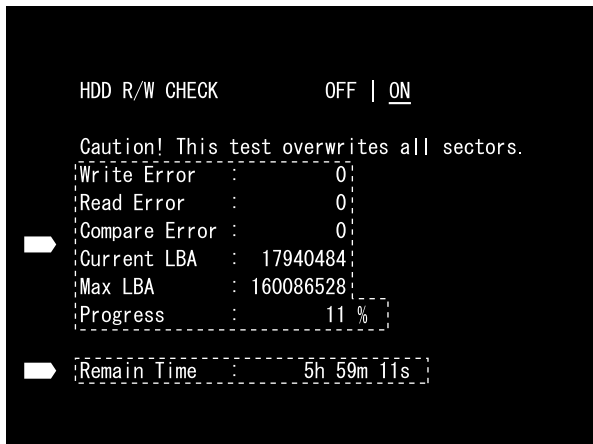
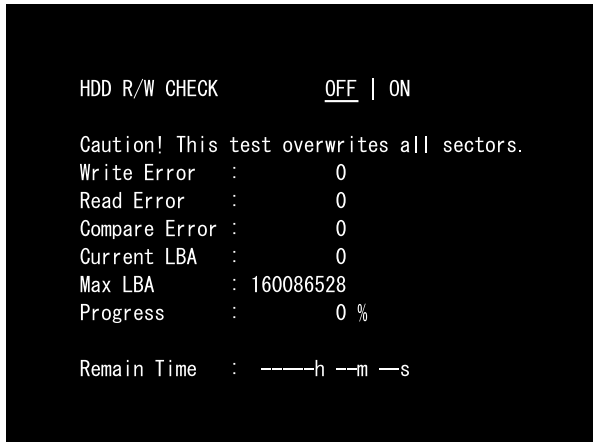
5 Execute the HDD R/W Check.

Before executing this test, **be sure to obtain your client's consent for erasure of HDD data.**

Press the "4" key while the menu screen is displayed then the "SKIP ►►" key to start the HDD R/W Check.

To stop executing the test (OFF) while it is in progress, press the "SKIP ◀◀" key.

The display on the left indicates the progress of the test. The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.



**Detailed description on each item on the screen**

- Write Error: Number of write errors
- Read Error: Number of read errors
- Compare Error: Number of comparison errors
- Current LBA: The address during testing
- Max LBA: Highest address number of the HDD
- Progress: Percentage of test progress (%)
- Remain Time: Estimated time required for finishing the test across all sectors.  
Estimated time: 7 hours/80 GB

**Diagnosis results**

- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

To terminate the diagnostic program, press the "ESC" key.

## 7.4 CAUTIONS ON HANDLING THE HDD

### (1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 20°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance	Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm		387	217	200	26
1.0 inch / 25.4 mm		595	457	310	37
2.0 inch / 50.8 mm		1133	600	680	70
4.0 inch / 101.6 mm		1795	1040	1050	267

### (2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

#### [Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

#### ● Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

#### ● Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.
- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.  
If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurs during recording or playback, recorded data may be damaged. Be sure to check operations.

#### [Cautions on handling the HDD as a repair part]

##### 1. Handle the HDD in a safe environment:

- Handle the HDD over an antistatic pad that can also absorb shock.
- Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

##### 2. The following must be observed when handling the HDD:

- Handle one HDD at a time. Do NOT hold several HDDs at the same time.
- Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
- Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
- Do NOT bump the HDDs against one another.
- Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
- When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

#### [Notes on packing for shipment]

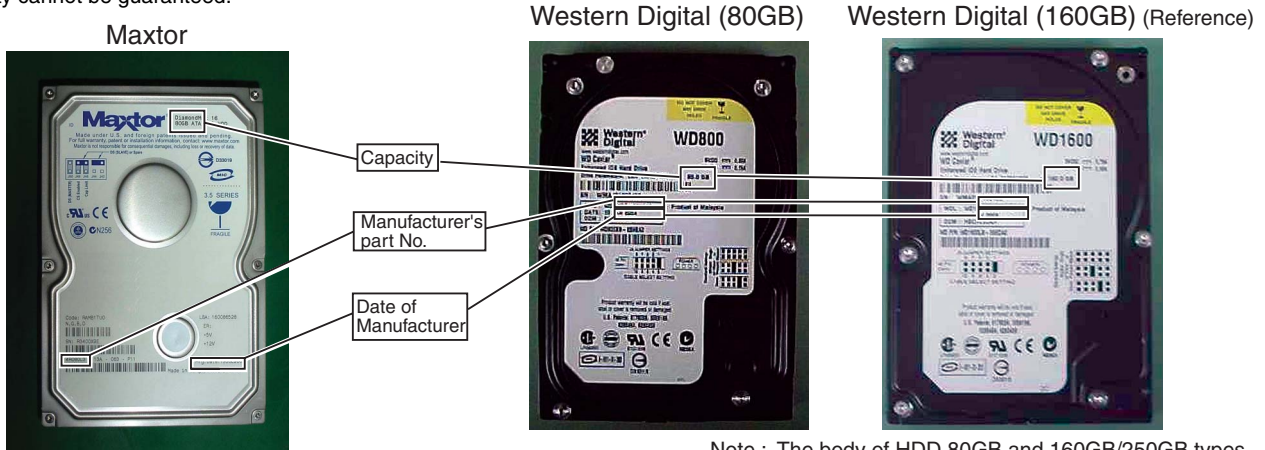
- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

■ Outline and part No. of the HDDs

\*Pioneer's part No. is not stamped.

Model Name	Capacity	Maxtor		Western Digital		Seagate	
		Pioneer's Part No. (for service)	Manufacturer's Part No.	Pioneer's Part No. (for service)	Manufacturer's Part No.	Pioneer's Part No. (for service)	Manufacturer's Part No.
XV-DVR9H	80GB	VXF1010	4R080L0-	VXF1043	WD800BB -xxHEAx	VXF1036	ST38001□ACE-

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.



Note : The body of HDD 80GB and 160GB/250GB types (Reference) of Western Digital are different.

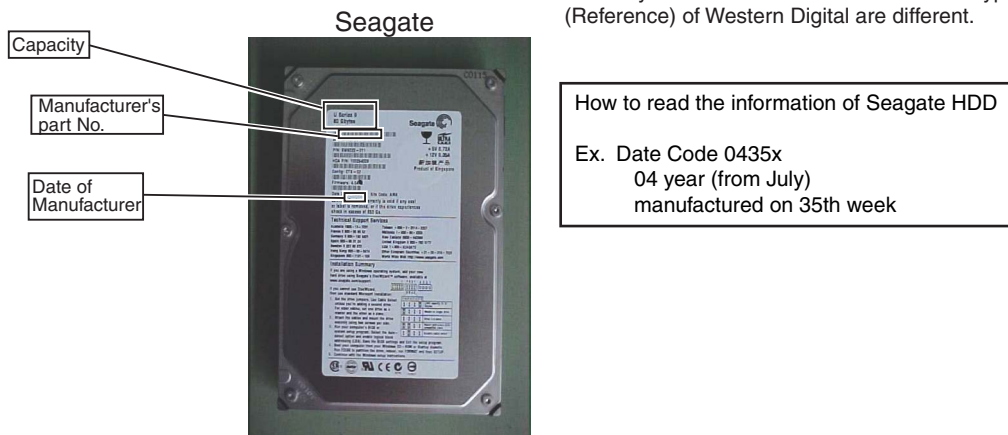


Fig.1 Location of the data on capacity and part No. of the HDD

■ Confirmation of the jumper pin location of the HDD



## Disc / content format playback compatibility

### General disc compatibility

This system is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable format—see below for further compatibility information.



- Also compatible with KODAK Picture CD
- **DVD** is a trademark of DVD Format/Logo Licensing Corporation.
- is a trademark of Fuji Photo Film Co. Ltd.

This system also supports the IEC's Super VCD standard. Compared to the Video CD standard, Super VCD offers superior picture quality, and allows two soundtracks to be recorded. Super VCD also supports the widescreen size.



### DVD-R/RW compatibility

This system will play and record DVD-R/RW discs.

Compatible media:

- DVD-RW Ver. 1.1, Ver. 1.1 / 2x and Ver. 1.2 / 4x
- DVD-R Ver. 2.0 and Ver. 2.0 / 4x / 8x

Recording formats:

- DVD-R: DVD-Video format (Video mode)
- DVD-RW: Video Recording (VR) format and DVD-Video format (Video mode)

Older models of DVD recorders and DVD writers may reject DVD-RW Ver. 1.2 / 4x discs. To share DVD-RW discs between this recorder and an older recorder/writer, we recommending Ver. 1.1 discs<sup>1</sup>.

The following table shows older Pioneer DVD recorder compatibility with DVD-RW Ver. 1.2 / 4x discs.

Model	Playable	Recordable
DVR-7000	Yes <sup>1,2,3</sup>	No
DVR-3100/ DVR-5100H	Yes <sup>1</sup>	No

<sup>1</sup> Discs should be finalized in this recorder before playing. Unfinalized VR mode and Video mode discs may not play.

<sup>2</sup> **Cannot read the CPRM information** will show in the display when you load a disc. However, this will not affect playback.

<sup>3</sup> Copy-once protected disc titles will not play.

### CD-R/RW compatibility

This system cannot record CD-R or CD-RW discs.

- Compatible formats: CD-Audio, Video CD/Super VCD, ISO 9660 CD-ROM\* containing MP3, WMA or JPEG files
  - \* ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this system.
- Multi-session playback: Yes (except CD-Audio and Video CD/Super VCD)
- Unfinalized disc playback: CD-Audio only

### Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- Variable bit-rate (VBR) MP3 playback: Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8 (files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)
- DRM (Digital Rights Management) file playback: No (see also DRM in the Glossary)
- File extensions: .mp3, .wma (these must be used for the system to recognize MP3 and WMA files; do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

### WMA (Windows Media Audio) compatibility



The Windows Media® logo printed on the box indicates that this system can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player version 7, 7.1, Windows Media® Player for Windows® XP, or Windows Media Player 9 Series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.®

### JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2\* still image files  
\* File format used by digital still cameras
- Sampling ratio: 4:4:4, 4:4:2, 4:2:0
- Horizontal resolution: 160 – 5120 pixels
- Vertical resolution: 120 – 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, jpeg, jif, jfif (must be used for the system to recognize JPEG files – do not use for other file types)
- File structure: The system can load up to 99 folders / 999 files at one time (if there are more files/folders that this on the disc then more can be reloaded)

### PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this system.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

## 7.6 CLEANING



Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

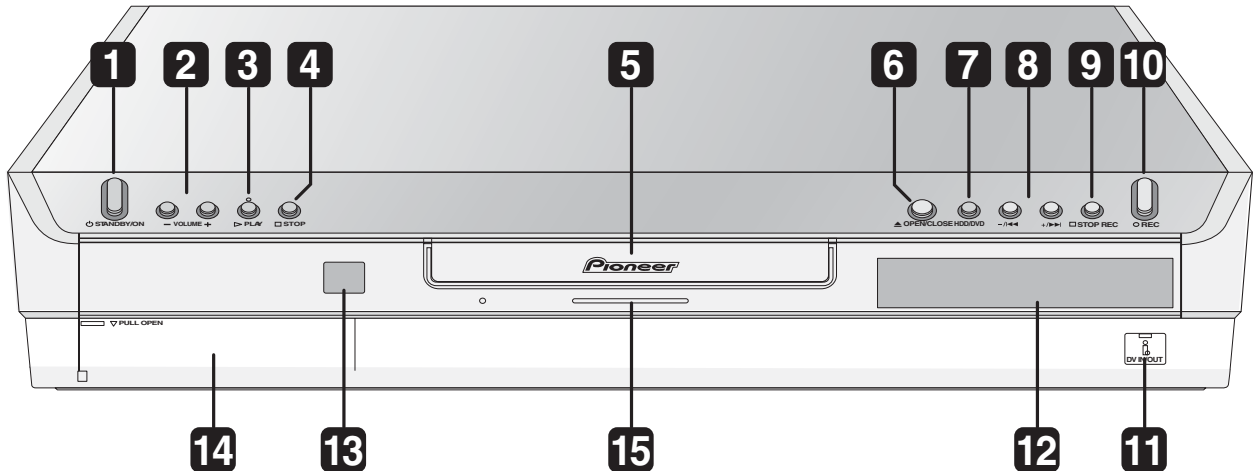
Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008



# 8. PANEL FACILITIES

## Front panel



**1** **STANDBY/ON**

Press to switch the system on/into standby.

**2** **VOLUME** buttons

Use to adjust the volume.

**3** **PLAY**

Press to start or restart playback.

**4** **STOP**

Press to stop playback.

**5** **Disc tray**

**6** **OPEN/CLOSE**

Press to open/close the disc tray.

**7** **HDD/DVD**

Press to switch between the hard disk drive (HDD) and DVD for recording and playback.

**8**

Use to change TV channels, skip chapters/tracks, etc.

**9** **STOP REC**

Press to stop recording.

**10** **REC**

Press to start recording.

**11** **DV IN/OUT jack**

Digital input/output jack for use with a DV camcorder.

**12** **Front panel display**

**13** **IR remote sensor**

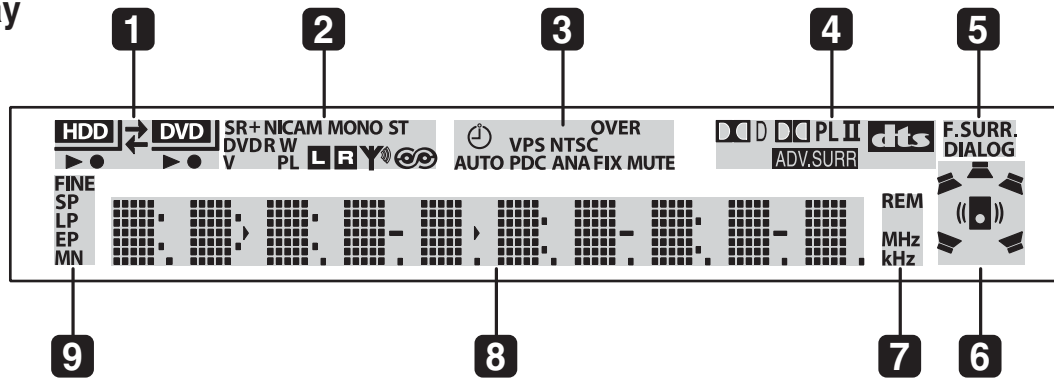
**14** **Front panel inputs and headphones jack**

Pull the cover down where indicated to access the front panel input jacks. Especially convenient for connecting camcorders and other portable equipment.

**15** **HDD indicator**

Lights blue when the HDD is selected.

## Display



### 1 HDD and DVD playback / recording indicators



Arrows indicate the copy direction between the HDD (**HDD**) and DVD (**DVD**).

#### ▶ PLAY / ● REC indicators

Lights during playback / recording; blinks when playback / recording is paused.

### 2 SR+

Lights when the SR+ control mode is on.

#### NICAM

Lights when the broadcast audio is NICAM encoded.

#### MONO

Lights when a FM radio mono reception is selected.

#### ST

Lights when a FM radio broadcast is being received in auto stereo mode.

#### DVD / R / W

Indicates the type of recordable DVD loaded: DVD-R or DVD-RW.

#### V

Lights when an unfinalized Video mode disc is loaded.

#### PL

Lights when a VR mode disc is loaded and the system is in Play List mode.



Indicates which channels of a bilingual broadcast are recorded.



Lights when a radio broadcast is being received.



Lights when RDS information is being displayed.

### 3

Lights when a timer recording has been set. (Indicator blinks if the timer has been set to DVD but there isn't a recordable disc loaded, or the timer has been set to HDD but the HDD is not recordable).

#### AUTO

Lights when Auto Start Recording has been set, and during Auto Start Recording.

#### OVER

Lights when the **LINE1** or **LINE2** input level is too high.

#### VPS / PDC

Lights when receiving a VPS/PDC broadcast during a VPS/PDC-enabled timer recording.

#### NTSC

Lights when playing NTSC format video.

#### ANA FIX

Lights when the Analog out mode is set to **Fix**.

#### MUTE

Lights to indicate that the system is muted.

### 4

Lights during playback of a Dolby Digital source.

#### Dolby PL II

Lights during Dolby Pro Logic II decoding.



Lights during playback of a DTS source.



Lights when one of the Advanced or Front Surround listening modes is selected.

### 5 F.SURR.

Lights when playing in Front Surround mode.

#### DIALOG

Lights when dialog enhancement is on.

### 6 Speaker indicators

These show which speakers are being used to output the current source (they are not placement diagrams). The illustrations below show some example displays.



5.1 channel surround sound



Stereo (2.1 channel) sound



3.1 channel sound

### 7 REM

Lights when the character display is showing the remaining available recording time.

#### kHz / MHz

Indicates the unit of the frequency shown in the character display (**kHz** for AM, **MHz** for FM).

### 8 Character display

### 9 Recording quality indicators

#### FINE

Lights when the recording mode is set to FINE (best quality).

#### SP

Lights when the recording mode is set to SP (standard play).

#### LP

Lights when the recording mode is set to LP (long play).

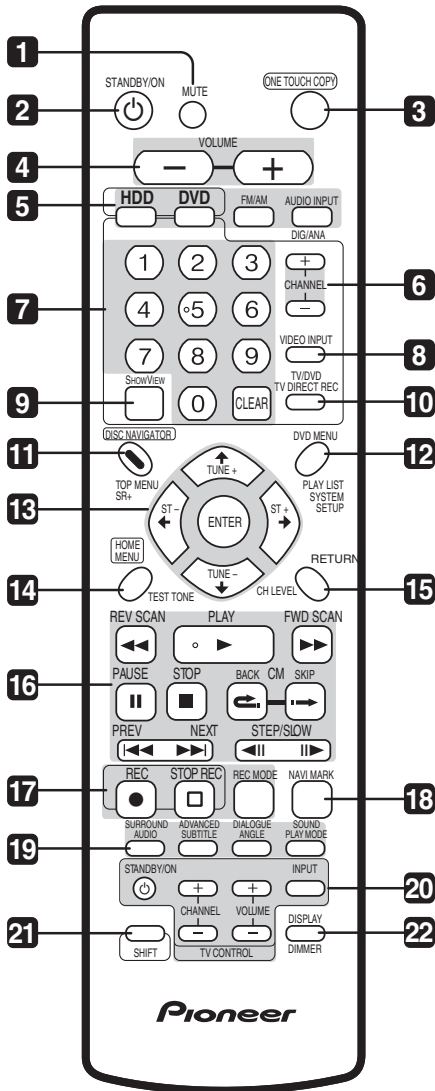
#### EP

Lights when the recording mode is set to EP (extended play).

#### MN

Lights when the recording mode is set to MN (manual recording level) mode.

## Remote control



### Important

- Functions printed in green on the remote control are accessed by pressing the button indicated while holding down the **SHIFT** button.

#### 1 MUTE

Press to mute all audio from the speakers and headphones. Press again to cancel and restore the sound.

#### 2 **STANDBY/ON**

Press to switch the system on or into standby.

#### 3 **ONE TOUCH COPY**

Press to start One Touch Copy of the currently playing title to DVD or the HDD.

#### 4 **VOLUME +/-**

Use to adjust the volume.

#### 5 **Function select buttons** **HDD**

Press to select the hard disk (HDD) for recording or playback.

#### DVD

Press to select the DVD for recording or playback.

#### FM/AM

Press to select the built-in radio tuner.

#### AUDIO INPUT

Press repeatedly to select one of the external audio inputs (**DIGITAL** or **ANALOG**).

#### 6 **CHANNEL +/-**

Press to change the channel of the built-in TV tuner.

#### 7 **Numeric buttons and CLEAR**

Use the number buttons for track/chapter/title selection; channel selection, and so on.

Use **CLEAR** to clear an entry and start again.

#### 8 **VIDEO INPUT**

Press to change the input for recording and playback.

#### 9 **SHOWVIEW**

Press, then use the number buttons to enter a ShowView programming number for timer recording.

#### 10 **TV DIRECT REC**

Press to start recording whatever channel your TV is set to.

#### + **SHIFT: TV/DVD**

Press to switch between 'TV mode', in which you get the picture and sound from the TV's tuner, and 'DVD mode', in which you get picture and sound from the system's tuner (or an external input).

#### 11 **DISC NAVIGATOR / TOP MENU**

Press to display the Disc Navigator screen, or the top menu if a DVD-Video disc is loaded.

#### + **SHIFT: SR+**

Press to setup SR+ and switch SR+ control on/off.

#### 12 **PLAYLIST / DVD MENU**

Press to switch between Original and Play List content on VR mode discs, or display the disc menu if a DVD-Video disc is loaded.

#### + **SHIFT: SYSTEM SETUP**

Use to access the menu system for surround sound setup, tuner settings and so on.

#### 13 **UP/DOWN/LEFT/RIGHT (cursor buttons) and ENTER**

Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

#### **TUNE +/-**

Use to tune the radio.

#### **ST +/-**

Use to select station presets when listening to the radio.

#### 14 **HOME MENU**

Press to display the Home Menu, from which you can navigate many the functions of the system.

#### + **SHIFT: TEST TONE**

Use to output the test tone (for speaker setup).

**15 RETURN**

Press to go back one level in the on-screen menu or display.

**+ SHIFT: CH LEVEL**

Use to adjust the speaker level.

**16 Playback controls****◀◀ REV SCAN / FWD SCAN ▶▶**

Press to start reverse or forward scanning. Press again to change the speed.

**▶ PLAY**

Press to start playback.

**⏸ PAUSE**

Press to pause playback or recording.

**■ STOP**

Press to stop playback.

**CM BACK (commercial back)**

Press repeatedly to skip progressively backward through the audio or video playing.

**CM SKIP (commercial skip)**

Press repeatedly to skip progressively forward through the audio or video playing.

**⏮ PREV / NEXT ▶▶**

Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

**◀⏸ STEP/SLOW ⏸▶**

During playback, press to start slow-motion playback; while paused, press to show the previous or next video frame.

**17 Recording controls****● REC**

Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

**□ STOP REC**

Press to stop recording.

**REC MODE**

Press repeatedly to change the recording mode (picture quality).

**18 NAVI MARK**

Press to select a thumbnail picture for the current title for use in the Disc Navigator screen.

**19 DVD playback functions and surround sound mode/sound enhancement buttons****AUDIO**

Changes the audio language or channel. (When no disc is playing or recording, press to change the tuner audio.)

**+ SHIFT: SURROUND**

Use to select a Surround mode.

**SUBTITLE**

Displays/changes the subtitles included in multilingual DVD-Video discs.

**+ SHIFT: ADVANCED**

Use to select an Advanced Surround mode.

**ANGLE**

Switches camera angles on discs with multi-angle scenes.

**+ SHIFT: DIALOGUE**

Use to select a Dialogue mode.

**PLAY MODE**

Press to display the Play Mode menu (for features such as search, repeat and program play).

**+ SHIFT: SOUND**

Press to access the sound menu, from which you can adjust bass and treble, etc.

**20 TV CONTROL**

After setting up, use these controls to control your TV.

**21 SHIFT**

Press to access functions on the remote printed in green.

**22 DISPLAY**

Displays/changes the on-screen information displays.

Also changes RDS displays.

**+ SHIFT: DIMMER**

Press to switch between normal and dimmed front panel display.

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

XV-DVR9H

■

7

■

8

■

**Jigs list**

A

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc	GGV1179	diagnosis (ID data setting)
Extension Cable	GGD1315	diagnosis (Extension for CONTROL- JACK)

B

C

D

E

F