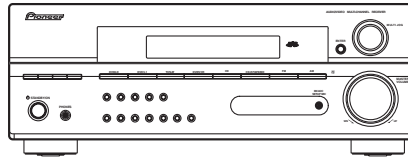


# Service Manual



VSX-515-K

ORDER NO.  
**RRV3135**

**AUDIO/VIDEO MULTI-CHANNEL RECEIVER**

# VSX-515-K

## VSX-515-S

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

Model	Type	Power Requirement	Remarks
VSX-515-K	MYXJ	AC220-230V	
VSX-515-S	MYXJ	AC220-230V	
VSX-515-S	MVXJ	AC230V	



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

# SAFETY INFORMATION



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

## WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65



## NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

## REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

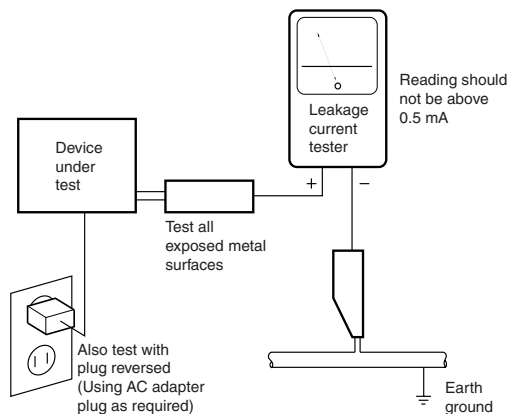
## (FOR USA MODEL ONLY)

### 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

#### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

### 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## [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.

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# 1. SPECIFICATIONS

## Amplifier section

- **Continuous power output (stereo)**

Front:

VSX-515 . . . . . 100 W (DIN 1kHz, THD 1.0%, 8Ω)

- **Continuous power output (surround)**

Front . . . . . 100 W per channel (1kHz, 1.0%, 8Ω)

Center . . . . . 100 W (1kHz, 1.0%, 8Ω)

Surround . . . . . 100 W per channel  
(1kHz, 1.0%, 8Ω)

Surround Back . . . . . 100 W per channel  
(1kHz, 1.0%, 8Ω)

## Audio section

- **Input (Sensitivity/Impedance)**

CD, DVR/VCR, CD-R/TAPE/MD,

DVD/LD, TV/SAT . . . . . 200 mV/47 kΩ

- **Frequency response**

CD, DVR/VCR, CD-R/TAPE/MD, DVD/LD,

TV/SAT . . . . . 5 Hz to 100,000 Hz  $\pm 3$  dB

- **Output (Level/Impedance)**

DVR/VCR REC, CD-R/TAPE/

MD REC. . . . . 200 mV/2.2 kΩ

- **Tone control**

Bass. . . . .  $\pm 6$  dB (100 Hz)

Treble. . . . .  $\pm 6$  dB (10 kHz)

Loudness. . . . . +10 dB/+5 dB (100 Hz/10 kHz)  
(at volume level -50 dB)

- **Signal-to-Noise Ratio DIN (Continuous rated power output / 50mW)**

CD, DVR/VCR, CD-R/TAPE/MD,

DVD/LD, TV/SAT . . . . . 88/64 dB

## Video Section

- **Input (Sensitivity/Impedance)**

DVR/VCR, DVD/LD, TV/SAT. . . . . 1Vp-p/75 Ω

- **Output (Level/Impedance)**

DVR/VCR, MONITOR OUT. . . . . 1 Vp-p/75 Ω

- **Frequency response**

DVR/VCR, DVD/LD,

TV/SAT  $\Rightarrow$  MONITOR. . . . . 5 Hz to 7 MHz  $\pm 3$  dB

Signal-to-Noise Ratio. . . . . 55 dB

Crosstalk. . . . . 50 dB

## FM Tuner Section

Frequency Range. . . . . 87.5 MHz to 108 MHz

Usable Sensitivity. . . . . Mono: 13.2 dBf, IHF  
(1.3 μV/ 75 Ω)

50 dB Quieting Sensitivity. . . . . Mono: 20.2 dB  
Stereo: 38.6 dBf

Signal-to-Noise Ratio. . . Mono: 73 dB (at 85 dBf)  
Stereo: 70 dB (at 85 dBf)

Distortion . . . . . Stereo: 0.5 % (1 kHz)

Alternate Channel Selectivity . . . . . 60 dB  
(400 kHz)

Stereo Separation . . . . . 40 dB (1 kHz)

Frequency Response. . . . . 30 Hz to 15 kHz  
( $\pm 1$  dB)

Antenna Input (DIN) . . . . . 75 Ω unbalanced

## AM Tuner Section

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

Sensitivity (IHF, Loop antenna). . . . . 350 μV/m

Signal-to-Noise Ratio. . . . . 50 dB

Antenna . . . . . Loop antenna

## Miscellaneous

Power requirements

UK model. . . . . AC 230V, 50/60Hz

European model. . . . . AC 220-230V, 50/60Hz

Power consumption:

VSX-515. . . . . 300 W

In standby. . . . . 0.5 W

Dimensions:

VSX-515. . . . . 420 (W) x 158 (H) x 402.5 (D) mm  
Weight (without package)

VSX-515. . . . . 9.5 kg

## Furnished Parts

AM loop antenna. . . . . 1

FM wire antenna . . . . . 1

Dry cell batteries (AA size IEC R6) . . . . . 2

Remote control . . . . . 1

Setup microphone . . . . . 1

Operating instructions

## Note

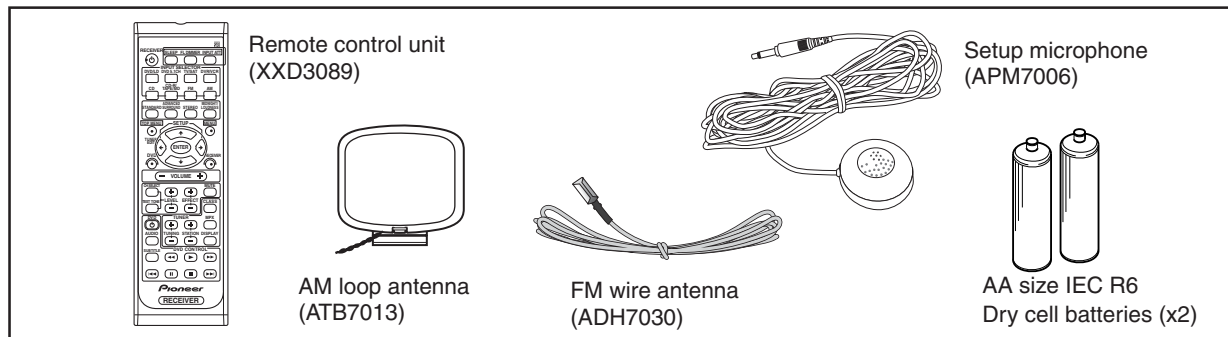
- Specifications and the design are subject to possible modifications without notice, due to improvements.

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Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic", "Surround EX", and the double-D symbol are trademarks of Dolby Laboratories.

## Accessories

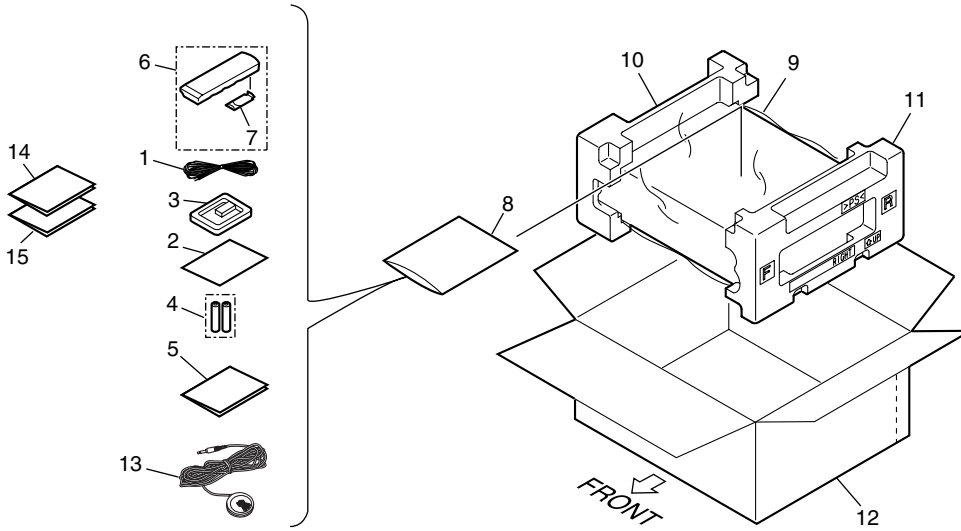
"DTS", "DTS-ES Extended Surround" and "Neo:6" are trademarks of Digital Theater Systems, Inc.



# 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

**(1) 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	FM wire antenna	ADH7030	11	Right Pad V2	XHA3150
NSP 2	Warranty Card	ARY7065	12	Packing Case	See Contrast table(2)
3	AM loop antenna	ATB7013	13	Microphone Assy	APM7006
NSP 4	Alkaline Dry cell batteries (AA/LR6)	VEM1031	14	Operating instructions (Dutch/Spanish)	See Contrast table(2)
5	Operating instructions (English/Italian)	XRE3094	15	Operating instructions (French/German)	See Contrast table(2)
6	Remote Control Unit	XXD3089			
7	Battery Cover	XZN3139			
NSP 8	Literature Bag	AHG1180			
9	Packing Sheet	AHG7069			
10	Left Pad V2	XHA3149			

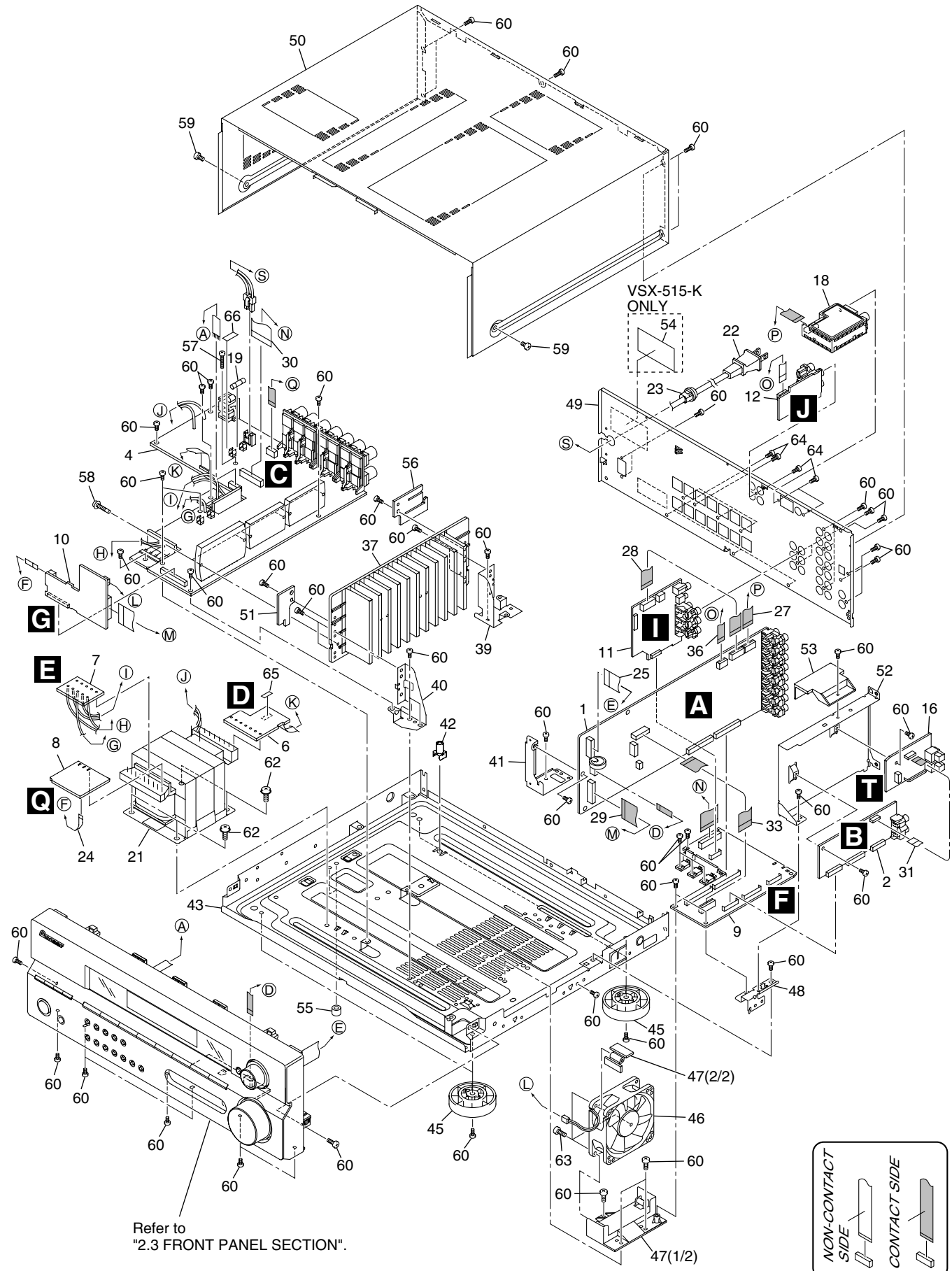
**(2) CONTRAST TABLE**

VSX-515-K/MYXJ, VSX-515-S/MYXJ and VSX-515-S/MVXJ are constructed the same except for the following :

<u>Mark</u>	<u>No.</u>	<u>Description</u>	<u>VSX-515-K/MYXJ</u>	<u>VSX-515-S/MYXJ</u>	<u>VSX-515-S/MVXJ</u>
	12	Packing Case	XHD3482	XHD3483	XHD3483
	14	Operating instructions (Dutch/Spanish)	XRC3183	XRC3183	Not used
	15	Operating instructions (French/German)	XRC3184	XRC3184	Not used

# 2.2 EXTERIOR SECTION

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**(1) EXTERIOR SECTION PARTS LIST**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	MAIN Assy	XWK3155	36	J48 8P F.F.C/60V	XDD3165
2	DSP Assy	AWX8572	NSP 37	Heatsink V2B39 CORR	XNH3034
3	•••••		38	•••••	
4	AMP & PRIMARY Assy	XWZ3942	39	H/S Angle Rear V2	XNG3133
5	•••••		40	H/S Angle Front V2	XNG3132
6	TRANS2 Assy	XWZ3960	41	PCB Angle R5	XNG3073
7	TRANS3 Assy	XWZ3961	42	PCB Mold	AMR2533
8	TRANS4 Assy	XWZ3936	NSP 43	Under Base V2	XNA3023
9	REGULATOR Assy	XWZ3952	44	•••••	
10	AMP INPUT Assy	XWZ3955	45	Insulator	PNW2766
11	VIDEO Assy	XWZ3905	⚠ 46	DC Fan Motor	XXM3007
12	5.1CH INPUT Assy	XWZ3915	47	Fan Holder R6	XMR3066
13	•••••		48	REG Support R6	XNG3093
14	•••••		49	Rear Panel 515S/MY	XNG3328
15	•••••		50	Bonnet	See Contrast table(2)
16	DIGITAL INPUT Assy	XWZ3927	51	HOLDER Assy	XWZ3964
17	•••••		52	Shield V2	XNG3134
18	FM/AM TUNER UNIT	AXX7170	53	FFC Cover V2	XMR3091
⚠ 19	FU1 Fuse (T3.15A)	REK1027	NSP 54	N Label	See Contrast table(2)
⚠ 20	•••••		NSP 55	Spacer	AEB7092
⚠ 21	Transformer 815KU	XTS3090	56	FFC HOLDER	XWZ3963
⚠ 22	AC Power Cord	See Contrast table(2)	57	Screw	BBZ30P200FTC
23	Cord Stopper	CM-22B	58	Screw 3x23	XBA3012
24	J22 3P F.F.C/30V	XDD3107	59	Screw	See Contrast table(2)
25	J31 17P F.F.C/30V	XDD3118	60	Screw	BBZ30P080FTC
26	•••••		61	•••••	
27	J33 13P F.F.C/30V	XDD3164	62	Screw	FBT40P080FNI
28	J34 11P F.F.C/30V	XDD3163	63	Screw	BPZ30P120FTC
29	J35 21P F.F.C/30V	XDD3160	64	Screw	BBT30P100FCC
30	J36 23P F.F.C/60V	XDD3167	65	ICP Label	XAX3158
31	J37 10P F.F.C/30V	XDD3178	66	Fuse Card	AAX7493
32	•••••				
33	J43 15P F.F.C/60V	XDD3162			
34	•••••				
35	•••••				

**(2) CONTRAST TABLE**

VSX-515-K/MYXJ, VSX-515-S/MYXJ and VSX-515-S/MVXJ are constructed the same except for the following :

Mark	No.	Description	VSX-515-K/MYXJ	VSX-515-S/MYXJ	VSX-515-S/MVXJ
⚠	22	AC Power Cord	VDG1080	VDG1080	VDG1076
	50	Bonnet K V1	XZN3148	Not used	Not used
	50	Bonnet S V1	Not used	XZN3149	XZN3149
NSP	54	N Label 515K/MY	XAL3217	Not used	Not used
	59	Screw	FBT40P080FTB	FBT40P080FNI	FBT40P080FNI

# 2.3 FRONT PANEL SECTION

A

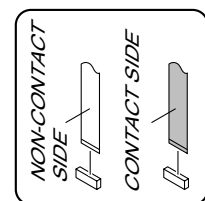
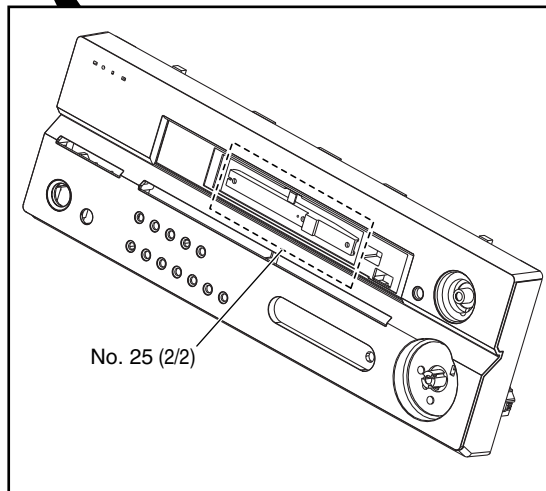
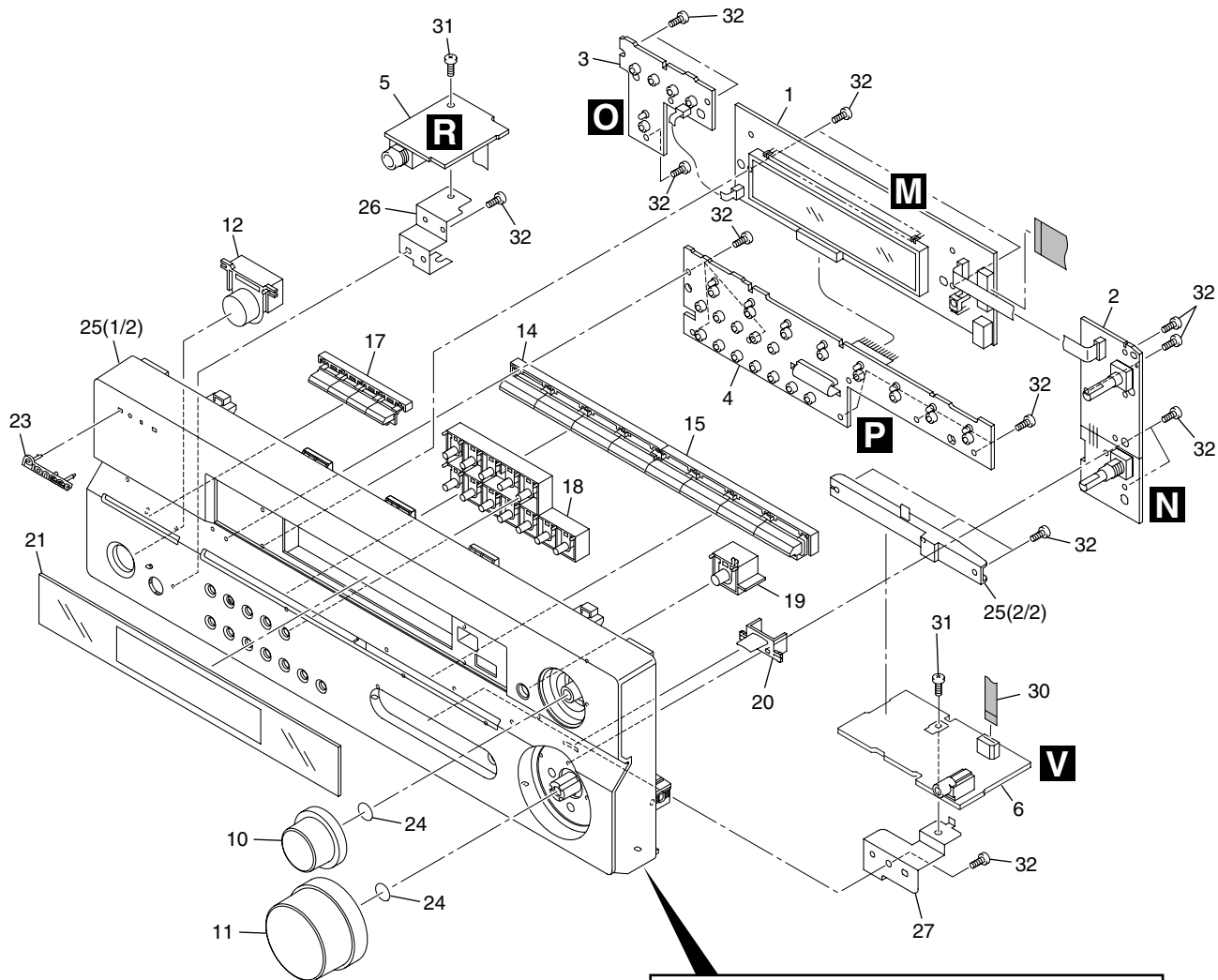
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**(1) FRONT PANEL SECTION PARTS LIST**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	FRONT DISPLAY ASSY	XWZ3910	21	D Panel 415 B	XAK3482
2	R. ENCODER Assy	XWZ3922	22	•••••	
3	POWER SW Assy	XWZ3918	23	Pioneer Badge B	See Contrast table(2)
4	FRONT KEY Assy	XWZ3913	NSP 24	C Ring DIM 8.1	XBH3016
5	H.P. Assy	XWZ3924	25	FRT Panel	See Contrast table(2)
6	FRONT INPUT Assy	XWZ3925	26	Earth Plate HP V2	XNG3131
7	•••••		27	Earth Plate FI V2	XNG3130
8	•••••		28	•••••	
9	•••••		29	•••••	
10	JOG Knob	See Contrast table(2)	30	J32 5P F.F.C/30V	XDD3161
11	VOL Knob	See Contrast table(2)	31	Screw	BBZ30P080FTC
12	Standby BTN 515K	See Contrast table(2)	32	Screw	BPZ30P100FTC
13	•••••				
14	FUNC BTN L	See Contrast table(2)			
15	FUNC BTN R	See Contrast table(2)			
16	•••••				
17	TUNER BTN	See Contrast table(2)			
18	Sub BTN	See Contrast table(2)			
19	JOG BUTTON	See Contrast table(2)			
20	B Lens R6	XAK3352			

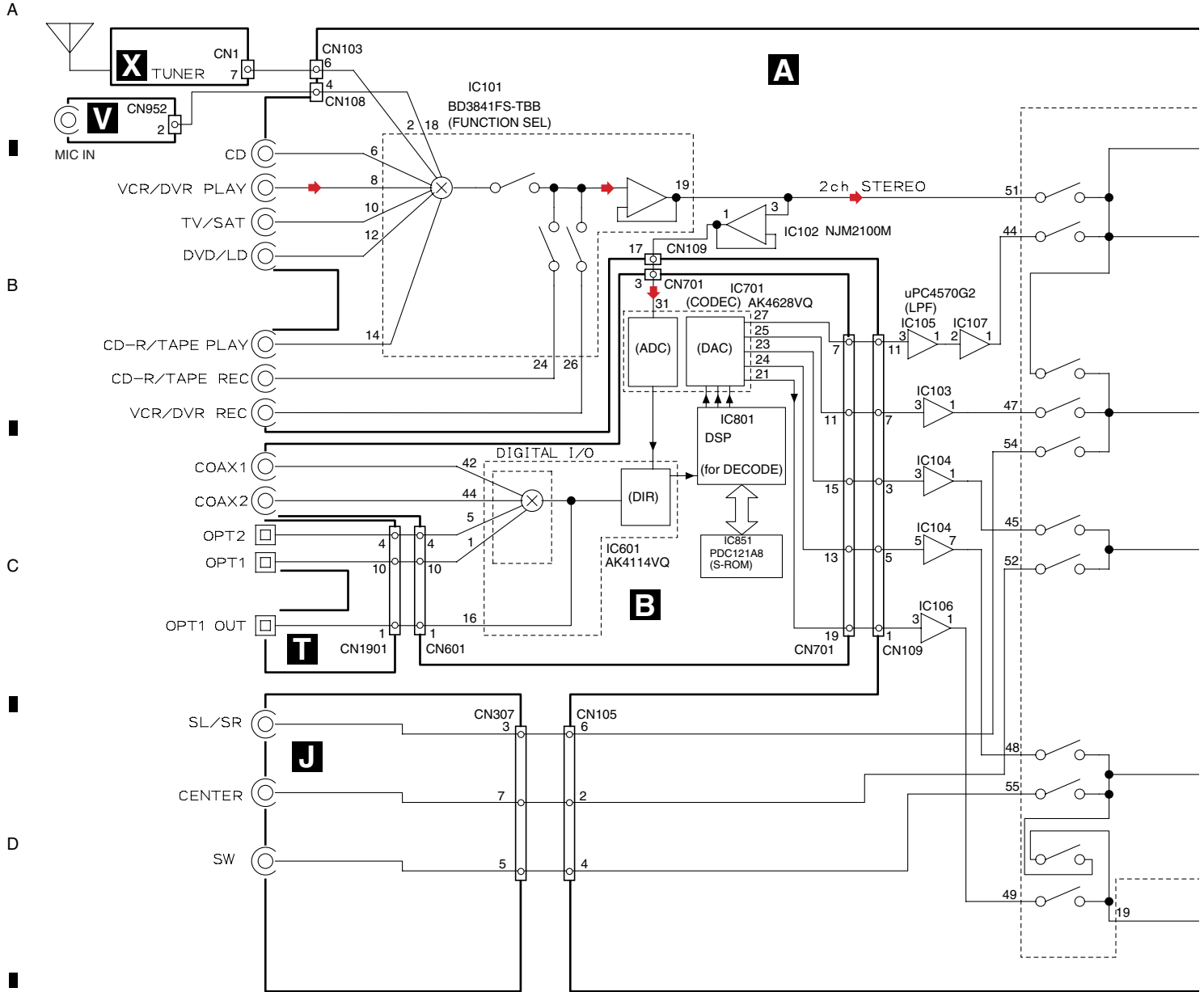
**(2) CONTRAST TABLE**

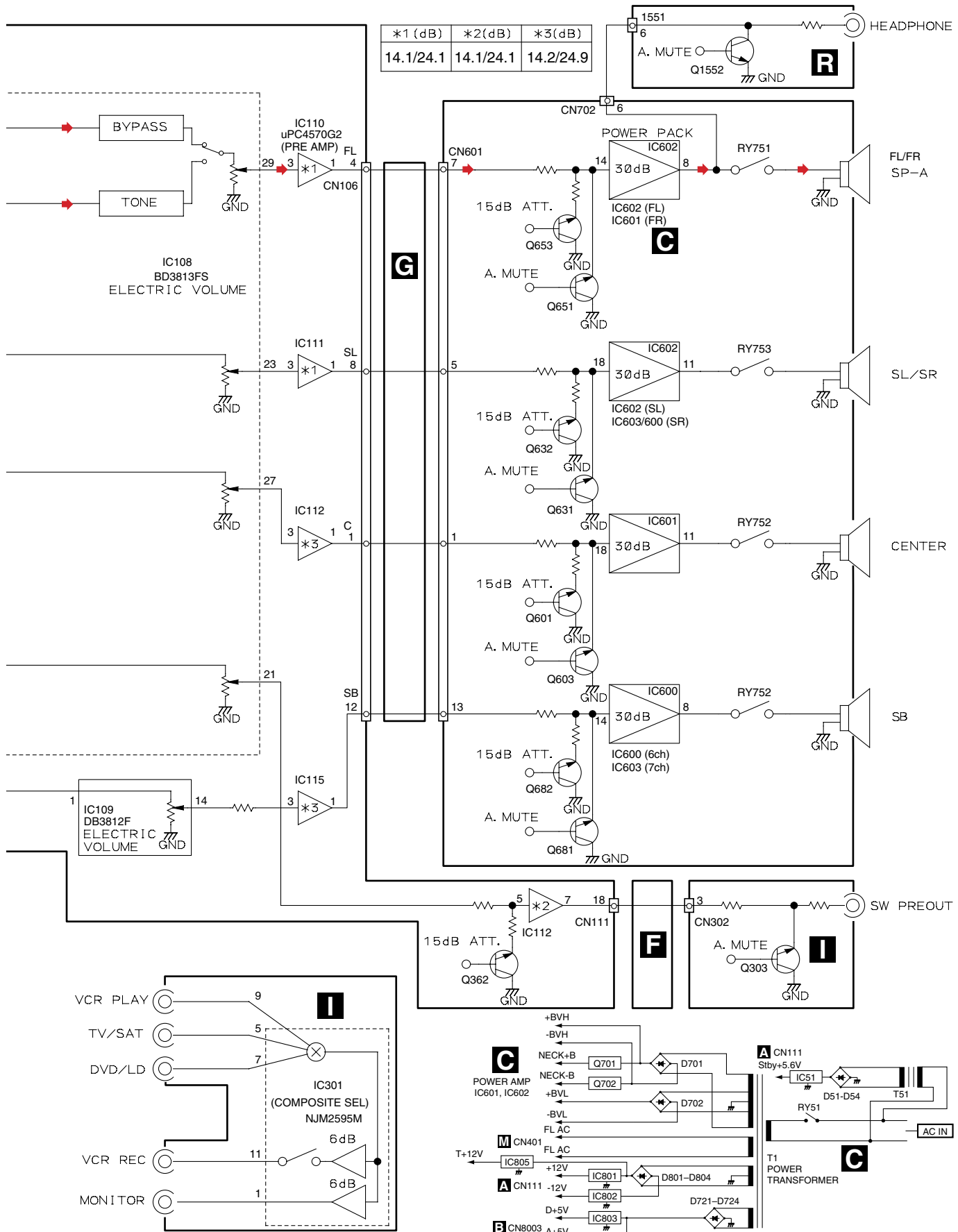
VSX-515-K/MYXJ, VSX-515-S/MYXJ and VSX-515-S/MVXJ are constructed the same except for the following :

Mark	No.	Description	VSX-515-K/MYXJ	VSX-515-S/MYXJ	VSX-515-S/MVXJ
	10	JOG Knob V1K	XAB3038	Not used	Not used
	10	JOG Knob V1S	Not used	XAB3042	XAB3042
	11	VOL Knob V1K	XAB3039	Not used	Not used
	11	VOL Knob V1S	Not used	XAB3043	XAB3043
	12	Standby BTN 515K	XAD3202	Not used	Not used
	12	Standby BTN 515S	Not used	XAD3203	XAD3203
	14	FUNC BTN 515K L	XAD3206	Not used	Not used
	14	FUNC BTN 515S L	Not used	XAD3210	XAD3210
	15	FUNC BTN 515K R	XAD3207	Not used	Not used
	15	FUNC BTN 515S R	Not used	XAD3211	XAD3211
	17	TUNER BTN V2K	XAD3192	Not used	Not used
	17	TUNER BTN V2S	Not used	XAD3193	XAD3193
	18	Sub BTN V2K	XAD3198	Not used	Not used
	18	Sub BTN V2S	Not used	XAD3199	XAD3199
	19	JOG BTN V2K	XAD3204	Not used	Not used
	19	JOG BTN V2S	Not used	XAD3205	XAD3205
	23	Pioneer Badge B	XAM3006	VAM1129	VAM1129
	25	FRT Panel 515K/MY	XMB3185	Not used	Not used
	25	FRT Panel 515S/MY	Not used	XMB3186	XMB3186

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

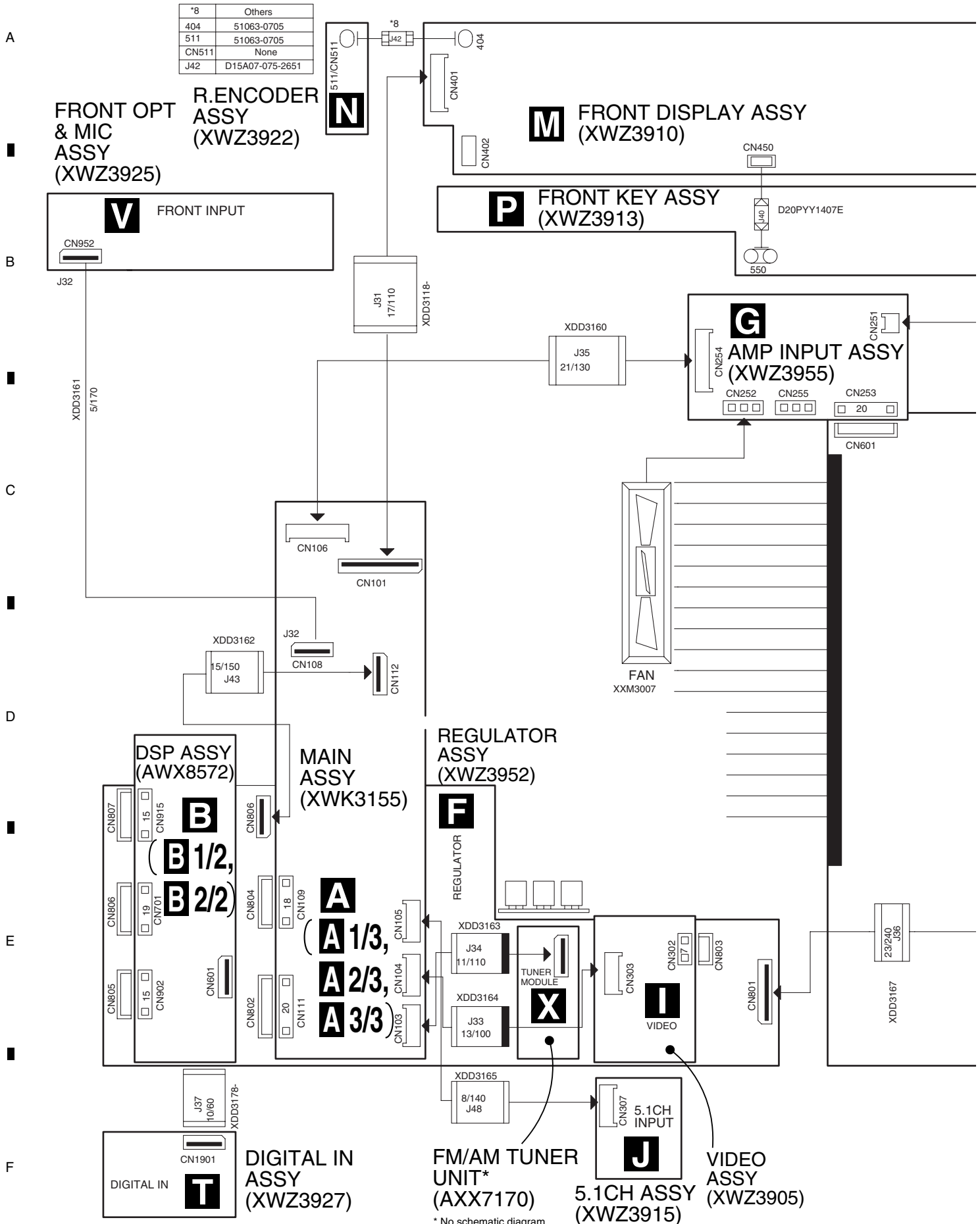
## 3.1 BLOCK DIAGRAM



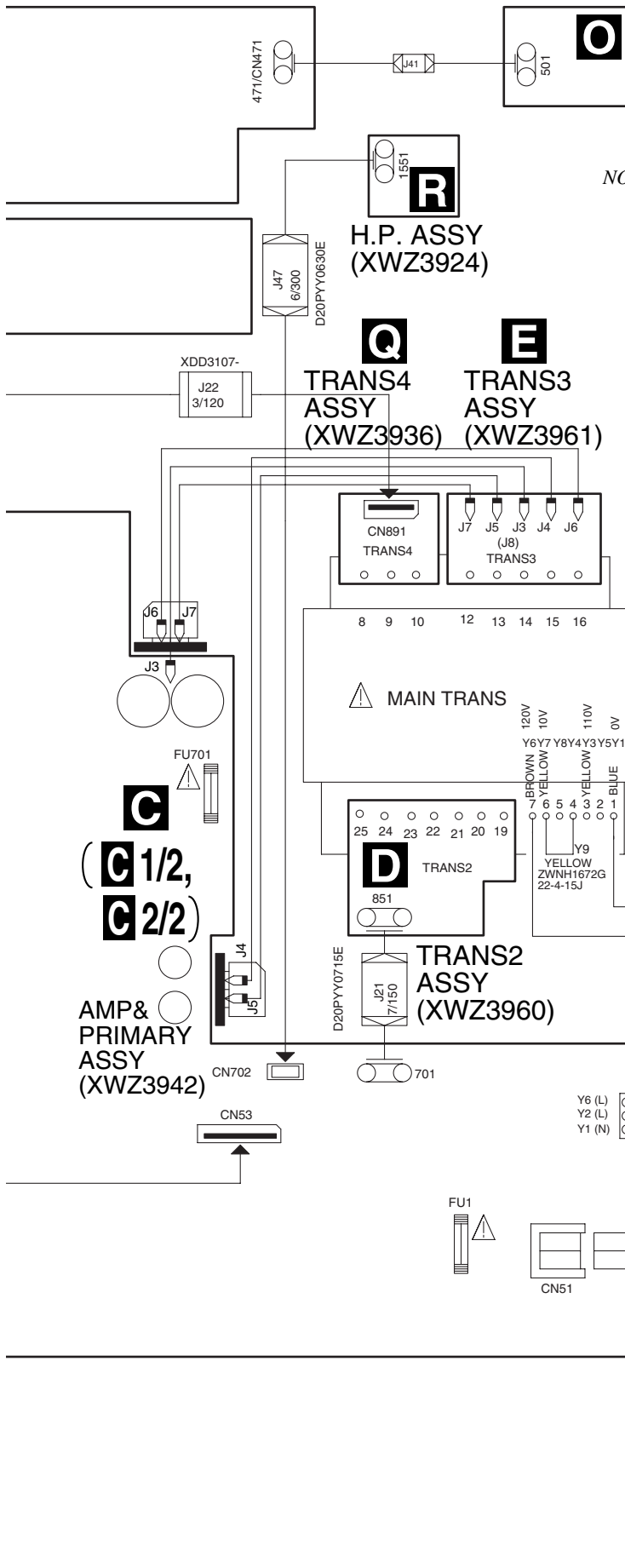


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# 3.2 OVERALL WIRING CONNECTION DIAGRAM



\* No schematic diagram



**P. SW & FUNC. KEY ASSY (XWZ3918)**

**NOTES:**

- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB 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.
- : The power supply is shown with the marked box.

**C**  
(**C1/2**,  
**C2/2**)  
**AMP & PRIMARY ASSY (XWZ3942)**

- B\*B-PH-K-S PH CONNECTOR
- 1.25mm FFC
- 1.25mm REVERSE FFC
- 2.0mm FLAT CABLE
- 1.5mm FLAT CABLE
- BOARD IN
- 1.25mm FFC CONNECTOR(L)
- 1.25mm FFC CONNECTOR
- 2.0mm CABLE HOLDER
- 1.5mm CABLE HOLDER
- 2.0mm WIRE TRAP
- KP200TA\*\*L 2.0mm BOARD to BOARD
- KM200TA\*\* 2.0mm BOARD to BOARD
- AKP7070, AKP7073 1.25mm BOARD to BOARD
- AKP7059, AKP7062 1.25mm BOARD to BOARD
- AC CODE SOCKET
- AC CODE CONNECTOR

$\Delta$  AC CORD  
MYXJ : VDG1080, MVXJ : VDG1076

# 3.3 MAIN ASSY (1/3)

1

2

3

4

A

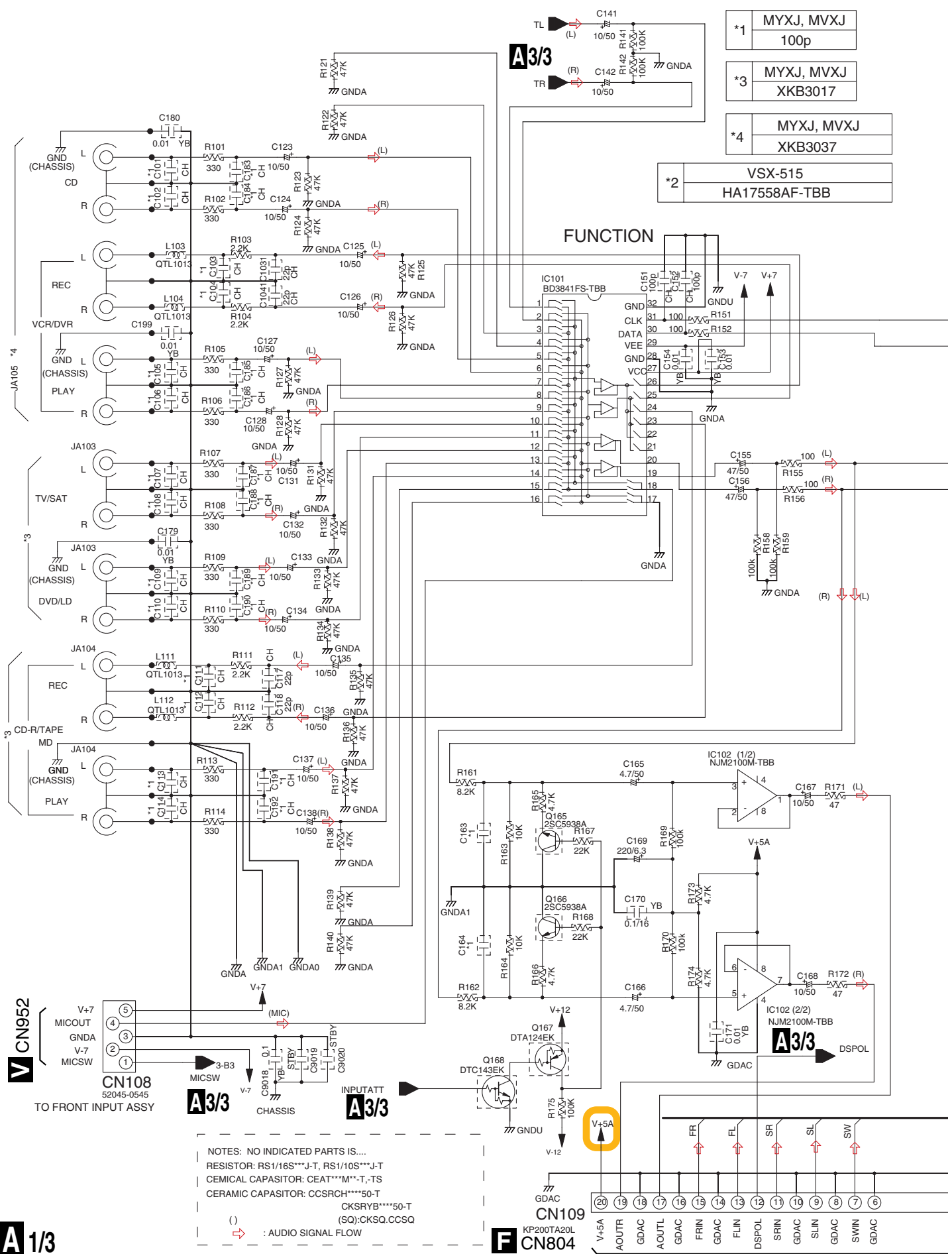
B

C

D

E

F



*1	MYXJ, MVXJ
	100p
*3	MYXJ, MVXJ
	XKB3017

*4	MYXJ, MVXJ
	XKB3037

*2	VSX-515
	HA17558AF-TBB

**A3/3**

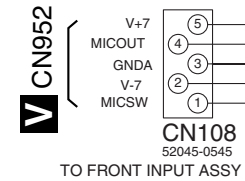
**A3/3**

**A3/3**

**F** KP200TA20L  
**CN804**

NOTES: NO INDICATED PARTS IS...  
RESISTOR: RS1/16S\*\*\*J-T, RS1/10S\*\*\*J-T  
CEMICAL CAPASITOR: CEAT\*\*\*M\*\*T-,TS  
CERAMIC CAPASITOR: CCSRCH\*\*\*50-T  
CKSRYB\*\*\*50-T (SQ):CKSQ.CCSQ

( ) : AUDIO SIGNAL FLOW



**A** 1/3

VSX-515-K

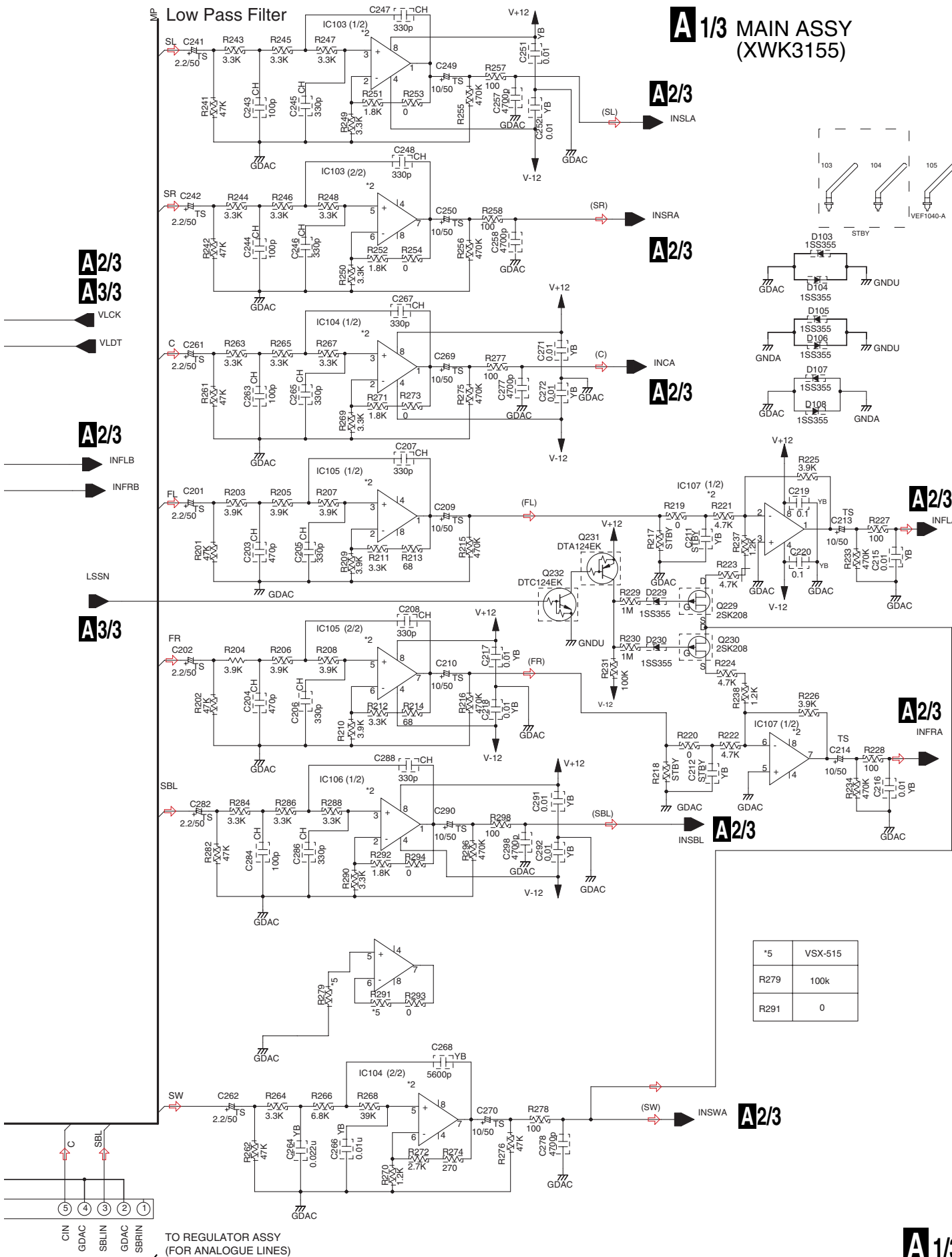
1

2

3

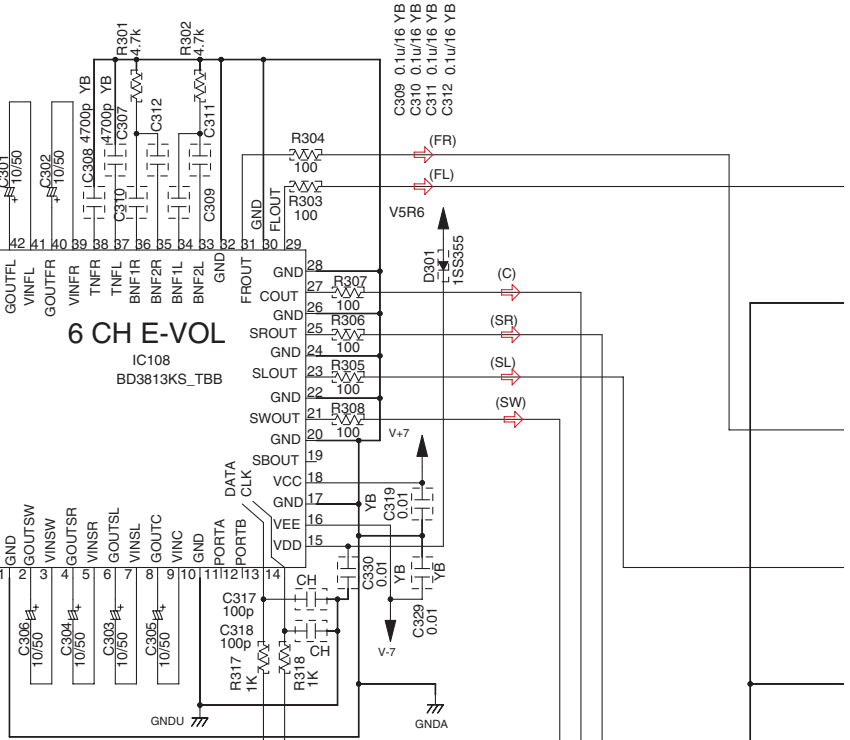
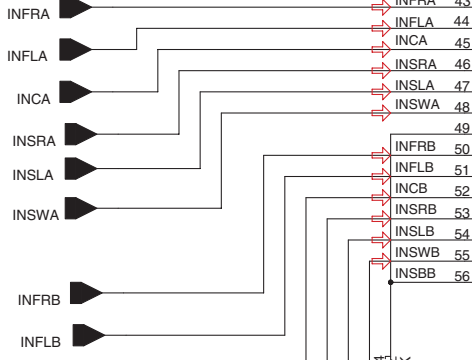
4





# 3.4 MAIN ASSY (2/3)

## A 2/3 MAIN ASSY (XWK3155)



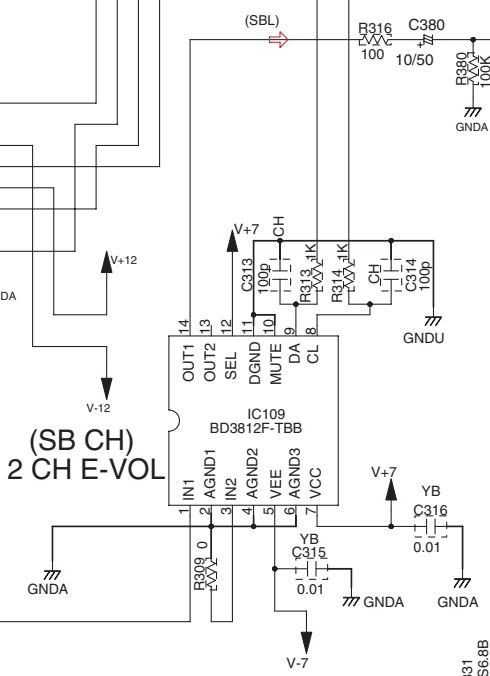
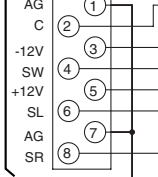
## A1/3

## A1/3 A3/3

TO 5.1 INPUT ASSY

CN105

52044-0845

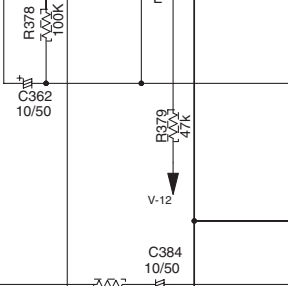


MVRATT

## A2/3

Q361

2SC5938A



**NOTE**

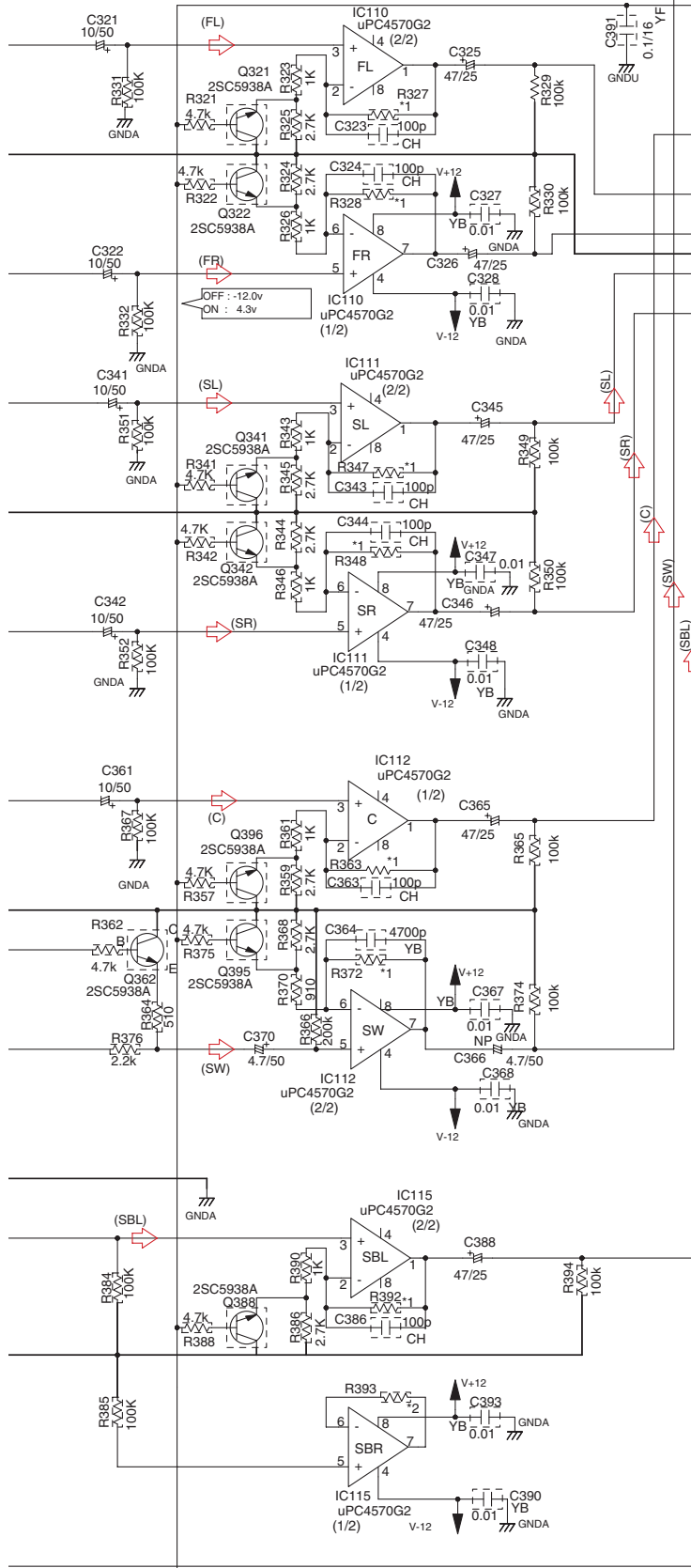
**1.RESISTORS**  
Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.  
Rated power: 1/16W unless otherwise noted.  
Tolerance: (J) ± 5% unless otherwise noted.

**2.CAPACITORS**  
Unit: p-pF or μF unless otherwise noted.  
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.  
Rated Voltage: 50V expect for electrolytic capacitors.  
JA:CEJA

⇒ : AUDIO SIGNAL FLOW

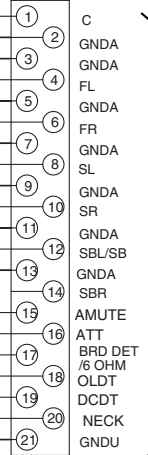
A3/3 SWPR

PRE-AMP



TO AMP INPUT ASSY

CN106  
52045-2145



A2/3

A3/3  
BOARD\_DET/6\_OHM

G CN254

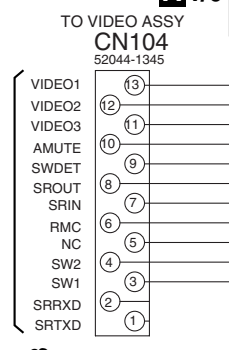
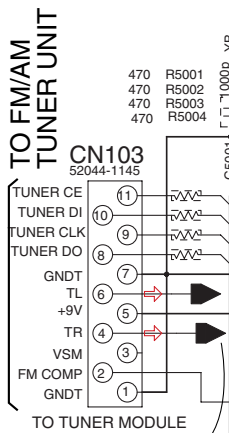
	FRONT, REAR		Center,SB		SW	
*1	R327 R328 R347 R348 (Ohm)	GAIN(dB)	R363 R392 (Ohm)	GAIN(dB) 915	R372 (Ohm)	GAIN(dB)
MYXJ MVXJ	15k	14.1/24.1	15k	14.1/24.1	15k	14.2/24.9

*2	R393 VSX-515
	0

A 2/3

# 3.5 MAIN ASSY (3/3)

A  
B  
C  
D  
E  
F



*1	ASSY	R9023	R9024	R9025	R9026
VSX-515/MY	XWK3155	-	4.7k	0	1.8k

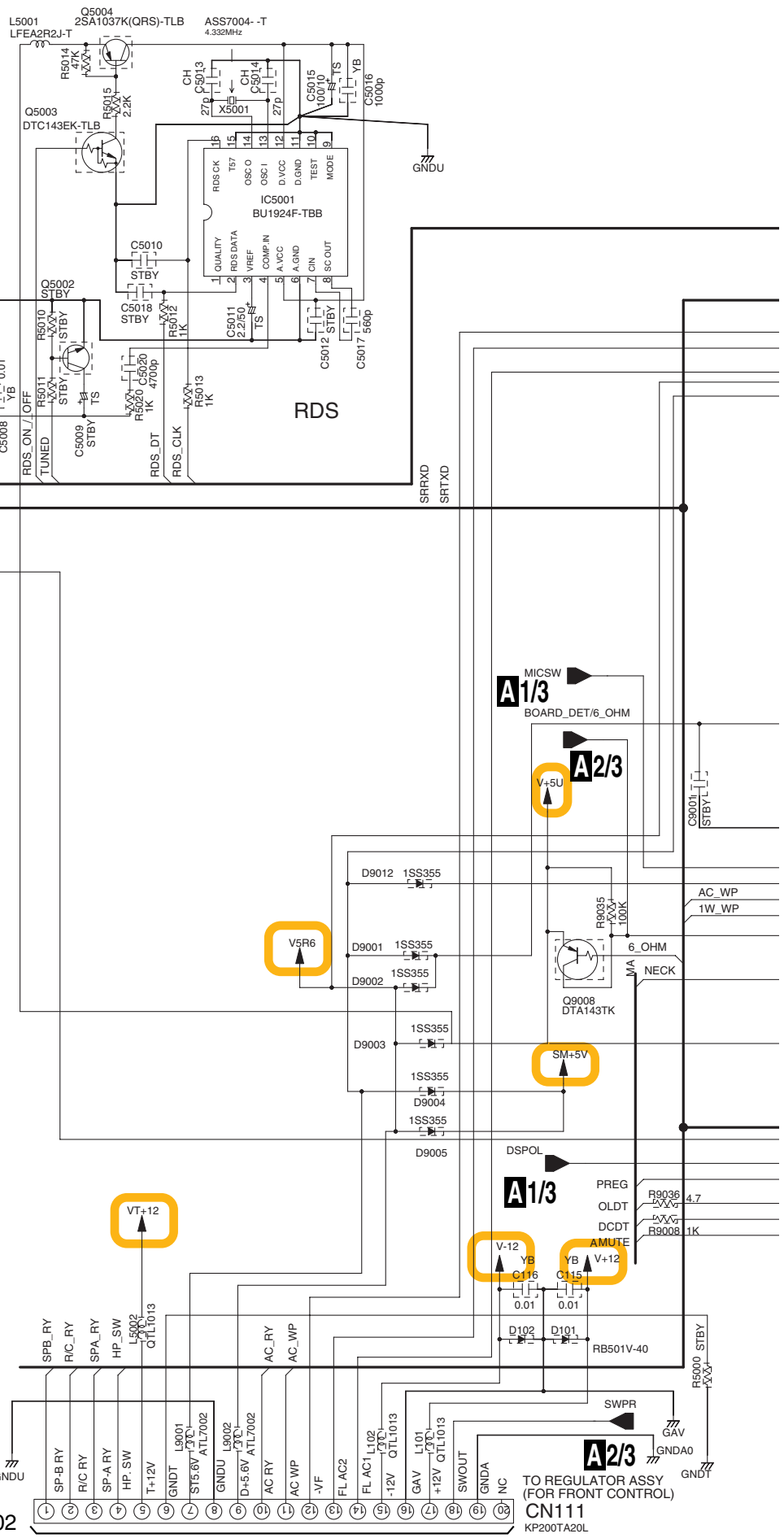
\*3 R9042, R9043, R9044 : 10k  
\*4 : ALL MODEL : PCH1132  
STBY : ACH7144

**NOTE**

1.RESISTORS  
Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.  
Rated power: 1/16W unless otherwise noted.  
Tolerance: (J) ± 5% unless otherwise noted.

2.CAPACITORS  
Unit: p-pF or μF unless otherwise noted.  
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.  
Rated Voltage: 50V expect for electrolytic capacitors.

⇒ : AUDIO SIGNAL FLOW



**A 3/3**

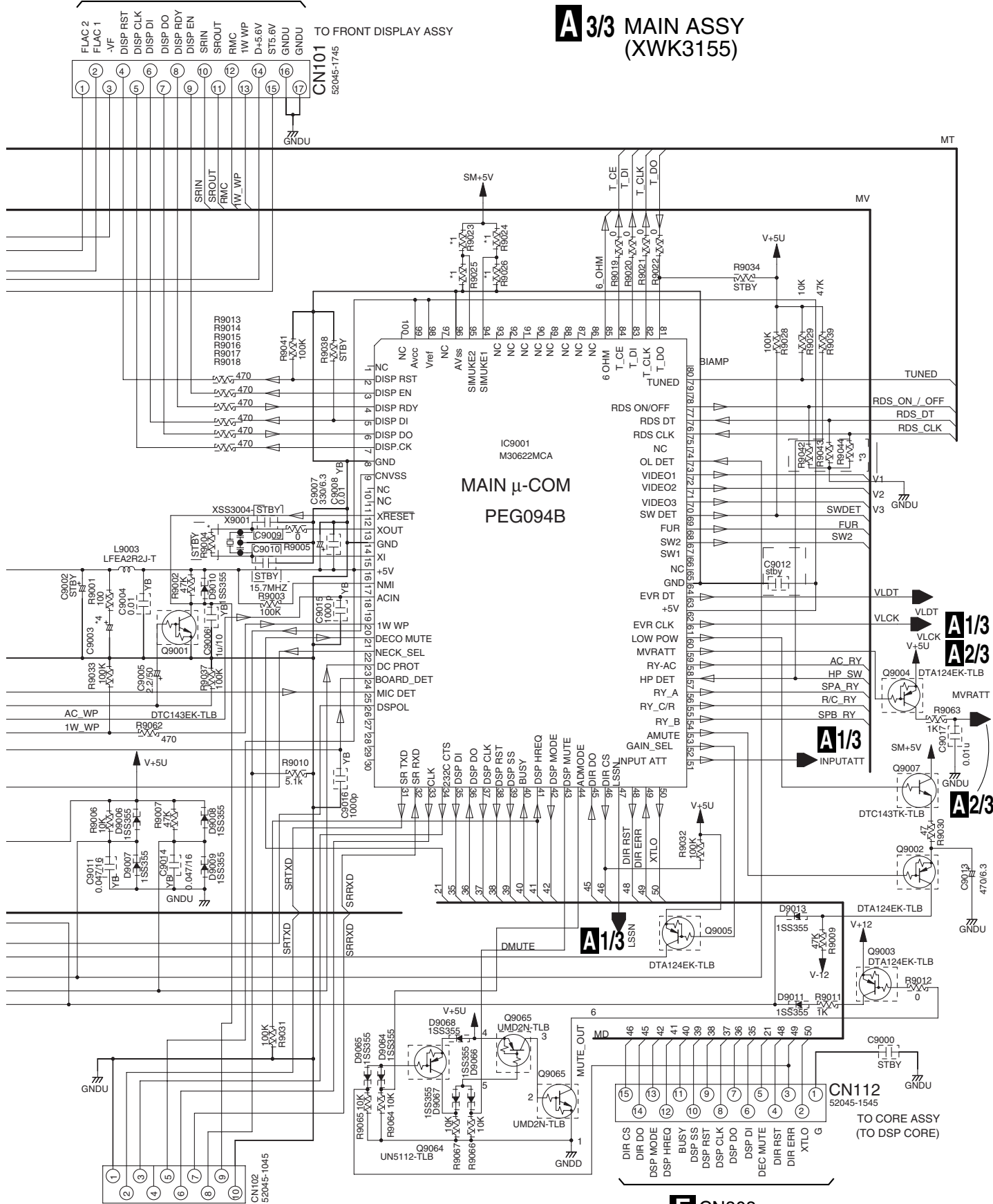
**F**  
CN802

**A2/3**  
TO REGULATOR ASSY (FOR FRONT CONTROL)  
CN111  
KP200TA20L

VSX-515-K

**M** CN401

**A** 3/3 MAIN ASSY (XWK3155)



FOR FLASH U-COM (for Prototype & TP only)

V<sub>SS</sub> SR\_TXD T\_BUSY NC T\_VDD T\_SCLK SR\_FXD OE/MD T\_RST V<sub>SS</sub>

CN102 52045-1045

**F** CN808

**A** 3/3

# 3.6 DSP ASSY (1/2)

1

2

3

4

A

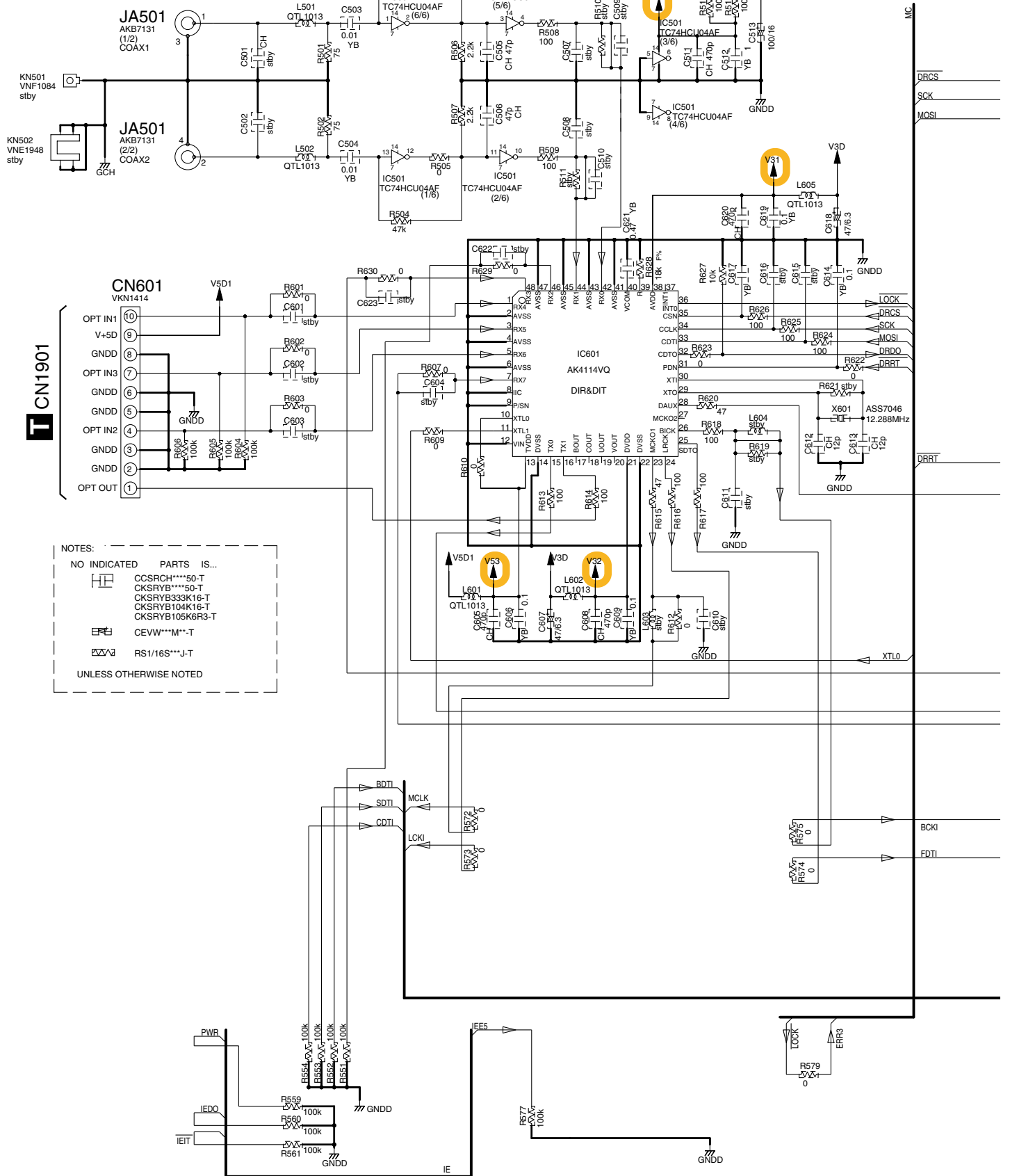
B

C

D

E

F



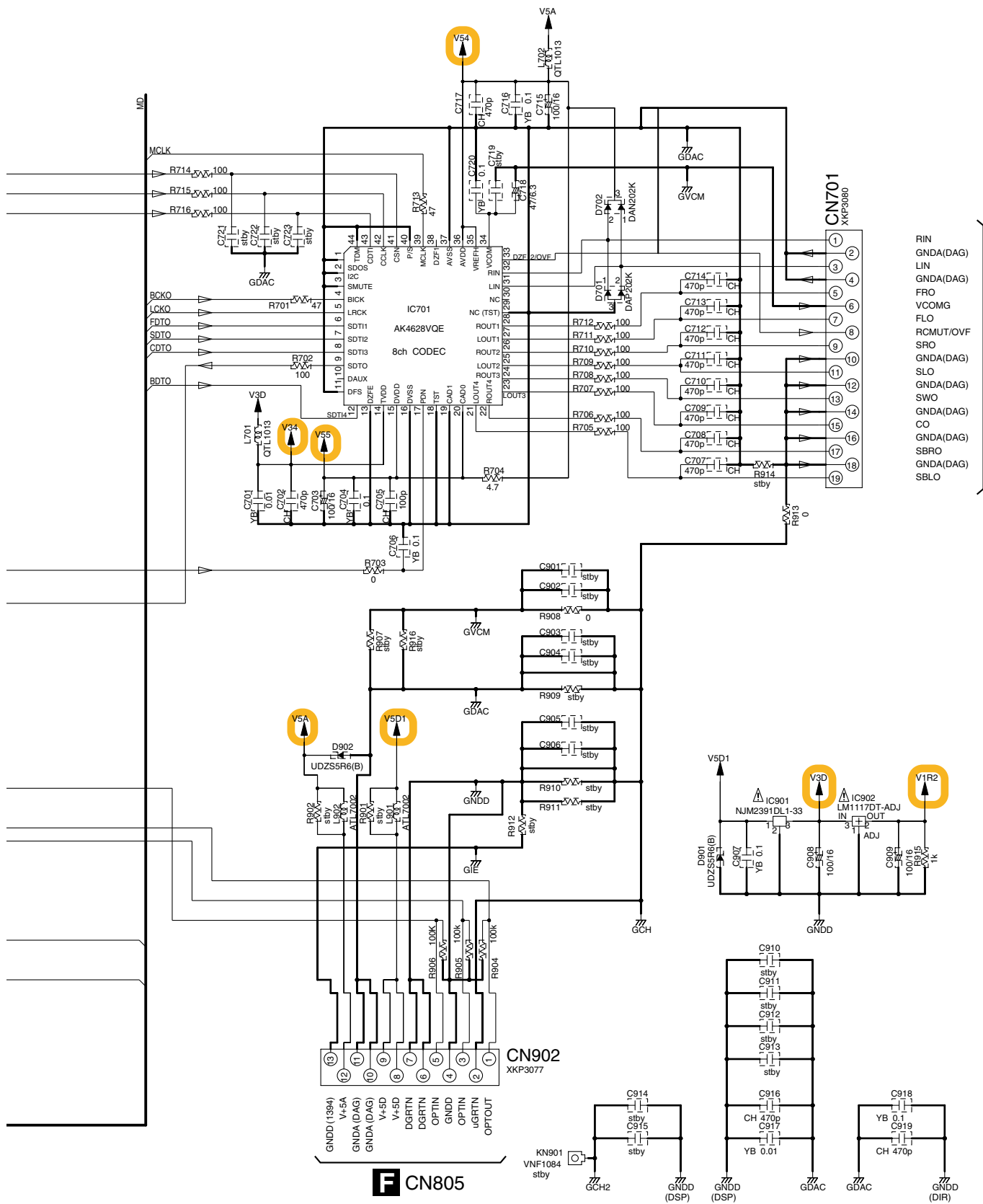
**B** 1/2

1

2

3

4



**F** CN806

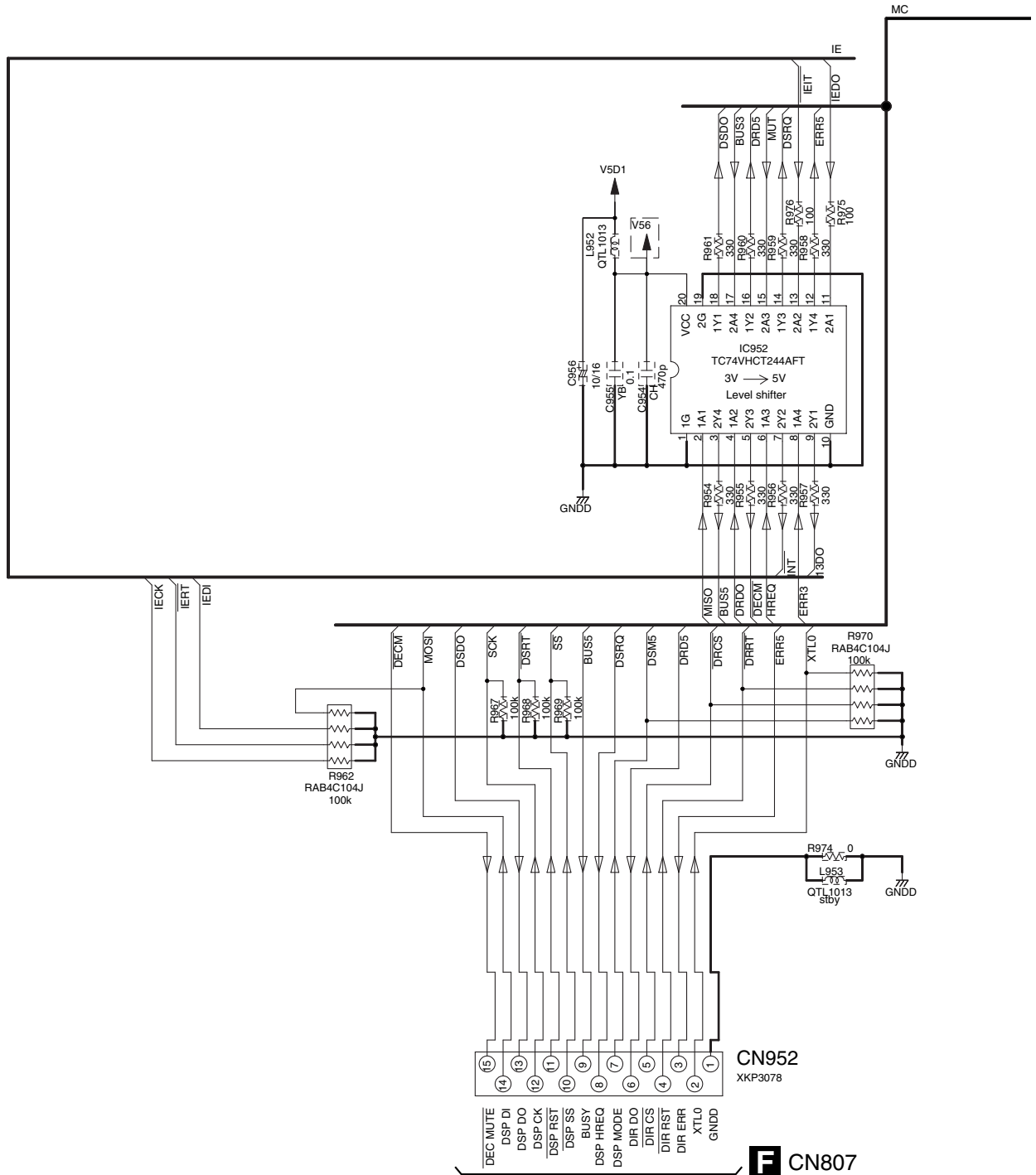
- RIN
- GND(A)(DAG)
- LIN
- GND(A)(DAG)
- FRO
- VCOMG
- FLO
- RCGMUT/OVF
- SRO
- GND(A)(DAG)
- SLO
- GND(A)(DAG)
- SWO
- GND(A)(DAG)
- CO
- GND(A)(DAG)
- SBRO
- GND(A)(DAG)
- SBLO

**B** 1/2 DSP ASSY (AWX8572)

**F** CN805

**F** CN902

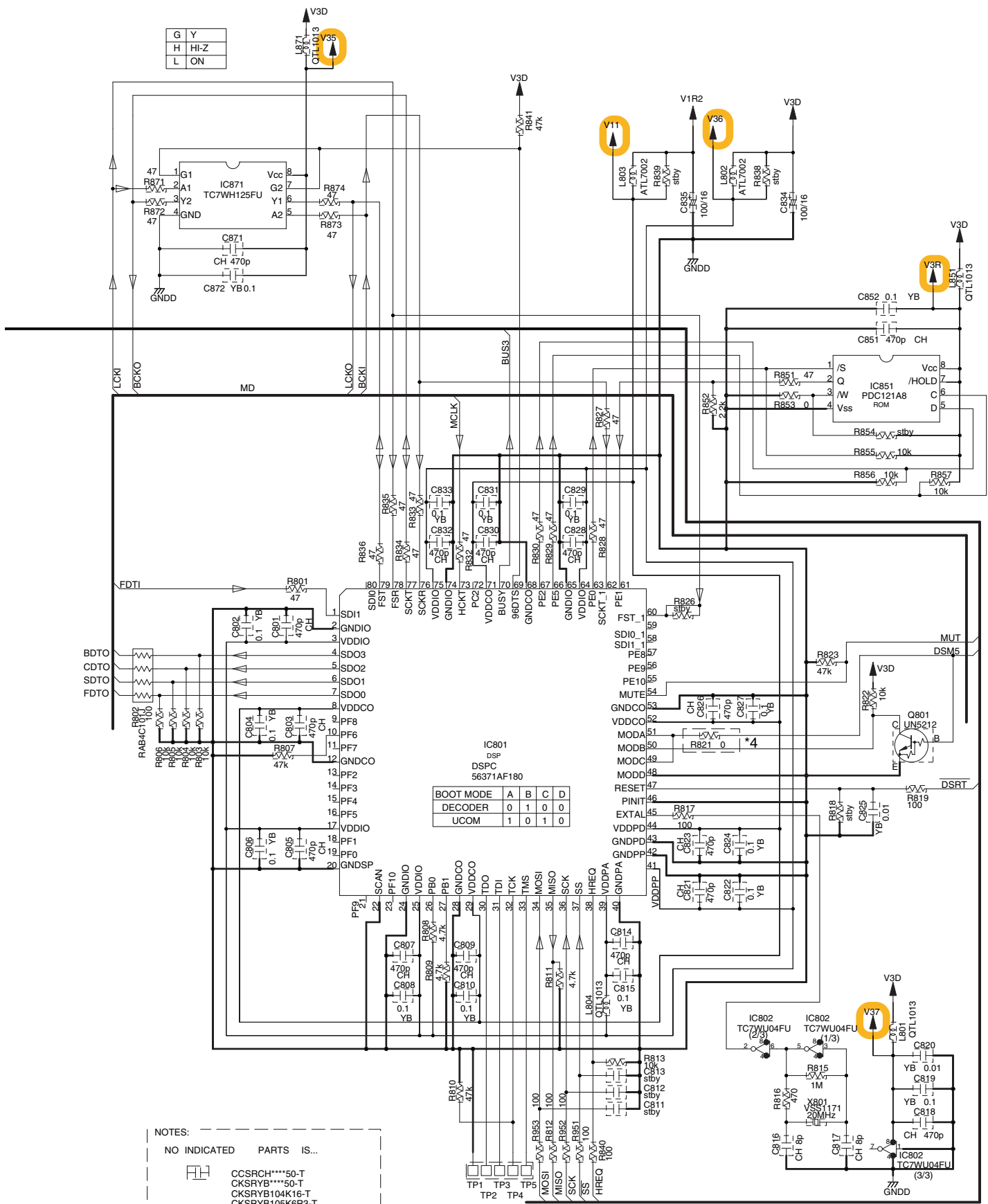
# 3.7 DSP ASSY (2/2)



**B** 2/2

**F** CN807





G	Y
H	HI-Z
L	ON

BOOT MODE	A	B	C	D
DECODER	0	1	0	0
UCOM	1	0	1	0

NOTES:  
 NO INDICATED PARTS IS...  
 CCSRCH\*\*\*50-T  
 CKSRYB\*\*\*50-T  
 CKSRYB104K16-T  
 CKSRYB105K6R3-T  
 CEVW\*\*\*M\*\*-T  
 RS1/16S\*\*\*J-T  
 UNLESS OTHERWISE NOTED

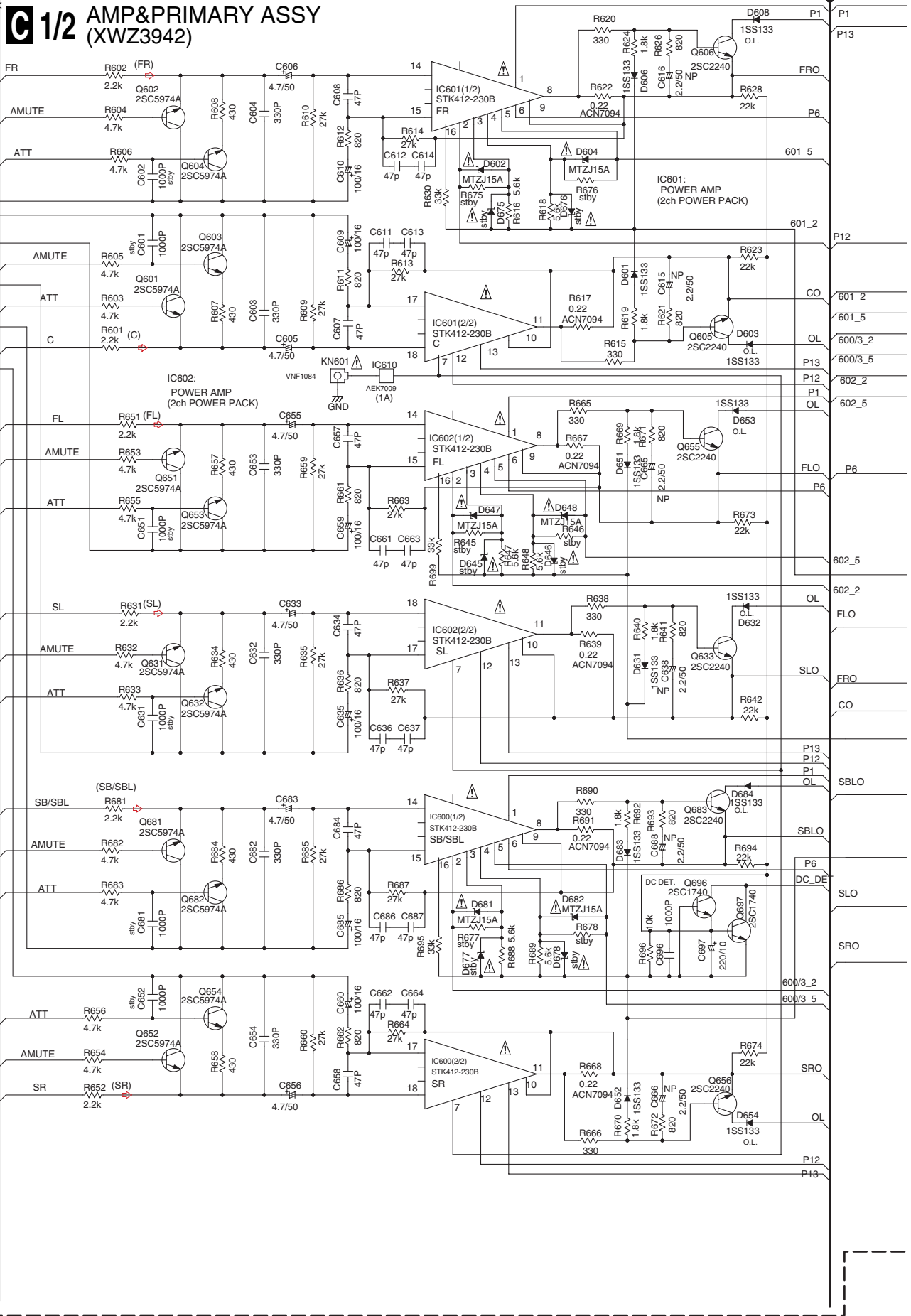
**B 2/2** DSP ASSY  
(AWX8572)

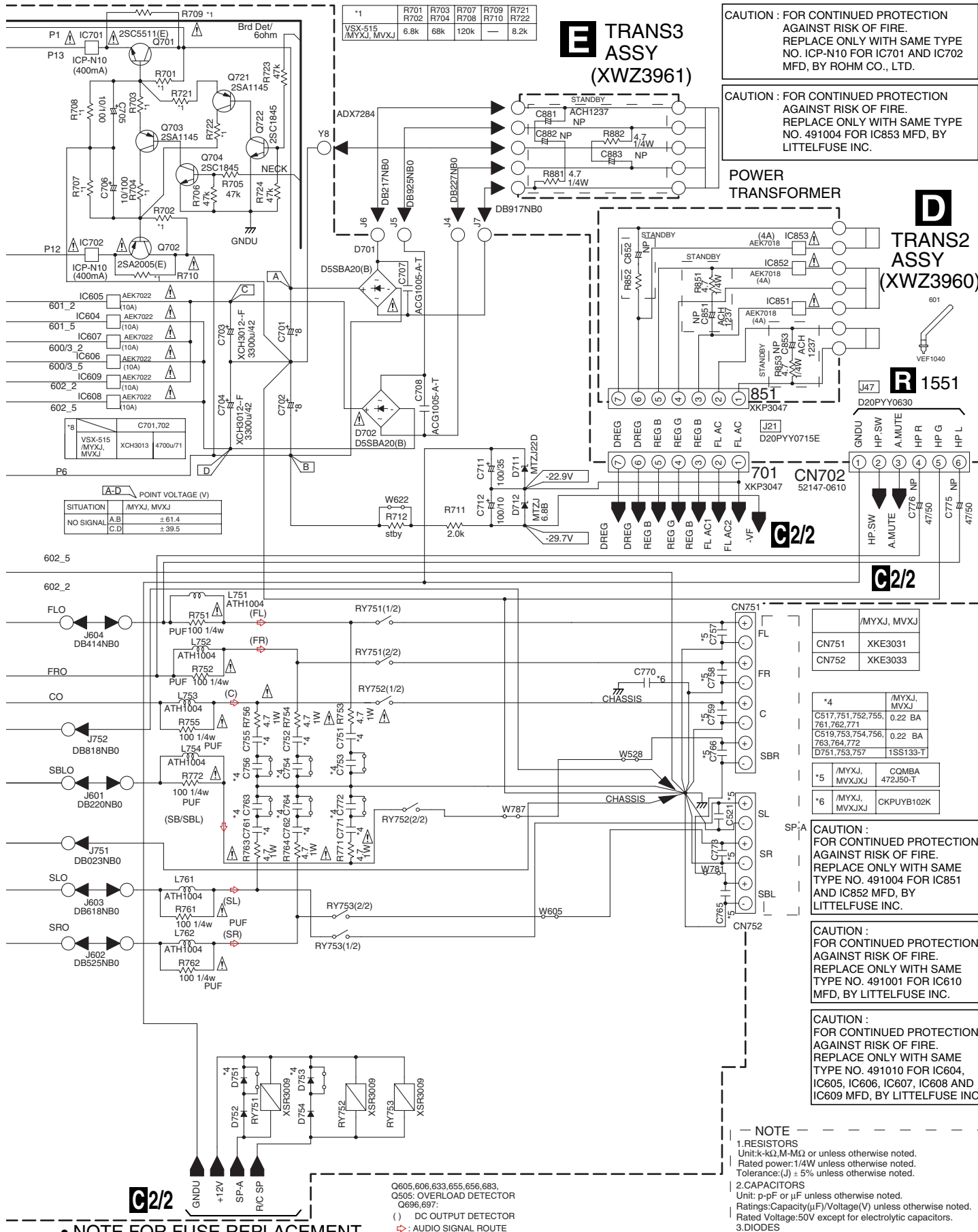
**B 2/2**

# 3.8 AMP & PRIMARY (1/2), TRANS2 and TRANS3 ASSYS

## 1/2 AMP & PRIMARY ASSY (XWZ3942)

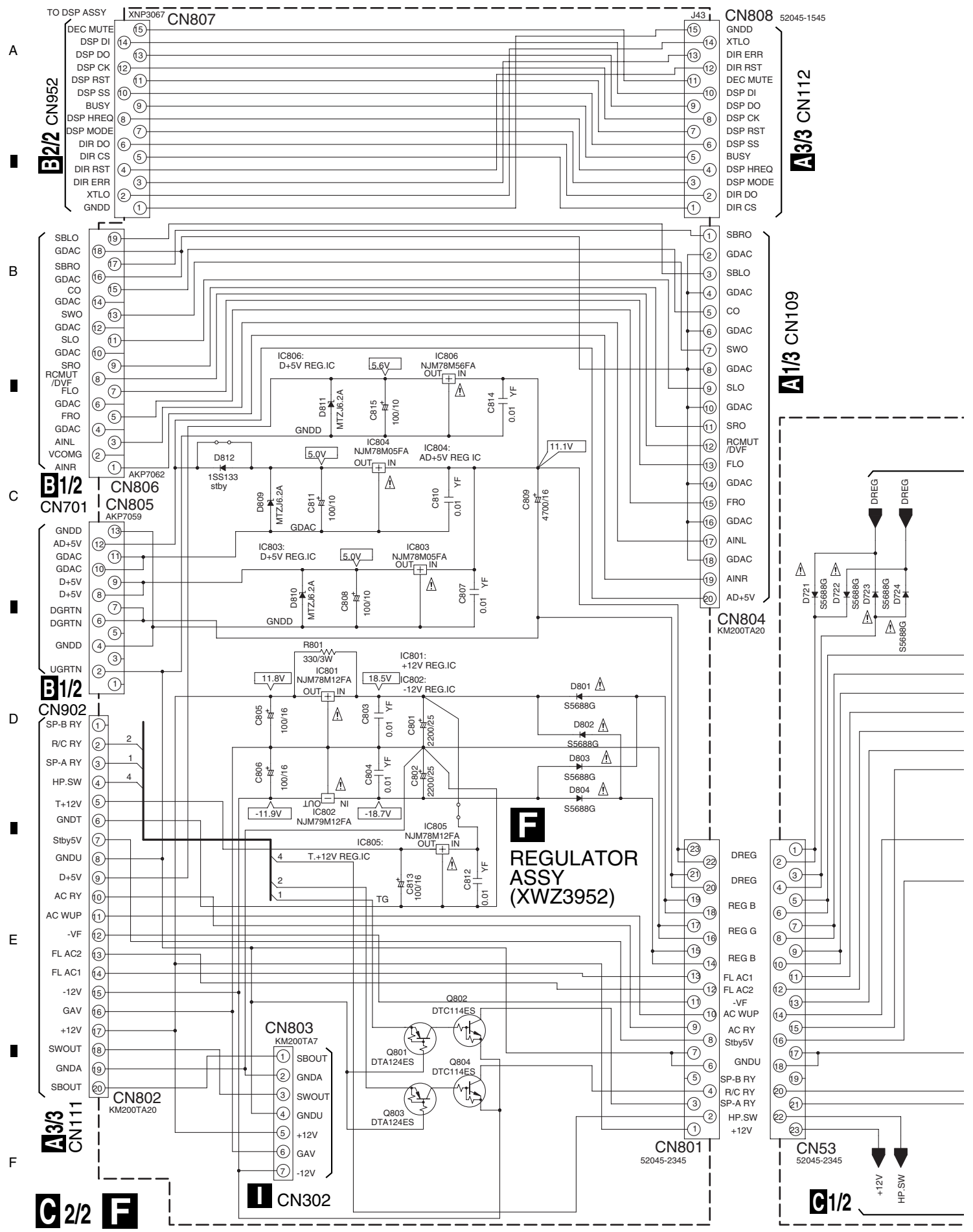
- CN601**  
KM200TA20
- ① GND A
  - ② GND A
  - ③ FR
  - ④ GND A
  - ⑤ SL
  - ⑥ GND A
  - ⑦ FL
  - ⑧ GND A
  - ⑨ SBR
  - ⑩ GND A
  - ⑪ SR
  - ⑫ GND A
  - ⑬ SB/SBL
  - ⑭ A.MUTE
  - ⑮ ATT.
  - ⑯ Brd Det /6ohm
  - ⑰ OL
  - ⑱ DC DET.
  - ⑲ NECK
  - ⑳ GND U
- CN253**
- ① GND U





**CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.**

# 3.9 AMP&PRIMARY(2/2), REGULATOR and AMP INPUT ASSYS



**NOTE**

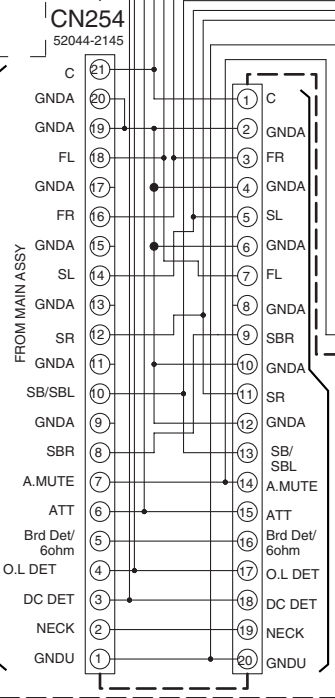
1. RESISTORS  
 Unit:k- $\Omega$ ,M-M $\Omega$  or unless otherwise noted.  
 Rated power:1/4W unless otherwise noted.  
 Tolerance:(J) $\pm$ 5% unless otherwise noted.

2. CAPACITORS  
 Unit: p-pF or  $\mu$ F unless otherwise noted.  
 Ratings:Capacity( $\mu$ F)/Voltage(V) unless otherwise noted.  
 Rated Voltage:50V except for electrolytic capacitors.

**FAN MOTOR**

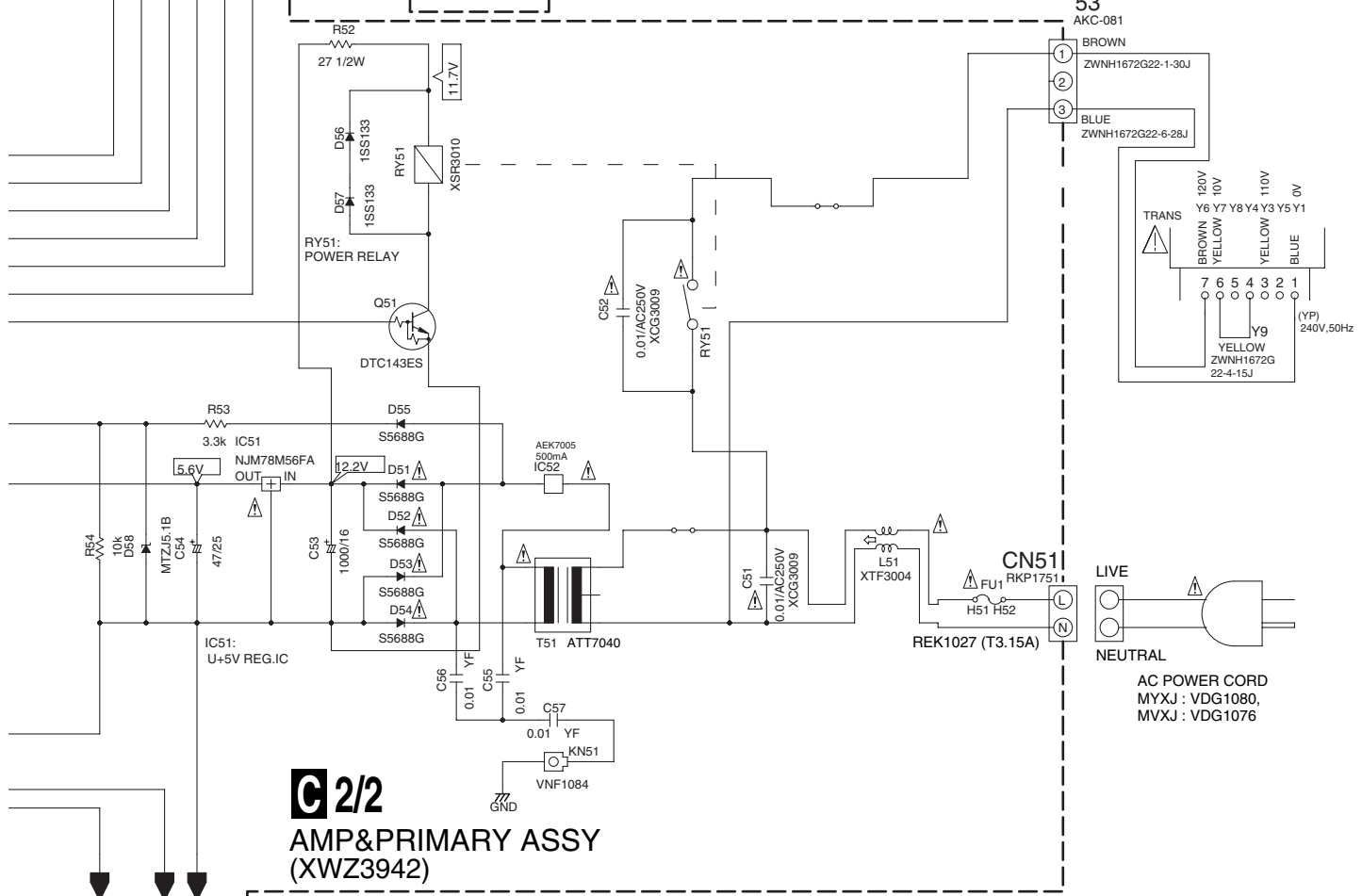
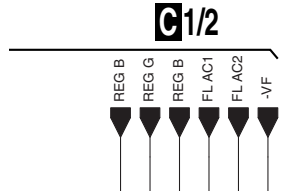
**AMP INPUT ASSY (XWZ3955)**

**A 2/3 CN106**



**G 1/2 CN601**

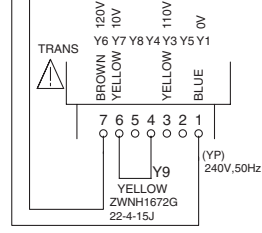
**CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.500 FOR IC52 MFD, BY LITTELFUSE INC.**



**CN891**

**CN251** 52044-0345

**53** AKC-081



**G 2/2**

**AMP & PRIMARY ASSY (XWZ3942)**

**NOTE FOR FUSE REPLACEMENT**

**CAUTION -FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.**

**G 2/2**

# 3.10 VIDEO and 5.1CH ASSYS

A

B

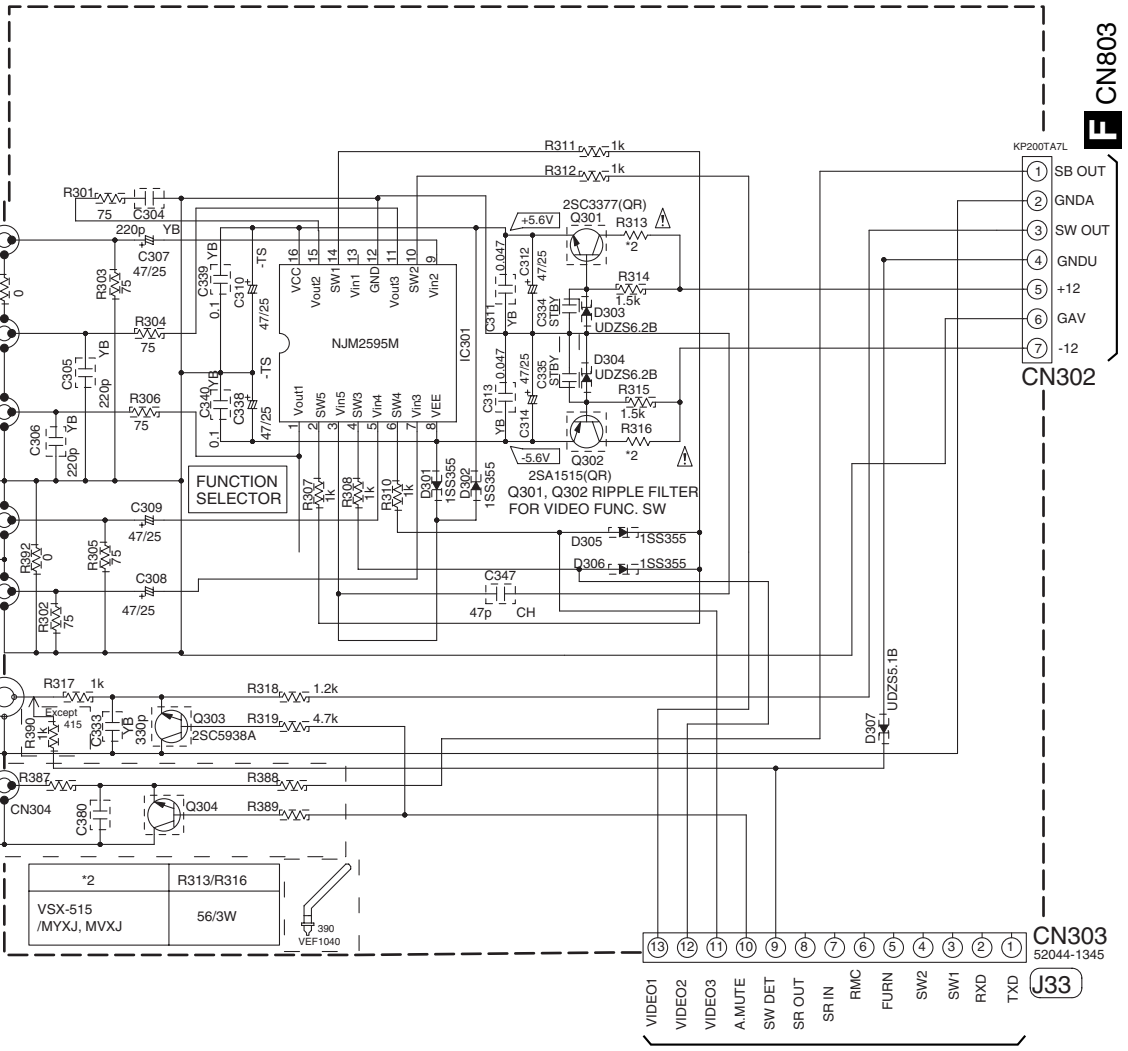
C

D

E

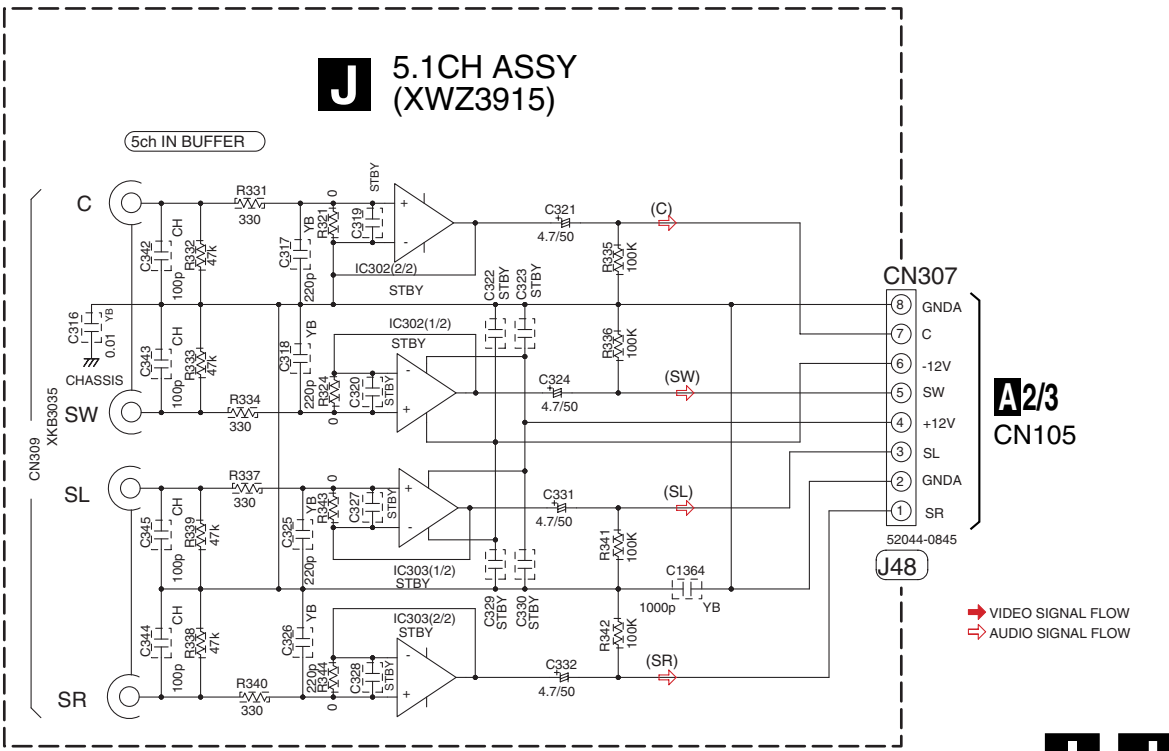
F

**I**  
VIDEO ASSY (XWZ3905)



*2	R313/R316
VSX-515 /MYXJ, MVXJ	56/3W

**J** 5.1CH ASSY (XWZ3915)



➔ VIDEO SIGNAL FLOW  
➞ AUDIO SIGNAL FLOW

VSX-515-K

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

VSX-515-K

■

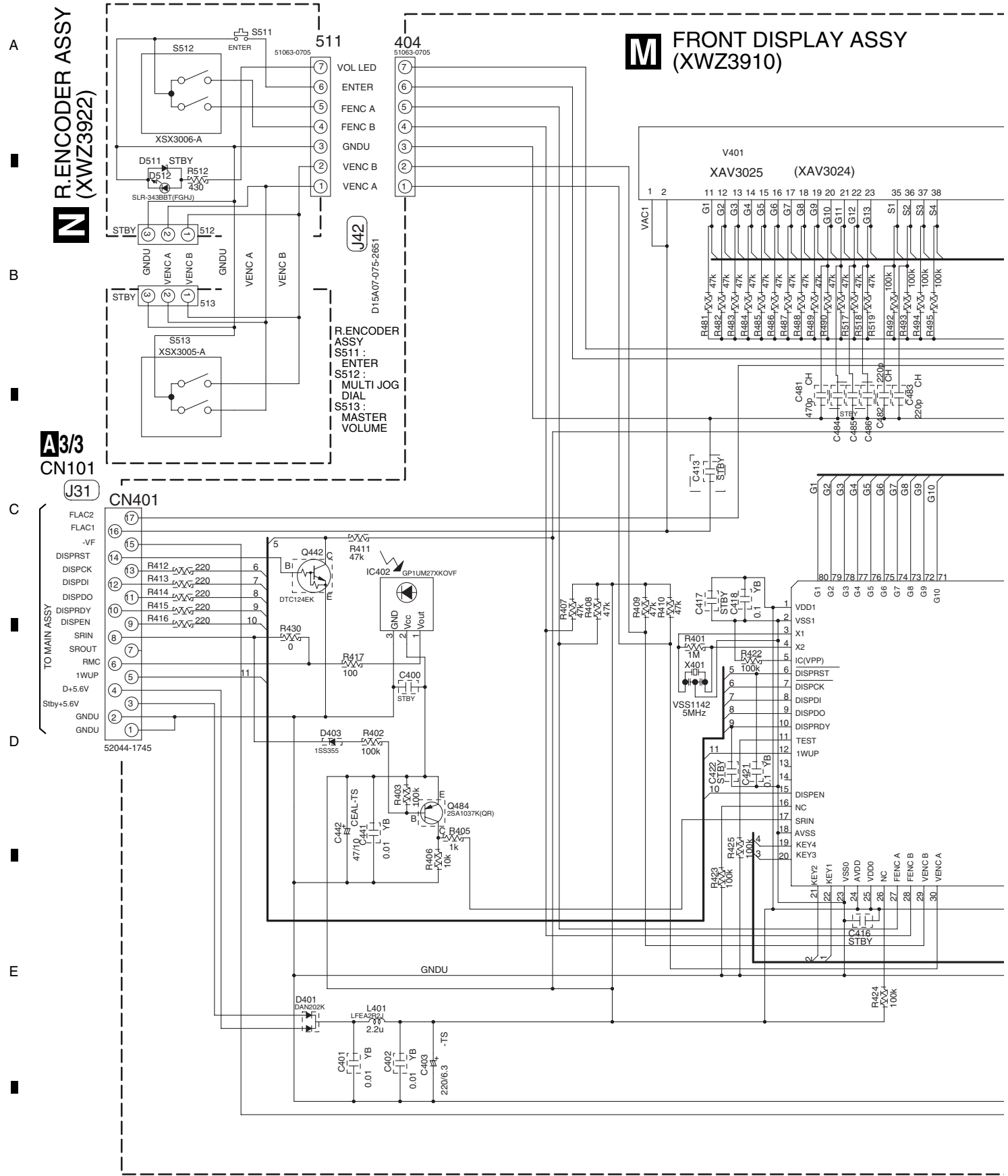
7

■

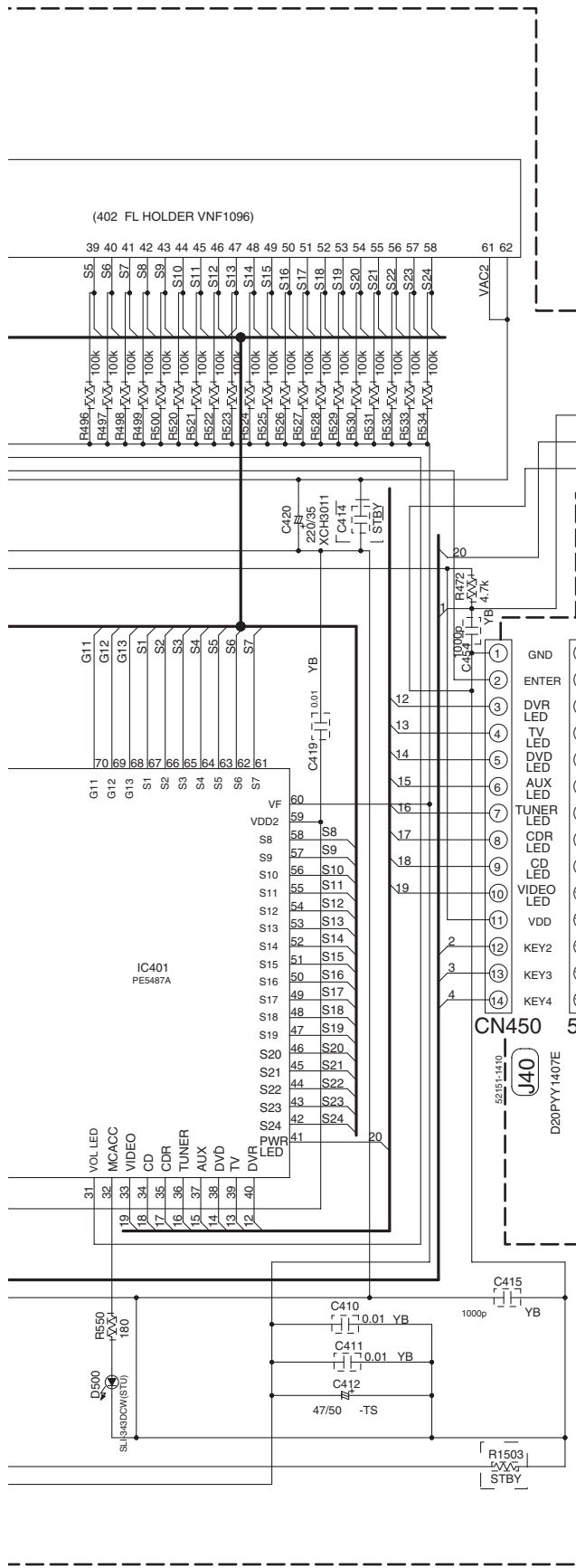
8

■

# 3.11 FRONT DISPLAY, R. ENCODER, P. SW&FUNC KEY and F. KEY ASSYS



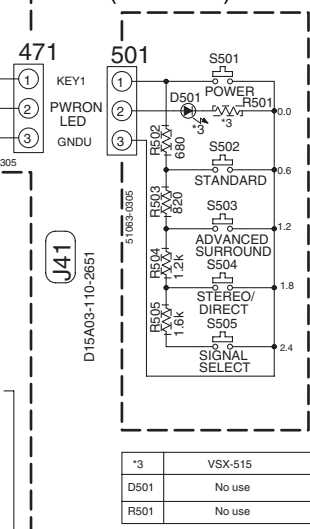




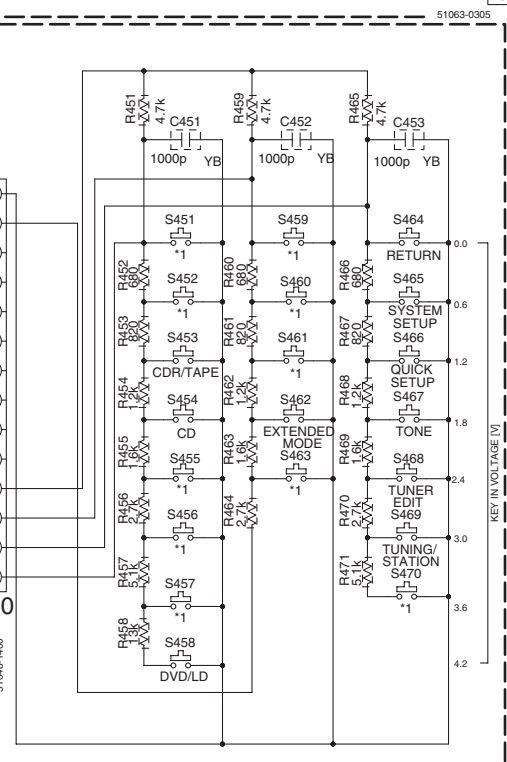
**NOTE**  
**1.RESISTORS**  
 Unit: k-Ω, M-Ω or Ω unless otherwise noted.  
 Rated power: 1/16W unless otherwise noted.  
 Tolerance: (J) ±5% unless otherwise noted.  
**2.CAPACITORS**  
 Unit: p-pF or μF unless otherwise noted.  
 Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.  
 Rated Voltage: 50V expect for electrolytic capacitors.  
**3.TACT SWITCHES**  
 Indicated in VSG1024

**POWER SW ASSY**  
 S501 : POWER STANDBY/ON  
 S502 : STANDARD  
 S503 : ADVANCED SURROUND  
 S504 : STEREO/DIRECT  
 S505 : SIGNAL SELECT

**P. SW & FUNC. KEY ASSY (XWZ3918)**



*3	VSX-515
D501	No use
R501	No use



**P FRONT KEY ASSY (XWZ3913)**

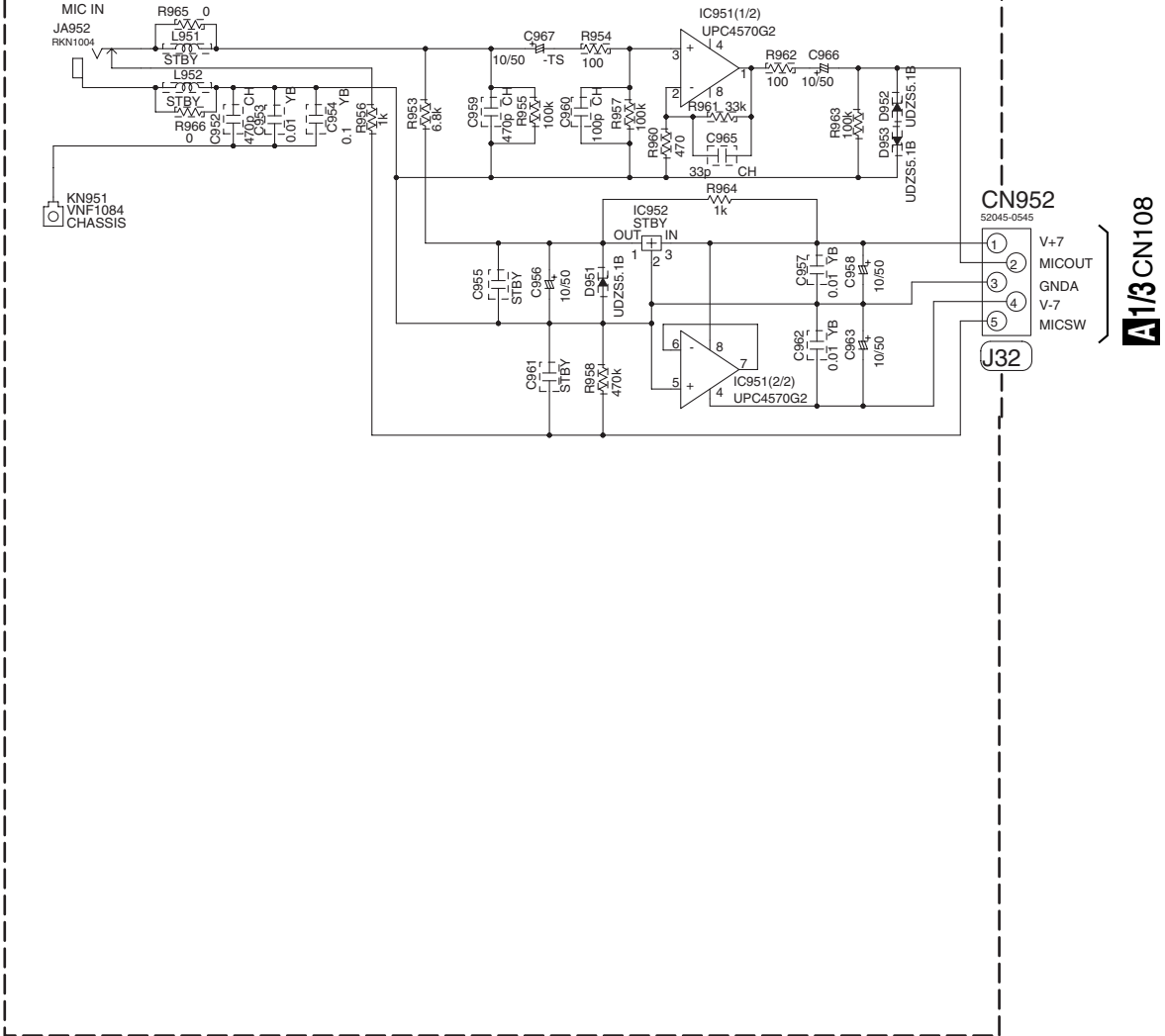
*1	VSX-515 /MYXJ, MVXJ
S451	AM
S452	FM
S453	CDR/TAPE
S454	CD
S455	VCR/DVR
S456	TV/SAT
S457	DVD 5.1ch
S458	EON MODE
S459	EXTENDED MODE
S460	PTY SEARCH
S461	SPEAKER IMPEDANCE
S462	ACOUSTIC EQ
S463	ACOUSTIC EQ
S464	RETURN
S465	SYSTEM SETUP
S466	QUICK SETUP
S467	TONE
S468	TUNER EDIT
S469	TUNER STATION
S470	CLASS

**FRONT KEY ASSY**  
 S451 : AM  
 S452 : FM  
 S453 : CDR/TAPE  
 S454 : CD  
 S455 : VCR/DVR  
 S456 : TV/SAT  
 S457 : DVD 5.1CH  
 S458 : DVD/LD  
 S459 : EON MODE  
 S460 : PTY SEARCH  
 S461 : SPEAKER INPEDANCE  
 S462 : EXTENDED MODE  
 S463 : ACOUSTIC EQ  
 S464 : RETURN  
 S465 : SYSTEM SETUP  
 S466 : QUICK SETUP  
 S467 : TONE  
 S468 : TUNER EDIT  
 S469 : TUNER STATION  
 S470 : CLASS

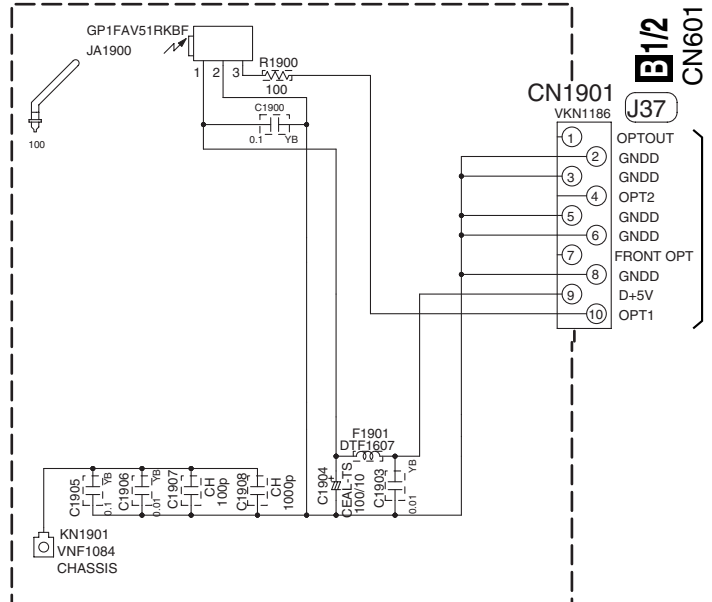


### 3.12 TRANS4, H.P., D. IN and FRONT OPT & MIC ASSYS

#### V FRONT OPT & MIC ASSY (XWZ3925)

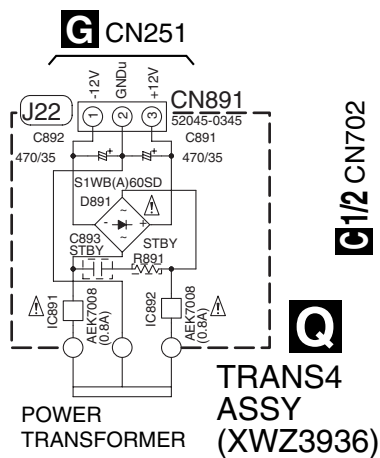


**A1/3** CN108



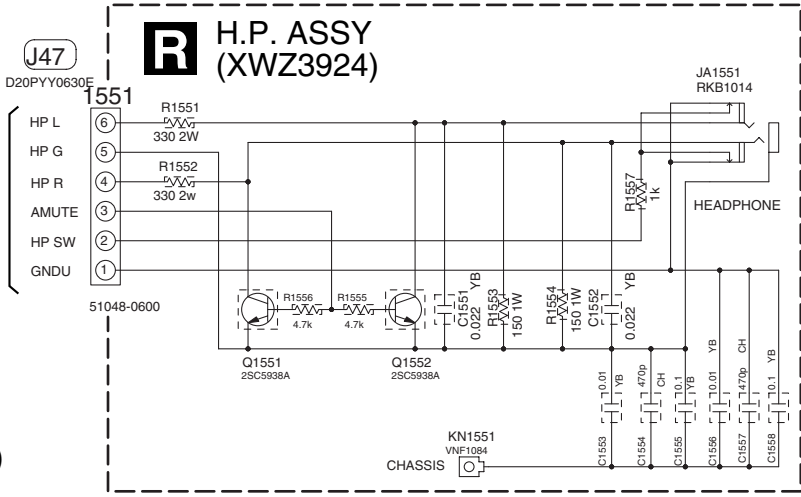
**B1/2** CN601

#### T DIGITAL IN ASSY (XWZ3927)



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.800 FOR IC891 AND IC892 MFD, BY LITTELFUSE INC.

**C1/2** CN702



**NOTE**

1.RESISTORS  
Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.  
Rated power: 1/16W unless otherwise noted.  
Tolerance: (J) 5% unless otherwise noted.

2.CAPACITORS  
Unit: p-pF or μF unless otherwise noted.  
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.  
Rated Voltage: 50V expect for electrolytic capacitors.

**Q** **R**

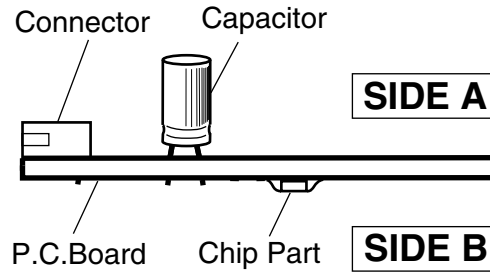
# 4. PCB CONNECTION DIAGRAM

## NOTE FOR PCB DIAGRAMS :

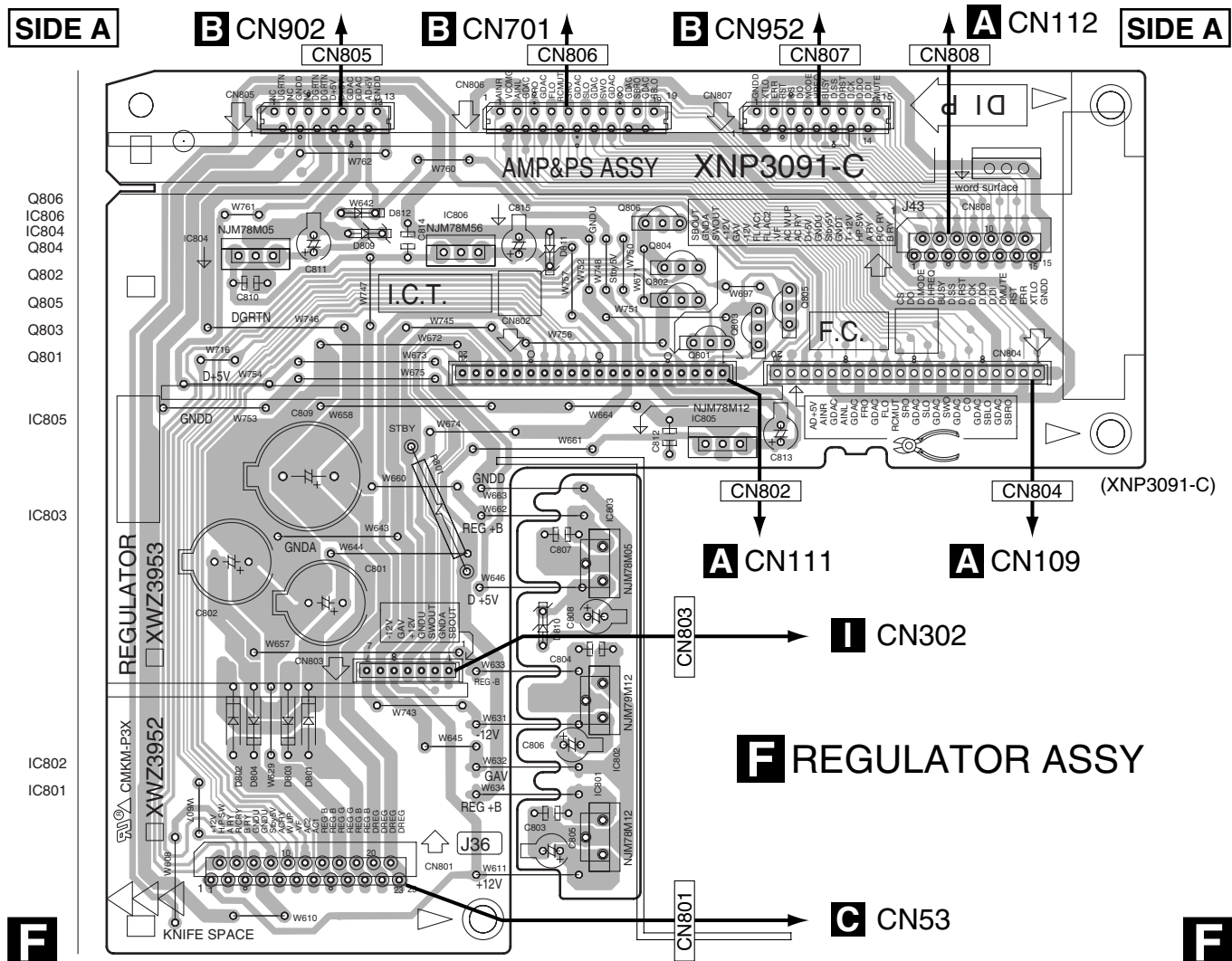
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

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 REGULATOR ASSY



# 4.2 TRANS2, TRANS3 and TRANS4 ASSYS

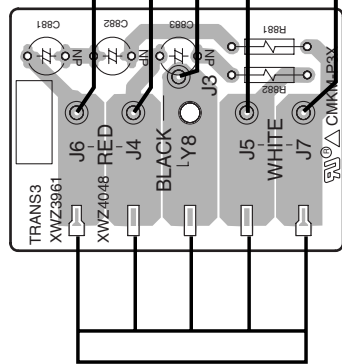
**SIDE A**

**SIDE B**

## **E** TRANS3 ASSY

**C** J6 J4 Y8 J5 J7

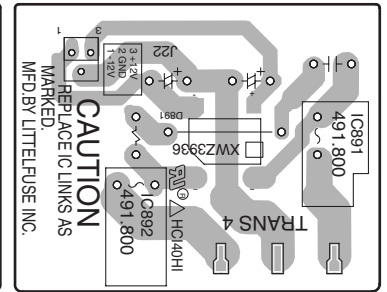
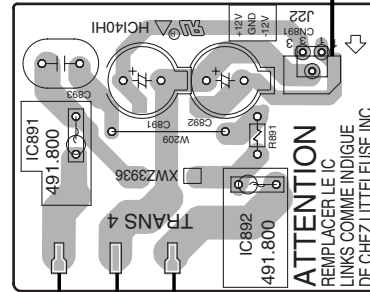
(XNP3091-C)  
**SIDE A**



## **Q** TRANS4 ASSY

**G** CN251

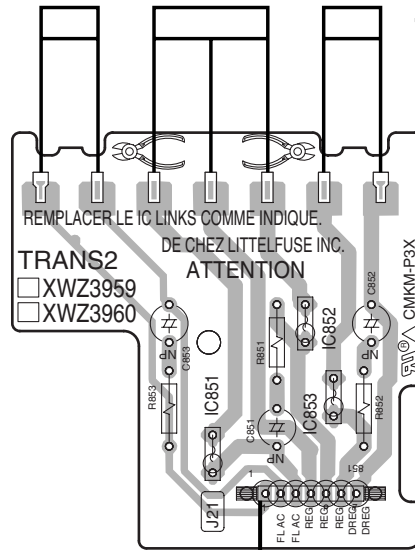
(XNP3090-B)  
**SIDE A**



(XNP3090-B)  
**SIDE B**

## POWER TRANSFORMER

## **D** TRANS2 ASSY



(XNP3091-C)  
**SIDE A**

**C** 701

IC852  
IC851  
IC853

**D E Q**

**D E Q**

# 4.3 MAIN ASSY

**SIDE A**

A

B

C

D

E

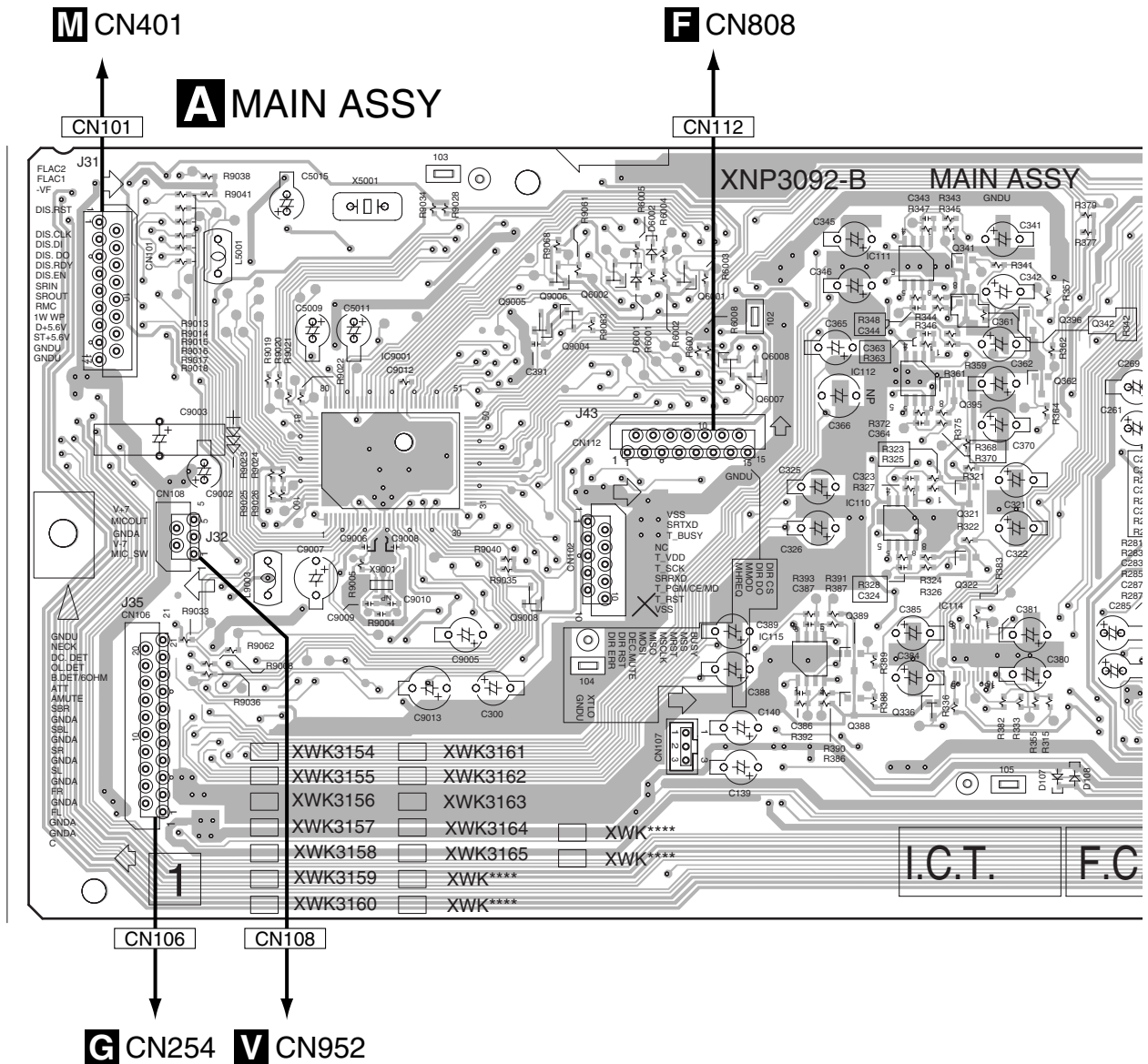
F

1

2

3

4



**A**

1

2

3

4

**SIDE A**

A

B

C

D

E

F

FM/AM  
TUNER  
UNIT

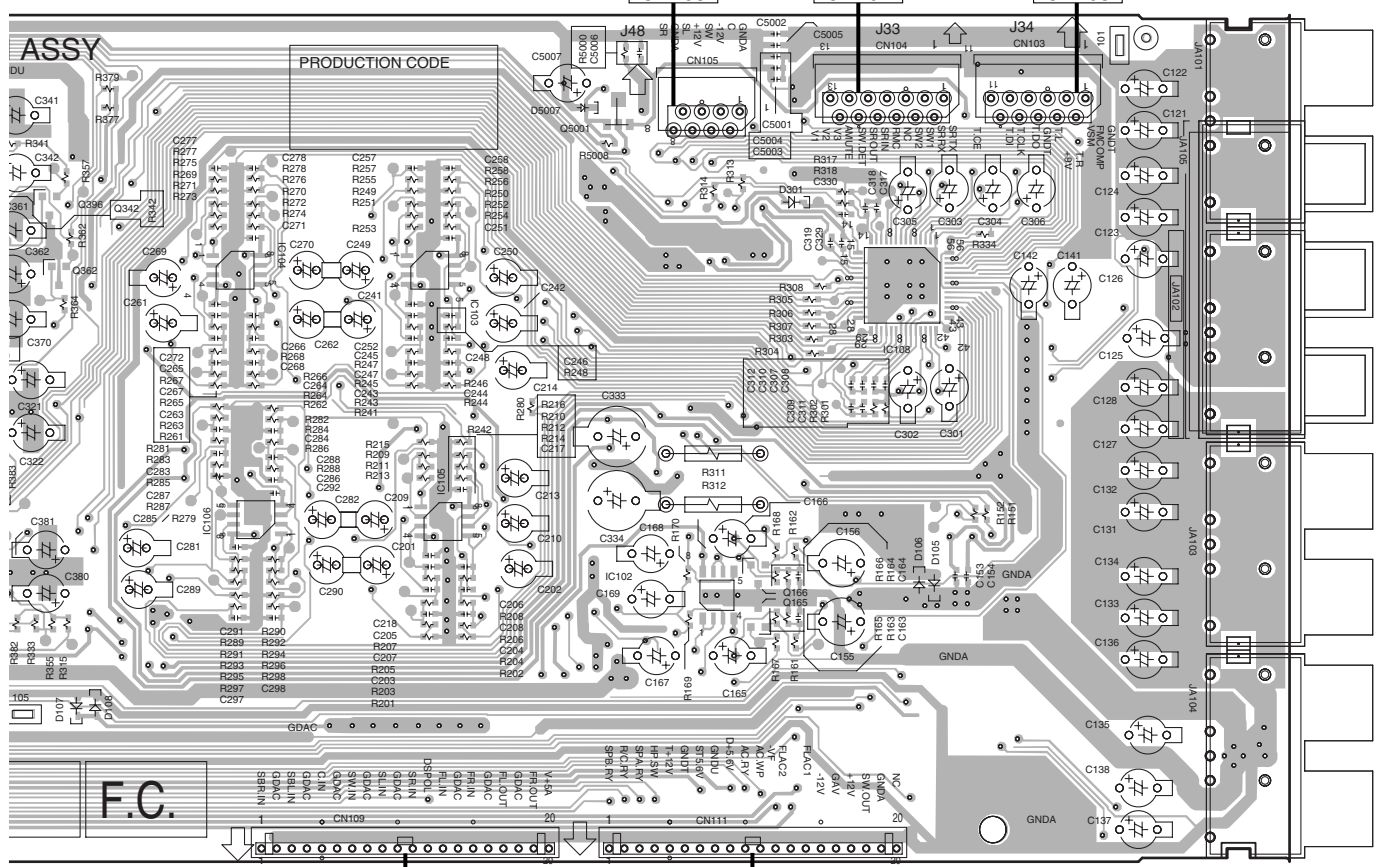
**J** CN307 **I** CN303

↑ CN105      ↑ CN104      ↑ CN103

↓ CN109      ↓ CN111

**F** CN804      **F** CN802

(XNP3092-B)



**A**



SIDE B

A

B

MAIN ASSY

C

D

E

F

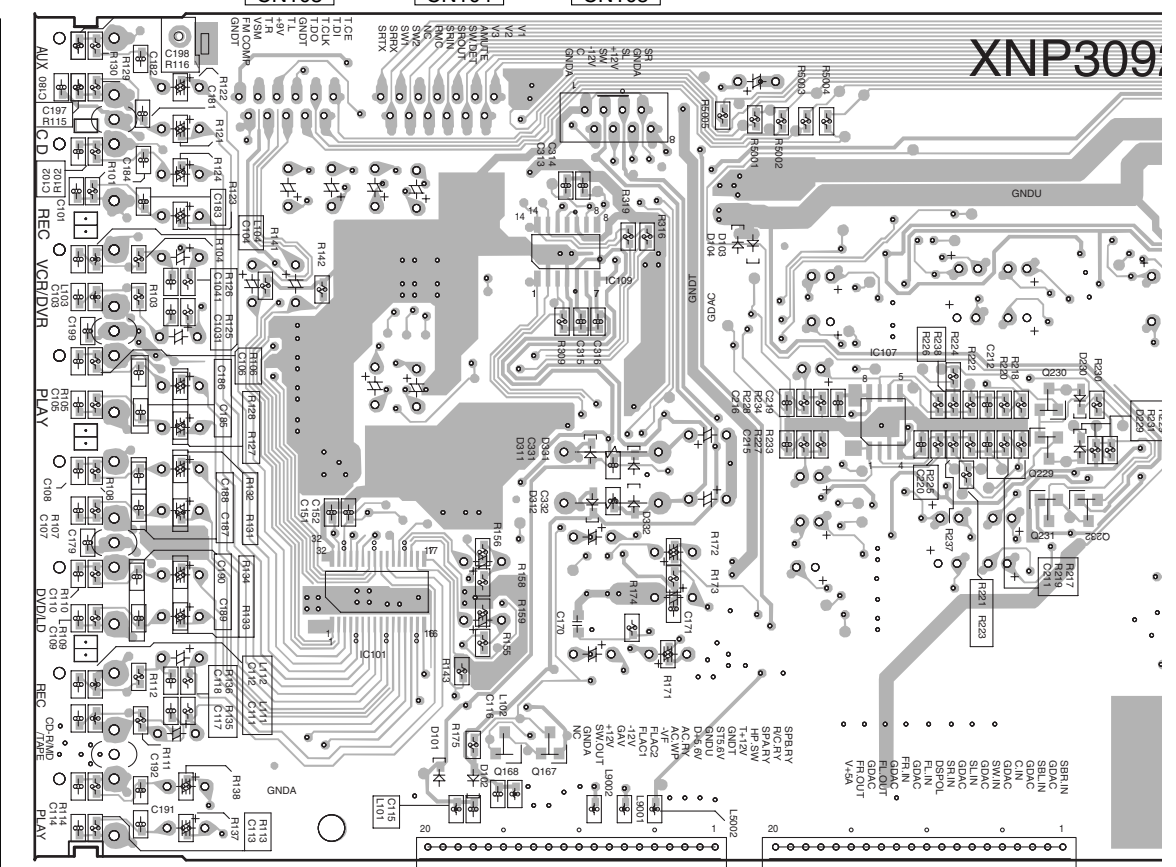
CN103

CN104

CN105

XNP309

- Q5003
- Q5004
- IC5001
- Q5002
- Q9065
- Q5009
- Q9003
- Q9064
- Q361
- IC109
- IC107
- Q230
- Q229
- Q9001
- Q232
- Q231
- IC101
- Q9002
- Q9007
- Q168
- Q167



CN111

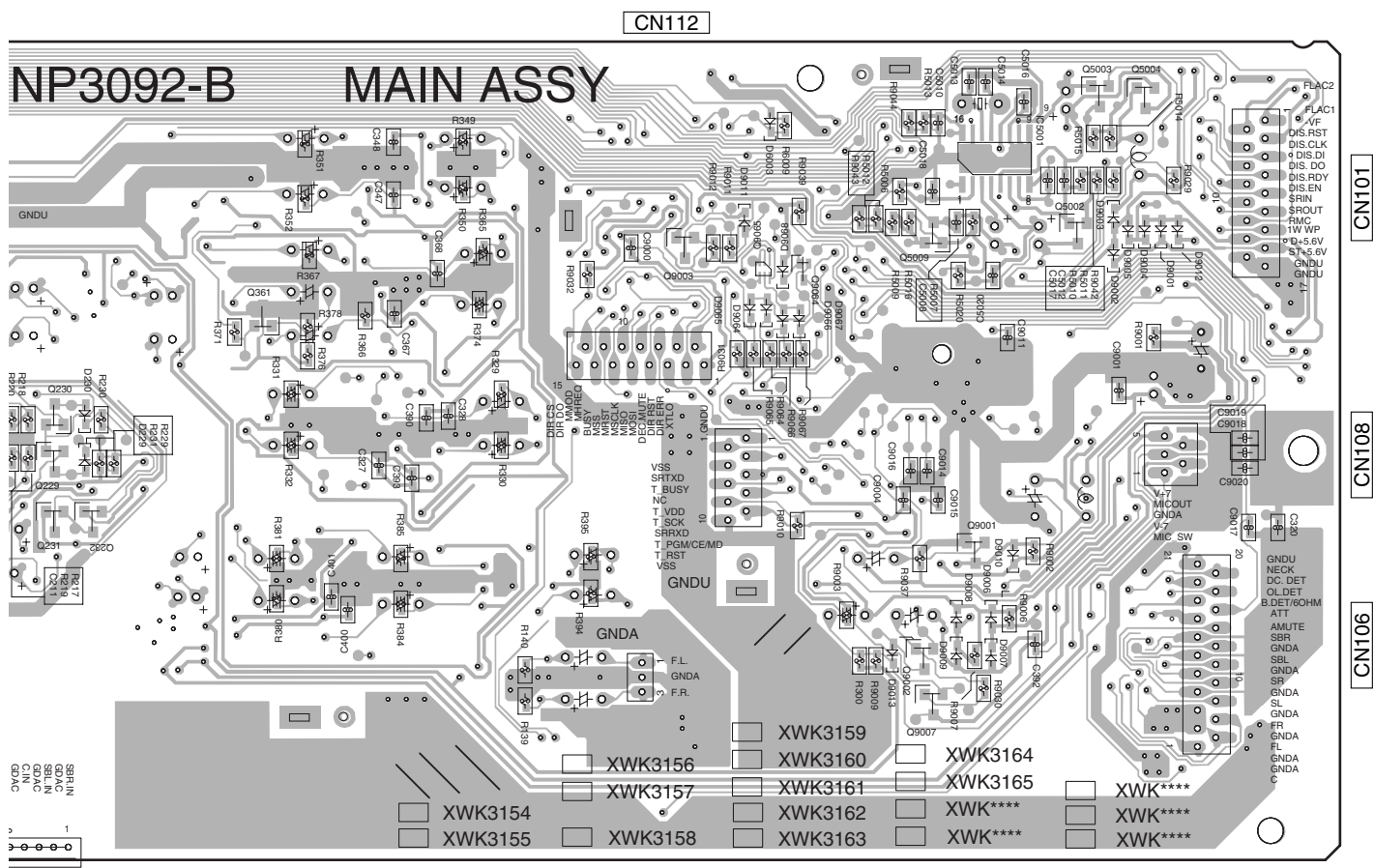
CN109

A



**SIDE B**

A  
B  
C  
D  
E  
F



(XNP3092-B)

**A**

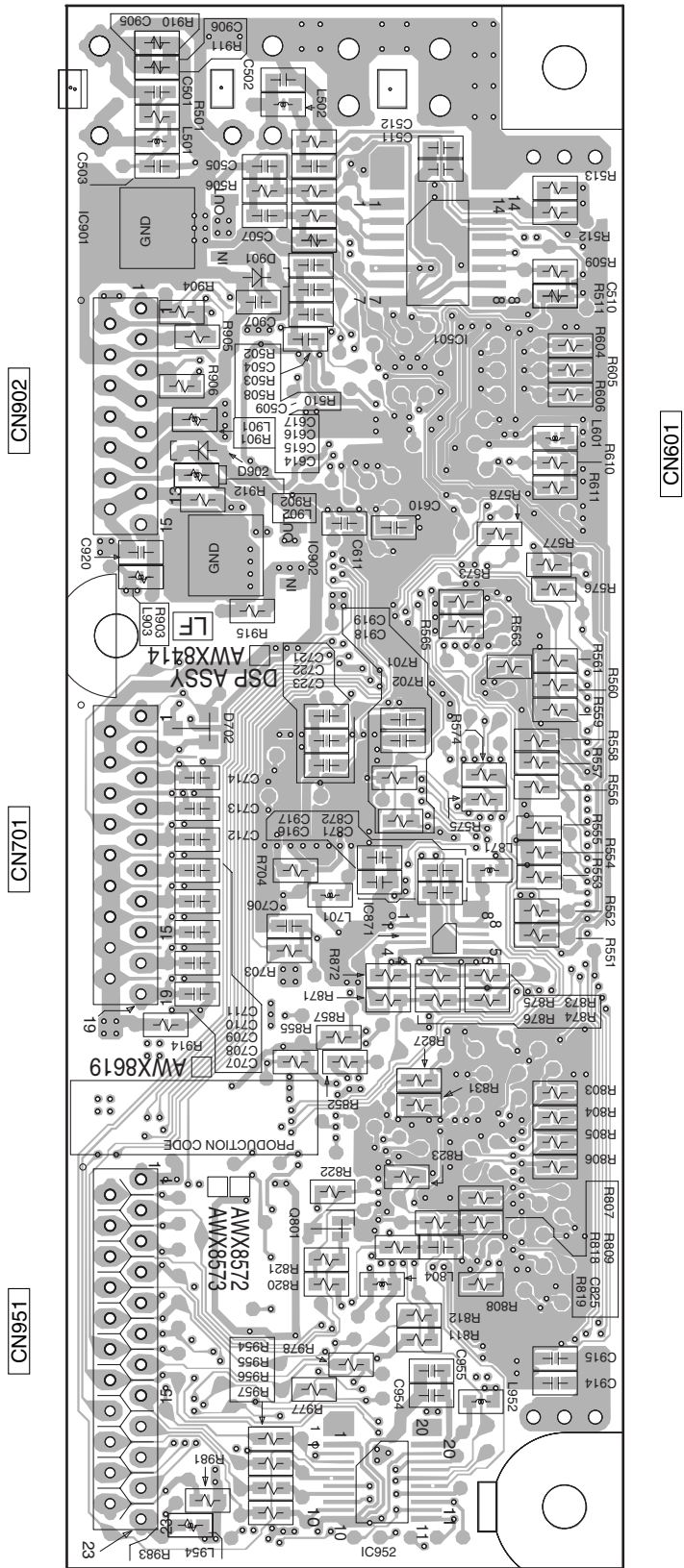


SIDE B

# B DSP ASSY

SIDE B

A  
B  
C  
D  
E  
F



(ANP7525-A)

B

B

VSX-515-K

# 4.5 AMP & PRIMARY and AMP INPUT ASSYS

**SIDE A**

A

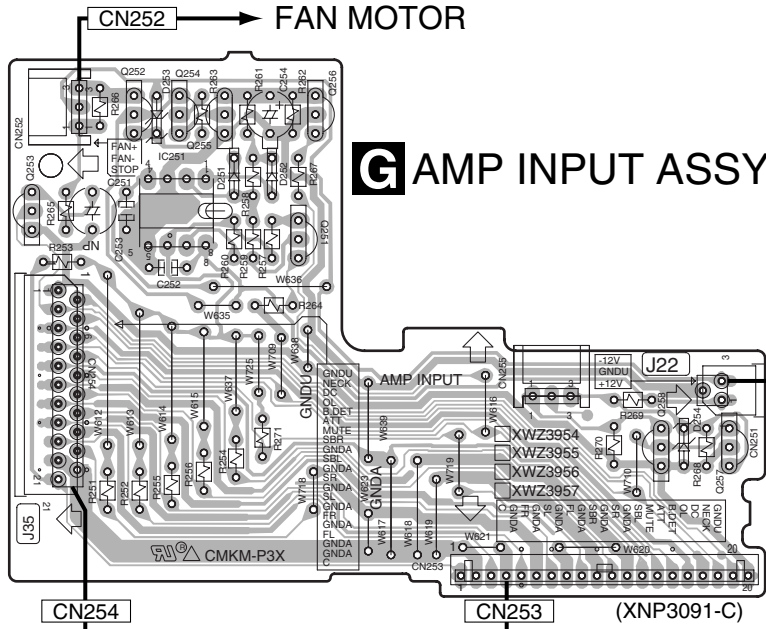
B

C

D

E

F



**G** AMP INPUT ASSY

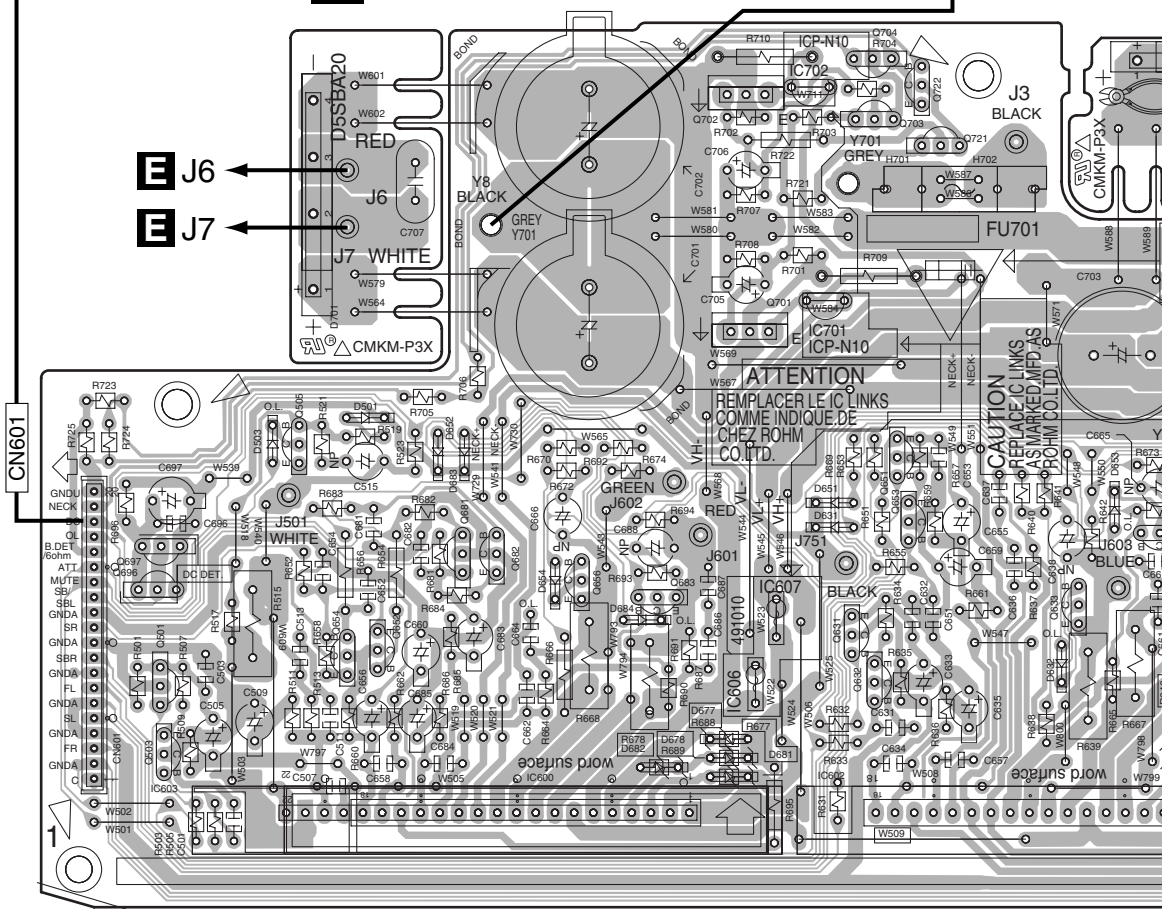
- Q252
- Q254
- Q256
- Q255 IC251
- Q253
- Q251
- Q258
- Q257
- Q** CN891

**A** CN106

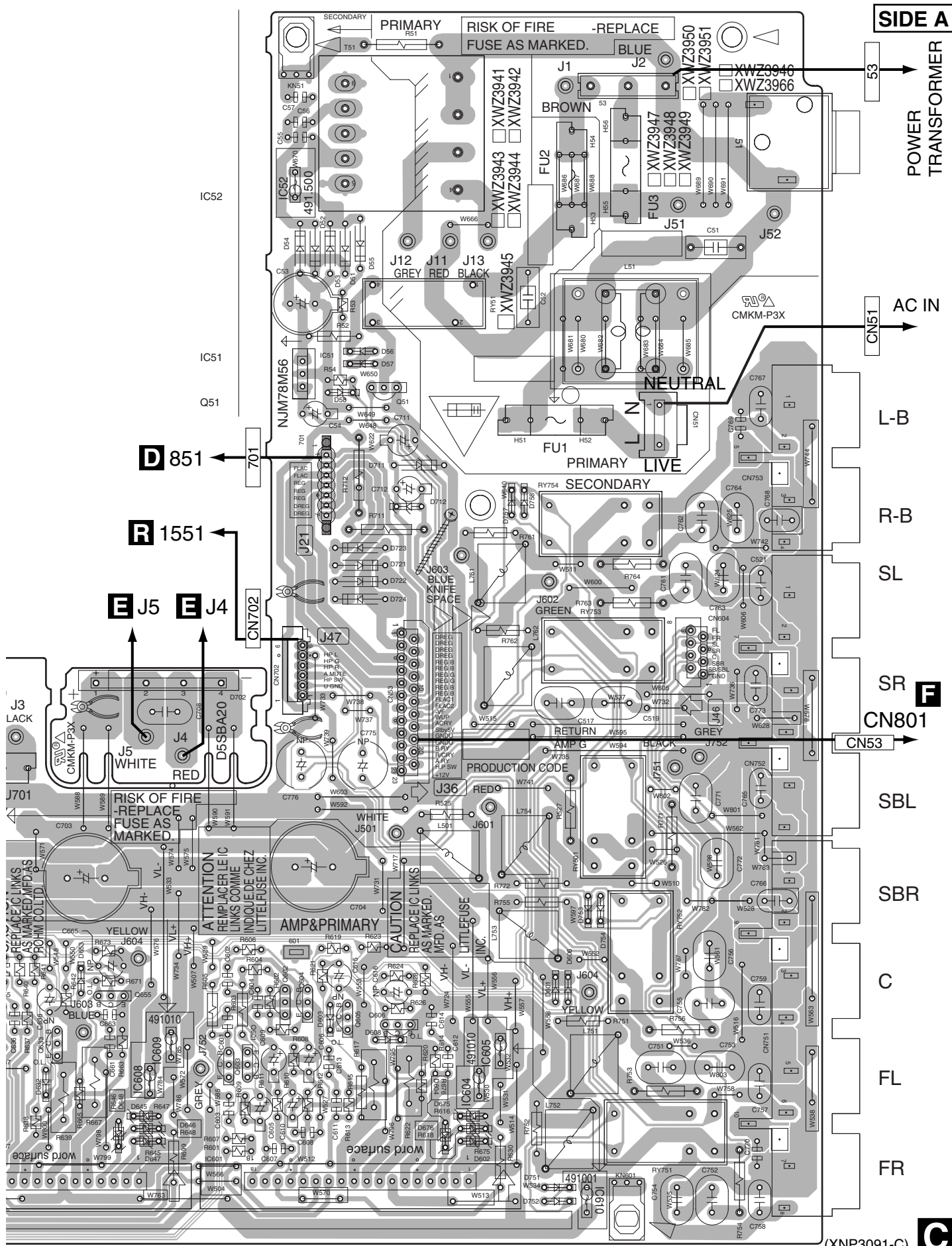
**C** AMP&PRIMARY ASSY

**E** Y8

- Q704
- IC702
- Q722
- Q702 Q703
- Q721
- Q701
- IC701
- Q505
- Q651
- Q653 Q602
- Q681 Q604
- Q655
- Q697 Q682 Q606
- Q696 Q683 Q601
- Q656 Q605
- Q654
- Q501 Q652 Q631
- Q603
- Q608
- Q604
- Q606
- Q503
- IC600 IC602
- IC603 IC601
- IC610







**SIDE A**

POWER TRANSFORMER

AC IN

L-B

R-B

SL

SR

SBL

SBR

FL

FR

**D** 851

**R** 1551

**E** J5

**E** J4

**F**

(XNP3091-C)

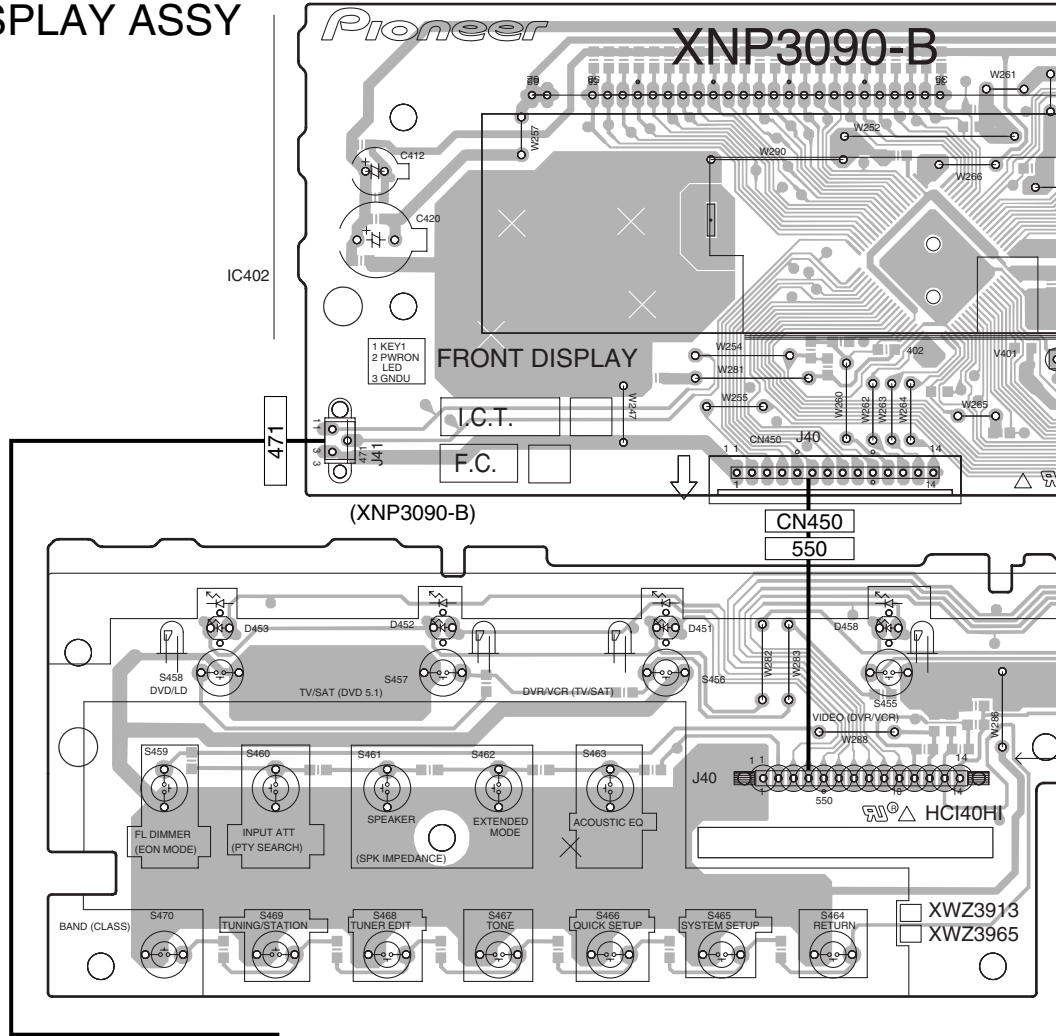
VSX-515-K



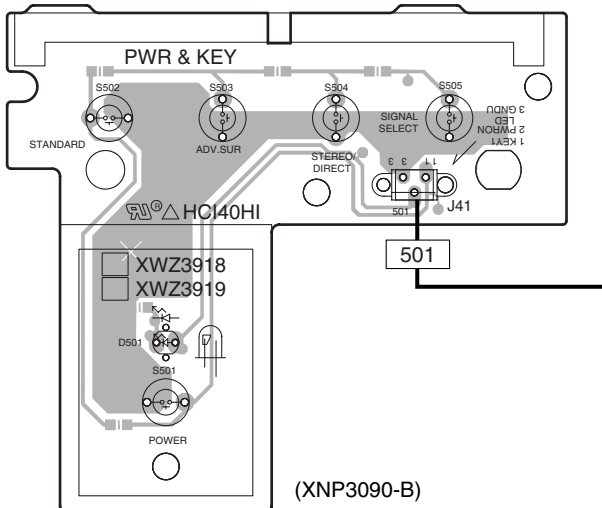
# 4.6 F. DISPLAY, R. ENCODER, P. SW & KEY, H. P. and F. KEY ASSYS

**SIDE A**

## M FRONT DISPLAY ASSY

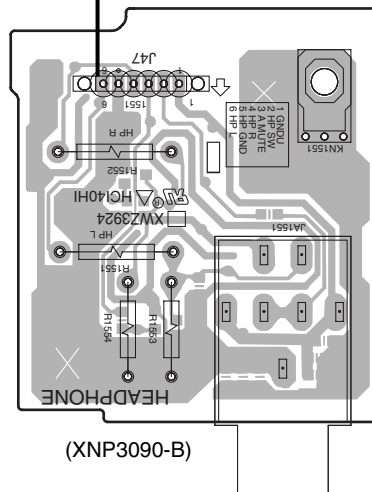


## O POWER SW & KEY ASSY



## C CN702

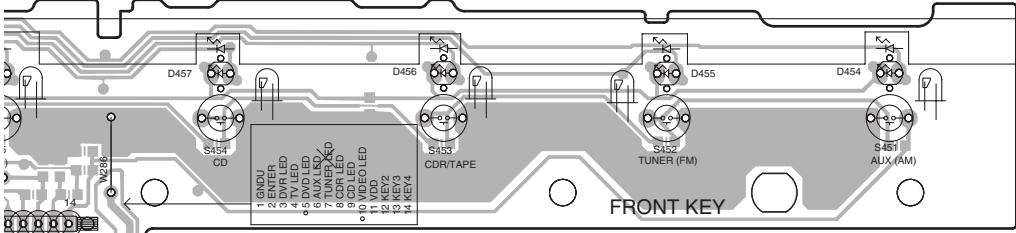
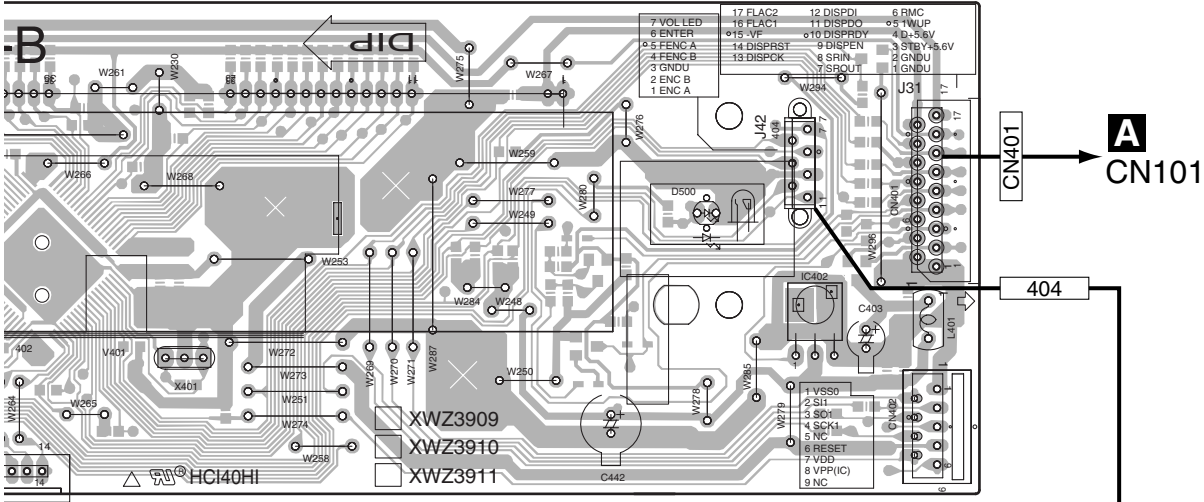
## R H.P ASSY



**M O P R**

**SIDE A**

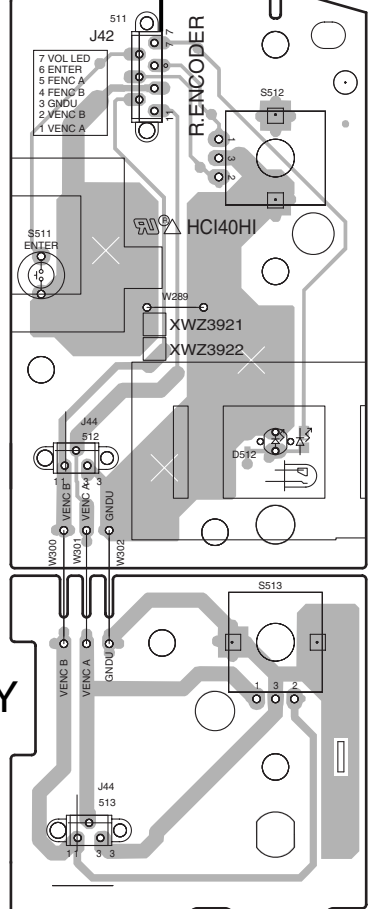
A  
B  
C  
D  
E  
F



**P FRONT KEY ASSY**

XWZ3913  
XWZ3965

**N R.ENCODER ASSY**



**M N P**

**SIDE B**

A

B

C

D

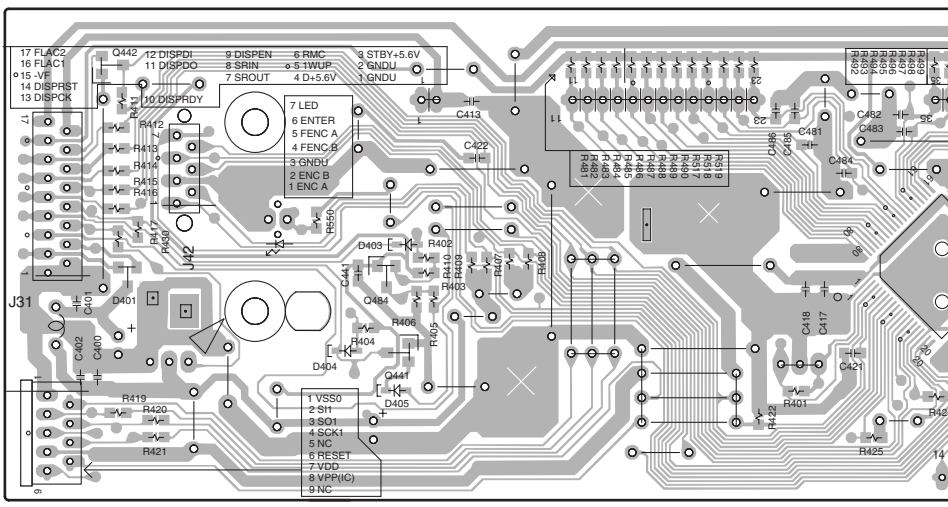
E

F

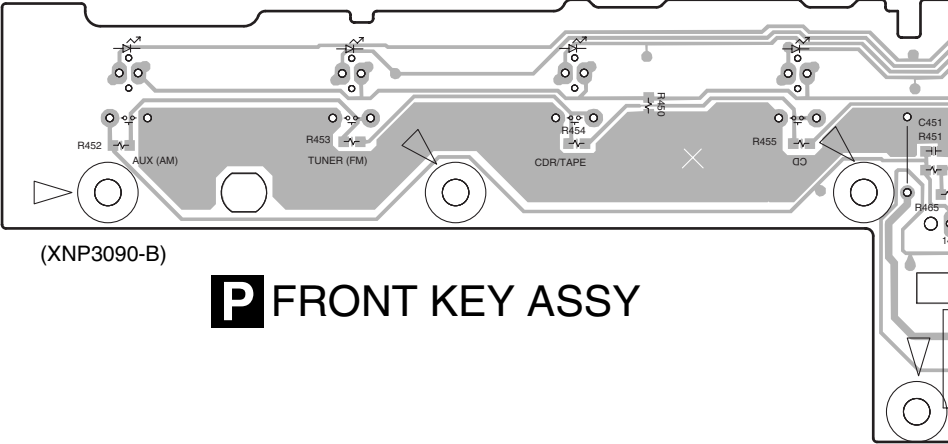
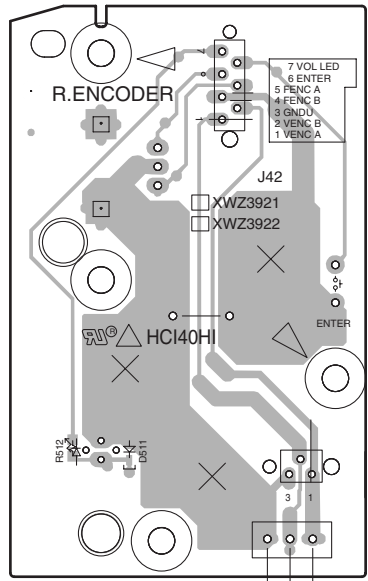
404

Q442  
IC401  
Q484  
Q441

CN401



511



**P FRONT KEY ASSY**

**N R.ENCODER ASSY**

(XNP3090-B)

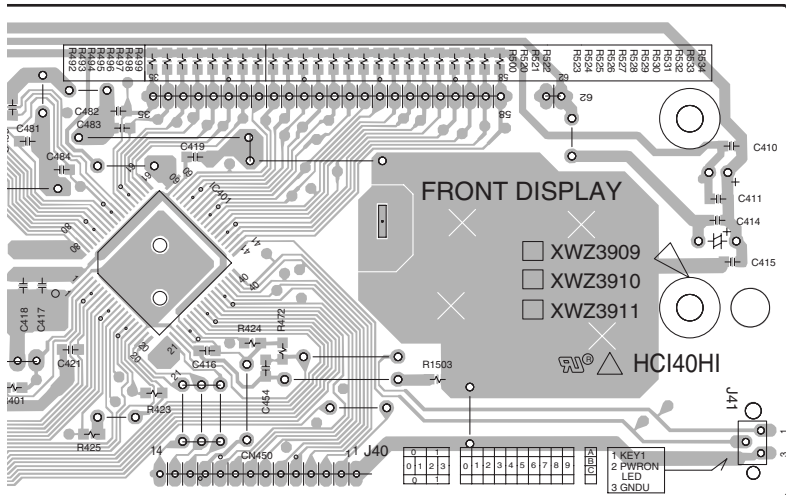
**M N P**

VSX-515-K

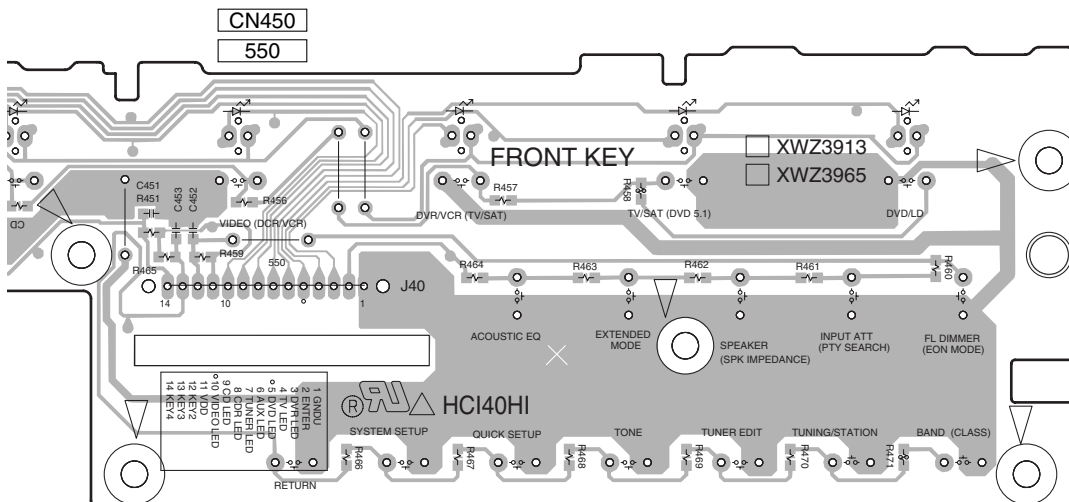


**SIDE B**

**M FRONT DISPLAY ASSY**

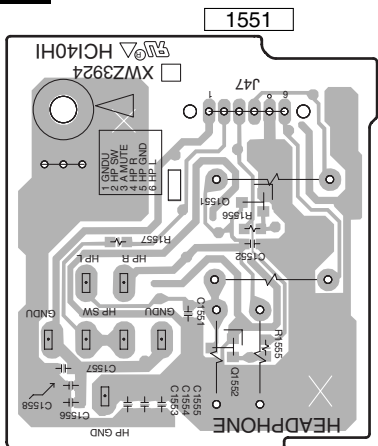


(XNP3090-B)



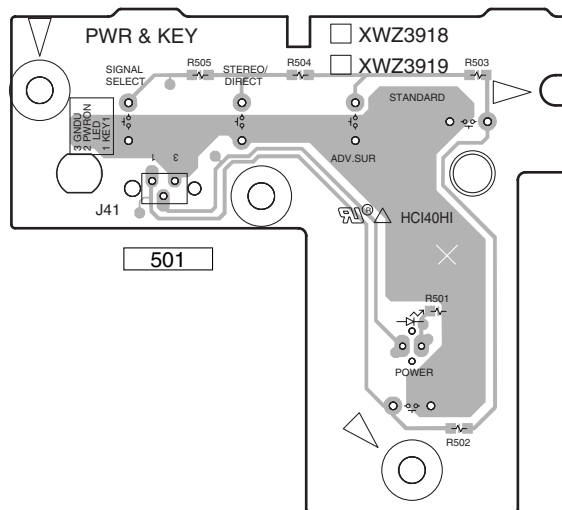
CN450  
550

**R H.P ASSY**



(XNP3090-B)

**O POWER SW & KEY ASSY**

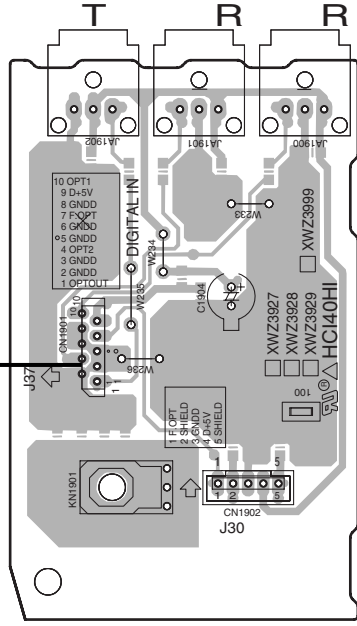


(XNP3090-B)

# 4.7 DIGITAL IN, VIDEO and 5.1CH ASSYS

**SIDE A**

**T** DIGITAL IN ASSY

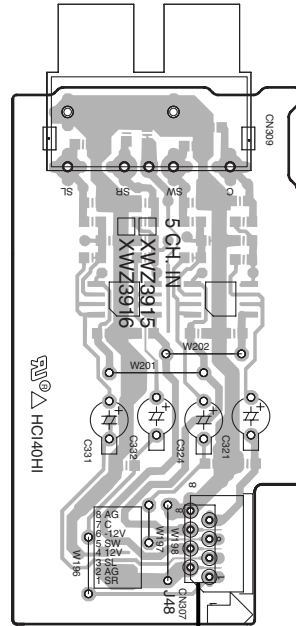


**B** CN601

CN1901

(XNP3090-B)

**J** 5.1CH ASSY

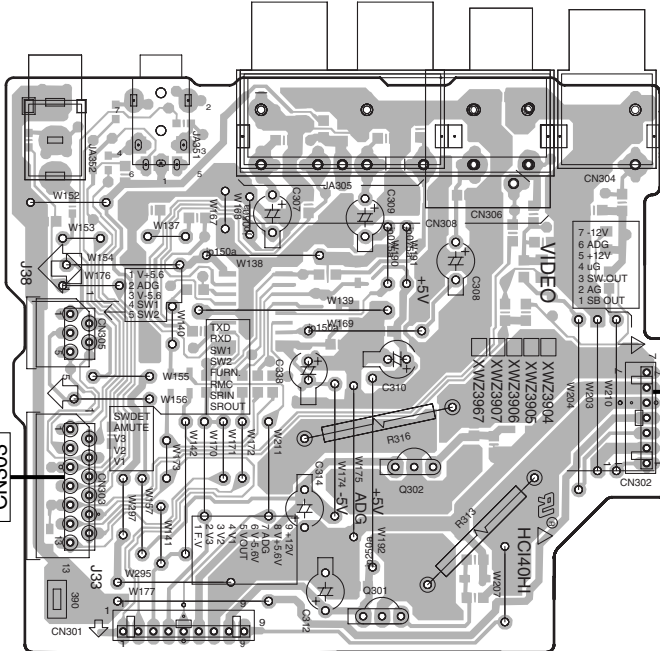


(XNP3090-B)

**A** CN105

CN307

**I** VIDEO ASSY



(XNP3090-B)

**A** CN104

Q302  
Q301

CN303

**F** CN803

CN302

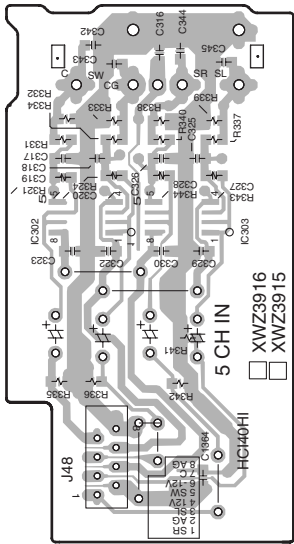
**I J T**

**I J T**

SIDE B

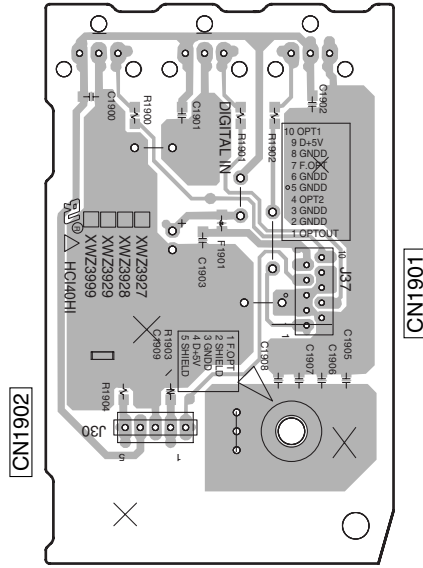
SIDE B

# J 5.1CH ASSY



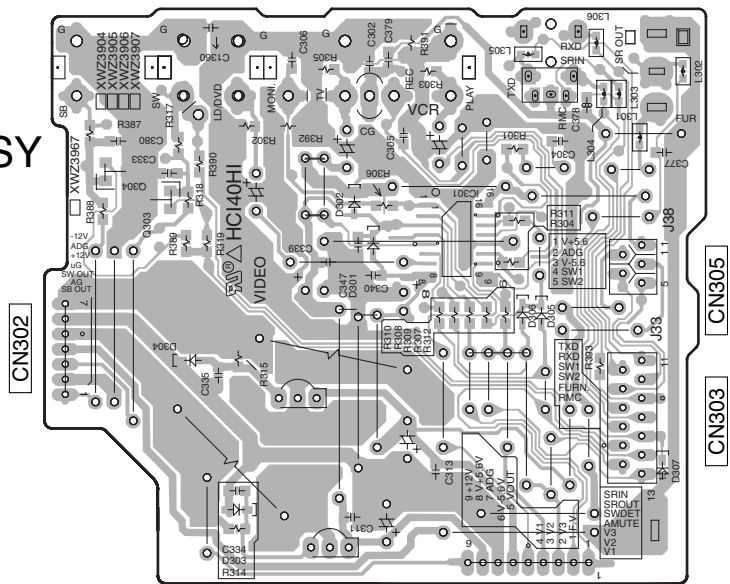
CN307 (XNP3090-B)

# T DIGITAL IN ASSY



(XNP3090-B)

# I VIDEO ASSY



(XNP3090-B)

CN301

Q304  
Q303  
IC301

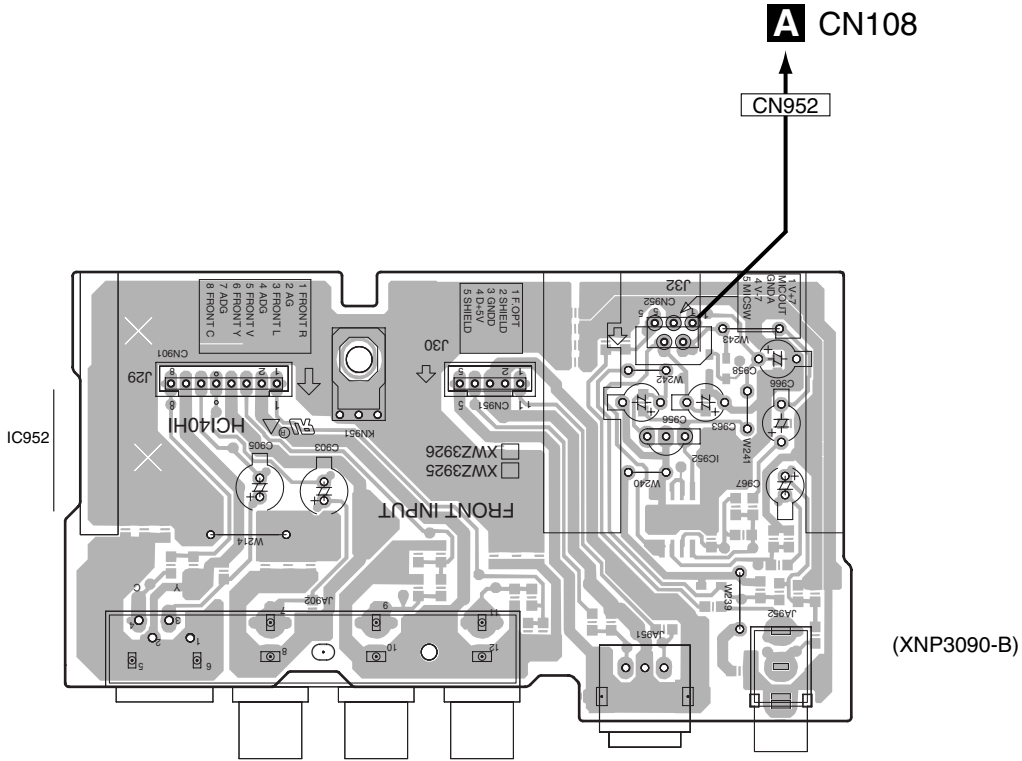
I J T

I J T

# 4.8 FRONT INPUT ASSY

**SIDE A**

**SIDE A**

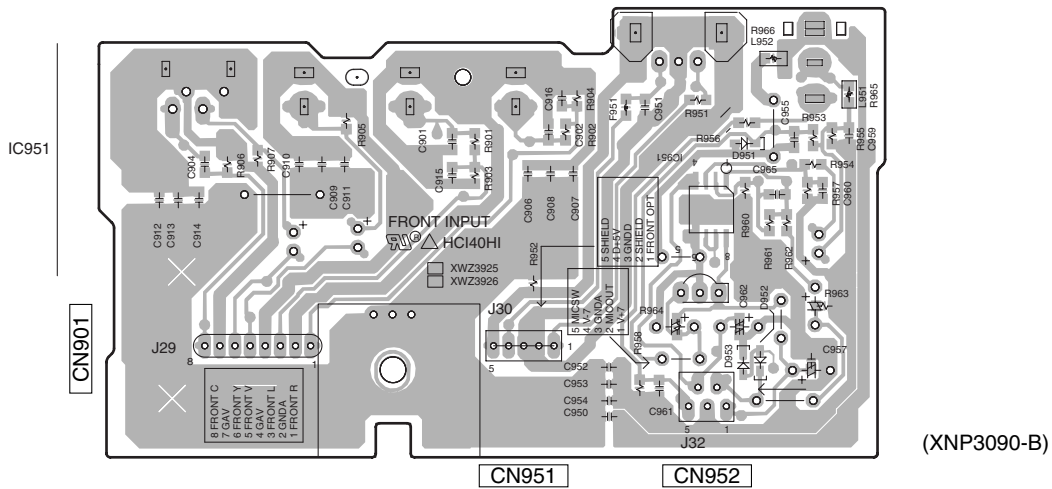


**V**  
FRONT  
INPUT  
ASSY

(XNP3090-B)

**SIDE B**

**SIDE B**



**V**  
FRONT  
INPUT  
ASSY

(XNP3090-B)

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

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

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

**Mark No. Description Part No.**  
**LIST OF ASSEMBLIES**

1..MAIN ASSY	XWK3155
1..DSP ASSY	AWX8572
NSP 1..AMP & PS ASSY	XWK3175
2..AMP & PRIMARY ASSY	XWZ3942
2..REGULATOR ASSY	XWZ3952
2..AMP INPUT ASSY	XWZ3955
2..TRANS2 ASSY	XWZ3960
2..TRANS3 ASSY	XWZ3961
2..BINDER ASSY	XWZ3963
2..HOLDER ASSY	XWZ3964
NSP 1..COMPLEX ASSY	XWK3168
2..VIDEO ASSY	XWZ3905
2..FRONT DISPLAY ASSY	XWZ3910
2..FRONT KEY ASSY	XWZ3913
2..5.1CH ASSY	XWZ3915
2..P. SW ASSY	XWZ3918
2..R. ENCODER ASSY	XWZ3922
2..H.P. ASSY	XWZ3924
2..FRONT INPUT ASSY	XWZ3925
2..DIGITAL IN ASSY	XWZ3927
2..TRANS4 ASSY	XWZ3936
1..FM/AM TUNER UNIT	AXX7170

IC103-IC107	HA17558AF
IC102	NJM2100M
IC9001	PEG094C
IC110-IC112, IC115	UPC4570G2
Q5004	2SA1037K
Q5009	2SC2412K
Q165, Q166, Q321, Q322	2SC5938A
Q341, Q342, Q361, Q362, Q388	2SC5938A
Q395, Q396	2SC5938A
Q5001	2SD1664
Q229, Q230	2SK208
Q167, Q231, Q9002-Q9005	DTA124EK
Q9008	DTA143TK
Q232	DTC124EK
Q168, Q5003, Q9001	DTC143EK
Q9007	DTC143TK
Q9065	UMD2N
Q9064	UN5112
D103-D108, D229, D230, D301	1SS355
D311, D312, D9001-D9013	1SS355
D9064-D9068	1SS355
D101, D102	RB501V-40
D5007	UDZS10(B)
D331, D332	UDZS6R8(B)

**Mark No. Description Part No.**

**COMPLEX ASSY**

**OTHERS**

J41 JUMPER WIRE	D15A03-110-2651
J42 JUMPER WIRE	D15A07-075-2651
J47 JUMPER WIRE 6P	D20PYY0630E
J40 JUMPER WIRE 14P	D20PYY1407E

**AMP & PS ASSY**

**OTHERS**

Y8 AWG14 BOARD IN	ADX7284
J21 JUMPER WIRED 7P	D20PYY0715E

**A MAIN ASSY SEMICONDUCTORS**

IC109	BD3812F
IC108	BD3813KS
IC101	BD3841FS
IC5001	BU1924F

**COILS AND FILTERS**

L9001, L9002 CHIP SOLID INDUCTOR	ATL7002
L5001, L9003	LFEA2R2J
L101-L104, L111, L112, L5002	QTL1013
CHIP SOLID INDUCTOR	

**CAPACITORS**

C101-C114, C151, C152	CCSRCH101J50
C163, C164, C183-C192	CCSRCH101J50
C243, C244, C263, C284	CCSRCH101J50
C313, C314, C317, C318	CCSRCH101J50
C323, C324, C343, C344, C363	CCSRCH101J50
C386	CCSRCH101J50
C1031, C1041, C117, C118	CCSRCH220J50
C5013, C5014	CCSRCH270J50
C205-C208, C245-C248, C265	CCSRCH331J50
C267, C286, C288	CCSRCH331J50
C203, C204	CCSRCH471J50
C5017	CCSRCH561J50
C366	CEANP4R7M50
C123-C128, C131-C138	CEAT100M50
C141, C142, C167, C168	CEAT100M50

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

C209, C210, C213, C214  
C249, C250, C269, C270, C290  
C301-C306, C321, C322  
C341, C342, C361, C362, C380  
C384

CEAT100M50  
CEAT100M50  
CEAT100M50  
CEAT100M50  
CEAT100M50

C5015  
C5007  
C169  
C201, C202, C241, C242  
C261, C262, C282, C5011, C9005

CEAT101M10  
CEAT101M16  
CEAT221M6R3  
CEAT2R2M50  
CEAT2R2M50

C9007  
C325, C326, C345, C346, C365  
C388  
C155, C156  
C333, C334

CEAT331M6R3  
CEAT470M25  
CEAT470M25  
CEAT470M50  
CEAT471M10

C9013  
C165, C166, C370  
C170  
C320, C392, C5001, C5016  
C9015, C9016

CEAT471M6R3  
CEAT4R7M50  
CKSQYB104K16  
CKSRYB102K50  
CKSRYB102K50

C115, C116, C153, C154, C171  
C179, C180, C199, C215-C218  
C251, C252, C266, C271, C272  
C291, C292, C315, C316, C319  
C327-C330, C347, C348

CKSRYB103K50  
CKSRYB103K50  
CKSRYB103K50  
CKSRYB103K50  
CKSRYB103K50

C367, C368, C390, C393, C5002  
C5008, C9004, C9008, C9017  
C219, C220, C309-C312, C9018  
C5003, C9006  
C264

CKSRYB103K50  
CKSRYB103K50  
CKSRYB104K16  
CKSRYB105K10  
CKSRYB223K25

C257, C258, C277, C278, C298  
C307, C308, C364, C5020  
C9011, C9014  
C268  
C391

CKSRYB472K50  
CKSRYB472K50  
CKSRYB473K16  
CKSRYB562K50  
CKSRYF104Z16

C9003 (1F/5.5V)

PCH1132

**RESISTORS**

⚠ R311, R312  
Other Resistors

RS1LMF101J  
RS1/16S###J

**OTHERS**

CN105 8P CONNECTOR  
CN103 11P CONNECTOR  
CN104 13P CONNECTOR  
CN108  
CN102 10P CONNECTOR

52044-0845  
52044-1145  
52044-1345  
52045-0545  
52045-1045

CN112 15P CONNECTOR  
CN101 17P CONNECTOR  
CN106 21P CONNECTOR  
CN109, CN111 20P SOCKET  
105 PCB BINDER

52045-1545  
52045-1745  
52045-2145  
KP200TA20L  
VEF1040

JA103, JA104 PIN JACK (4P)  
JA105 PIN JACK (6P)  
X5001 CRYSTAL RESONATOR  
(4.332 MHz)  
X9001 CERAMIC RESONATOR  
(15.7 MHz)

XKB3017  
XKB3037  
ASS7004  
XSS3004

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

IC601  
IC701  
IC801  
⚠ IC902  
⚠ IC901

AK4114VQ  
AK4628VQE  
DSPC56371AF180  
LM1117DT-ADJ  
NJM2391DL1-33

IC851  
IC501  
IC952  
IC871  
IC802

PDC121A8  
TC74HCU04AF  
TC74VHCT244AFTS1  
TC7WH125FU  
TC7WU04FU

Q801  
D702  
D701  
D901, D902

UN5212  
DAN202K  
DAP202K  
UDZS5R6(B)

**COILS AND FILTERS**

L802, L803, L901, L902  
CHIP SOLID INDUCTOR  
L501-L503, L601, L602, L605  
L701, L702, L801, L804, L851  
L871, L952 CHIP SOLID INDUCTOR

ATL7002  
QTL1013  
QTL1013  
QTL1013

**CAPACITORS**

C705  
C612, C613  
C505, C506  
C511, C605, C608, C620, C702  
C707-C714, C717, C801, C803

CCSRCH101J50  
CCSRCH120J50  
CCSRCH470J50  
CCSRCH471J50  
CCSRCH471J50

C805, C807, C809, C814, C818  
C821, C823, C826, C828, C830  
C832, C851, C871, C916, C919  
C954  
C816, C817

CCSRCH471J50  
CCSRCH471J50  
CCSRCH471J50  
CCSRCH471J50  
CCSRCH8R0D50

C956  
C513, C703, C715, C834, C835  
C908, C909  
C607, C618, C718  
C617

CEVW100M16  
CEVW101M16  
CEVW101M16  
CEVW470M6R3  
CKSRYB102K50

C503, C504, C701, C820, C825  
C917  
C606, C609, C614, C619, C704  
C706, C716, C720, C802, C804  
C806, C808, C810, C815, C819

CKSRYB103K50  
CKSRYB103K50  
CKSRYB104K16  
CKSRYB104K16  
CKSRYB104K16

C822, C824, C827, C829, C831  
C833, C852, C872, C907, C918  
C955  
C512  
C621

CKSRYB104K16  
CKSRYB104K16  
CKSRYB104K16  
CKSRYB105K6R3  
CKSRYB474K10

**RESISTORS**

R802  
R962, R970  
R628  
Other Resistors

RAB4C101J  
RAB4C104J  
RS1/16S1802F  
RS1/16S###J

**OTHERS**

JA501 2P PIN JACK  
CN601 10P CONNECTOR  
CN902 13P SOCKET  
CN952 15P SOCKET  
CN701 19P SOCKET

AKB7131  
VKN1414  
XKP3077  
XKP3078  
XKP3080

X601 CRYSTAL RESONATOR  
(12.288MHz)

ASS7046



Mark No.	Description	Part No.
X801	CRYSTAL RESONATOR (20 MHz)	VSS1171

## C AMP & PRIMARY ASSY SEMICONDUCTORS

△ IC52	PROTECTOR(500mA)	AEK7005
△ IC610	PROTECTOR(1A)	AEK7009
△ IC604-IC609	PROTECTOR(10A)	AEK7022
△ IC701, IC702	IC PROTECTOR(400mA)	ICP-N10
△ IC51		NJM78M56FA
△ IC600-IC602		STK412-230B
Q703, Q721		2SA1145
△ Q702		2SA2005
Q696, Q697		2SC1740S
Q704, Q722		2SC1845
Q605, Q606, Q633, Q655, Q656		2SC2240
Q683		2SC2240
△ Q701		2SC5511
Q601-Q604, Q631, Q632		2SC5974A
Q651-Q654, Q681, Q682		2SC5974A
Q51		DTC143ES
D56, D57, D601, D603, D606		1SS133
D608, D631, D632, D651-D654		1SS133
D683, D684, D751-D754		1SS133
△ D701, D702		D5SBA20(B)
D602, D604, D647, D648		MTZJ15A
D681, D682		MTZJ15A
D711		MTZJ22D
D58		MTZJ5.1B
D712		MTZJ6R8(B)
△ D51-D55, D721-D724		S5688

## COILS AND FILTERS

L751-L754, L761, L762	COIL	ATH1004
△ L51	LINE FILTER	XTF3004

## SWITCHES AND RELAYS

RY751-RY753		XSR3009
△ RY51		XSR3010

## CAPACITORS

C707, C708	(0.01/AC250V)	ACG1005
C607, C608, C611-C614, C634		CCPUSL470J50
C636, C637, C657, C658		CCPUSL470J50
C661-C664, C684, C686, C687		CCPUSL470J50
C615, C616, C638, C665, C666		CEANP2R2M50
C688		CEANP2R2M50
C775, C776		CEANP470M50
C712		CEAT101M10
C609, C610, C635, C659, C660		CEAT101M16
C685		CEAT101M16
C711		CEAT101M35
C53		CEAT102M16
C697		CEAT221M10
C54		CEAT470M25
C605, C606, C633, C655, C656		CEAT4R7M50
C683		CEAT4R7M50
C705, C706		CEHAT100M2A
C696, C770		CKPUYB102K50
C603, C604, C632, C653, C654		CKPUYB331K50
C682		CKPUYB331K50

Mark No.	Description	Part No.
C55-C57		CKPUYF103Z25
C751-C756, C761-C764		CQMBA224J50
C771, C772		CQMBA224J50
C521, C757-C759, C765, C766		CQMBA472J50
C773		CQMBA472J50

△ C51, C52	(10000pF/250V(AC))	XCG3009
C703, C704	(3300/42V)	XCH3012
C701, C702	(4700/71V)	XCH3013

## RESISTORS

△ R617, R622, R639, R667, R668		ACN7094
△ R691	(0.22/5W)	ACN7094
R52		RD1/2PM270J
△ R751, R752, R755, R761, R762		RD1/4PUF101J
△ R772		RD1/4PUF101J
△ R753, R754, R756, R763, R764		RS1LMF4R7J
△ R771		RS1LMF4R7J
△ R711		RS2LMF202J
Other Resistors		RD1/4PU###J

## OTHERS

CN53	23P CONNECTOR	52045-2345
CN702	6P JUMPER CONNECTOR	52147-0610
H51, H52	FUSE CLIP	AKR7001
△ T51	STANDBY TRANSFORMER	ATT7040
CN601	20P PLUG	KM200TA20
△ CN51	AC CODE SOCKET	RKP1751
601	PCB BINDER	VEF1040
KN51, KN601	EARTH METAL FITTING	VNF1084
CN751	SP TERMINAL 8-P(V0)	XKE3031
CN752	SP TERMINAL 6-P(V0)	XKE3033
701	7P CABLE HOLDER	XKP3047

## D TRANS2 ASSY SEMICONDUCTORS

△ IC851-IC853	PROTECTOR (4A)	AEK7018
---------------	----------------	---------

## OTHERS

851	7P CABLE HOLDER	XKP3047
-----	-----------------	---------

## E TRANS3 ASSY

TRANS3 ASSY has no service part.

## F REGULATOR ASSY SEMICONDUCTORS

△ IC803, IC804		NJM78M05FA
△ IC801, IC805		NJM78M12FA
△ IC806		NJM78M56FA
△ IC802		NJM79M12FA
Q801, Q803		DTA124ES
Q802, Q804		DTC114ES
D809-D811		MTZJ6.2B
△ D801-D804		S5688G

## CAPACITORS

C811, C815		CEAT101M10
C813		CEAT101M16
C801, C802		CEAT222M25

**Mark No. Description**C809  
C808**Part No.**CEAT472M16  
CEHAT101M10A C805, C806  
C803, C804, C807, C810, C812  
C814CEHAT101M16  
CKPUYF103Z25  
CKPUYF103Z25**RESISTORS**

△ R801

RS3LMF331J

**OTHERS**CN808 15P CONNECTOR  
CN801 23P CONNECTOR  
CN802, CN804 20P PLUG  
CN803 7P PLUG  
CN805 13P PLUG52045-1545  
52045-2345  
KM200TA20  
KM200TA7  
XKP3066B CN807 15P PLUG  
CN806 19P PLUGXKP3067  
XKP3069**G AMP INPUT ASSY  
SEMICONDUCTORS**IC251  
Q257  
Q251, Q256  
Q252  
Q254NJM4558D-D  
2SA933S  
2SC5974A  
2SD1858X  
DTA124ESC Q253, Q255  
D251, D252  
D253  
D254DTC124ES  
1SS133  
MTZJ27D  
MTZJ5.1B**CAPACITORS**C251  
C254  
C252, C253CEANP470M25  
CEAT101M25  
CKPUYF103Z25**RESISTORS**

Other Resistors

RD1/4PU###J

**OTHERS**CN251 3P CONNECTOR  
CN254 21P CONNECTOR  
CN253 20P SOCKET  
CN252 3PIN CONNECTOR52044-0345  
52044-2145  
KP200TA20L  
S3B-EH**I VIDEO ASSY  
SEMICONDUCTORS**E IC301  
Q302  
Q301  
Q303  
D301, D302, D305, D306NJM2595M  
2SA1515  
2SC3377  
2SC5938A  
1SS355D307  
D303, D304UDZS5R1(B)  
UDZS6R2(B)**CAPACITORS**C347  
C307-C310, C312, C314, C338  
C1360, C302  
C339, C340  
C304-C306CCSRCH470J50  
CEAT470M25  
CKSRYB103K50  
CKSRYB104K25  
CKSRYB221K50

C333

CKSRYB331K50

**Mark No. Description**

C311, C313

**Part No.**

CKSRYB473K25

**RESISTORS**△ R313, R316  
Other ResistorsRS3LMF560J  
RS1/16S###J**OTHERS**CN303 13P CONNECTOR  
JA305 PIN JACK(4P)YELLOW  
CN302 7P SOCKET  
390 PCB BINDER  
CN306 2P PIN JACK52044-1345  
AKB7100  
KP200TA7L  
VEF1040  
XKB3041**J 5.1CH ASSY  
CAPACITORS**C342-C345  
C321, C324, C331, C332  
C1364  
C316  
C317, C318, C325, C326CCSRCH101J50  
CEAT4R7M50  
CKSRYB102K50  
CKSRYB103K50  
CKSRYB221K50**RESISTORS**

All Resistors

RS1/16S###J

**OTHERS**CN307 8P CONNECTOR  
CN309 PIN JACK (4P)52044-0845  
XKB3035**M FRONT DISPLAY ASSY  
SEMICONDUCTORS**IC402  
IC401  
Q484  
Q442  
D403GP1UM27XK0VF  
PE5487A  
2SA1037K  
DTC124EK  
1SS355D401  
D500DAN202K  
SLI-343DCW**COILS AND FILTERS**

L401

LFEA2R2J

**CAPACITORS**C482, C483  
C481  
C442  
C403  
C412CCSRCH221J50  
CCSRCH471J50  
CEAL470M10  
CEAT221M6R3  
CEAT470M50C415, C454  
C401, C402, C410, C411, C419  
C441  
C418, C421  
C420 (220uF/35V)CKSRYB102K50  
CKSRYB103K50  
CKSRYB103K50  
CKSRYB104K16  
XCH3011**RESISTORS**

All Resistors

RS1/16S###J

**OTHERS**471 CABLE HOLDER (3P)  
404 CABLE HOLDER (7P)  
CN401 17P CONNECTOR  
CN402 9P CONNECTOR  
V401 FL TUBE51063-0305  
51063-0705  
52044-1745  
52492-0920  
XAV3025

X401 CERAMIC RESONATOR

VSS1142



5	6	
Mark No.	Description	Part No.

(5 MHz)

## **N** R.ENCODER ASSY SEMICONDUCTORS

D512 SLR-343BBT

### SWITCHES AND RELAYS

S511 VSG1024  
S513 ROTARY ENCODER XSX3005  
S512 ROTARY ENCODER XSX3006

### RESISTORS

All Resistors RS1/16S###J

### OTHERS

511 CABLE HOLDER (7P) 51063-0705

## **O** POWER SW & KEY ASSY SWITCHES AND RELAYS

S501-S505 VSG1024

### RESISTORS

All Resistors RS1/16S###J

### OTHERS

501 CABLE HOLDER (3P) 51063-0305

## **P** FRONT KEY ASSY SWITCHES AND RELAYS

S451-S470 VSG1024

### CAPACITORS

C451-C453 CKSRYB102K50

### RESISTORS

All Resistors RS1/16S###J

## **Q** TRANS4 ASSY SEMICONDUCTORS

△ IC891, IC892 PROTECTOR (800mA) AEK7008  
△ D891 S1WB(A)60SD

### CAPACITORS

C891, C892 CEAT471M35

### OTHERS

CN891 3P CONNECTOR 52045-0345

## **R** H.P. ASSY SEMICONDUCTORS

Q1551, Q1552 2SC5938A

### CAPACITORS

C1554, C1557 CCSRCH471J50  
C1553, C1556 CKSRYB103K50  
C1555, C1558 CKSRYB104K16  
C1551, C1552 CKSRYB223K50

7	8	
Mark No.	Description	Part No.

### RESISTORS

△ R1553, R1554 RS1LMF151J  
△ R1551, R1552 RS2LMF331J  
Other Resistors RS1/16S###J

### OTHERS

1551 6P CABLE HOLDER 51048-0600  
JA1551 HEADPHONE JACK RKB1014  
KN1551 EARTH METAL FITTING VNF1084

## **T** DIGITAL INPUT ASSY COILS AND FILTERS

F1901 CHIP BEAD DTF1067

### CAPACITORS

C1907 CCSRCH101J50  
C1904 CEAL101M10  
C1908 CKSRYB102K50  
C1903, C1906 CKSRYB103K50  
C1900, C1905 CKSRYB104K25

### RESISTORS

All Resistors RS1/16S###J

### OTHERS

JA1900 OPT. LINK IN GP1FAV51RKBF  
100 PCB BINDER VEF1040  
CN1901 10P CONNECTOR VKN1186  
KN1901 WRAPPING TERMINAL VNF1084

## **V** FRONT INPUT ASSY SEMICONDUCTORS

IC951 UPC4570G2  
D951-D953 UDZS5R1(B)

### CAPACITORS

C960 CCSRCH101J50  
C965 CCSRCH330J50  
C952, C959 CCSRCH471J50  
C956, C958, C963, C966, C967 CEAT100M50  
C953, C957, C962 CKSRYB103K50  
C950, C954 CKSRYB104K25

### RESISTORS

All Resistors RS1/16S###J

### OTHERS

CN952 CONNECTOR 5P 52045-0545  
JA952 JACK RKN1004  
KN951 WRAPPING TERMINAL VNF1084

## **X** FM/AM TUNER UNIT

FM/AM TUNER UNIT has no service part.

## 6. ADJUSTMENT

There is no information to be shown in this chapter.

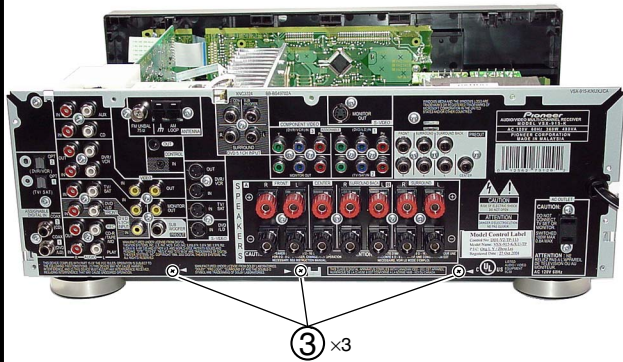
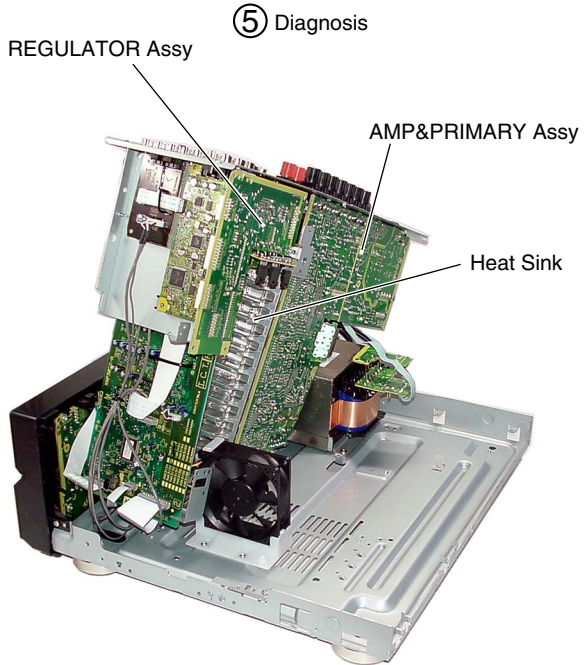
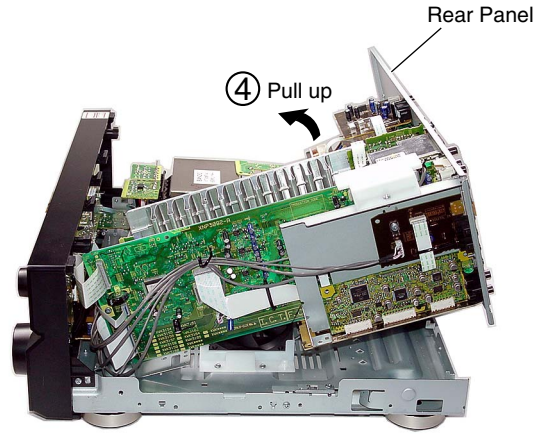
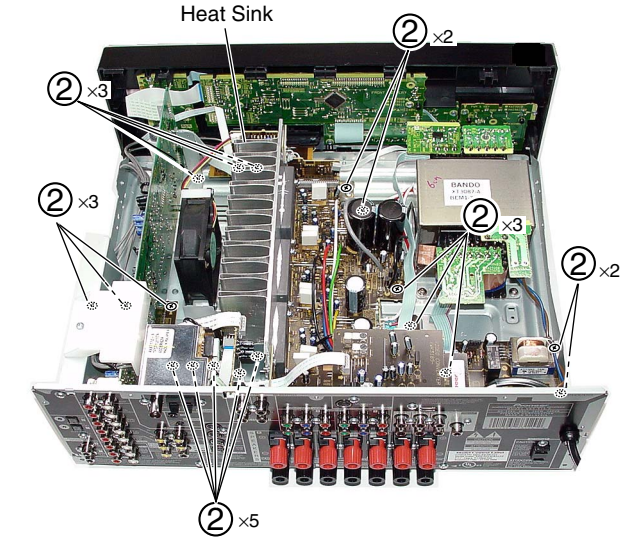
# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 DISASSEMBLY

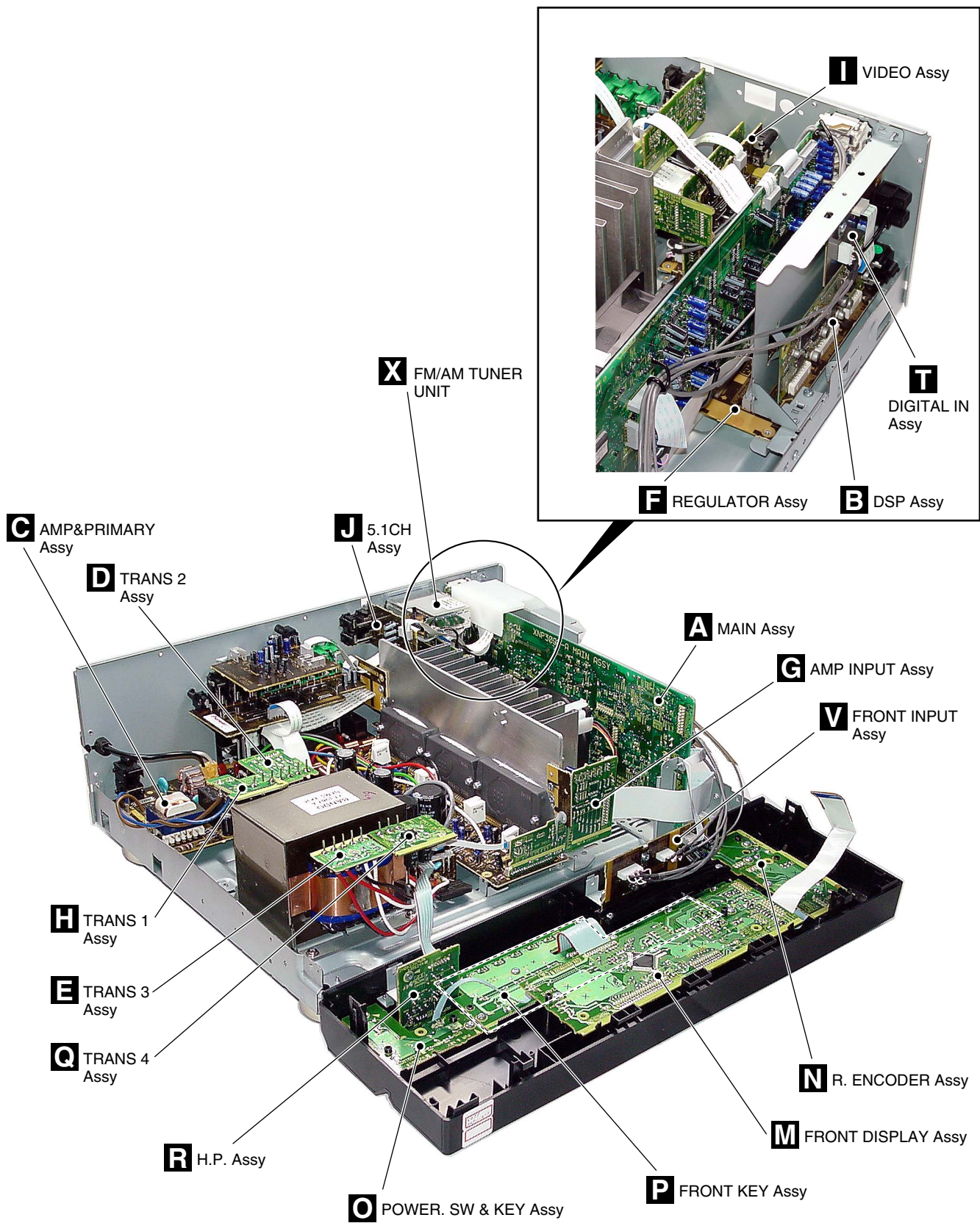
**Note:** Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

① Remove the top cover (seven screws).



**Note :** The unit does not operate when the screws of Speaker Terminal are taken off from Rear Panel.

**Heat-sink caution in the disassembling :** Because Heat-sink becomes hot, please pay attention.





# 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.

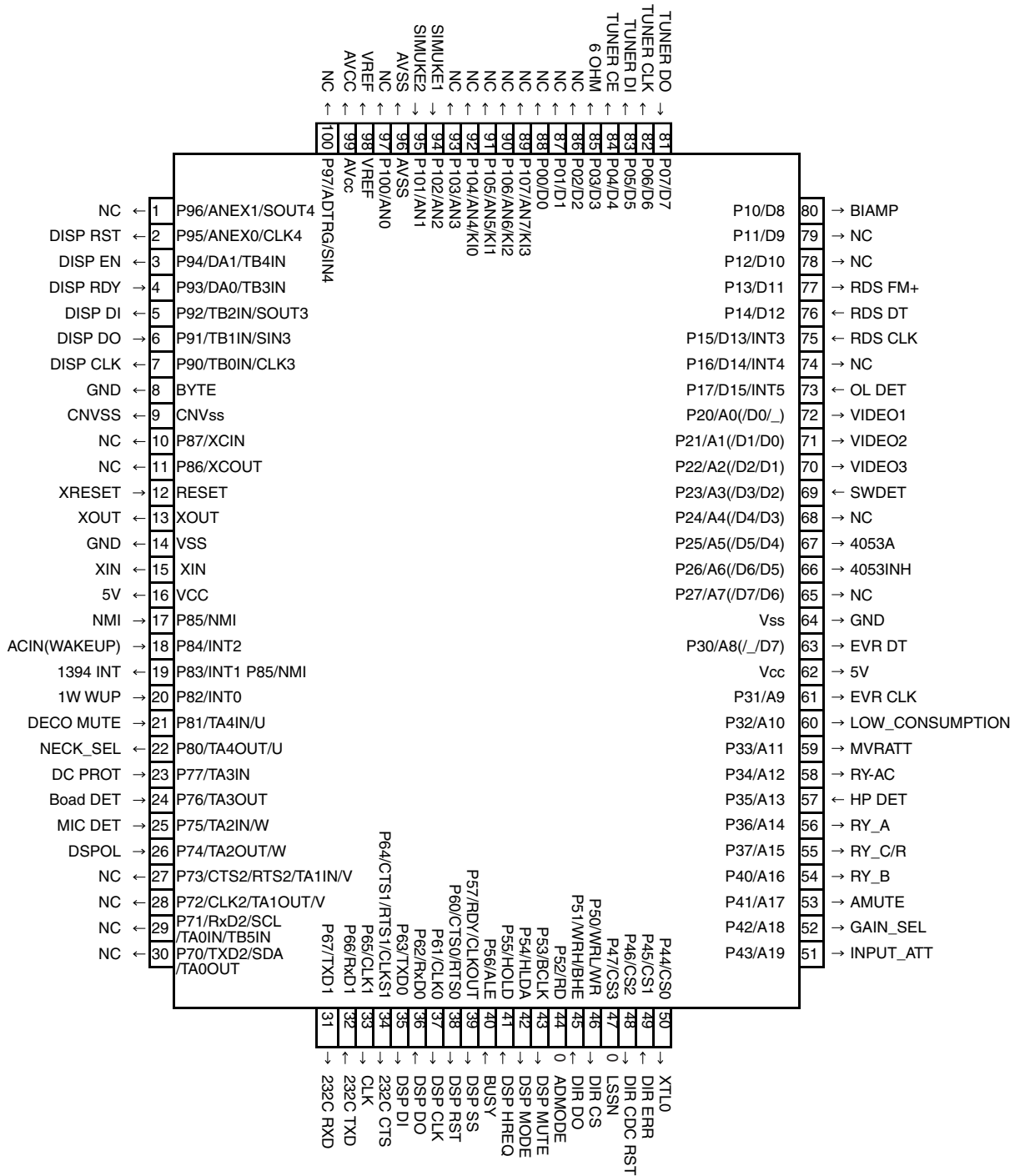
### List of IC

PEG094B, PE5487A

### PEG094B (MAIN ASSY : IC9001)

#### System Control MCU

#### Pin Arrangement (Top View)



## • Pin Function

No.	Port	Pin Name	I/O	Pin Function
1	P96/ANEX1/SOUT4	NC	I/O	
2	P95/ANEX0/CLK4	DISP RST	I/O	Reset signal to display u-com
3	P94/DA1/TB4IN	DISP EN	I/O	Enable signal to display u-com
4	P93/DA0/TB3IN	DISP RDY	I/O	Ready signal from display u-com
5	P92/TB2IN/SOUT3	DISP DI	I/O	Data out to display u-com
6	P91/TB1IN/SIN3	DISP DO	I/O	Data input from display u-com
7	P90/TB0IN/CLK3	DISP CLK	I/O	Clock signal to display u-com
8	BYTE	GND		
9	CNVss	CNVSS		
10	P87/XCIN	NC	I/O	
11	P86/XCOUT	NC	I/O	
12	RESET	XRESET		
13	XOUT	XOUT		
14	VSS	GND		
15	XIN	XIN		
16	VCC	5V		
17	P85/NMI	NM	I	No use
18	P84/INT2	ACIN(WAKEUP)	I/O	AC pulse input
19	P83/INT1 P85/NMI	1394 INT	I/O	No use (Standby for 1394)
20	P82/INT0	1W WUP	I/O	Wake up signal from display u-com
21	P81/TA4IN/U	DECO MUTE	I/O	1st DSP detect port
22	P80/TA4OUT/U	NECK_SEL	I/O	5.1ch, surround mode and A+B Stereo : H / Stereo : L
23	P77/TA3IN	DC PROT	I/O	AMP DC detect
24	P76/TA3OUT	Boad DET	I/O	AMP INPUT ASSY detect, H : detected
25	P75/TA2IN/W	MIC DET	I/O	MIC detect (VSX-D914 only), L : detect
26	P74/TA2OUT/W	DSP OL	I/O	ANALOG OVER LOAD detect, H : detected
27	P73/CTS2/RTS2/TA1IN/V	NC(1394 CS)	I/O	No use (Standby for 1394)
28	P72/CLK2/TA1OUT/V	NC(1394 CK)	I/O	No use (Standby for 1394)
29	P71/RxD2/SCL/TA0IN/TB5IN	NC(1394 DO)	I/O	No use (Standby for 1394)
30	P70/TXD2/SDA/TA0OUT	NC(1394 DI)	I/O	No use (Standby for 1394)
31	P67/TXD1	232C RXD	I/O	For rewriting 232C (Data output)
32	P66/RxD1	232C TXD	I/O	For rewriting 232C (Data input)
33	P65/CLK1	CLK	I/O	It is necessary when writing for JIG
34	P64/CTS1/RTS1/CLKS1	232C CTS	I/O	For rewriting 232C (Admit communication)
35	P63/TXD0	DSP DI	I/O	Data output signal for communication with DSP and DIR
36	P62/RxD0	DSP DO	I/O	Data input signal for communication with DSP
37	P61/CLK0	DSP CLK	I/O	Clock signal for communication with DSP and DIR
38	P60/CTS0/RTS0	DSP RST	I/O	Reset signal for DSP
39	P57/RDY/CLKOUT	DSP SS	I/O	Srobe select signal to DSP
40	P56/ALE	BUSY	I/O	Use it in MCACC
41	P55/HOLD	DSP HREQ	I/O	DSP error detect signal
42	P54/HLDA	DSP MODE	I/O	Mode select of DSP (ROM/RAM)
43	P53/BCLK	DSP MUTE	I/O	DSP ASSY mute
44	P52/RD	ADMODE	0	DSP ASSY
45	P51/WRH/BHE	DIR DO	I/O	Data input signal for communication with DIR/DAC
46	P50/WRL/WR	DIR CS	I/O	Chip select signal for communication with DIR/DAC
47	P47/CS3	LSSN	0	DSP ASSY
48	P46/CS2	DIR CDC RST	I/O	Reset signal for DIR CODEC
49	P45/CS1	DIR ERR	I/O	lock/unlock signal
50	P44/CS0	XTL0	I/O	DIR X'tal change

## • Pin Function

A

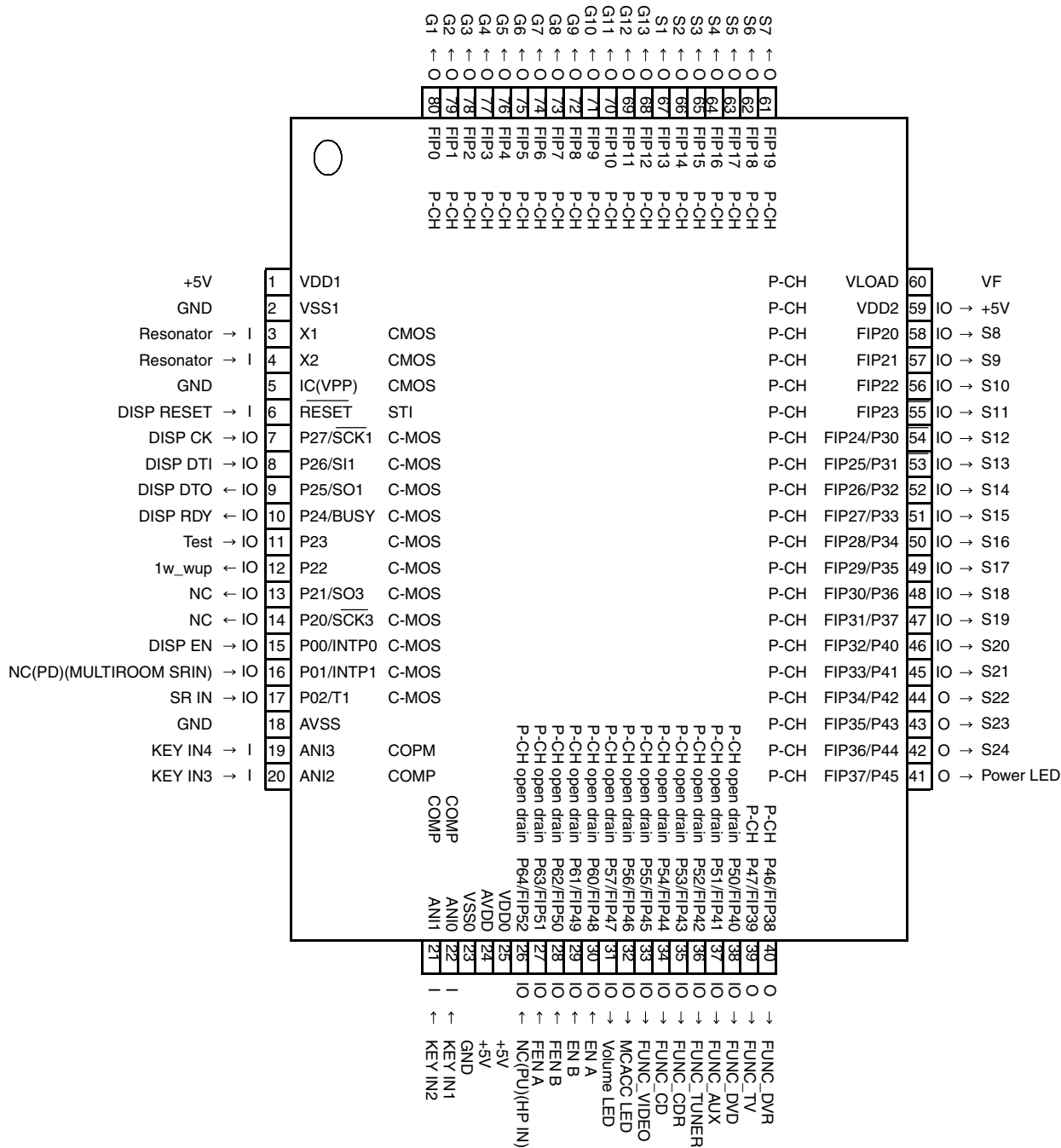
No.	Port	Pin Name	I/O	Pin Function
51	P43/A19	INPUT_ATT	I/O	Analog input ATT(H : ATT ON)
52	P42/A18	GAIN_SEL	I/O	Gain select (5.1ch and Stereo of analog input : H )
53	P41/A17	AMUTE	I/O	System mute
54	P40/A16	RY_B	I/O	Speaker B relay ON/OFF
55	P37/A15	RY_C/R	I/O	Rear/Center Speaker relay ON/OFF
56	P36/A14	RY_A	I/O	Speaker A relay ON/OFF
57	P35/A13	HP DET	I/O	HP detect, H : detected
58	P34/A12	RY-AC	I/O	AC relay ON/OFF
59	P33/A11	MVRATT	I/O	ATT control of master volume (less than -15dB : L)
60	P32/A10	LOW_CONSUMPTION	I/O	If stop mode, port L, else H
61	P31/A9	EVR CLK	I/O	Clock signal for Function and E-volume
62	Vcc	5V		
63	P30/A8(/_D7)	EVR DT	I/O	Data signal for Function and E-volume
64	Vss	GND		
65	P27/A7(/D7/D6)	NC	I/O	
66	P26/A6(/D6/D5)	4053INH	I/O	Component terminal control
67	P25/A5(/D5/D4)	4053A	I/O	Component terminal control
68	P24/A4(/D4/D3)	NC	I/O	
69	P23/A3(/D3/D2)	SWDET	I/O	SWSP detect
70	P22/A2(/D2/D1)	VIDEO3	I/O	SWSP detect
71	P21/A1(/D1/D0)	VIDEO2	I/O	SWSP detect
72	P20/A0(/D0/_)	VIDEO1	I/O	NJM2296 control (VIDEO input select)
73	P17/D15/INT5	OL DET	I/O	Detect overload of AMP
74	P16/D14/INT4	NC	I/O	
75	P15/D13/INT3	RDS CLK	I/O	Clock input signal for RDS module
76	P14/D12 RDS	DT	I/O	Data input signal for RDS module
77	P13/D11 RDS	FM+	I/O	Power ON/OFF of RDS decoder
78	P12/D10	NC	I/O	
79	P11/D9	NC	I/O	
80	P10/D8	BIAMP	I/O	At the time of BiAMP: L and time of Normal:H
81	P07/D7	TUNER DO	I/O	Data input signal for tuner control
82	P06/D6	TUNER CLK	I/O	Clock signal for tuner control
83	P05/D5	TUNER DI	I/O	Data output signal for tuner control
84	P04/D4	TUNER CE	I/O	Chip select signal for tuner control
85	P03/D3	6 OHM	I/O	If stop mode, port L, else L/H depends on selection.
86	P02/D2	NC	I/O	
87	P01/D1	NC	I/O	
88	P00/D0	NC	I/O	
89	P107/AN7/KI3	NC	I/O	
90	P106/AN6/KI2	NC	I/O	
91	P105/AN5/KI1	NC	I/O	
92	P104/AN4/KI0	NC	I/O	
93	P103/AN3	NC	I/O	
94	P102/AN2	SIMUKE1	I/O	Input 1 to switch region
95	P101/AN1	SIMUKE2	I/O	Input 2 to switch region
96	AVSS	AVSS		Connect to VSS
97	P100/AN0	NC	I/O	
98	VREF	VREF		Connect to VCC
99	AVcc	AVCC		Connect to VCC
100	P97/ADTRG/SIN4	NC	I/O	

F

# PE5487A (FRONT DISPLAY ASSY : IC401)

• System Control MCU

## Pin Arrangement (Top View)



## • Pin Function

No.	Port	Pin Name	I/O	Pin Function
1	VDD1	+5V	-	positive power supply
2	VSS1	GND	-	ground potential
3	X1	Resonator	I	crystal connection for system clock oscillation
4	X2	Resonator	-	crystal connection for system clock oscillation
5	IC(VPP)	GND	-	
6	RESET	DISP RESET	I	receive reset signal from main u-com
7	P27/SCK1	DISP CK	I/O	clock signal from main u-com
8	P26/SI1	DISP DTI	I/O	datain from main u-com
9	P25/SO1	DISP DTO	I/O	data out to main u-com
10	P24/BUSY	DISP RDY	I/O	ready signal from main u-com
11	P23	Test	I/O	test mode input for checker
12	P22	1w_wup	I/O	output wakeup signal to main u-com
13	P21/SO3	NC	I/O	
14	P20/SCK3	NC	I/O	
15	P00/INTP0	DISP EN	I/O	enable signal from main u-com
16	P01/INTP1	NC	I/O	
17	P02/T1	SR IN	I/O	remote control signal input from main room
18	AVSS	GND	-	ground potential for A/D converter
19	ANI3	KEY IN4	I	
20	ANI2	KEY IN3	I	
21	ANI1	KEY IN2	I	
22	ANI0	KEY IN1	I	
23	VSS0	GND	-	ground potential for ports
24	AVDD	+5V	-	analog power voltage input to A/D converter
25	VDD0	+5V	-	positive power supply to ports
26	P64/FIP52	NC	I/O	
27	P63/FIP51	FEN A	I/O	MULTI JOG(Right)
28	P62/FIP50	FEN B	I/O	MULTI JOG(Left)
29	P61/FIP49	EN B	I/O	VOLUME JOG1(-)
30	P60/FIP48	EN A	I/O	VOLUME JOG1(+)
31	P57/FIP47	VOLUME LED	I/O	VOLUME LED Output
32	P56/FIP46	MCACC LED	I/O	MCACC LED Output
33	P55/FIP45	FUNC_VIDEO	I/O	FUNCLED Output
34	P54/FIP44	FUNC_CD	I/O	FUNCLED Output
35	P53/FIP43	FUNC_CDR	I/O	FUNCLED Output
36	P52/FIP42	FUNC_TUNER	I/O	FUNCLED Output
37	P51/FIP41	FUNC_AUX	I/O	FUNCLED Output
38	P50/FIP40	FUNC_DVD	I/O	FUNCLED Output
39	P47/FIP39	FUNC_TV	O	FUNCLED Output
40	P46/FIP38	FUNC_DVR	O	FUNCLED Output



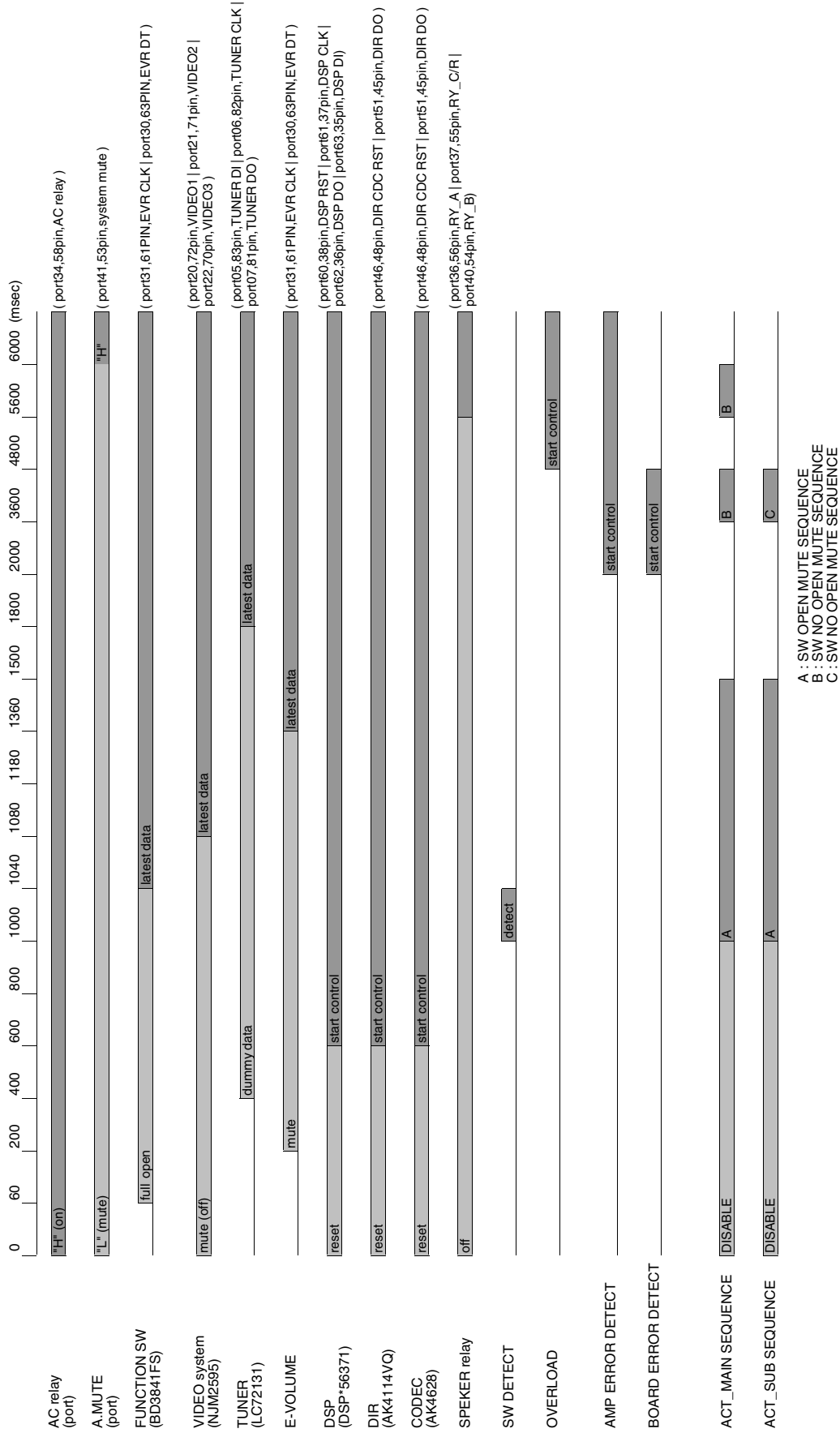
• Pin Function

No.	Port	Pin Name	I/O	Pin Function
41	FIP37/P45	POWER LED	O	Power On LED Output
42	FIP36/P44	S24	O	Display
42	FIP35/P43	S23	O	Display
44	FIP34/P42	S22	O	Display
45	FIP33/P41	S21	O	Display
46	FIP32/P40	S20	O	Display
47	FIP31/P37	S19	O	Display
48	FIP30/P36	S18	O	Display
49	FIP29/P35	S17	O	Display
50	FIP28/P34	S16	O	Display
51	FIP27/P33	S15	O	Display
52	FIP26/P32	S14	O	Display
53	FIP25/P31	S13	O	Display
54	FIP24/P30	S12	O	Display
55	FIP23	S11	O	Display
56	FIP22	S10	O	Display
57	FIP21	S9	O	Display
58	FIP20	S8	O	Display
59	VDD2	+5V	-	positive power supply to FIP controller.
60	VLOAD	VF	-	pull down resistor connection of FIP controller
61	FIP19	S7	O	Display
62	FIP18	S6	O	Display
63	FIP17	S5	O	Display
64	FIP16	S4	O	Display
65	FIP15	S3	O	Display
66	FIP14	S2	O	Display
67	FIP13	S1	O	Display
68	FIP12	G13	O	Display
69	FIP11	G12	O	Display
70	FIP10	G11	O	Display
71	FIP9	G10	O	Display
72	FIP8	G9	O	Display
73	FIP7	G8	O	Display
74	FIP6	G7	O	Display
75	FIP5	G6	O	Display
76	FIP4	G5	O	Display
77	FIP3	G4	O	Display
78	FIP2	G3	O	Display
79	FIP1	G2	O	Display
80	FIP0	G1	O	Display

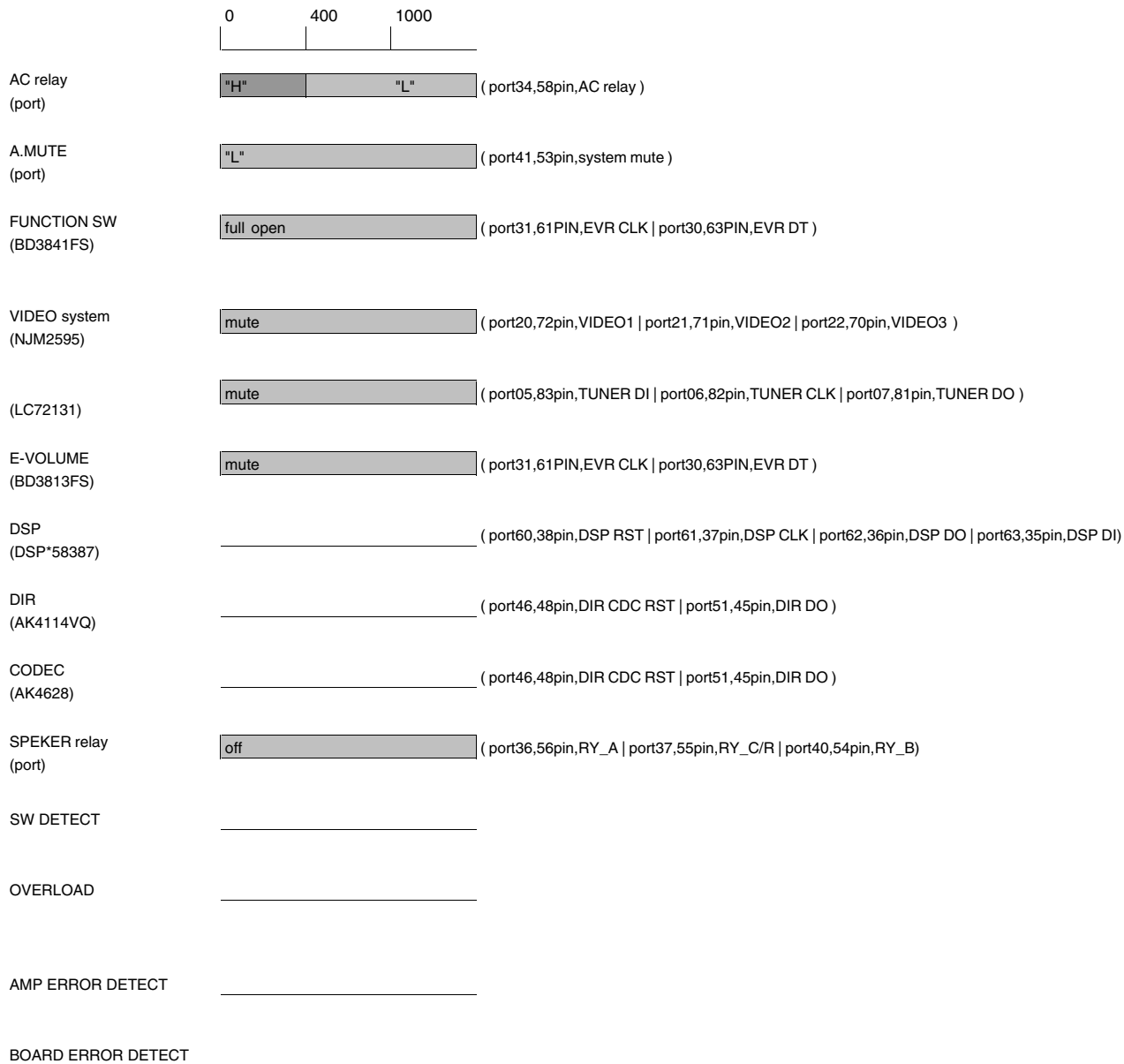
# 7.3 EXPLANATION

## 7.3.1 POWER ON AND OFF INITIAL TIMING CHART

**POWER ON INITIAL TIMING CHART**



### POWER OFF INITIAL TIMING CHART

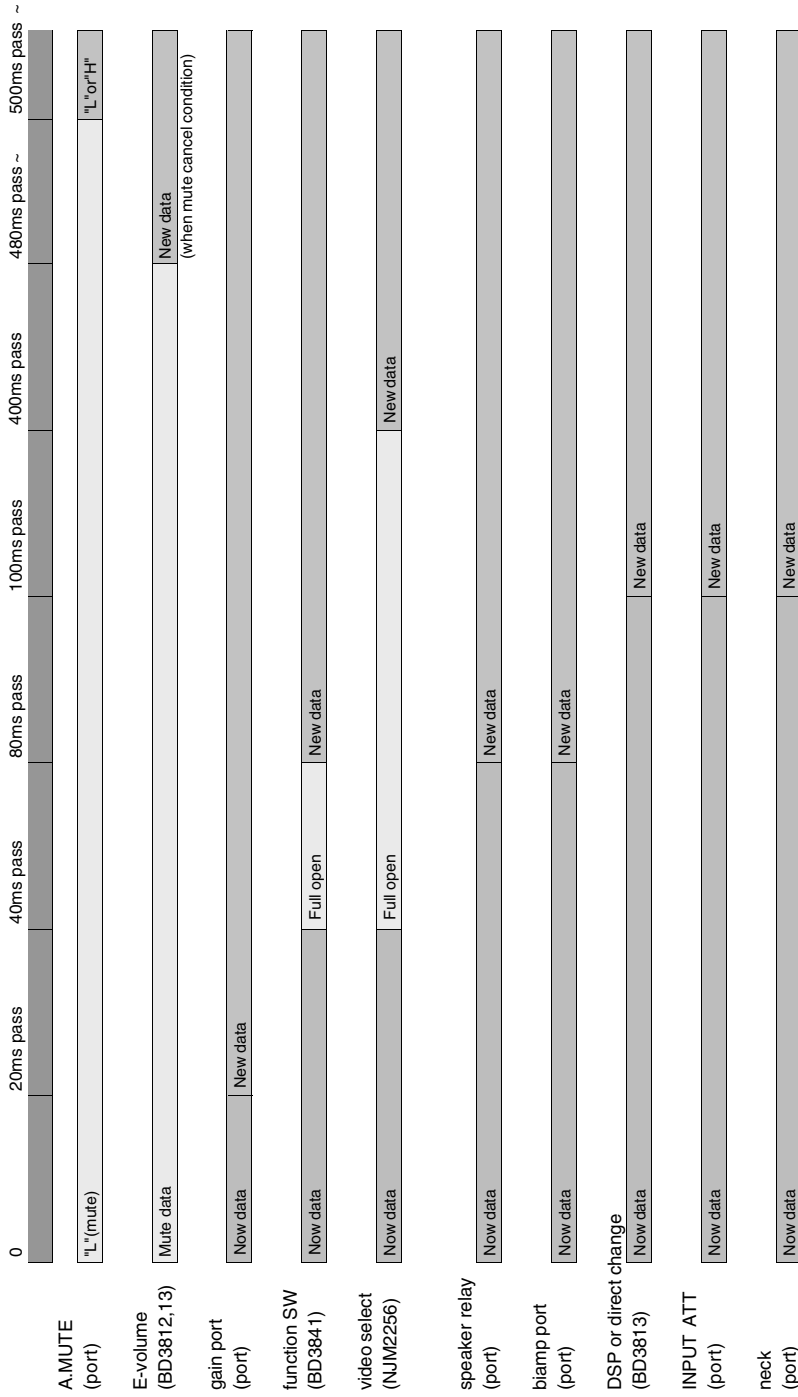


A  
B  
C  
D  
E  
F

# 7.3.2 IC DATA TRANSMISSION TIMING CHART

## IC data transmission timing chart

1. When function change



condition of mute cancel (system mute & E-volume mute)

- 1) when tuner mute during Tuner function
- 2) when communicate to DSP
- 3) when initial processing
- 4) when detect trouble of AMP DC
- 5) when detect overload of AMP
- 6) when Power off
- 7) when muting by key input

2. When except function change

	0	20ms pass	40ms pass	60ms pass	80ms pass	100ms pass	120ms pass ~
A.MUTE (port)	"L" (mute)					"L" or "H"	
E-volume (BD3812,13)	Mute data					New data (when mute cancel condition)	
gain port (port)		New data					
speaker relay (port)			New data				
biamp port (port)				New data			
DSP or direct change (BD3813)					New data		
INPUT ATT (port)						New data	
neck (port)							New data

condition of mute cancel (system mute & E-volume mute)

- 1) when tuner mute during Tuner function
- 2) when communicate to DSP
- 3) when initial processing
- 4) when detect trouble of AMP DC
- 5) when detect overload of AMP
- 6) when Power off
- 7) when muting by key input

1

2

3

4

A  
B  
C  
D  
E  
F

3. When except function change (case 2)

	0	20ms pass	40ms pass	80ms pass	100ms pass	400ms pass	480ms pass ~	500ms pass ~	520ms pass ~
A. MUTE (port)	"L" (mute)								
E- volume (BD3812, 13)	Mute data								
gain port (port)	New data								
function SW (BD3841)	New data								
speaker relay (port)	New data								
blamp port (port)	New data								
DSP or direct change (BD3813)	New data								
INPUT ATT (port)	New data								
neck (port)	New data								

(1) When standard mode change.  
 (2) When listening mode change.  
 (3) When surround back ch change.  
 (4) When "dolby\_set\_with\_mute" function call.

70

VSX-515-K

1

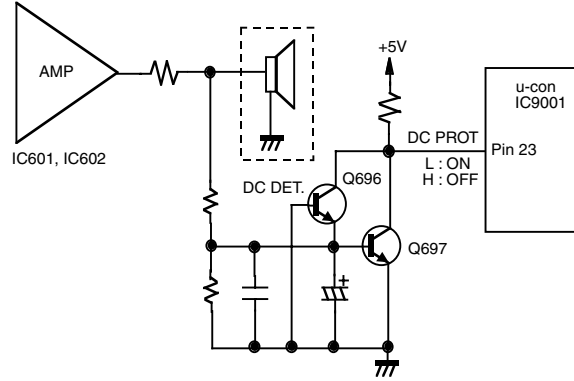
2

3

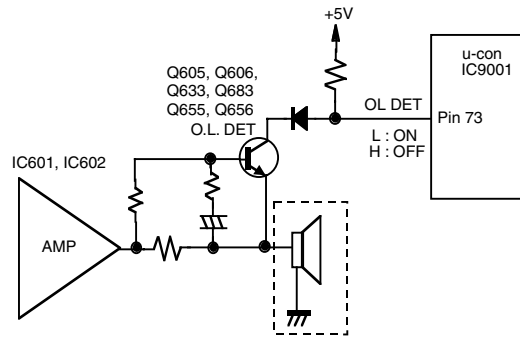
4

# 7.3.3 DETECTION CIRCUIT

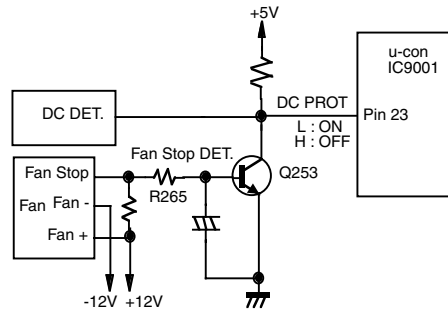
1. DC Detection Circuit Diagram:



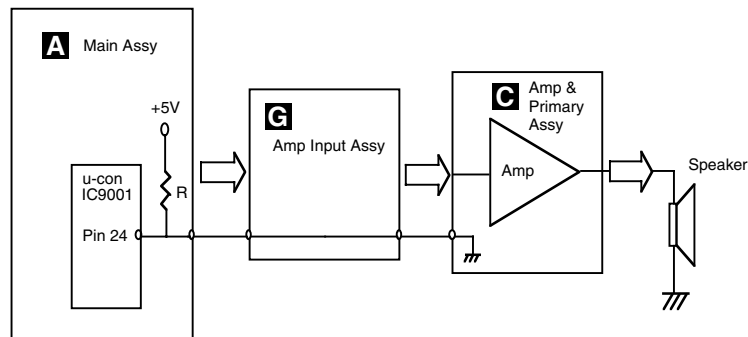
2. Overload Detection Circuit Diagram:



3. Fan Stop Protection Circuit Diagram:



4. PCB Board Protection Circuit Diagram

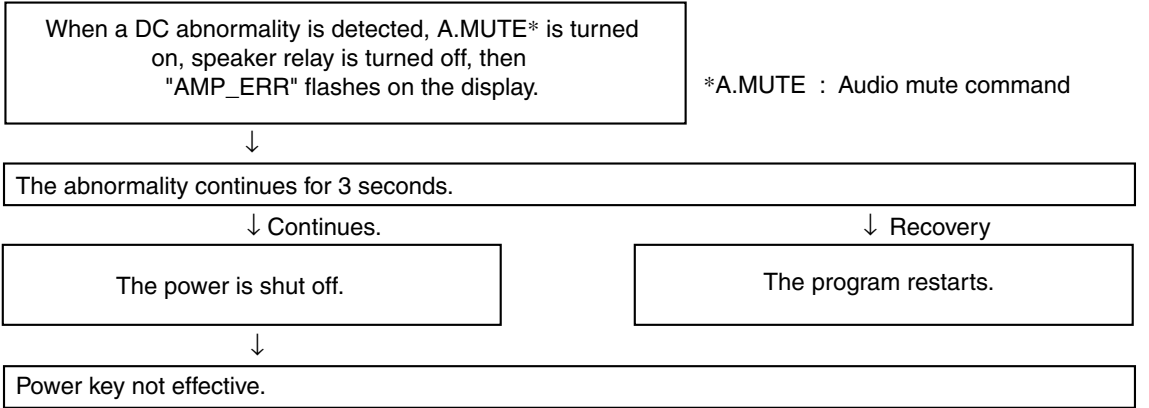


## 7.3.4 AMPLIFIER SYSTEM PROTECTION OPERATION SPECIFICATION

### 1. DC-abnormality detection

DC detection is only enabled 2 seconds after power-on.  
If there is a fault in the power amplifier or a high-level signal lower than 5 Hz is input, the DC\_DET port becomes "L".  
If the "L" is detected, the microprocessor will perform as following flow chart.

In the case of simultaneous detection with the overload protection circuit, DC-abnormality detection is performed preferentially to overload detection.



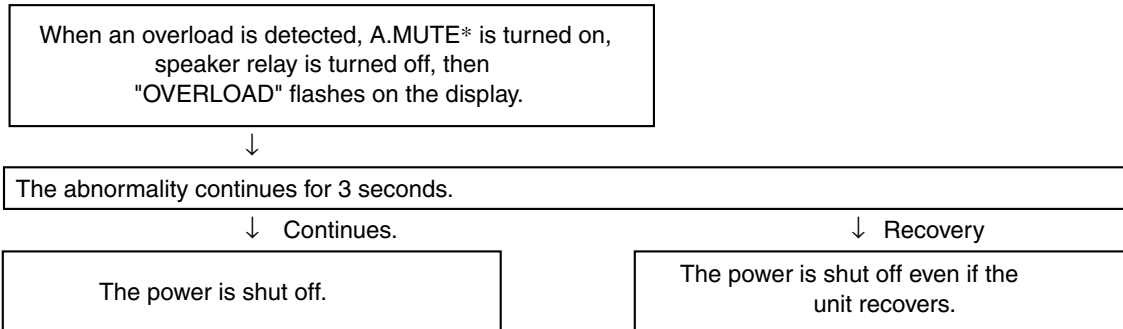
\*A.MUTE : Audio mute command

However, when the following keys are pushed so that the key input of a line and the service can be carried out, power can be on. (If don't push these key, need to wait 1 min then power can be on again.)

- ① TESTMODE ON (A55F+A55F)
- ② When power off, push FRONT ENTER key + ADVANCED SURROUND key continuously 2sec.  
(②: When a DC abnormality is detected and the power is shut off.)

### 2. Overload detection

If the speaker terminals are short-circuited or low-load driving is detected, the OL\_DET port becomes "L".  
If the "L" is detected, the microprocessor will perform as following flow chart.



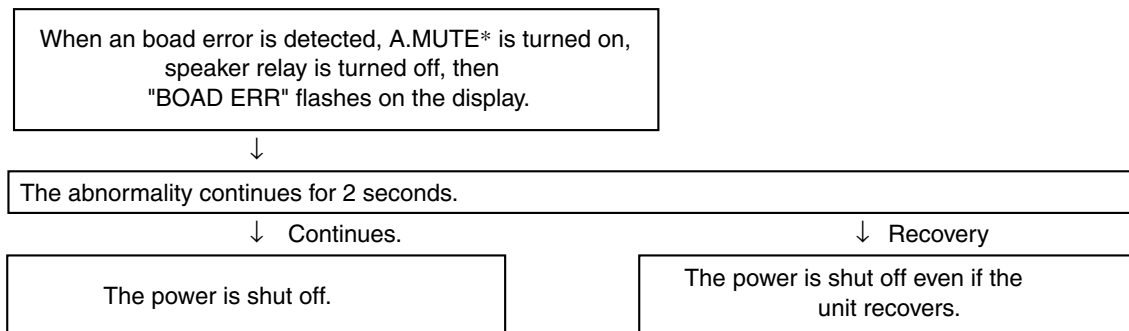


### 3. Board detection

If the board connection from Main Ass'y to Amp&Primary Ass'y is interrupted, the BOARD\_DET port becomes "H".

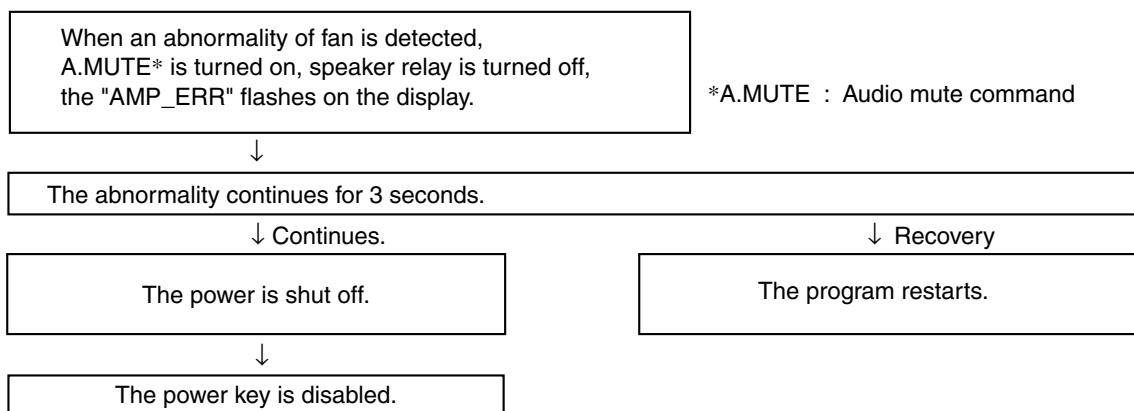
If the "H" is detected, the microprocessor will perform as following flow chart.

In the case of simultaneous detection with the overload protection circuit, Board detection is performed preferentially to DC-abnormality detection and Overload detection.



### 4. Fan stop detection operation flow in the DC abnormality detection

If the fan is forcibly stopped, the 'DC PROT' port becomes "L". Then an abnormality of fan is detected.



However, when the following keys are pushed so that the key input of a line and the service can be carried out, power can be on.

- ① TESTMODE ON (A55F+A55F)
- ② When power off, push FRONT ENTER key + ADVANCED SURROUND key continuously 2sec.  
(Effective, only when power-off is carried out by DC detection)

## 7.3.5 AMPLIFIER FAILURE DIAGNOSIS FLOW CHART

### ■ Amplifier failure diagnosis flow chart

When DC detection is activated ("AMP\_ERR" flashes on the display), failure (damage) of the power amplifier section is considered.

As DC detection and fan stop protection circuits commonly use same abnormality detection port in microprocessor, please make sure that the operation of fan motor is in normal condition before proceeding to the troubleshooting of amplifier.

#### **Caution:**

When release the lock state of power key before repair, please be careful because there is the possibility that more damages will occur when turns on the power once again!

- According to a symptom, perform the following confirmation beforehand.

- 1) Is the operation of fan motor in normal condition?

- 2) Are there any Fuses and IC protectors open?

- 3) After turn on the power, confirm that the supply voltage of the point that can be measured is appropriate.

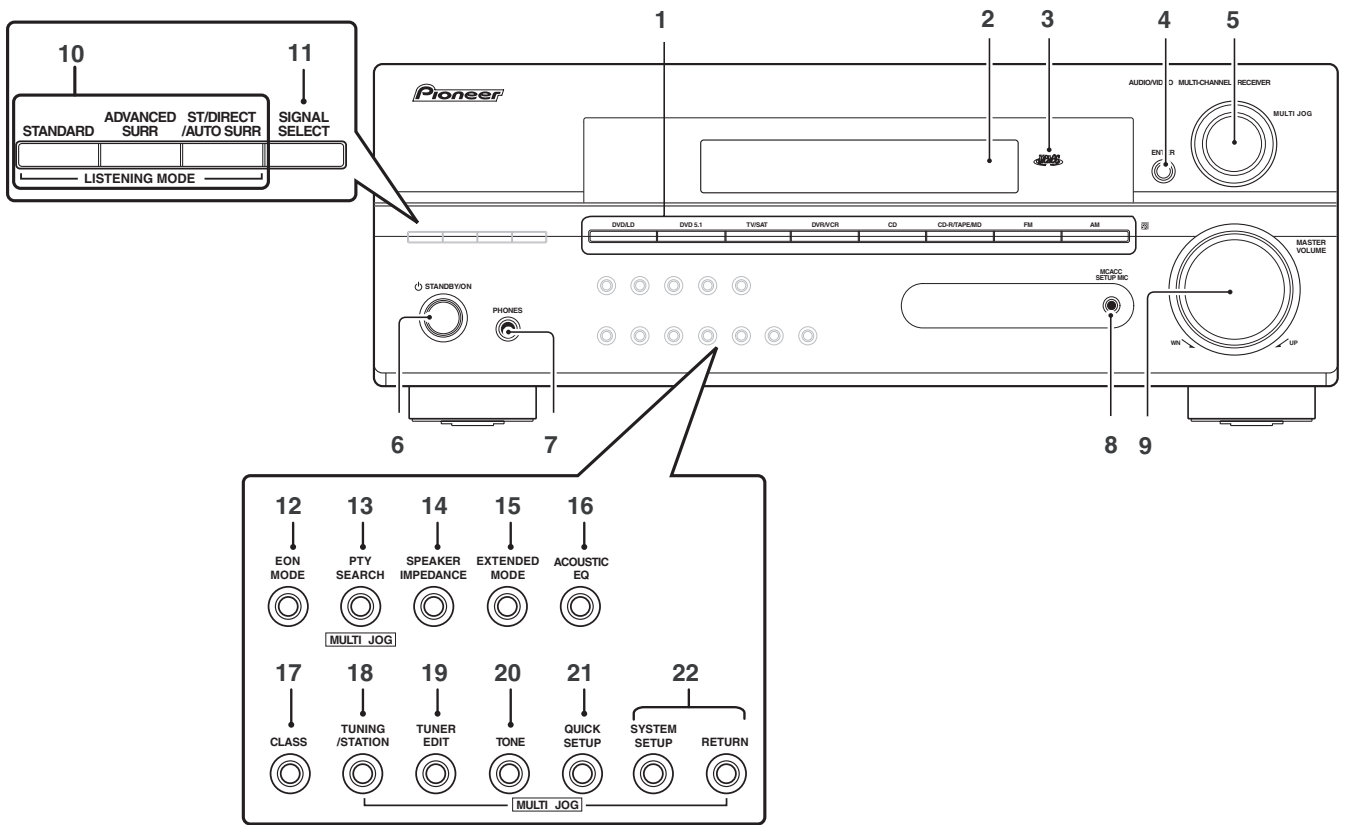
- 4) Whether the voltage of pin3 of IC601 or IC602 is equal to (VL-0.7V). If not (eg, equal to VH), then change the corresponding power pack IC601 or IC602.

- 5) Furthermore, check the output DC voltage of each channel of power pack IC601 and IC602 to limit the failure channel and identify the defect power pack.

- After identify the failure channel, check that each part is not damaged (resistor, diode... etc. value / open / short)

# 8. PANEL FACILITIES

## Front panel



### 1 Input select buttons

Press to select an input source.

### 2 Character display

See Display.

### 3 MCACC indicator

Lights when Acoustic Calibration EQ is on (Acoustic Calibration EQ is automatically set to **ALL CH ADJUST** after the Auto MCACC Setup or EQ Auto Setup is complete).

### 4 ENTER

### 5 MULTI JOG dial

The **MULTI JOG** dial performs a number of tasks. Use it to select options after pressing the designated **MULTI JOG** buttons.

### 6 STANDBY/ON

Switches the receiver between on and standby.

### 7 PHONES jack

Use to connect headphones. When the headphones are connected, there is no sound output from the speakers.

**8 MCACC SETUP MIC jack**

Use to connect the supplied microphone.

**9 MASTER VOLUME****10 LISTENING MODE buttons****STANDARD**

Press for Standard decoding and to switch between the various Pro Logic II and Neo:6 options.

**ADVANCED SURROUND**

Use to switch between the various surround modes.

**ST/DIRECT/AUTO SURR**

Switches between direct and stereo playback. Direct playback bypasses the tone controls and channel levels for the most accurate reproduction of a source.

– Selects the Auto

Surround mode.

**11 SIGNAL SELECT**

Use to select an input signal .

**12 EON MODE**

Use to search for programs that are broadcasting traffic or news information.

**13 PTY SEARCH**

Use this button to search for RDS program types.

**14 SPEAKER IMPEDANCE**

Use to change the impedance setting.

**15 EXTENDED MODE**

Selects a surround back channel option or (when the surround back speakers are not available) the Virtual Surround Back (VSB) mode.

**16 ACOUSTIC EQ**

Press to select an Acoustic Calibration EQ setting .

**17 CLASS**

Switches between the three banks (classes) of station presets.

**18 TUNING / STATION buttons**

Selects the frequency and station presets when using the tuner.

**19 TUNER EDIT**

Press to memorize and name a station for recall.

**20 TONE**

Press this button to access the bass and treble controls, which you can then adjust with the **MULTI JOG** dial .

**21 QUICK SETUP**

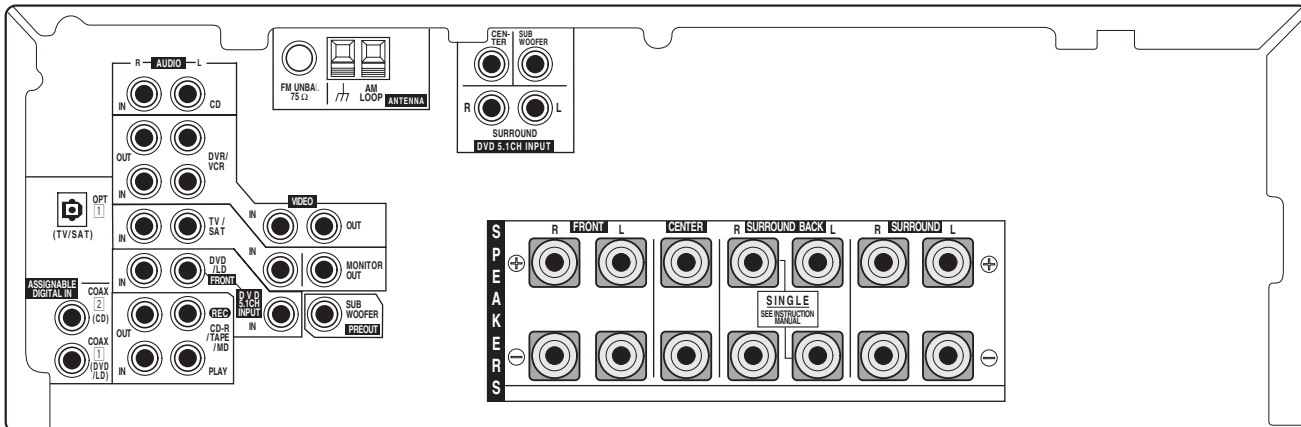
See Using the Quick Setup.

**22 System Setup menu controls****SYSTEM SETUP**

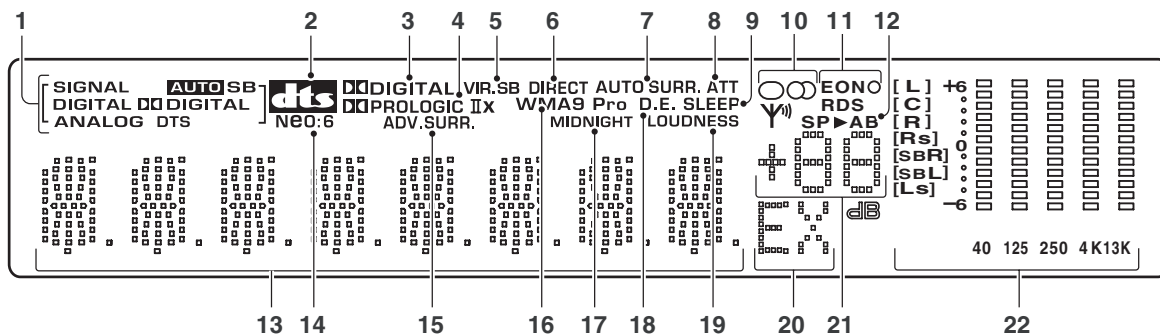
Use with the **MULTI JOG** dial to access the System Setup menu.

**RETURN**

Press to confirm and exit the current menu screen.

**Rear panel**

## Display



### 1 SIGNAL SELECT indicators

Lights to indicate the type of input signal:

**AUTO** - Lights when **AUTO** signal select is on.

**SB** - Depending on the source, this lights when a signal with surround back channel encoding is detected.

**DIGITAL** - Lights when a digital audio signal is detected.

**DIGITAL** - Lights when a Dolby Digital encoded signal is detected.

**ANALOG** - Lights when an analog signal is detected.

**DTS** - Lights when a source with DTS encoded audio signals is detected.

### 2

When the **STANDARD** mode of the receiver is on, this lights to indicate decoding of a DTS multichannel signal.

### 3 DIGITAL

When the **STANDARD** mode of the receiver is on, this lights to indicate decoding of a Dolby Digital multichannel signal.

### 4 PRO LOGIC IIx

When the (**STANDARD**) Pro Logic II mode of the receiver is on,  lights to indicate Pro Logic II decoding.

–  lights

to indicate Pro Logic IIx decoding (see Listening in surround sound for more on this).

### 5 VIR.SB

Lights during Virtual surround back processing.

### 6 DIRECT

Lights when source direct playback is in use. Direct playback bypasses the tone controls and channel levels for the most accurate reproduction of a source.

### 7 AUTO SURR.

Lights when the Auto Surround feature is switched.


### 8 ATT


Lights when **INPUT ATT** is used to attenuate (reduce) the level of the analog input signal.


### 9 SLEEP

Lights when the receiver is in sleep mode.


### 10 Tuner indicators

-  /**MONO** - Lights when the mono mode is set using the **MPX** button.

-  / **STEREO** - Lights when a stereo FM broadcast is being received in auto stereo mode.

-  / **TUNED** - Lights when a broadcast is being received.

### 11 EON

**EON** lights when the EON mode is set, and flashes during reception of an EON broadcast. The  indicator lights when the current station carries the EON service.

### RDS

Lights when an RDS broadcast is received.

### 12 Speaker indicator

Shows if the speaker system is on or not. **SP▶A** means the speakers are switched on. **SP▶** means the headphones are connected.

### 13 Character display

#### 14 Neo:6

When the (**STANDARD**) Neo:6 mode of the receiver is on, this lights to indicate Neo:6 processing.

#### 15 ADV.SURR. (Advanced Surround)

Lights when one of the Advanced Surround modes has been selected.

#### 16 WMA9 Pro

Lights to indicate decoding of a WMA9 Pro signal.

#### 17 MIDNIGHT

Lights during Midnight listening.

#### 18 D.E.

Lights when Dialog Enhancement (**DIALOGE**) is switched.

#### 19 LOUDNESS

Lights during Loudness listening.

#### 20 EX

Lights when a Dolby Digital Surround EX encoded signal is detected.

#### 21 Master volume level

Shows the overall volume level. **---dB** indicates the minimum level, and **- 0 dB** indicates the maximum level.

Depending on your level settings for each channel, the maximum volume can range between **- 10 dB** and **- 0 dB**.

#### 22 MCACC channel EQ indicators

These indicators show the EQ balance for each channel when checking your Acoustic Calibration EQ settings. See Checking your Acoustic Calibration EQ settings formore on this.

## Remote control

Illustration shows the VSX-515 remote control

A

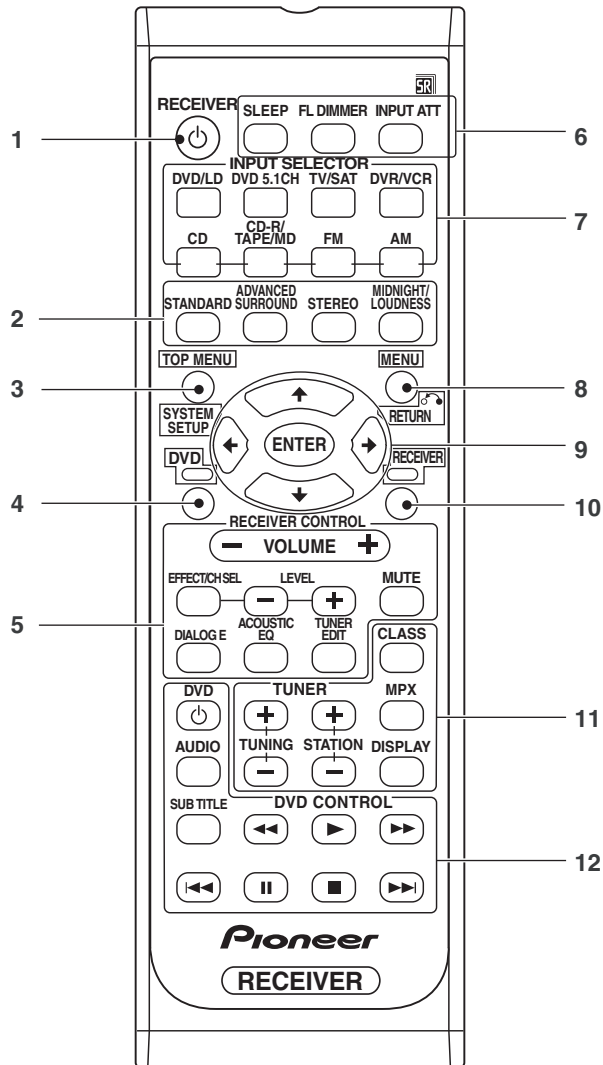
B

C

D

E

F



### 1 RECEIVER

Switches the receiver between standby and on.

### 2 Listening mode buttons

#### STANDARD

Press for Standard decoding and to switch between the various Pro Logic II and Neo:6 options.

#### ADVANCED SURROUND

Use to switch between the various surround modes.

#### STEREO

Switches between direct and stereo playback. Direct playback bypasses the tone controls and channel levels for the most accurate reproduction of a source.

- Selects the Auto

Surround mode.

#### MIDNIGHT/LOUDNESS

Switches to Midnight or Loudness listening.

### 3 TOP MENU

Displays the disc 'top' menu of a DVD.

### SYSTEM SETUP

Press to access the System Setup menu.

### 4 DVD

Press to use the DVD controls on the remote.

### 5 RECEIVER CONTROL buttons

#### VOLUME +/-

Use to set the listening volume.

#### MUTE

Mutes/unmutes the sound.

#### EFFECT/CH SEL

Press repeatedly to select a channel, then use **LEVEL +/-** to adjust the level. Also adjusts the level of the Advanced Surround effects as well as Dolby Pro Logic IIx Music and Neo:6 Music parameters. You can then use the **LEVEL +/-** buttons to make these adjustments.

#### LEVEL +/-

Use to adjust the effect and channel levels, as well as to change Dolby Pro Logic IIx and Neo:6 Music parameter settings.

**DIALOG E**

Use to make dialog stand out when watching TV or a movie.

**ACOUSTIC EQ**

Press to select an Acoustic Calibration EQ setting.

**TUNER EDIT**

Press to memorize and name a station for recall.

**6 SLEEP**

Use to set the sleep timer.

**FL DIMMER**

Dims or brightens the display.

**INPUT ATT**

Attenuates (lowers) the level of an analog input signal to prevent distortion.

**7 INPUT SELECTOR buttons**

Press to select an input source.

**8 MENU**

Displays the disc menu of DVD-Video discs. It also displays TV menus.

**RETURN**

Confirm and exit the current menu screen.

**9 ↑↓←→/ENTER**

Use the arrow buttons when setting up your surround sound system.  
Also used for DVD menus.

**10 RECEIVER**

Use to switch to the receiver controls on the remote control. Also used when setting up the surround sound for the receiver.

**11 TUNER controls**

The **TUNING +/-** buttons can be used to find radio frequencies and the **STATION +/-** buttons can be used to select preset radio stations.

**CLASS**

Switches between the three banks (classes) of station presets.

**MPX**

Use to switch between auto stereo and mono reception of FM broadcasts. If the signal is weak then switching to mono will improve the sound quality.

**DISPLAY**

Switch the display between station preset name and frequency.

**12 DVD CONTROL buttons**

You can use these buttons to control a Pioneer DVD player connected to your system.


**Button What it does**

**DVD**  Turns DVD power on/off

**AUDIO** Changes the audio language or channel.

**SUBTITLE** Displays/changes the subtitles on multilingual DVD-Video discs.


 Starts/resumes normal playback.


 Pauses/unpauses a disc.

 Stops playback.

 Press to start fast reverse scanning.

 Press to start fast forward scanning.

 Skips to the start of the current track or chapter, then previous tracks/chapters.

 Skips to the next track or chapter.



# CLEANING



A

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

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

B

C

D

E

F