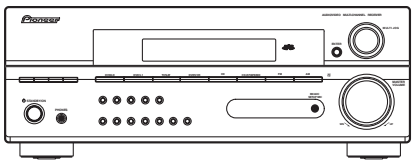
Pioneer sound.vision.soul

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".

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

T-ZZK APR. 2005 printed in Japan

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.

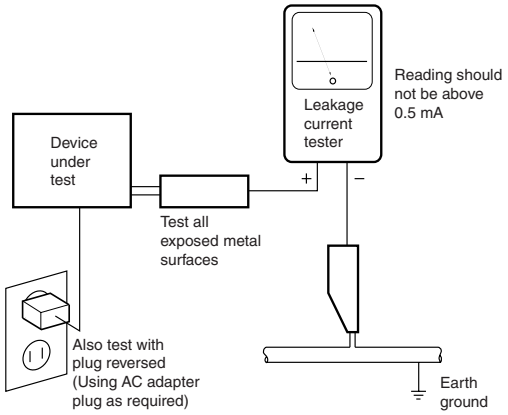
(FOR USA MODEL ONLY)

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 ⚠ 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.

CONTENTS

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 $^{+0}_{-3}$ dB

- **Output (Level/Impedance)**

DVR/VCR REC, CD-R/TAPE/MD REC. . . . . 200 mV/2.2 kΩ

- **Tone control**

Bass. . . . . ± 6 dB (100 Hz)
Treble. . . . . ± 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 ⇨ MONITOR. . . . . 5 Hz to 7 MHz $^{+0}_{-3}$ 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 (±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

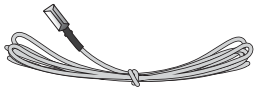
Note

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

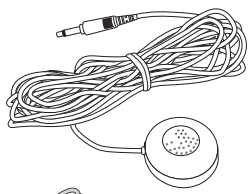
Accessories

Remote control unit (XXD3089)

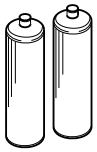
AM loop antenna (ATB7013)



FM wire antenna (ADH7030)



Setup microphone (APM7006)

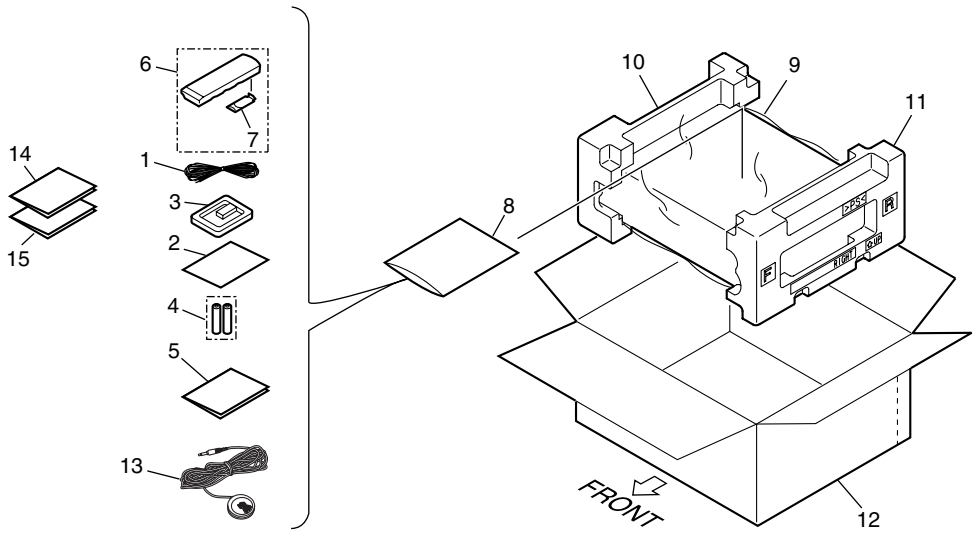


AA size IEC R6 Dry cell batteries (x2)

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



(1) PACKING SECTION PARTS LIST

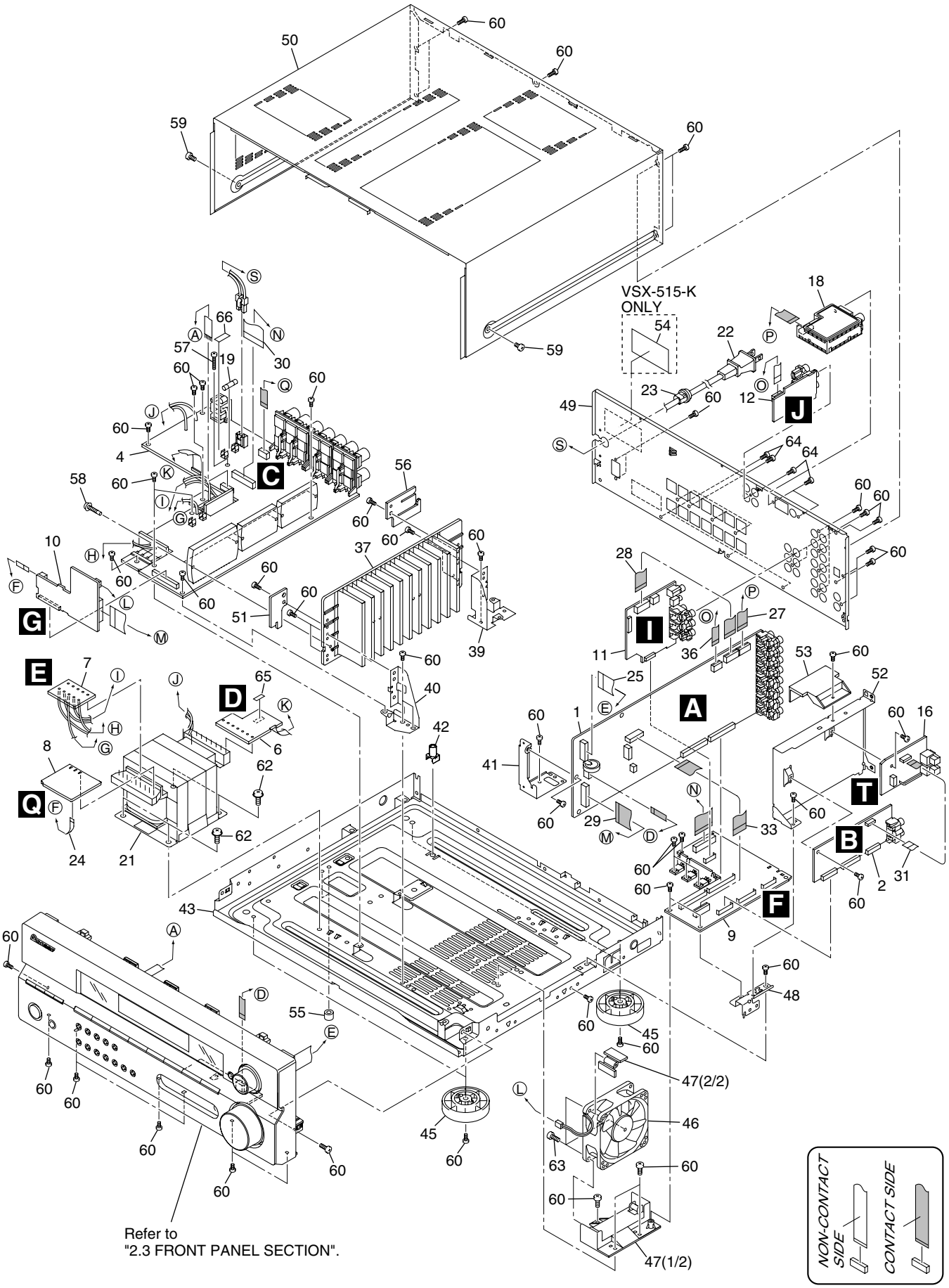
Mark	No.	Description	Part No.
	1	FM wire antenna	ADH7030
NSP	2	Warranty Card	ARY7065
	3	AM loop antenna	ATB7013
NSP	4	Alkaline Dry cell batteries (AA/LR6)	VEM1031
	5	Operating instructions (English/Italian)	XRE3094
	6	Remote Control Unit	XXD3089
	7	Battery Cover	XZN3139
NSP	8	Literature Bag	AHG1180
	9	Packing Sheet	AHG7069
	10	Left Pad V2	XHA3149
	11	Right Pad V2	XHA3150
	12	Packing Case	See Contrast table(2)
	13	Microphone Assy	APM7006
	14	Operating instructions (Dutch/Spanish)	See Contrast table(2)
	15	Operating instructions (French/German)	See Contrast table(2)

(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
	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



(1) EXTERIOR SECTION PARTS LIST

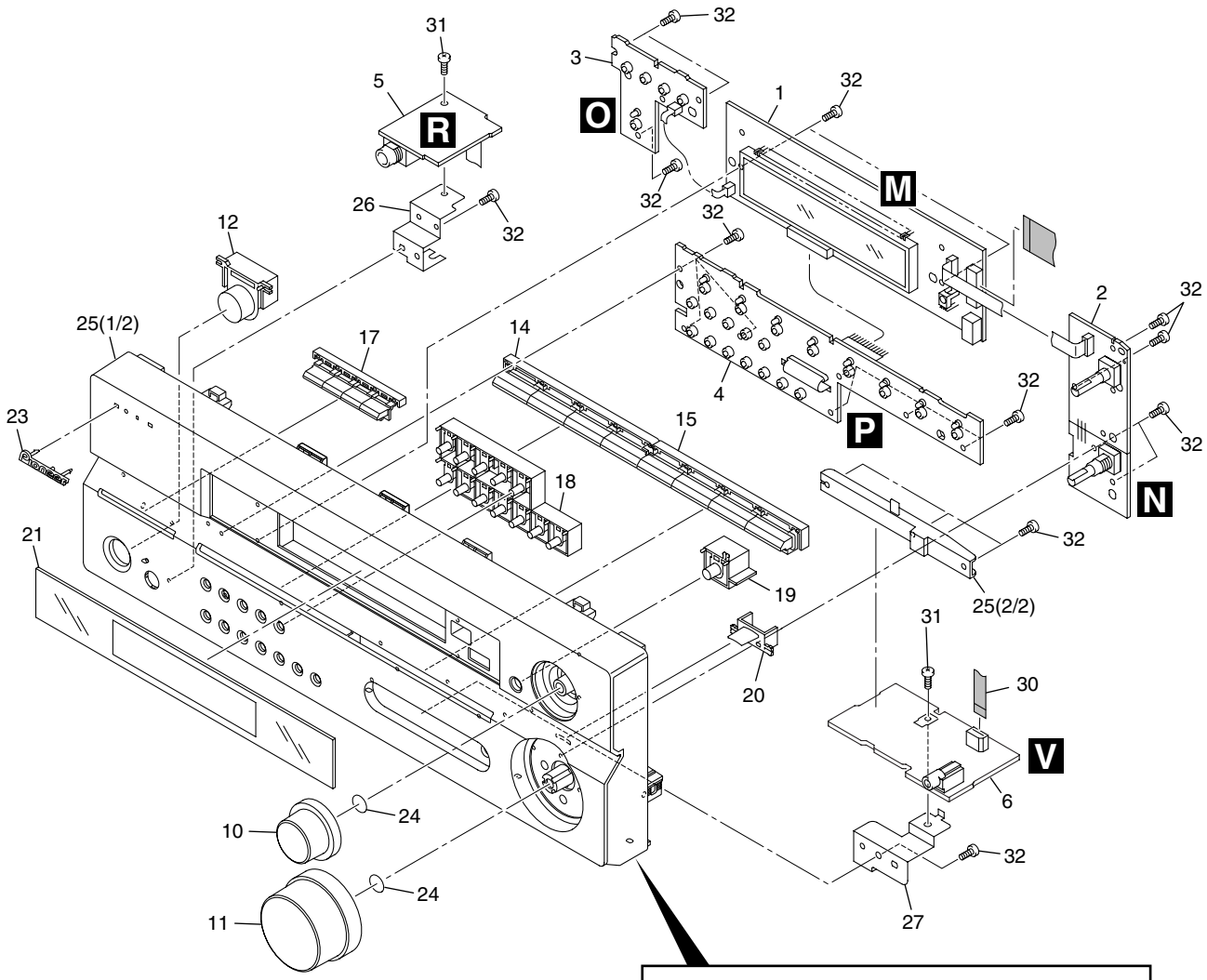
Mark	No.	Description	Part No.
	1	MAIN Assy	XWK3155
	2	DSP Assy	AWX8572
	3	••••••	
	4	AMP & PRIMARY Assy	XWZ3942
	5	••••••	
	6	TRANS2 Assy	XWZ3960
	7	TRANS3 Assy	XWZ3961
	8	TRANS4 Assy	XWZ3936
	9	REGULATOR Assy	XWZ3952
	10	AMP INPUT Assy	XWZ3955
	11	VIDEO Assy	XWZ3905
	12	5.1CH INPUT Assy	XWZ3915
	13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

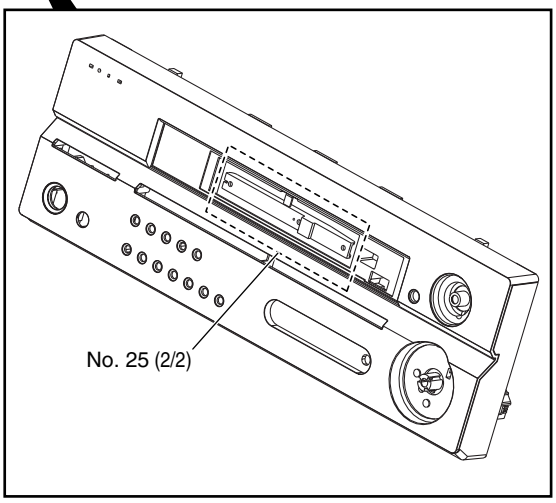
(2) CONTRAST TABLE

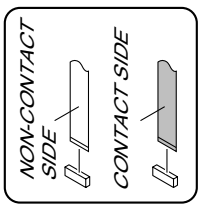
VSX-515-K/MYXJ, VSX-515-S/MYXJ and VSX-515-S/MVXJ are constructed the same except for the following :

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







(1) FRONT PANEL SECTION PARTS LIST

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

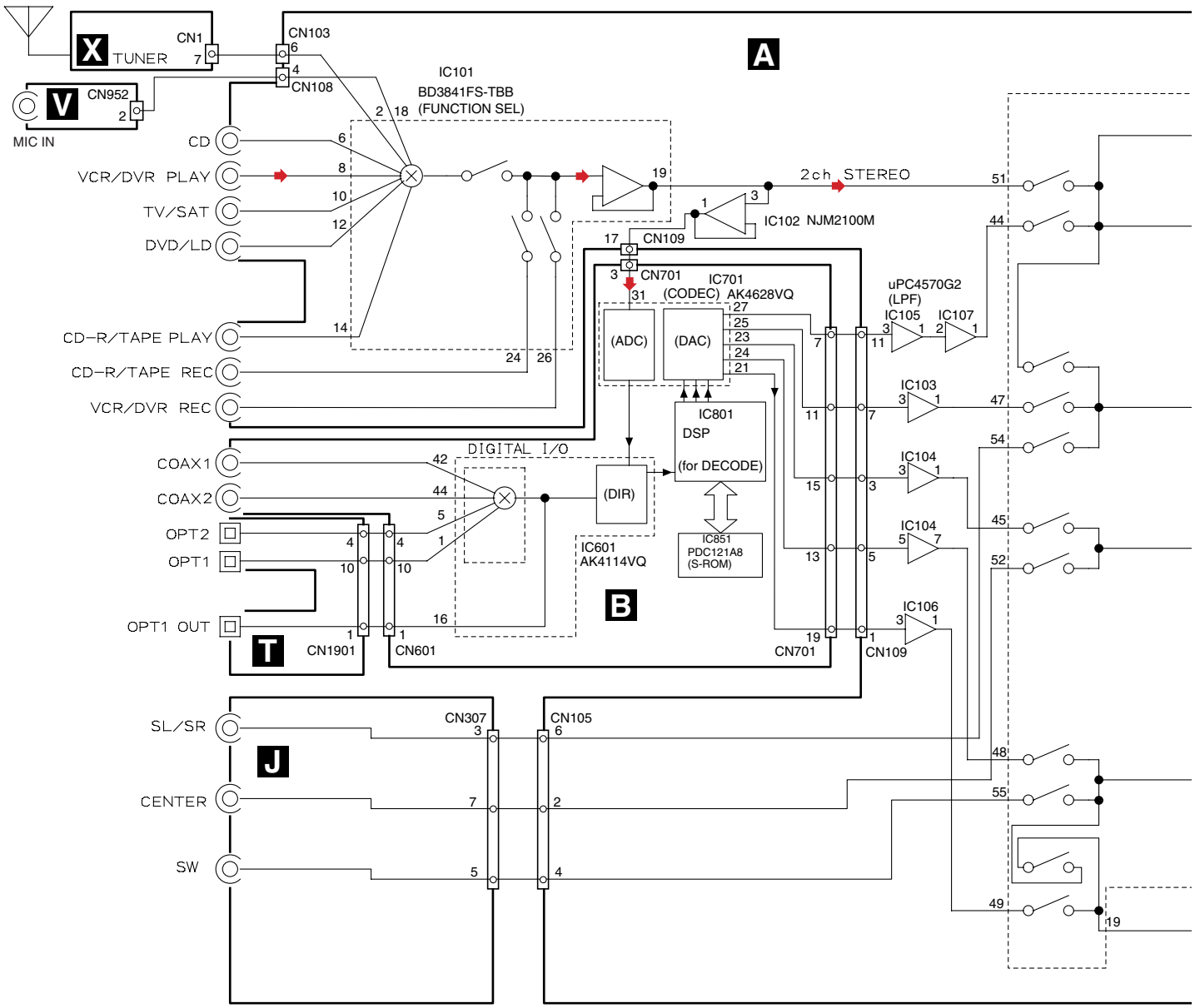
(2) CONTRAST TABLE

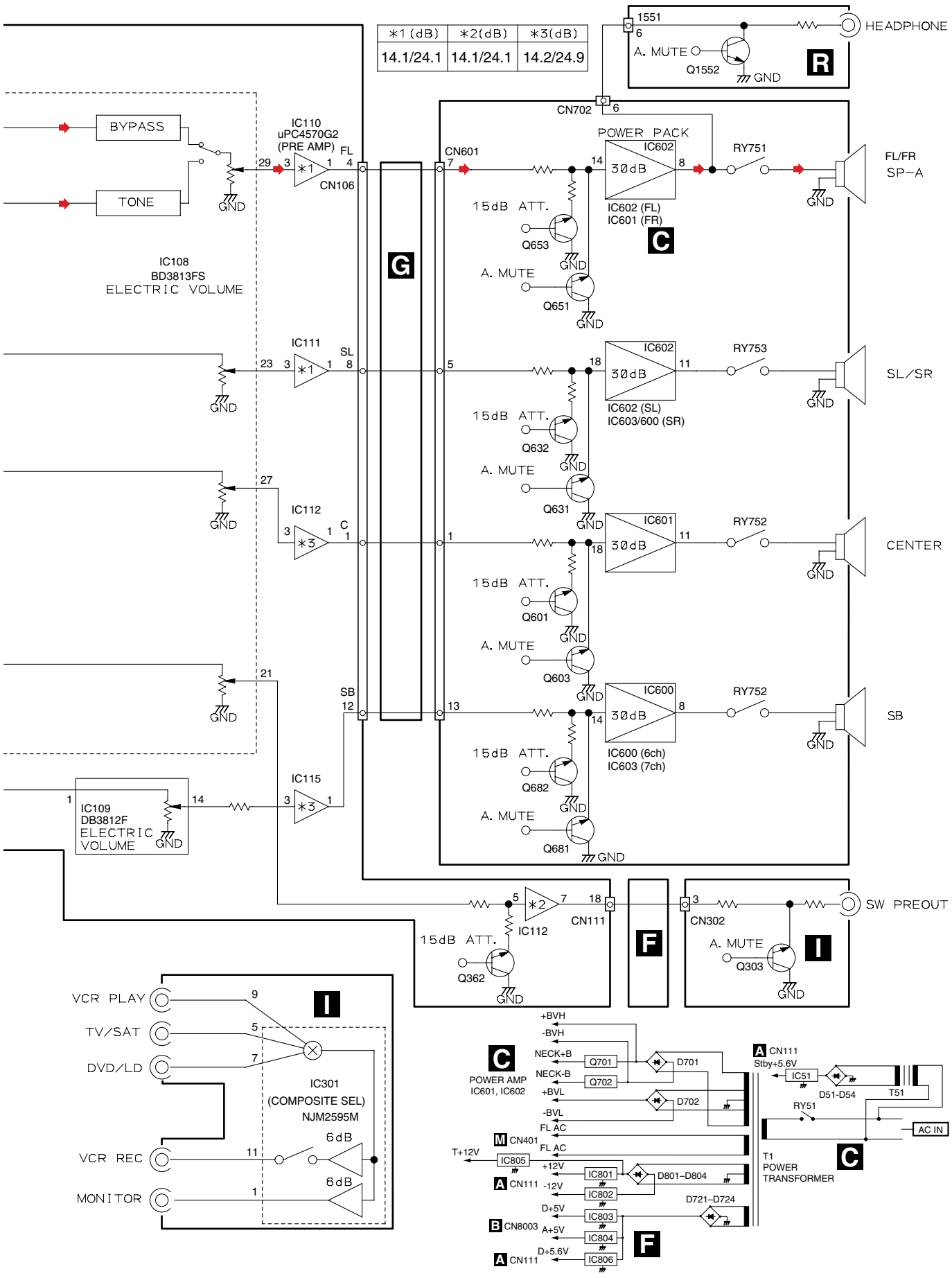
VSX-515-K/MYXJ, VSX-515-S/MYXJ and VSX-515-S/MVXJ are constructed the same except for the following :

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

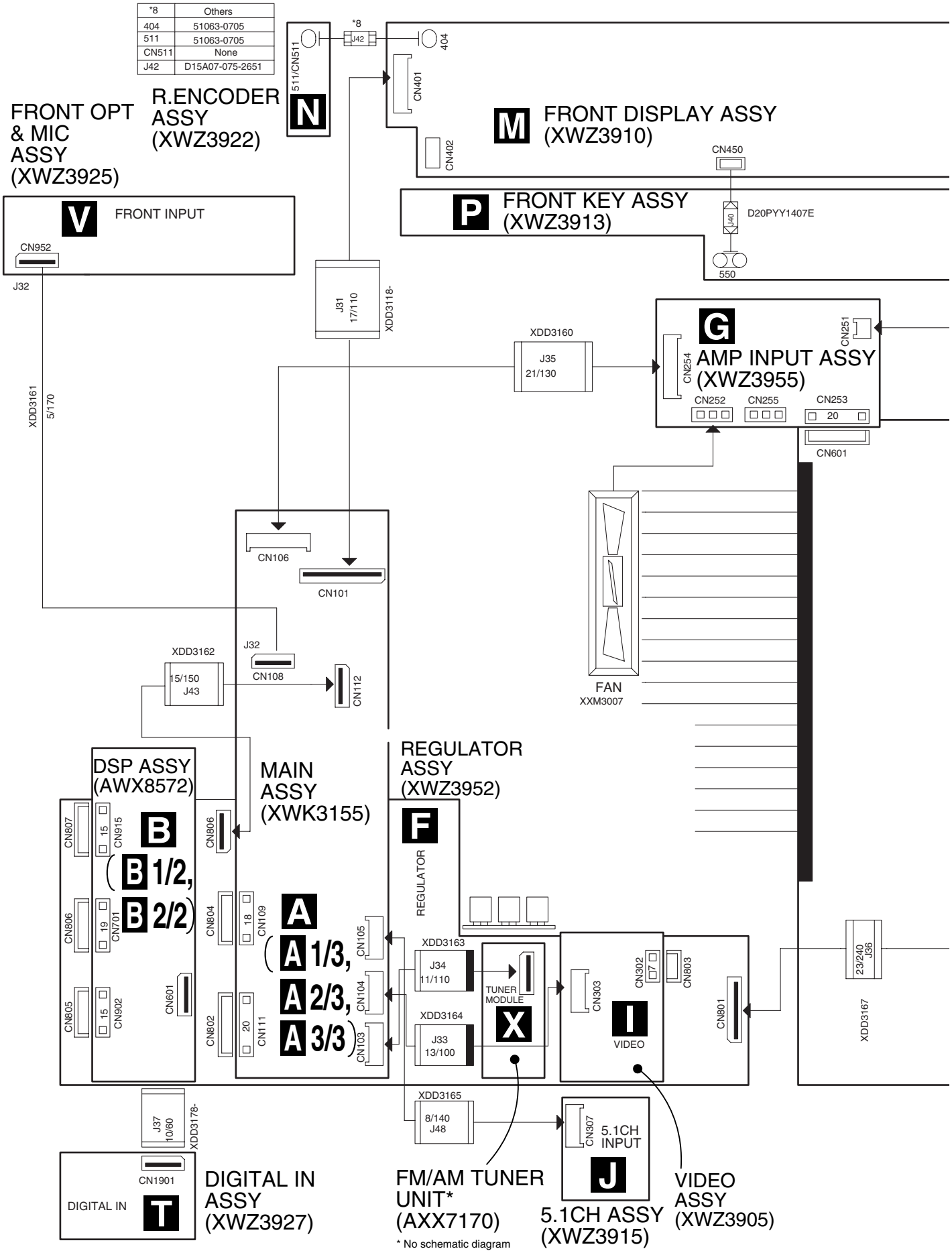
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

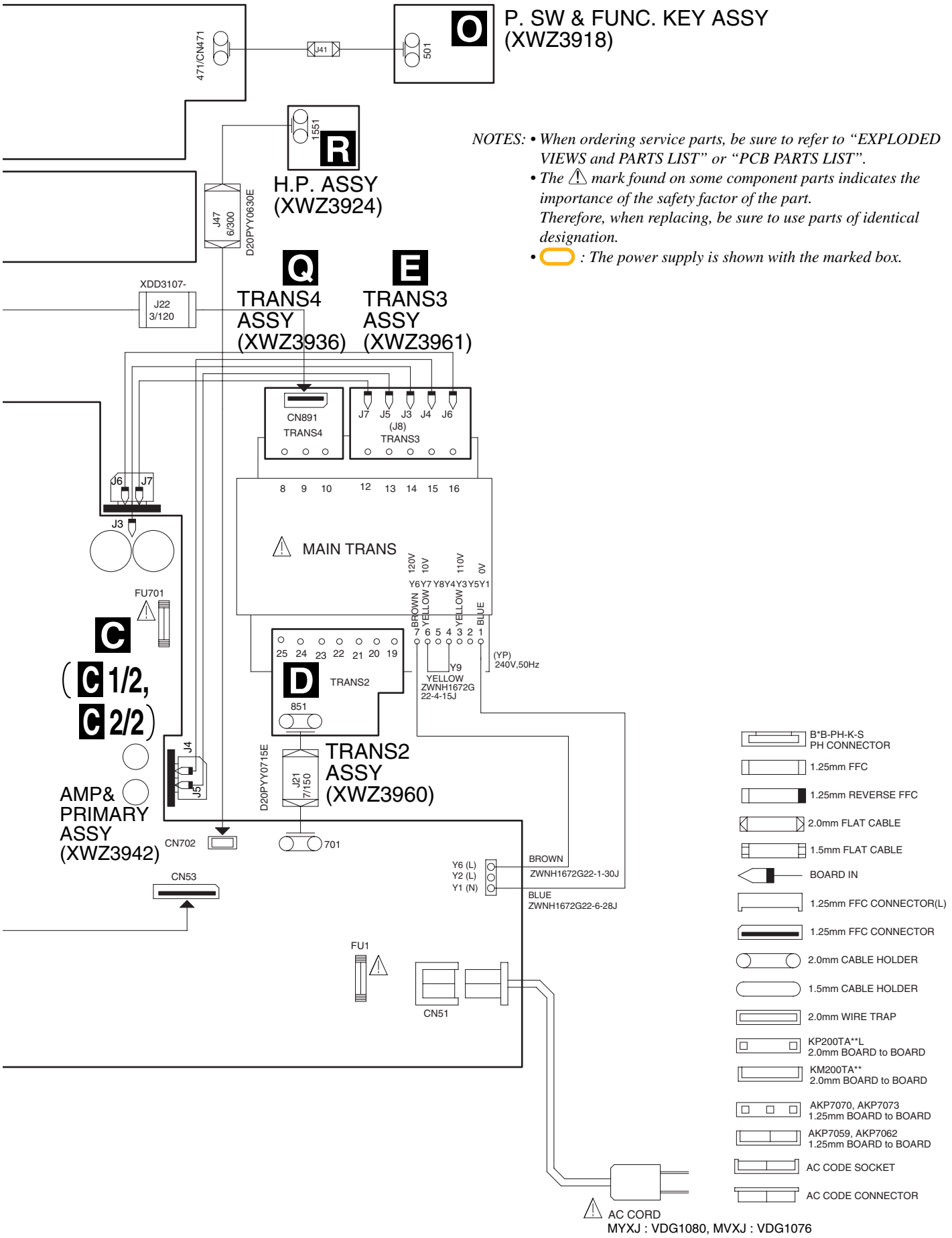
3.1 BLOCK DIAGRAM




∗1 (dB) ∗2(dB) ∗3(dB)
14.1/24.1 14.1/24.1 14.2/24.9
HEADPHONE
A. MUTE
Q1552
GND
R
CN702
POWER PACK
BYPASS
TONE
IC110
uPC4570G2
(PRE AMP)
CN106
CN601
IC602
30dB
RY751
FL/FR
SP-A
15dB ATT.
Q653
IC602 (FL)
IC601 (FR)
C
G
IC108
BD3813FS
ELECTRIC VOLUME
IC111
SL
IC602
RY753
SL/SR
IC602 (SL)
IC603/600 (SR)
Q632
Q631
IC112
C
IC601
RY752
CENTER
Q601
Q603
SB
IC600
IC600 (6ch)
IC603 (7ch)
Q682
Q681
IC109
DB3812F
ELECTRIC VOLUME
IC115
CN111
IC112
Q362
F
CN302
SW PREOUT
Q303
I
VCR PLAY
TV/SAT
DVD/LD
VCR REC
MONITOR
IC301
(COMPOSITE SEL)
NJM2595M
6dB
POWER AMP
IC601, IC602
+BVH
-BVH
NECK+B
NECK-B
+BVL
-BVL
Q701
Q702
D701
D702
FL AC
CN401
T+12V
IC805
+12V
IC801
-12V
IC802
D+5V
IC803
A+5V
IC804
D+5.6V
IC806
CN8003
D801–D804
D721–D724
CN111
Stby+5.6V
IC51
D51-D54
T51
RY51
AC IN
T1
POWER
TRANSFORMER

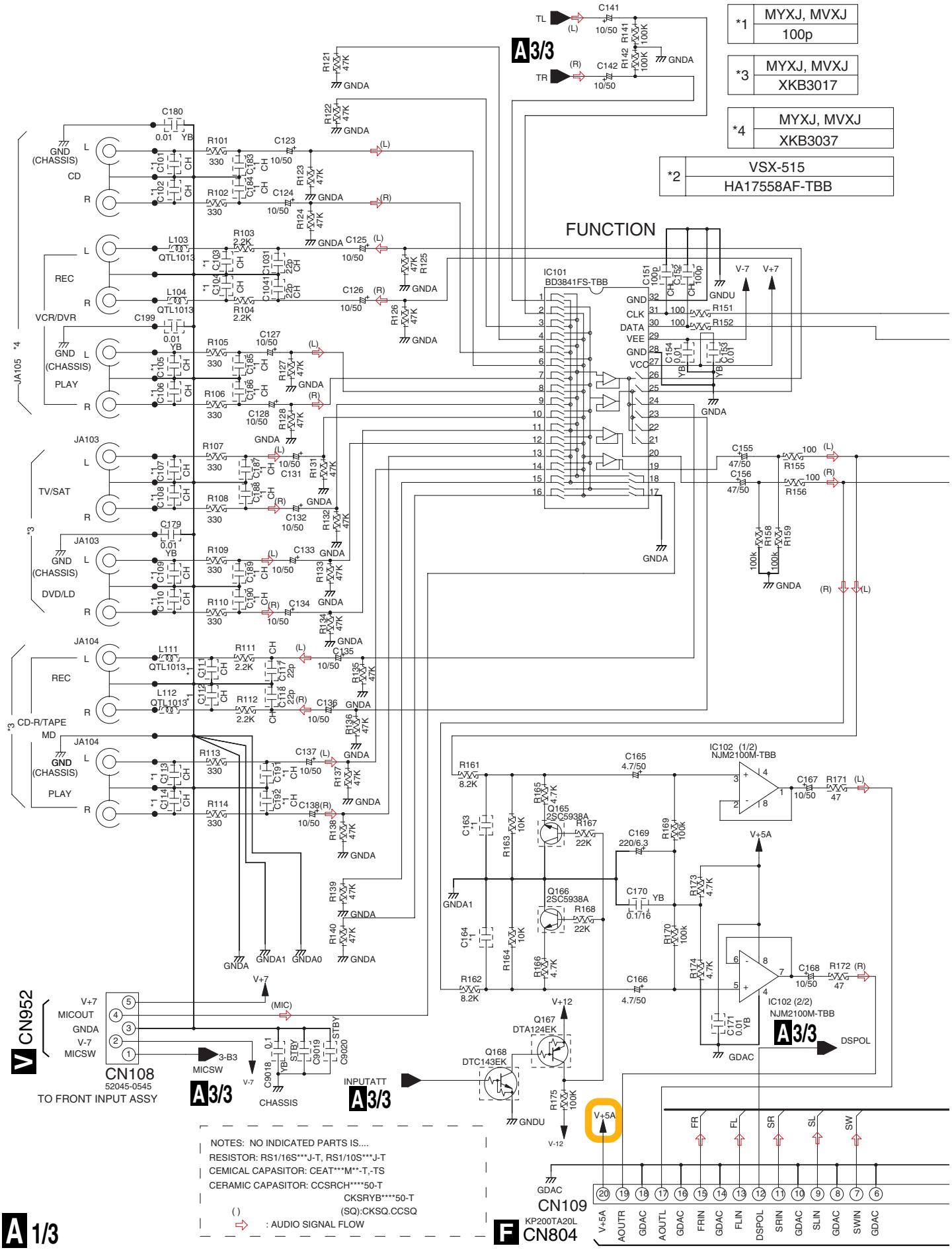
3.2 OVERALL WIRING CONNECTION DIAGRAM





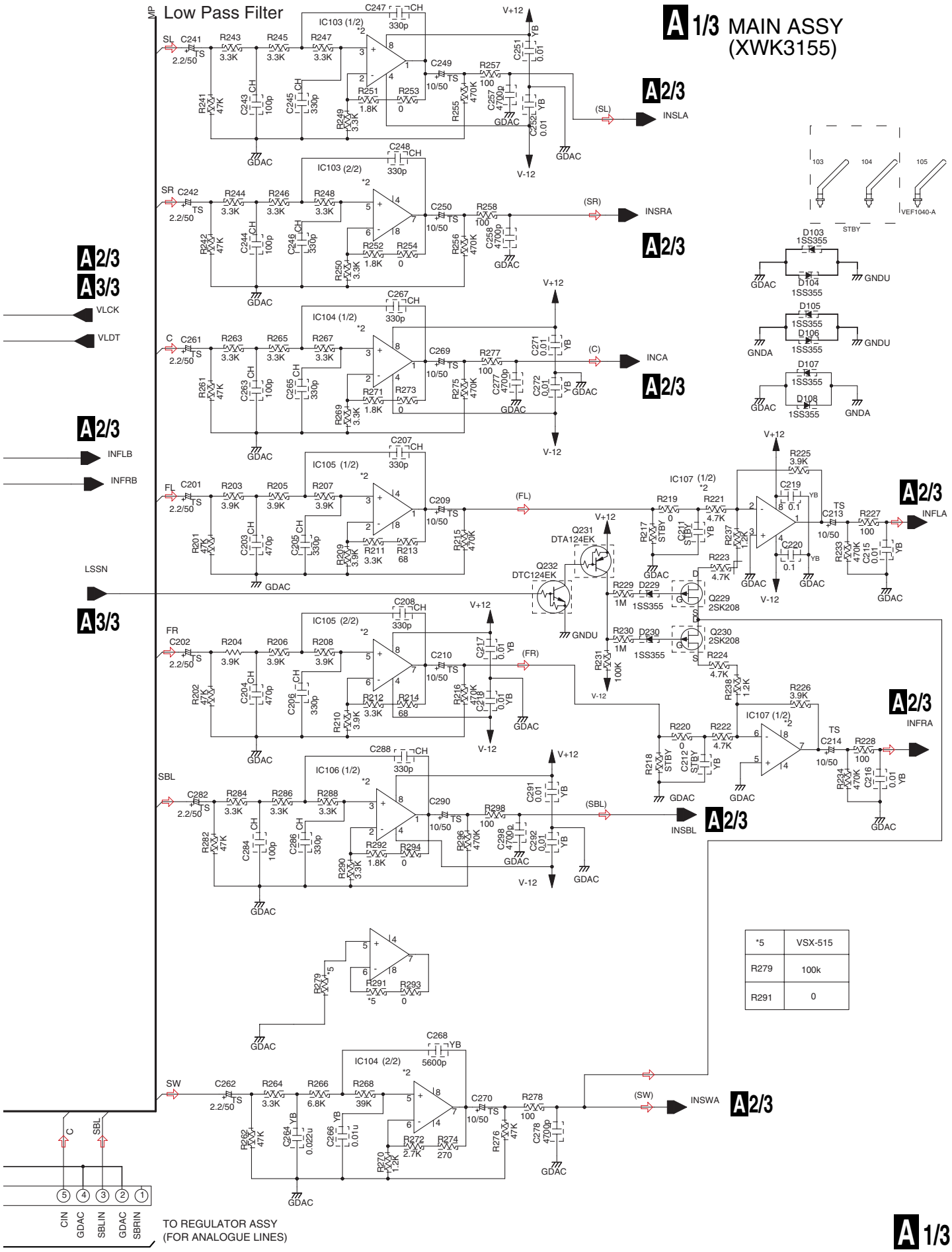
NOTES: • *When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".*
• *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
• *: The power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

3.3 MAIN ASSY (1/3)



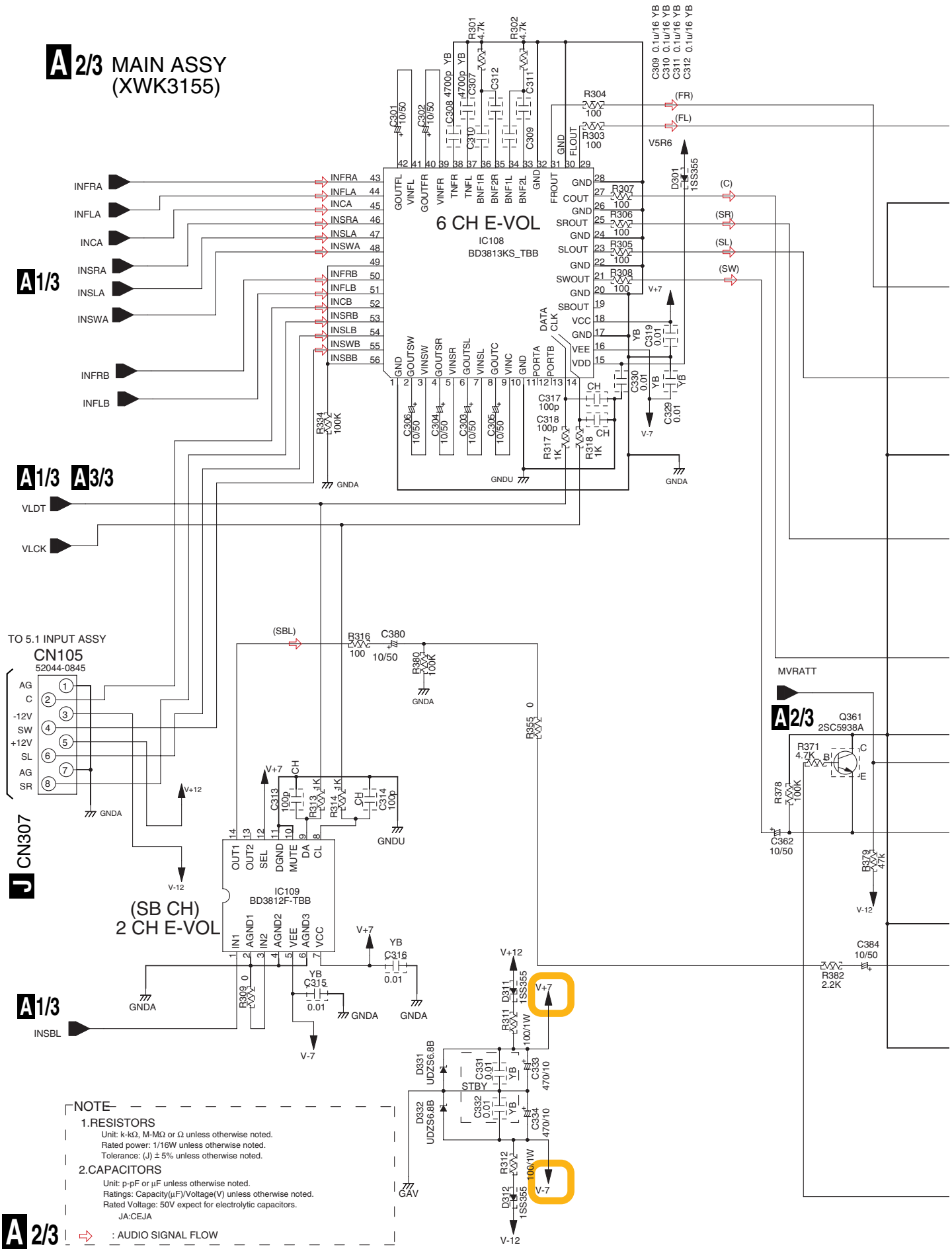
A 1/3 MAIN ASSY (XWK3155)

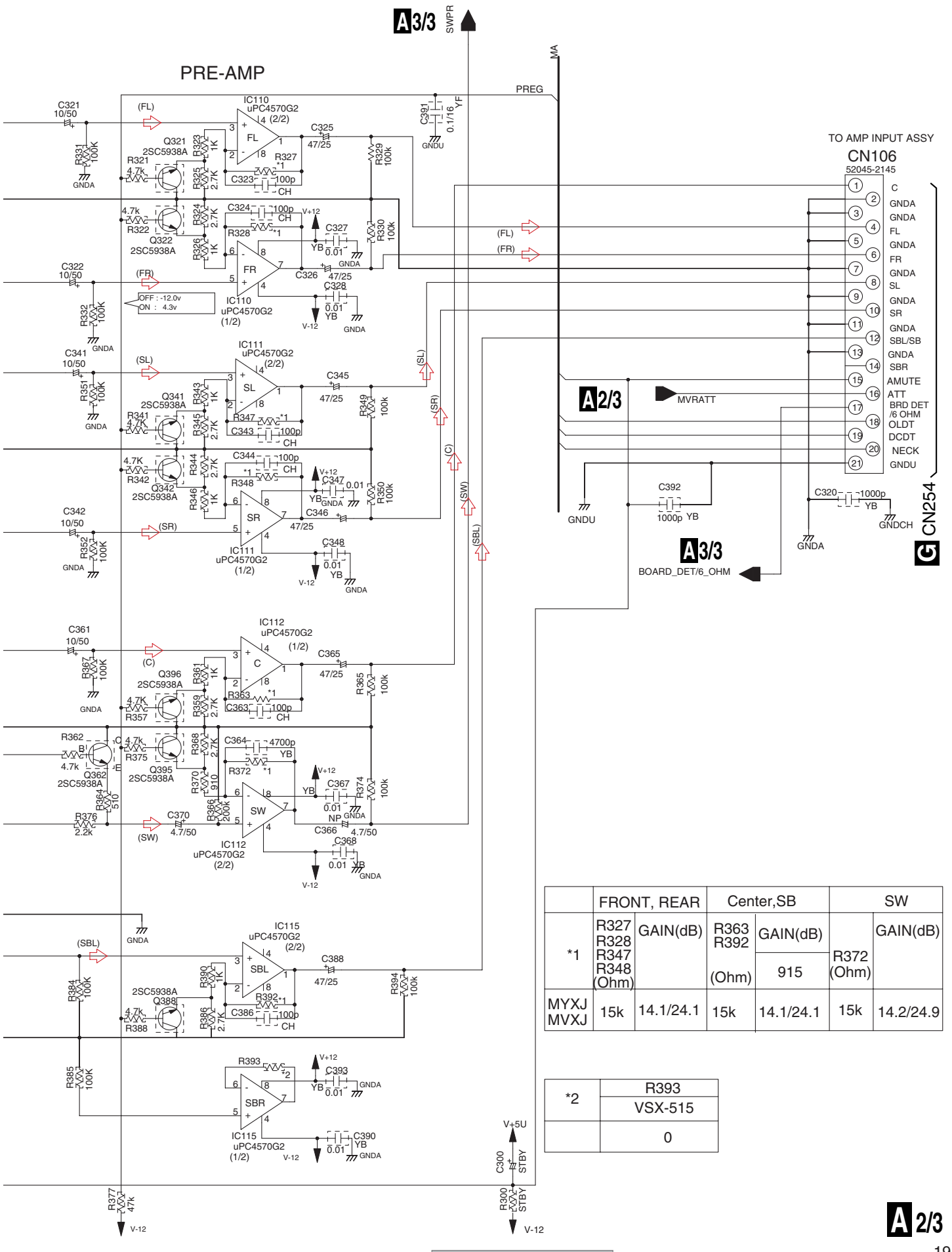
Low Pass Filter



*5	VSX-515
R279	100k
R291	0

3.4 MAIN ASSY (2/3)

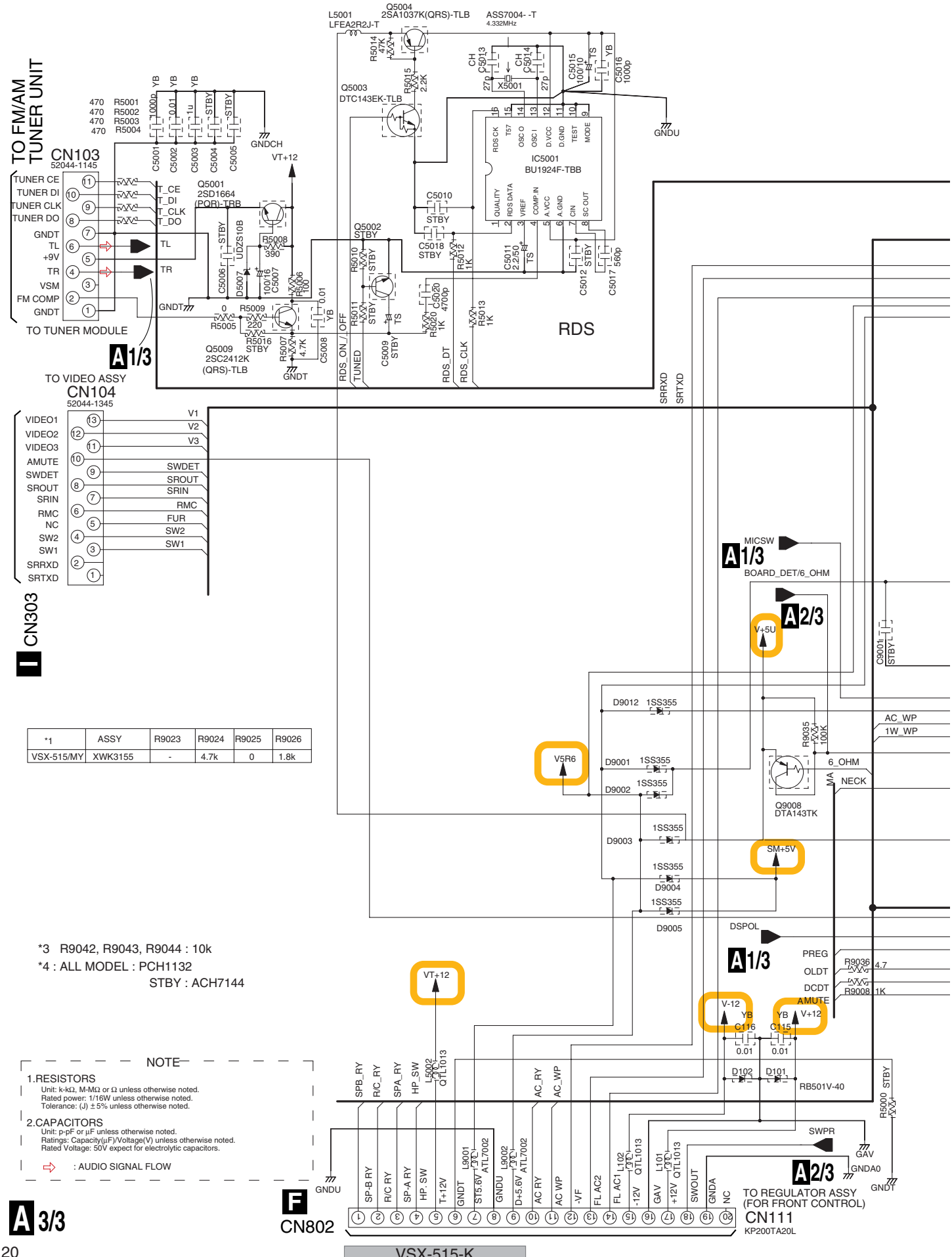




	FRONT, REAR		Center,SB		SW	
*1	R327 R328 R347 R348 (Ohm)	GAIN(dB)	R363 R392 (Ohm)	GAIN(dB) 915	R372 (Ohm)	GAIN(dB)
MYXJ MVXJ	15k	14.1/24.1	15k	14.1/24.1	15k	14.2/24.9

*2	R393
	VSX-515
	0

3.5 MAIN ASSY (3/3)



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

*3 R9042, R9043, R9044 : 10k

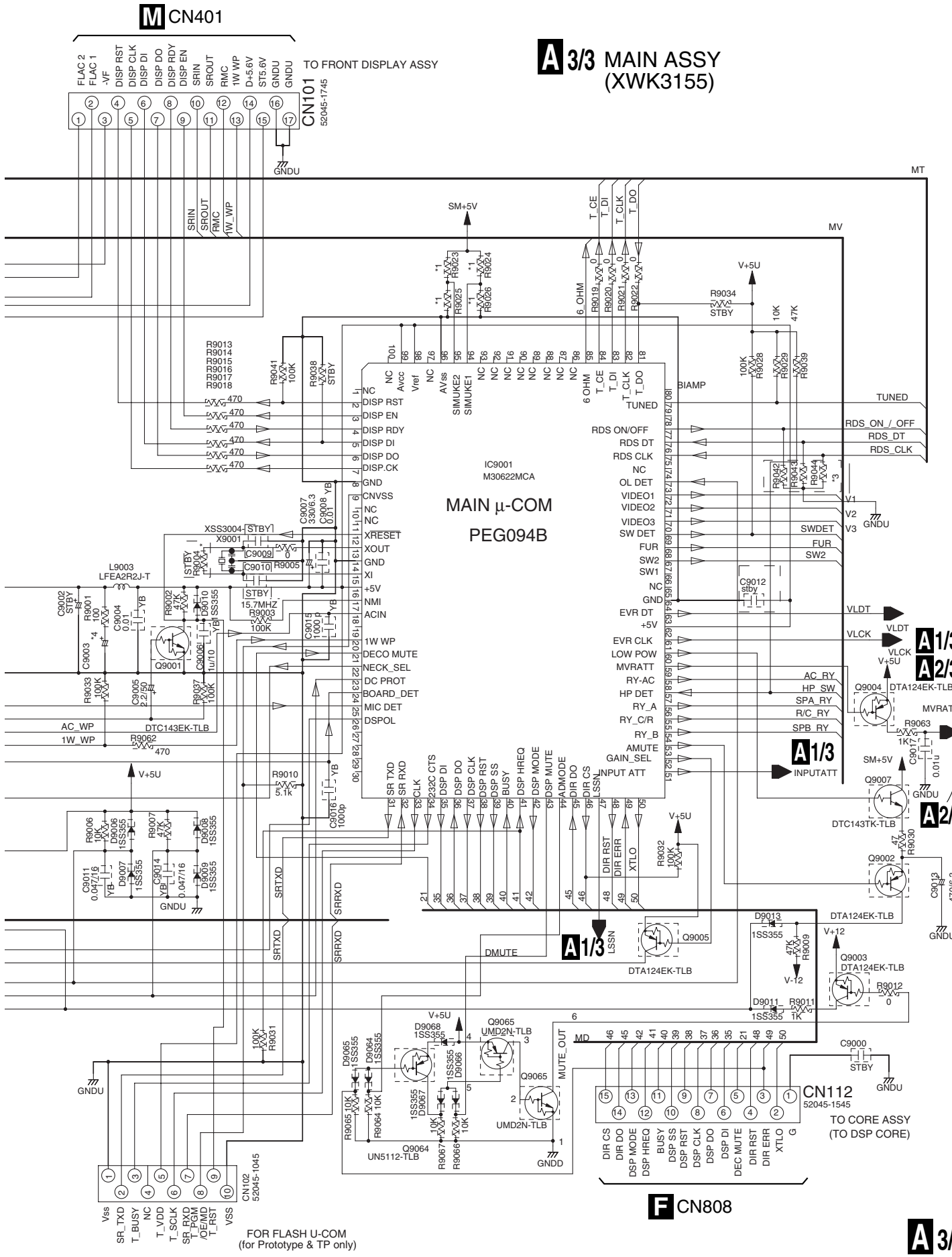
*4 : ALL MODEL : PCH1132
STBY : ACH7144

NOTE

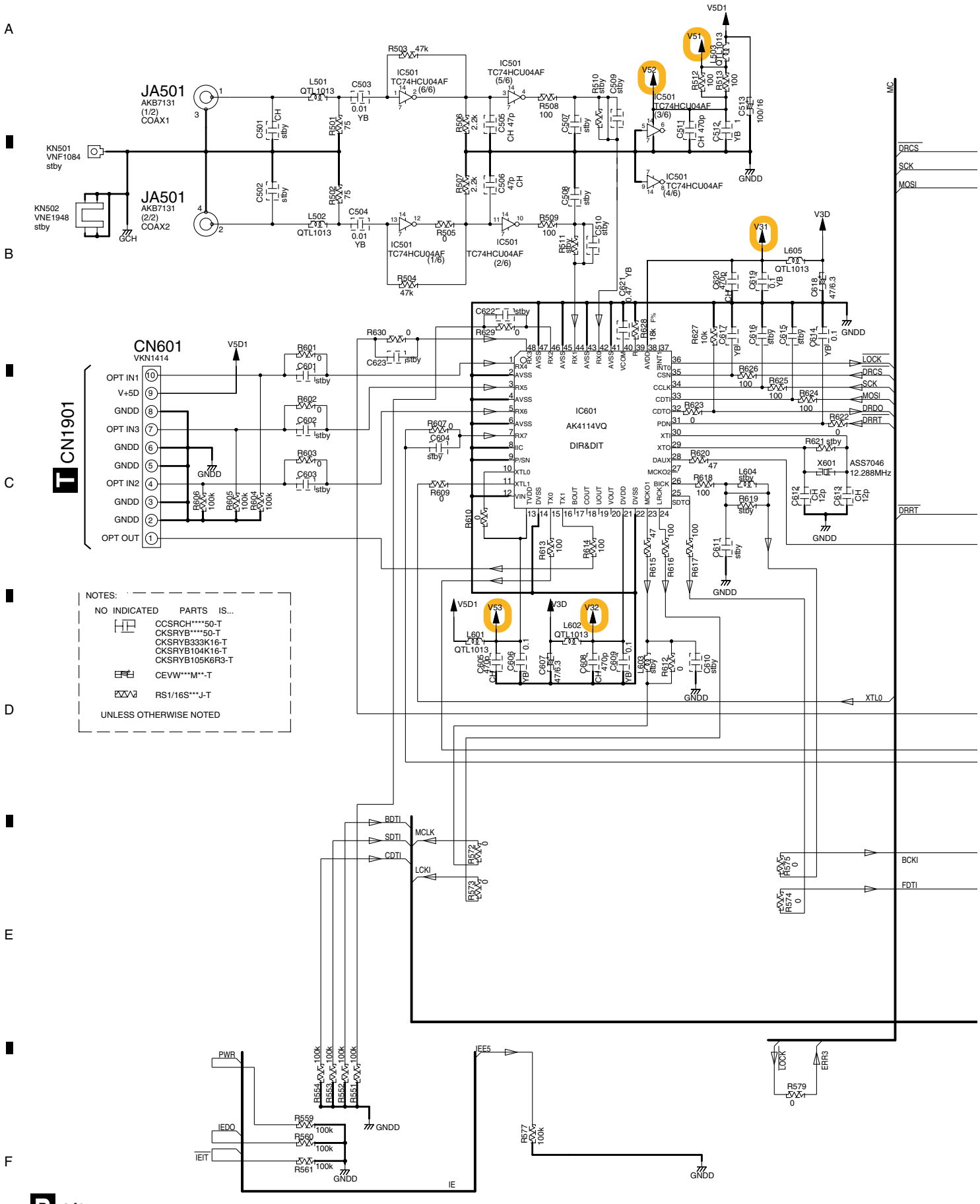
1.RESISTORS
Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.
Rated power: 1/16W unless otherwise noted.
Tolerance: (J) ±5% unless otherwise noted.

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.

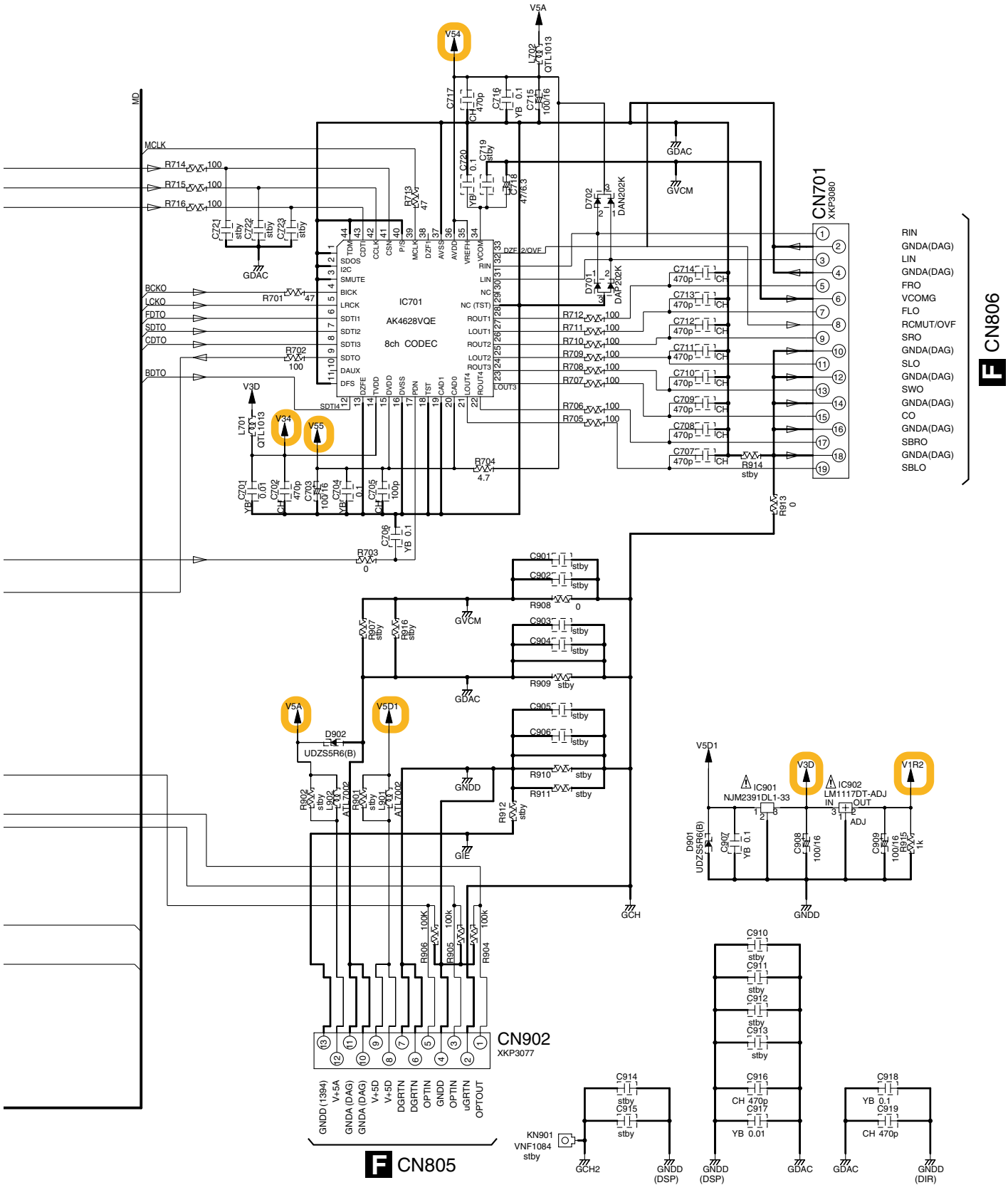
⇨ : AUDIO SIGNAL FLOW


M CN401
TO FRONT DISPLAY ASSY
CN101
52045-1745
A 3/3 MAIN ASSY
(XWK3155)
IC9001
M30622MCA
MAIN µ-COM
PEG094B
CN102
52045-1045
FOR FLASH U-COM
(for Prototype & TP only)
CN112
52045-1545
TO CORE ASSY
(TO DSP CORE)
F CN808
VSX-515-K
21

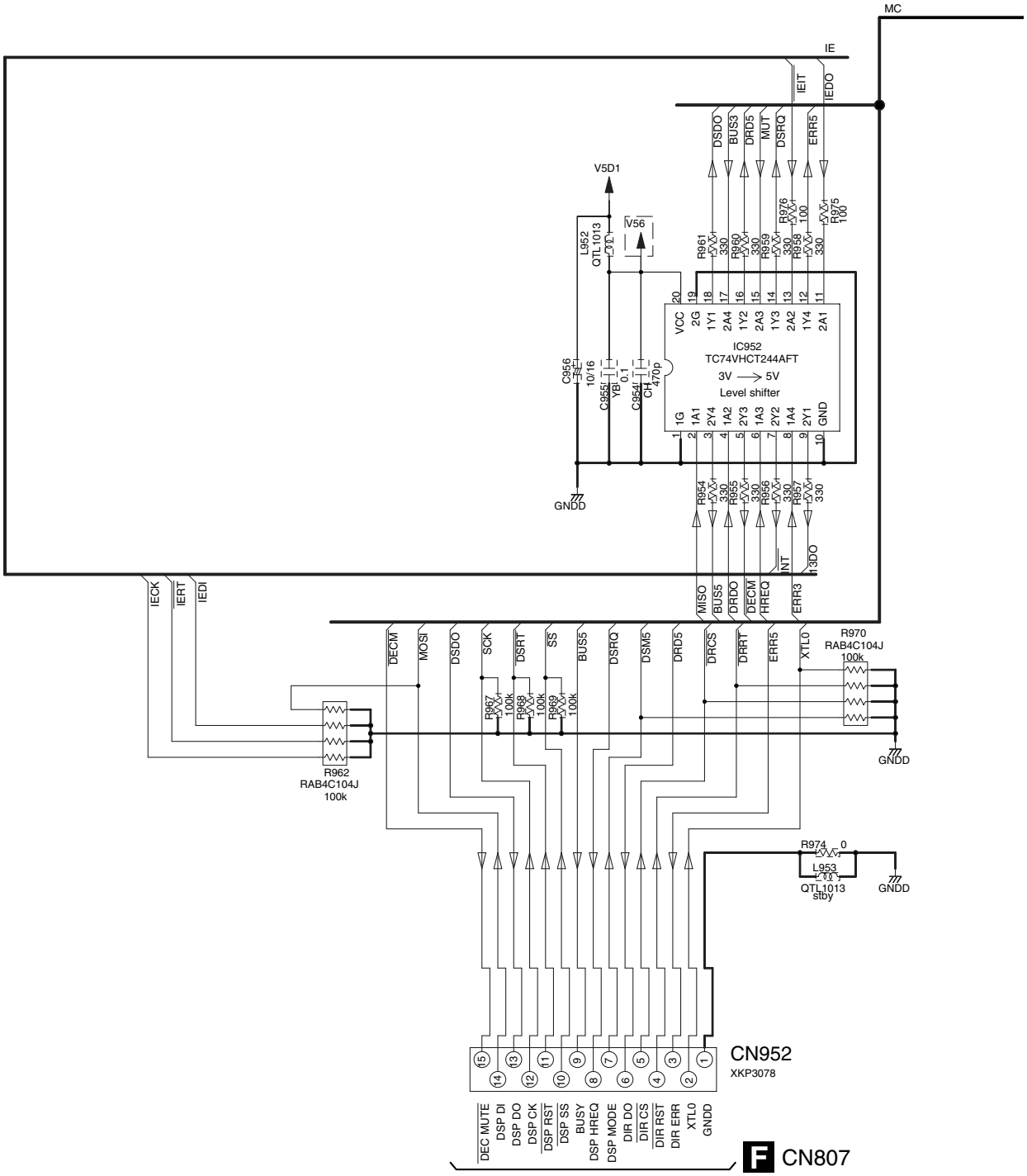
3.6 DSP ASSY (1/2)



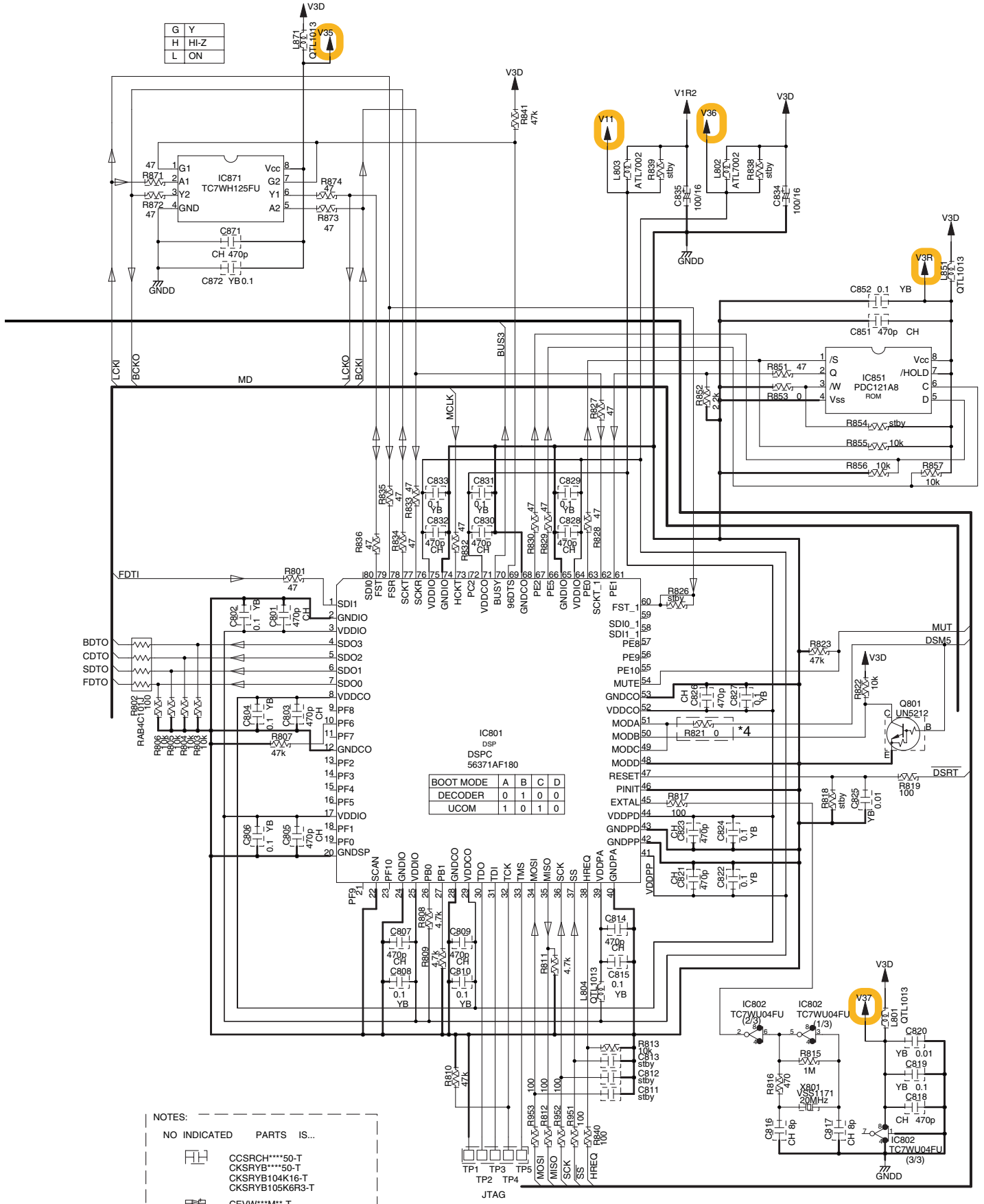
B 1/2


IC701
AK4628VQE
8ch CODEC
CN701
XKP3080
CN806
CN902
XKP3077
CN805
IC901
NJM2391DL1-33
IC902
LM1117DT-ADJ
B 1/2 DSP ASSY
(AWX8572)

3.7 DSP ASSY (2/2)



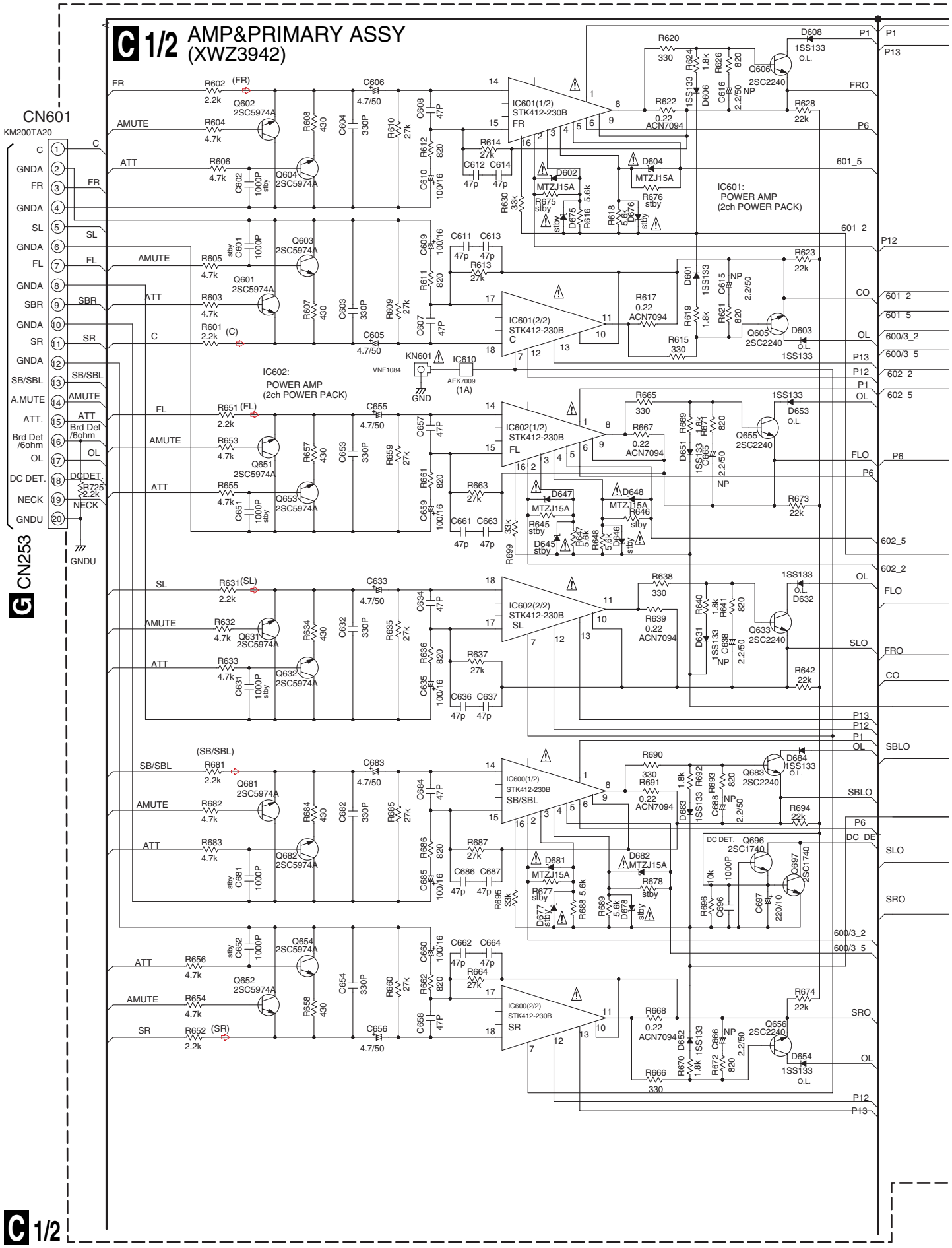
B 2/2

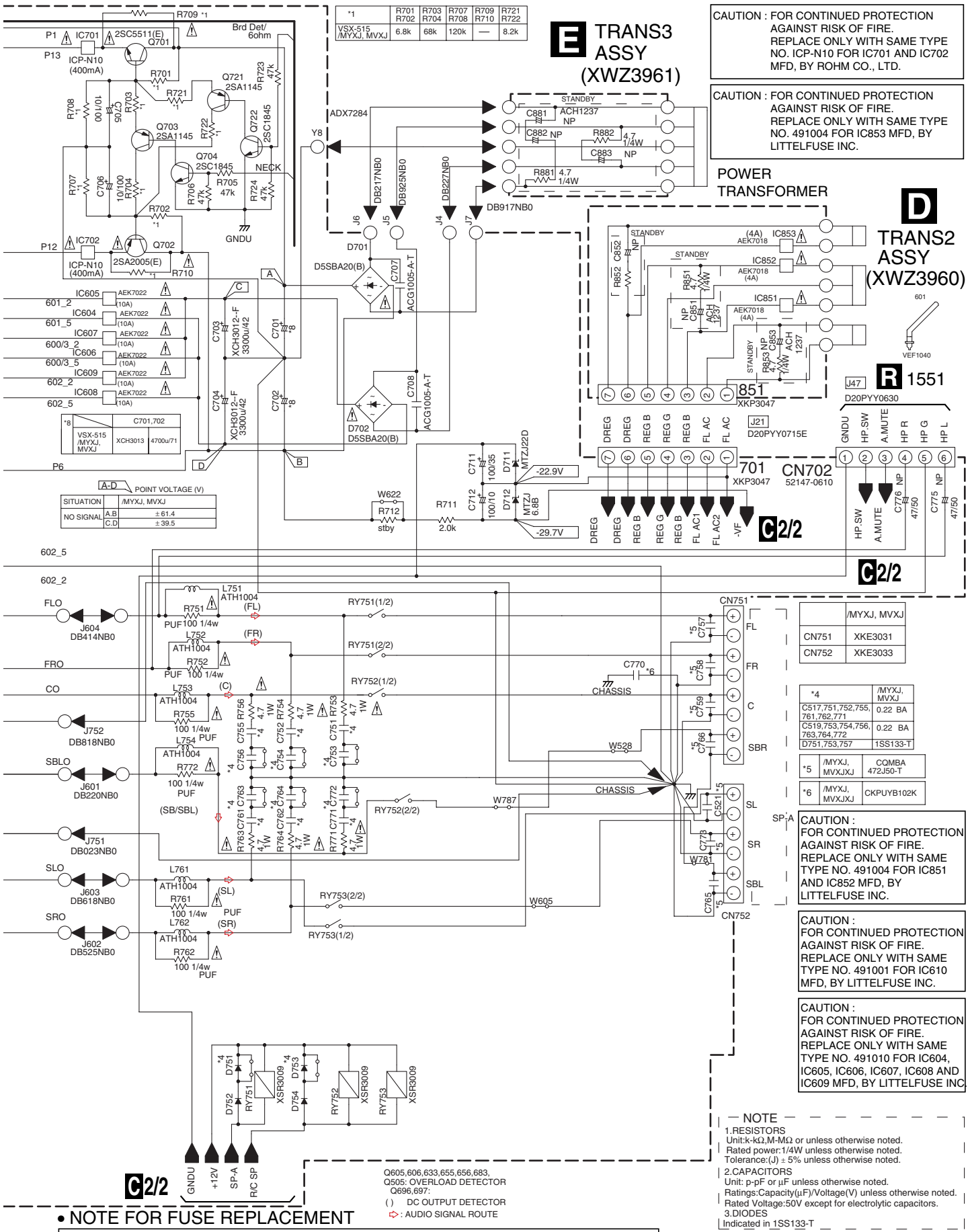


B 2/2 DSP ASSY (AWX8572)

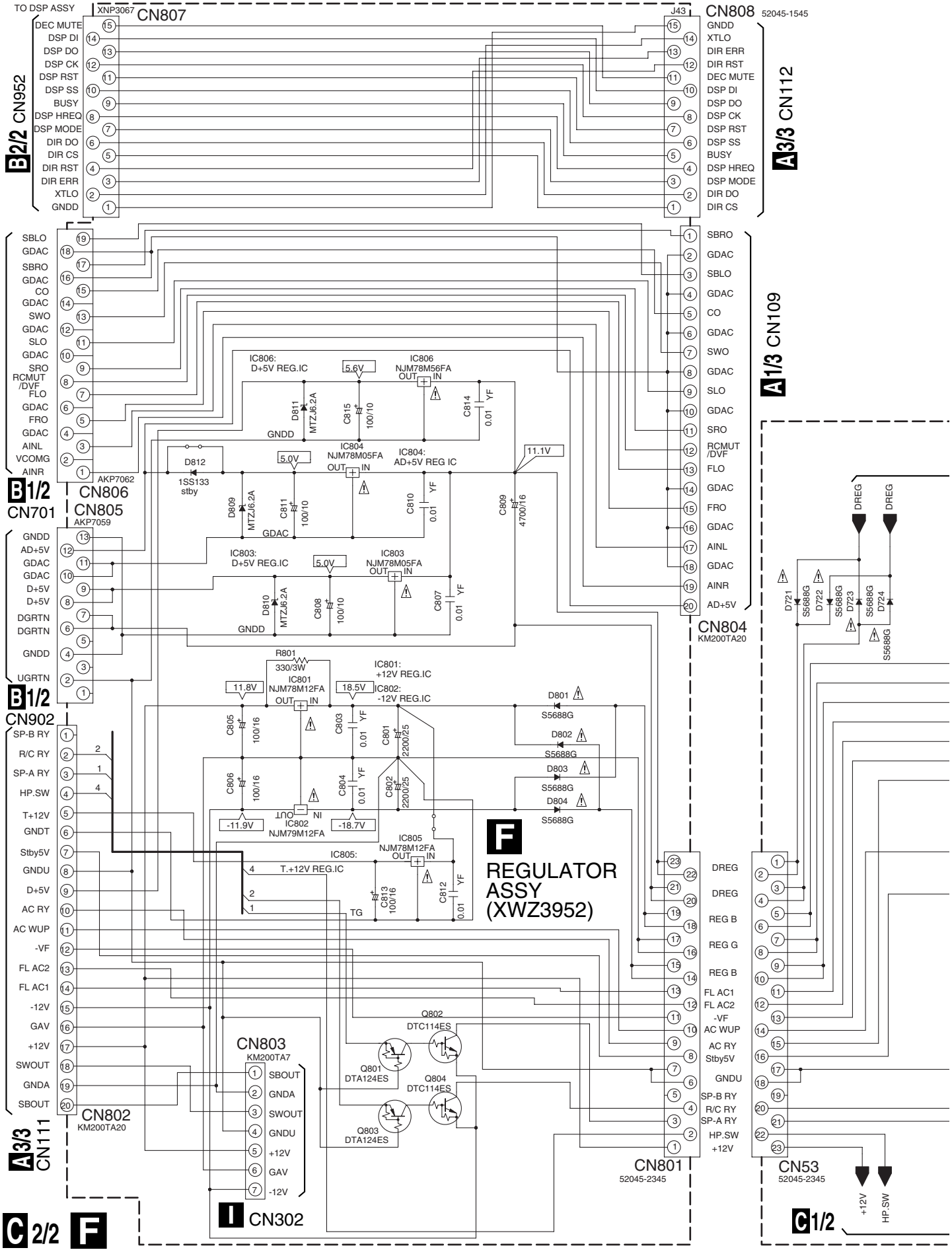
B 2/2

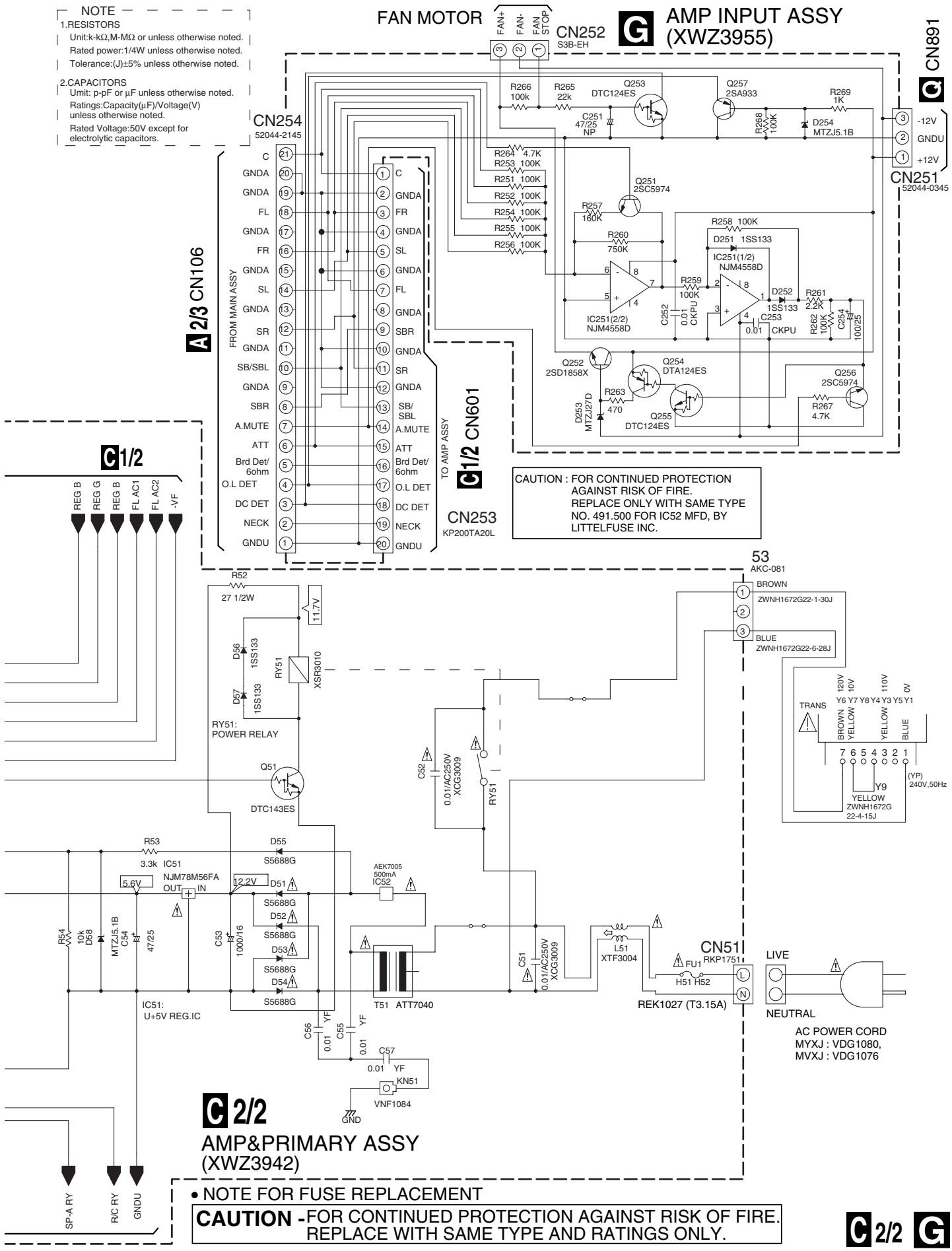
3.8 AMP & PRIMARY (1/2), TRANS2 and TRANS3 ASSYS



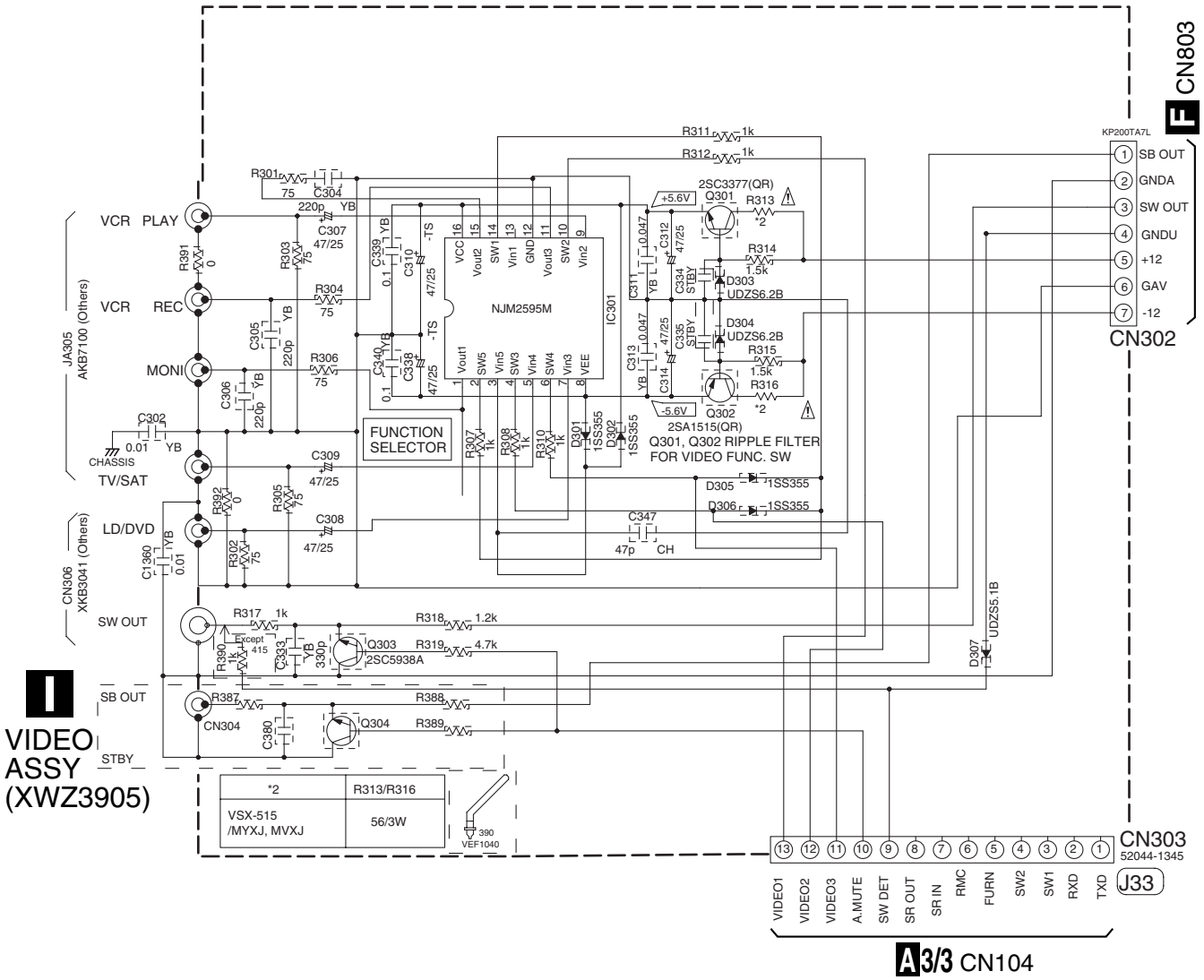

E TRANS3 ASSY (XWZ3961)
D TRANS2 ASSY (XWZ3960)
R 1551
POWER TRANSFORMER
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. ICP-N10 FOR IC701 AND IC702 MFD, BY ROHM CO., LTD.
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491004 FOR IC853 MFD, BY LITTELFUSE INC.
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491004 FOR IC851 AND IC852 MFD, BY LITTELFUSE INC.
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491001 FOR IC610 MFD, BY LITTELFUSE INC.
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491010 FOR IC604, IC605, IC606, IC607, IC608 AND IC609 MFD, BY LITTELFUSE INC.
NOTE
1.RESISTORS
Unit:k-kΩ,M-MΩ or unless otherwise noted.
Rated power:1/4W 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 except for electrolytic capacitors.
3.DIODES
Indicated in 1SS133-T
• NOTE FOR FUSE REPLACEMENT
CAUTION -FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.
Q605,606,633,655,656,683, Q505: OVERLOAD DETECTOR
Q696,697: ( ) DC OUTPUT DETECTOR
⇨: AUDIO SIGNAL ROUTE
C 2/2
C 1/2 D E

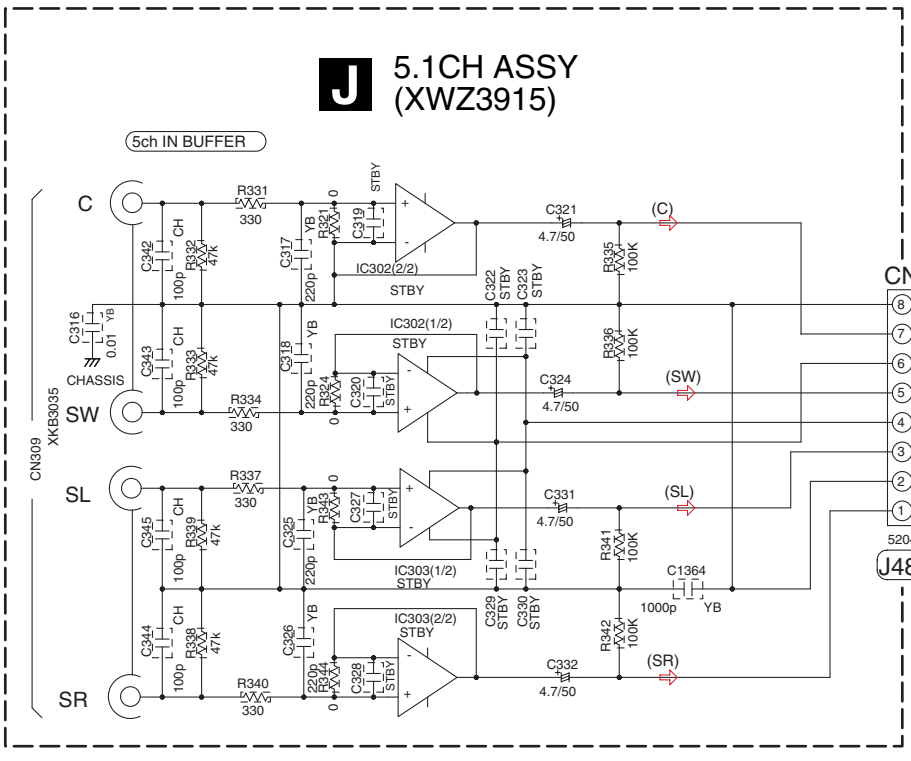
3.9 AMP&PRIMARY(2/2), REGULATOR and AMP INPUT ASSYS




NOTE
1.RESISTORS
Unit:k-kΩ,M-MΩ or unless otherwise noted.
Rated power:1/4W unless otherwise noted.
Tolerance:(J)±5% unless otherwise noted.
2.CAPACITORS
Umit: p-pF or µF unless otherwise noted.
Ratings:Capacity(µF)/Voltage(V) unless otherwise noted.
Rated Voltage:50V except for electrolytic capacitors.
FAN MOTOR
FAN+
FAN-
FAN STOP
CN252
S3B-EH
G AMP INPUT ASSY (XWZ3955)
Q CN891
-12V
GNDU
+12V
CN251
52044-0345
CN254
52044-2145
A 2/3 CN106
FROM MAIN ASSY
C
GNDA
FL
SR
SB/SBL
A.MUTE
ATT
Brd Det/ 6ohm
O.L DET
DC DET
NECK
GNDU
TO AMP ASSY
C 1/2 CN601
SBR
SB/ SBL
CN253
KP200TA20L
R266 100k
R265 22k
Q253 DTC124ES
Q257 2SA933
R269 1K
C251 47/25 NP
R268 100K
D254 MTZJ5.1B
R264 4.7K
R253 100K
R251 100K
R252 100K
R254 100K
R255 100K
R256 100K
Q251 2SC5974
R257 160K
R260 750K
R258 100K
D251 1SS133
IC251(1/2) NJM4558D
IC251(2/2) NJM4558D
R259 100K
D252 1SS133
R261 2.2K
C252 0.01 CKPU
C253 0.01 CKPU
R262 100K
C254 100/25
Q252 2SD1858X
Q254 DTA124ES
Q256 2SC5974
R263 470
D253 MTZJ27D
Q255 DTC124ES
R267 4.7K
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.500 FOR IC52 MFD, BY LITTELFUSE INC.
C 1/2
REG B
REG G
REG B
FL AC1
FL AC2
-VF
53
AKC-081
BROWN
ZWNH1672G22-1-30J
BLUE
ZWNH1672G22-6-28J
R52
27 1/2W
11.7V
D56 1SS133
D57 1SS133
RY51
XSR3010
RY51: POWER RELAY
Q51
DTC143ES
C52 0.01/AC250V XCG3009
RY51
TRANS
120V
10V
110V
0V
Y6 Y7 Y8 Y4 Y3 Y5 Y1
BROWN
YELLOW
YELLOW
BLUE
7 6 5 4 3 2 1
Y9
YELLOW
ZWNH1672G
22-4-15J
(YP)
240V,50Hz
R53
3.3k
IC51
NJM78M56FA
5.6V
OUT
IN
12.2V
D55 S5688G
D51 S5688G
D52 S5688G
D53 S5688G
D54 S5688G
AEK7005
500mA
IC52
R54 10k D58 MTZJ5.1B
C54 47/25
C53 1000/16
IC51: U+5V REG.IC
T51 ATT7040
C51 0.01/AC250V XCG3009
L51 XTF3004
CN51
RKP1751
FU1
H51 H52
REK1027 (T3.15A)
LIVE
NEUTRAL
AC POWER CORD
MYXJ : VDG1080,
MVXJ : VDG1076
C56 0.01 YF
C55 0.01 YF
C57 0.01 YF
KN51
VNF1084
GND
C 2/2
AMP&PRIMARY ASSY
(XWZ3942)
SP-A RY
R/C RY
GNDU
• NOTE FOR FUSE REPLACEMENT
CAUTION -FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.
C 2/2 G

3.10 VIDEO and 5.1CH ASSYS





A

B

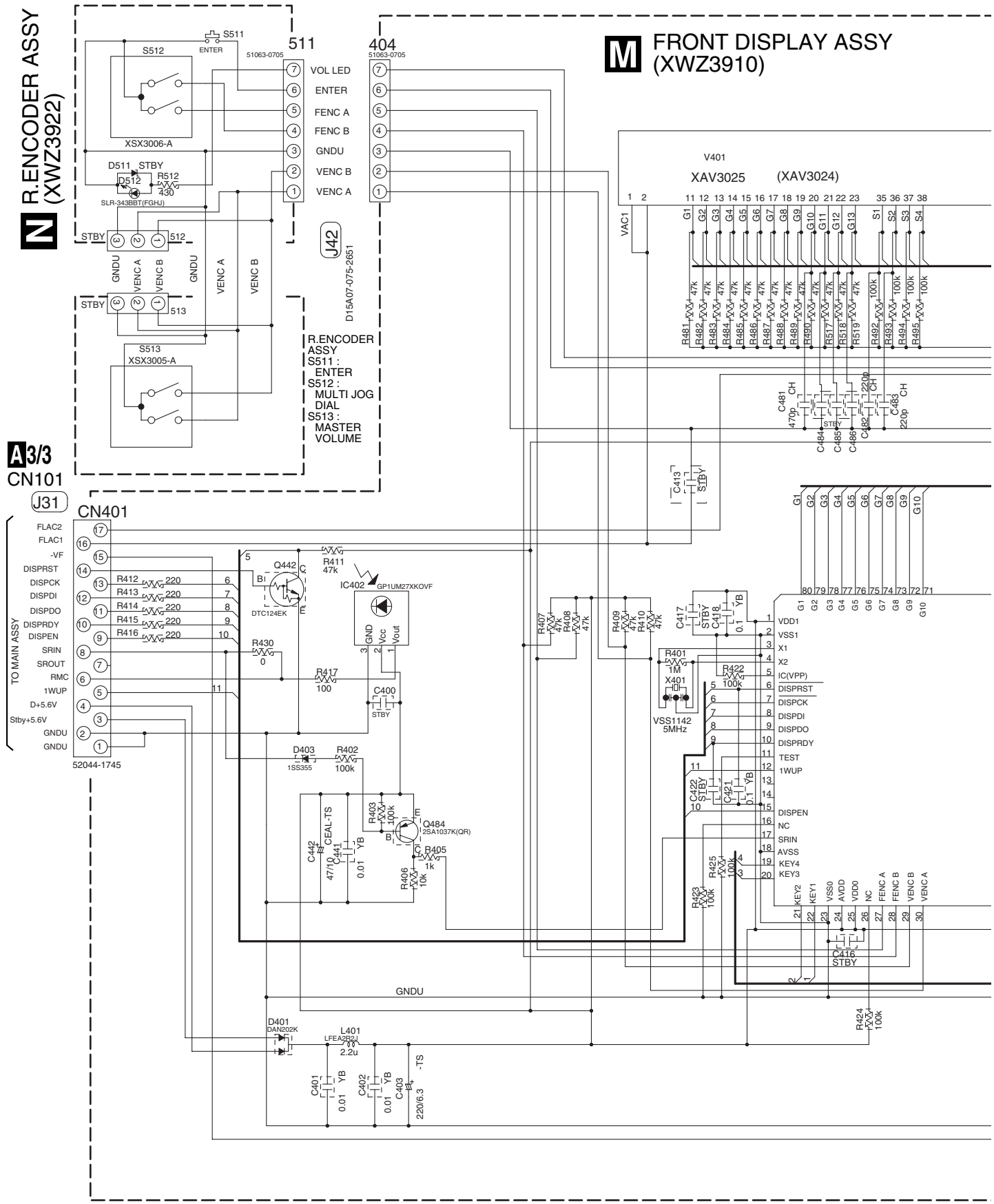
C

D

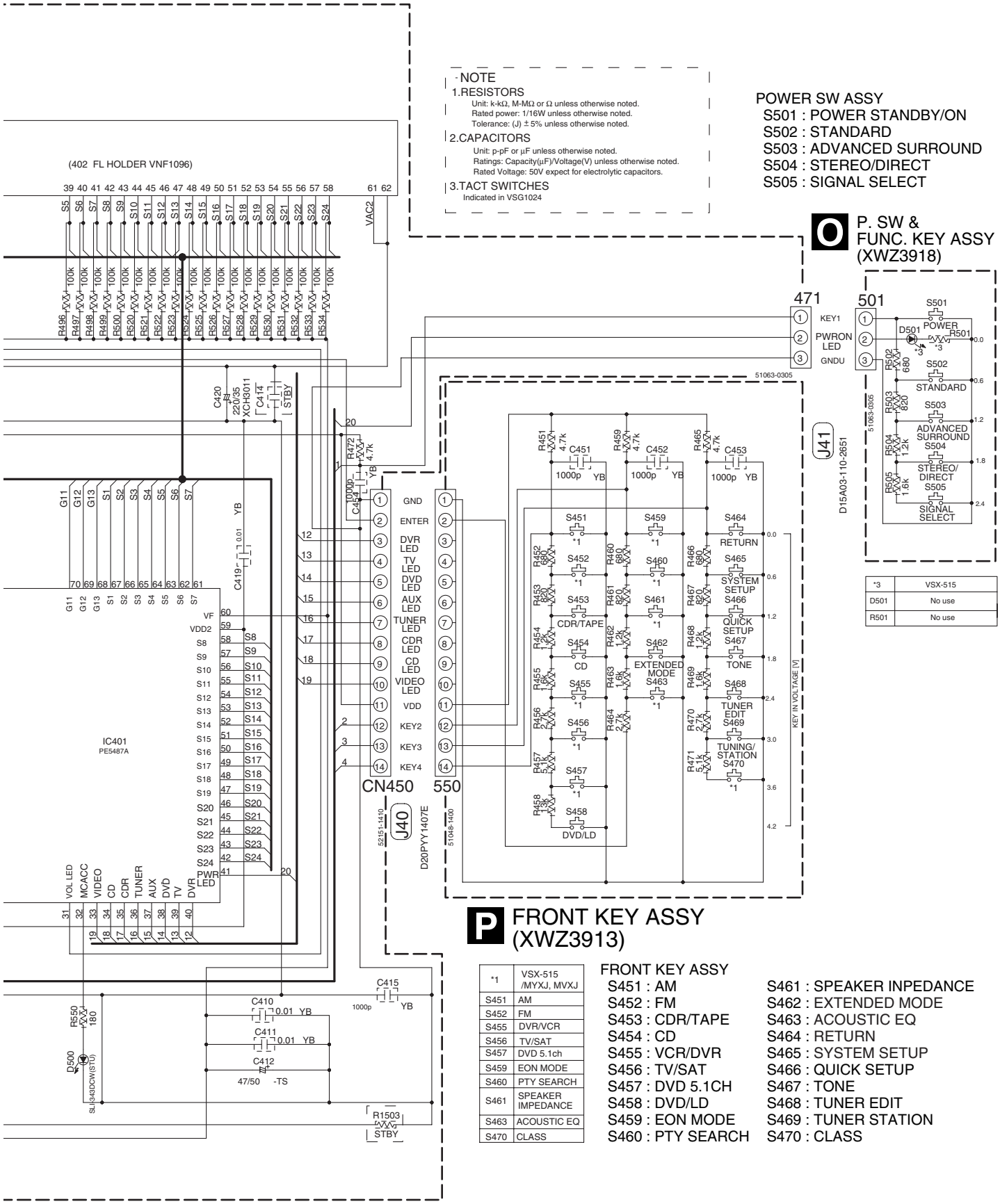
E

F

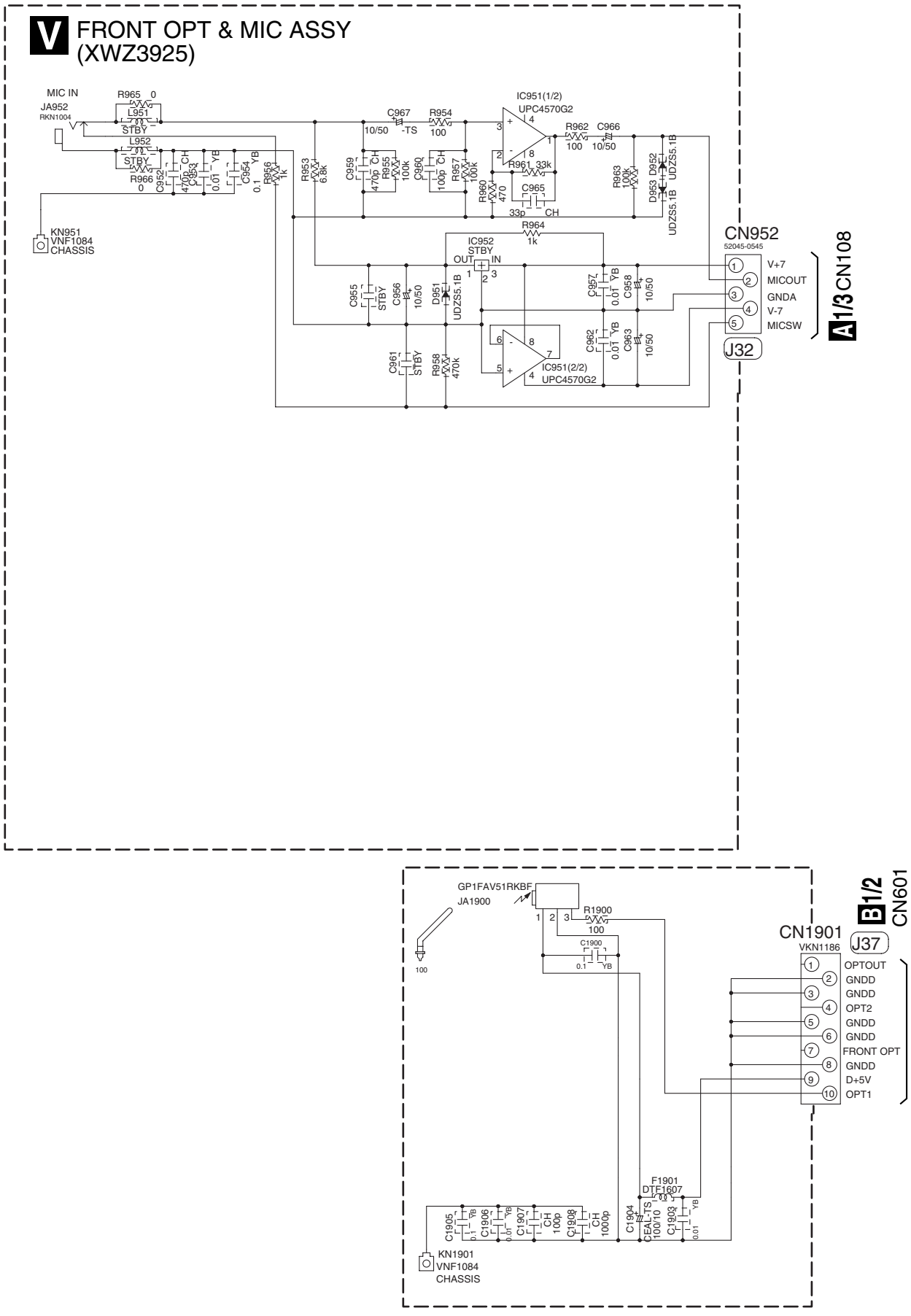
3.11 FRONT DISPLAY, R. ENCODER, P. SW&FUNC KEY and F. KEY ASSYS

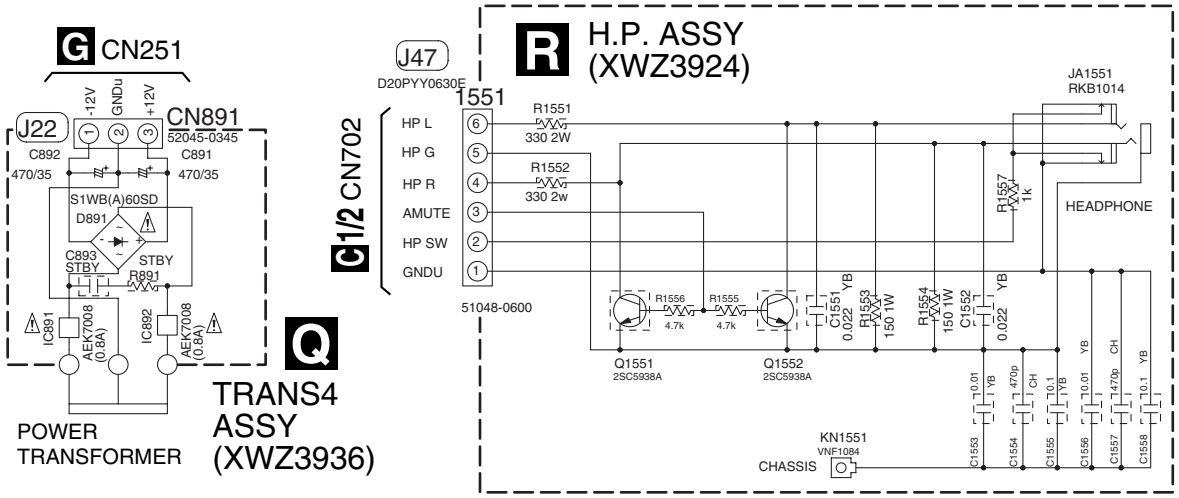


M N


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.
3.TACT SWITCHES
Indicated in VSG1024
POWER SW ASSY
S501 : POWER STANDBY/ON
S502 : STANDARD
S503 : ADVANCED SURROUND
S504 : STEREO/DIRECT
S505 : SIGNAL SELECT
O P. SW & FUNC. KEY ASSY (XWZ3918)
P FRONT KEY ASSY (XWZ3913)
(402 FL HOLDER VNF1096)
IC401
PE5487A
CN450
550
J40
J41
D20PYY1407E
D15A03-110-2651
51063-0305
52151-1410
51046-1400
KEY IN VOLTAGE [V]
*3 VSX-515
D501 No use
R501 No use
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
*1 VSX-515 /MYXJ, MVXJ
S451 AM
S452 FM
S455 DVR/VCR
S456 TV/SAT
S457 DVD 5.1ch
S459 EON MODE
S460 PTY SEARCH
S461 SPEAKER IMPEDANCE
S463 ACOUSTIC EQ
S470 CLASS

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





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

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

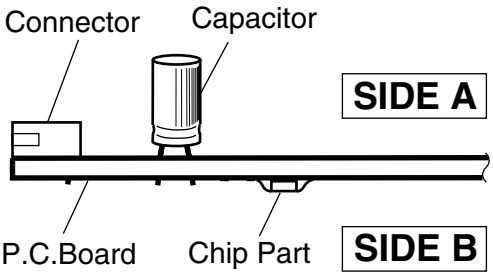
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

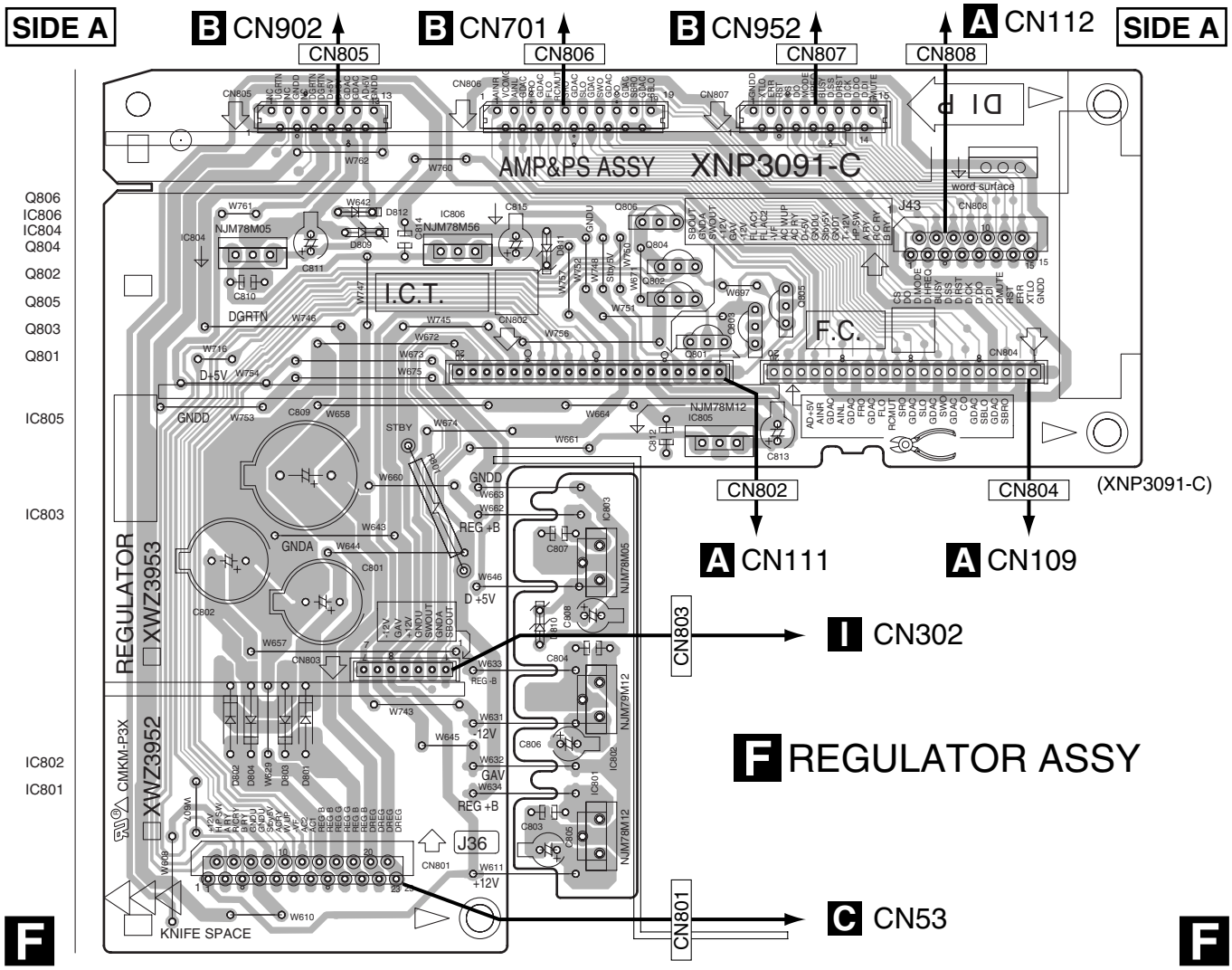
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	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.

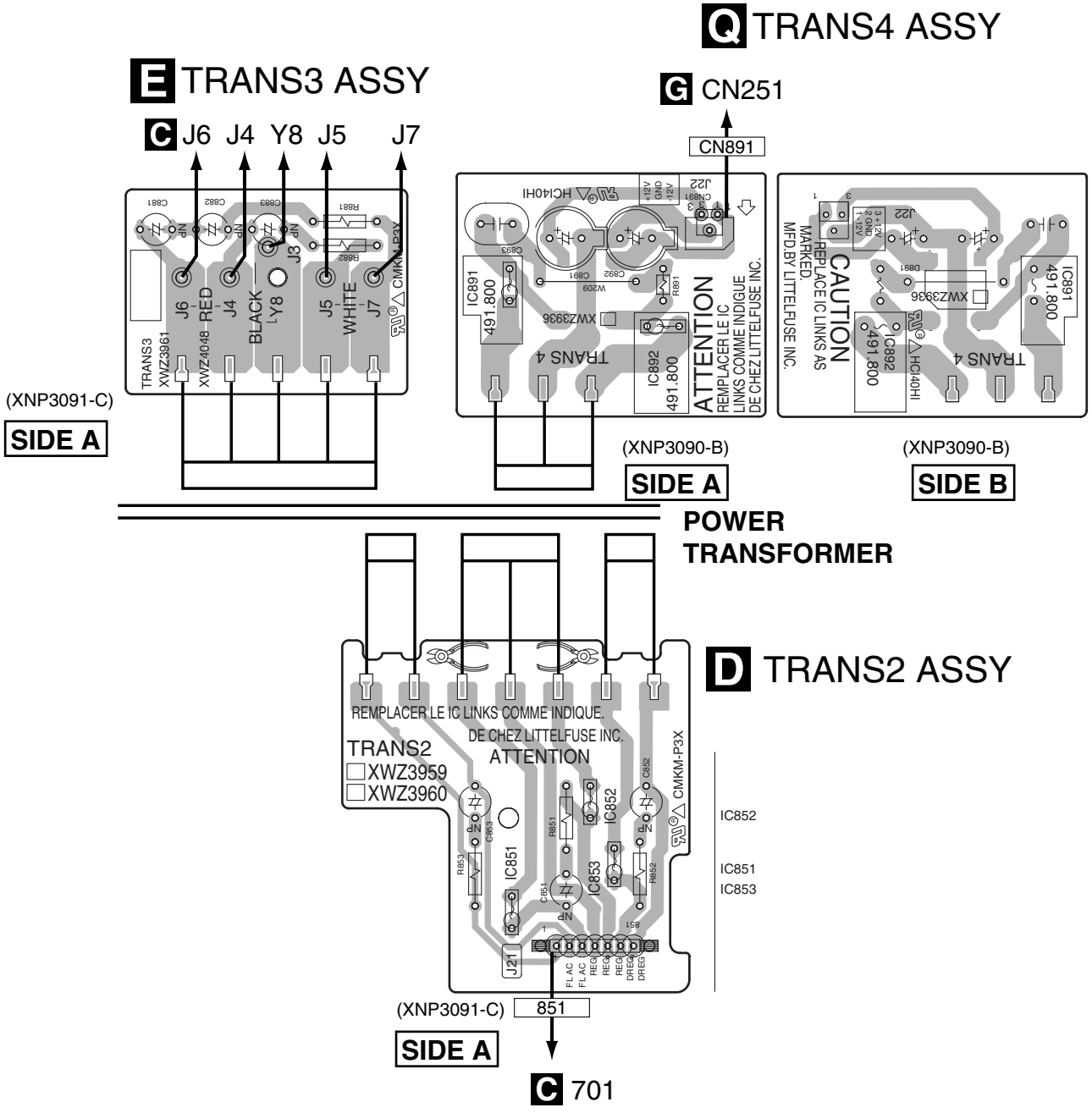


4.1 REGULATOR ASSY



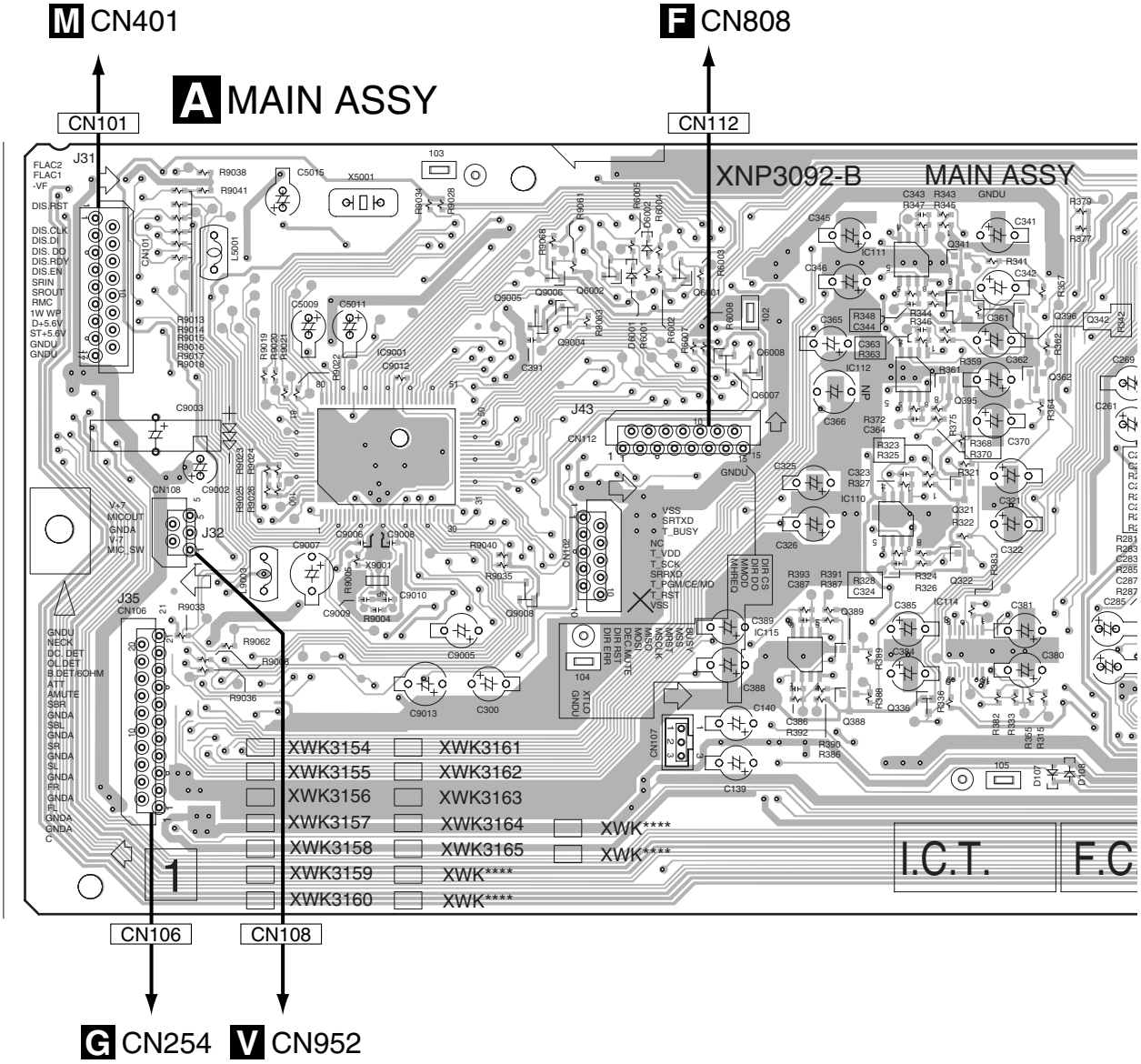
4.2 TRANS2, TRANS3 and TRANS4 ASSYS

SIDE A **SIDE B**

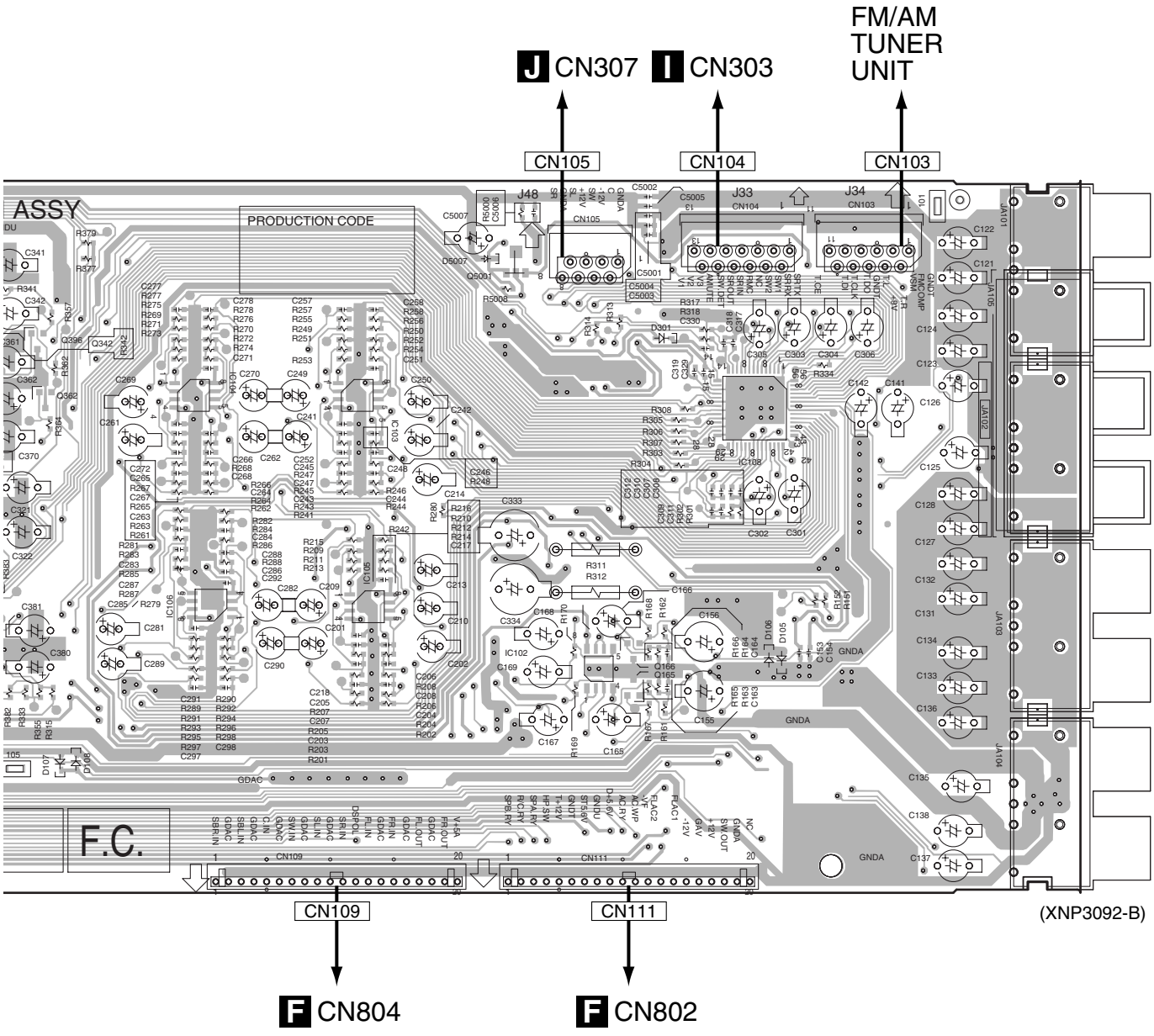


4.3 MAIN ASSY

SIDE A

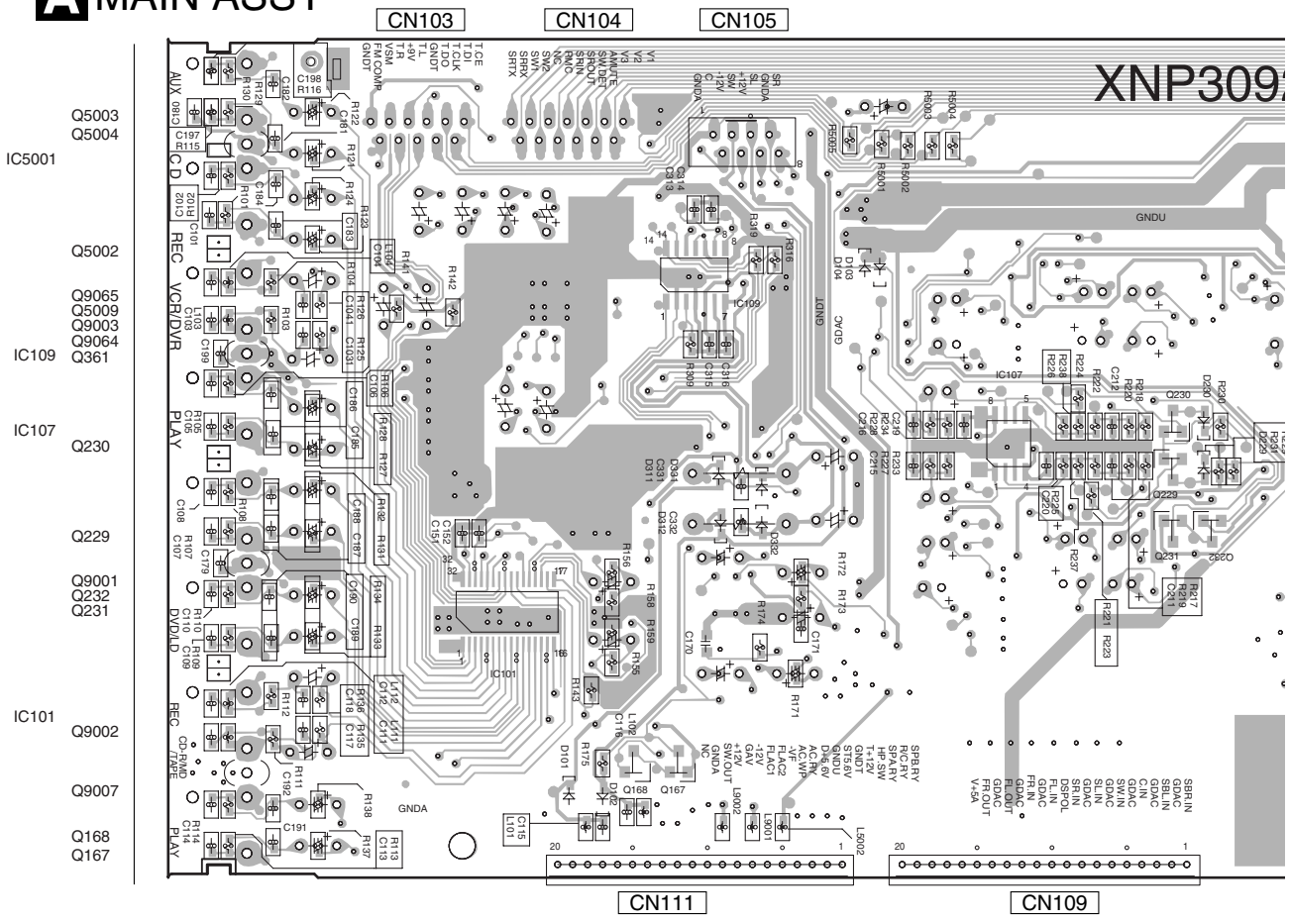


SIDE A


FM/AM
TUNER
UNIT
J CN307
I CN303
CN105
CN104
CN103
ASSY
PRODUCTION CODE
F.C.
CN109
CN111
F CN804
F CN802
(XNP3092-B)

SIDE B

A MAIN ASSY



SIDE B

A

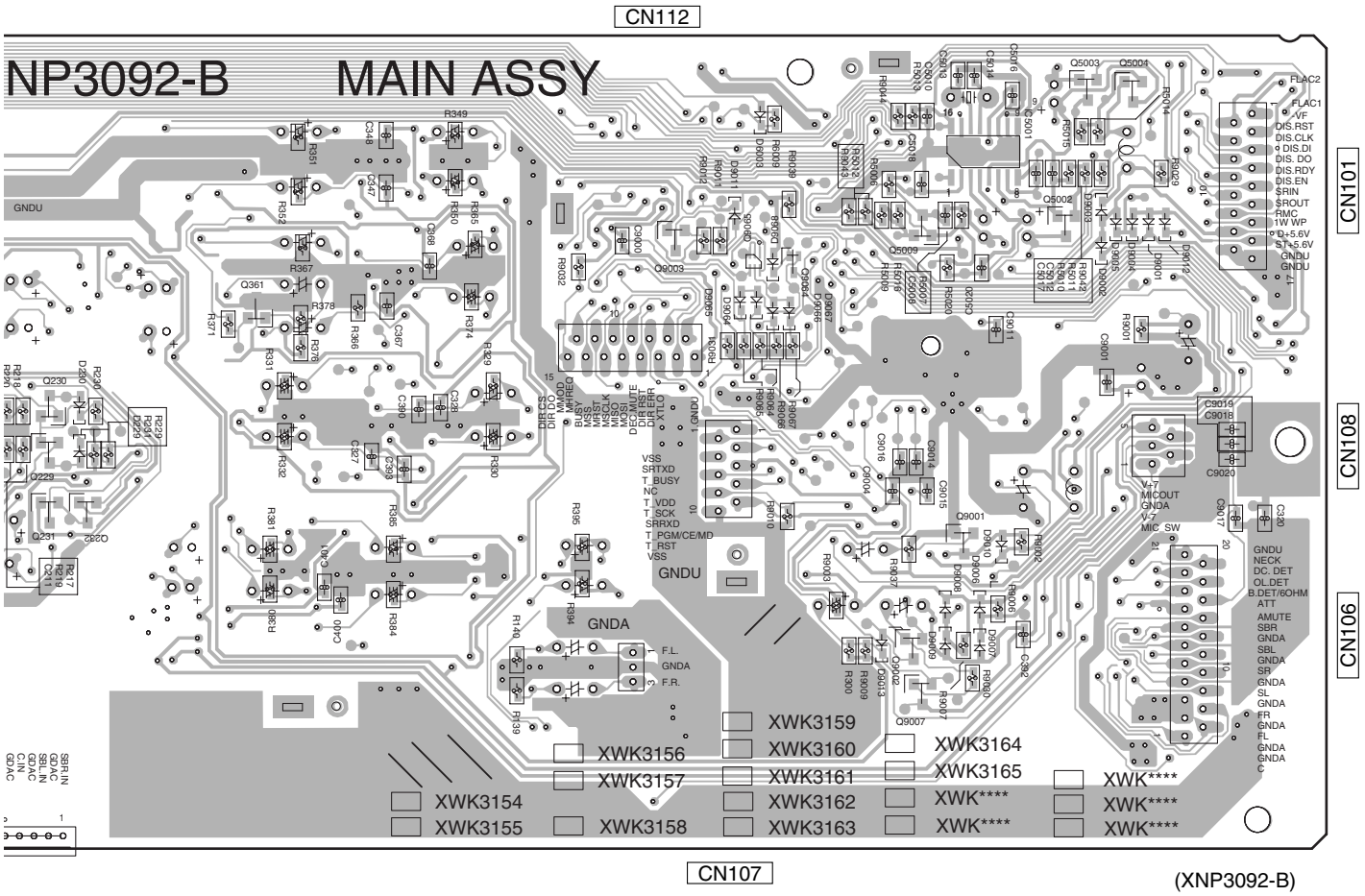
B

C

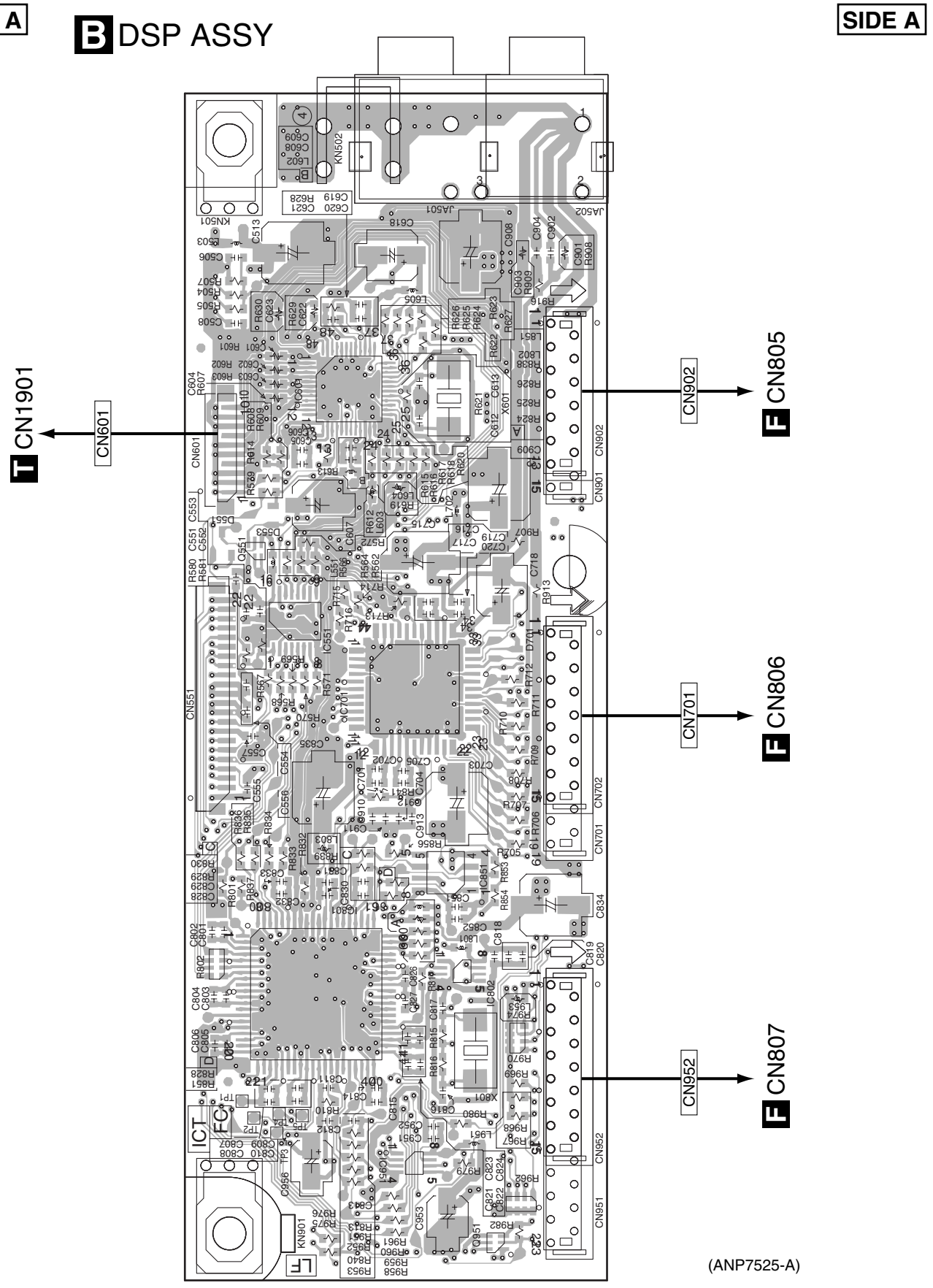
D

E

F



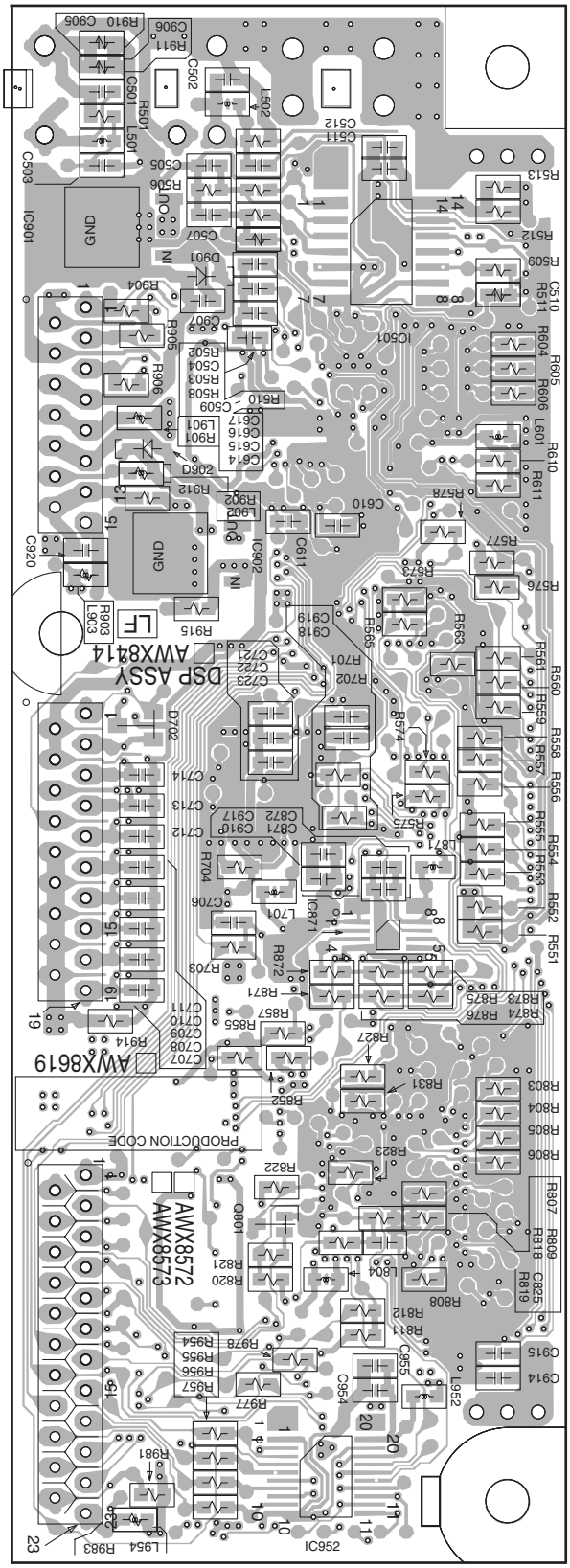
4.4 DSP ASSY


SIDE A
B DSP ASSY
SIDE A
T CN1901
CN601
CN902
F CN805
CN701
F CN806
CN952
F CN807
ICT
FC
LF
(ANP7525-A)
Q551
Q951
IC601
IC701
IC551
IC801
IC951
IC802
IC851

SIDE B

B DSP ASSY

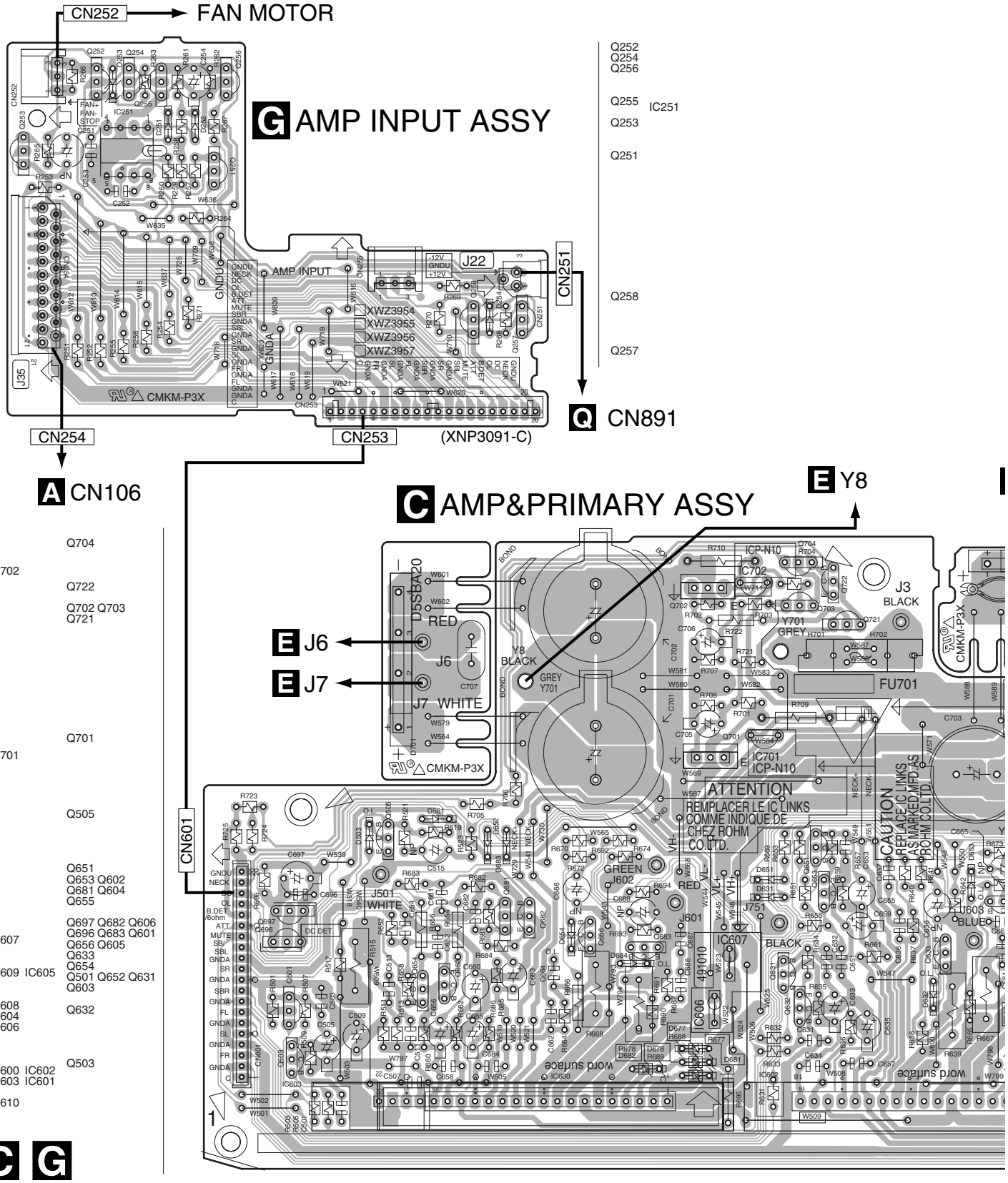
SIDE B

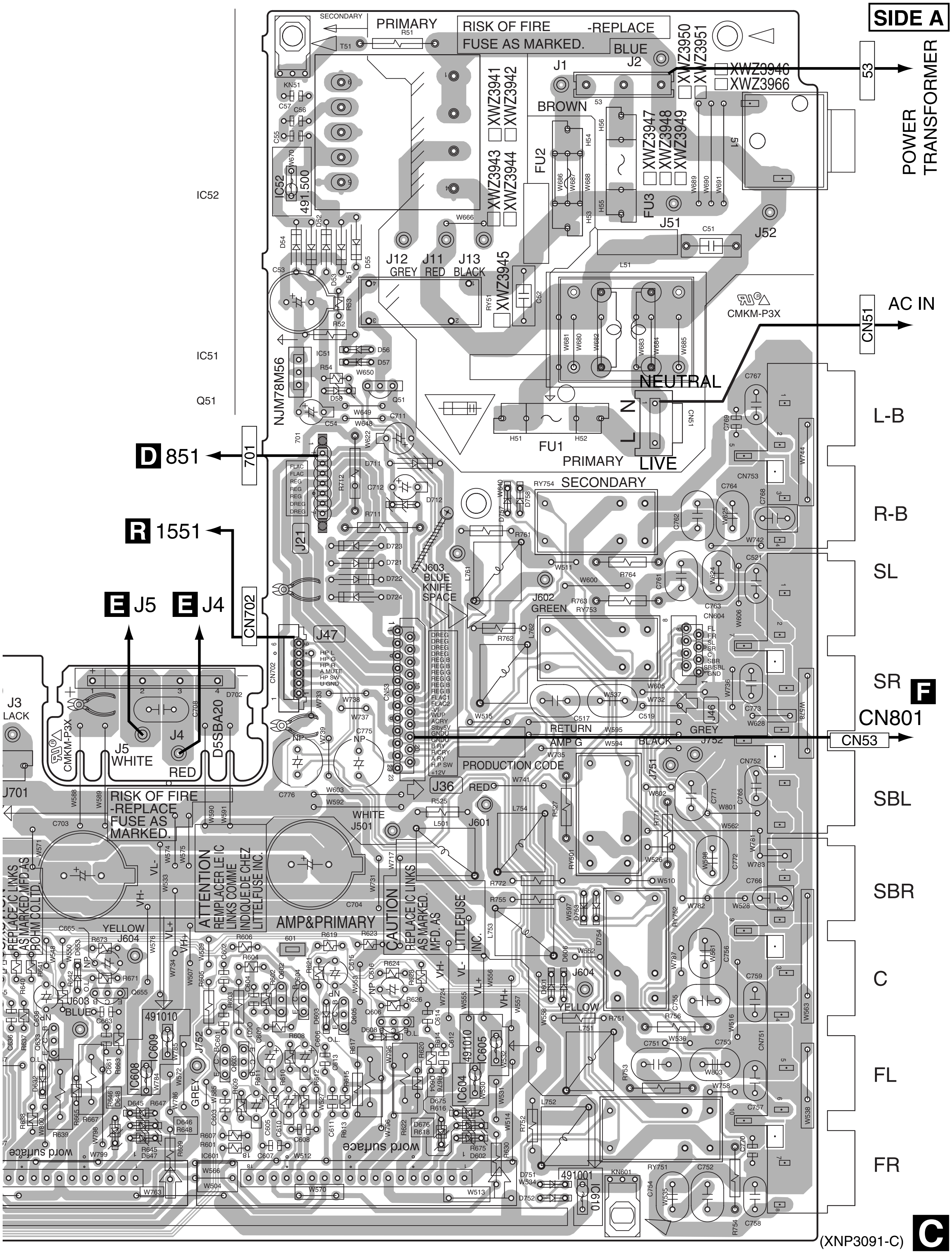


(ANP7525-A)

4.5 AMP & PRIMARY and AMP INPUT ASSYS

SIDE A

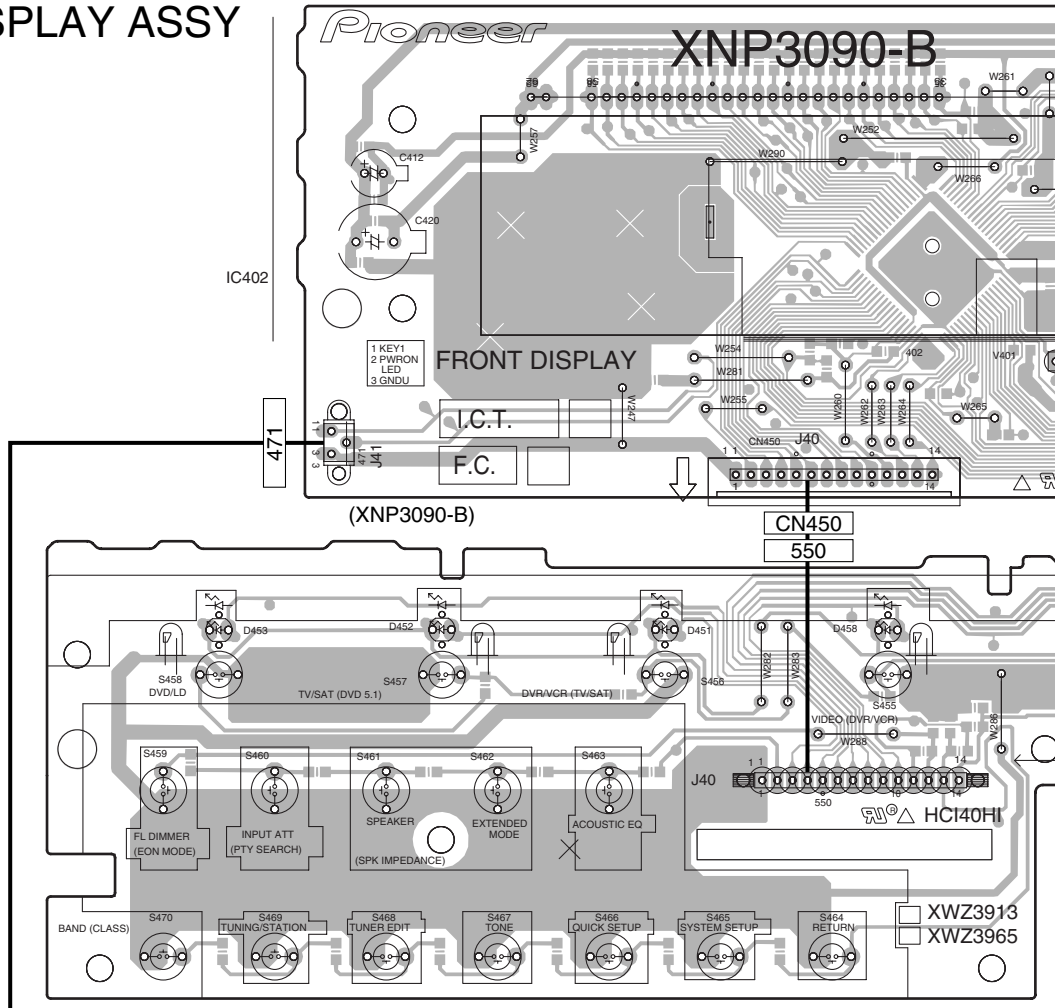



SIDE A
POWER TRANSFORMER
53
AC IN
CN51
L-B
R-B
SL
SR
F
CN801
CN53
SBL
SBR
C
FL
FR
D 851
701
R 1551
E J5
E J4
CN702
J47
J3
BLACK
J5
WHITE
J4
RED
D5SBA20
CMKM-P3X
J701
RISK OF FIRE
-REPLACE
FUSE AS MARKED.
PRIMARY
SECONDARY
BLUE
J1
J2
BROWN
XWZ3950
XWZ3951
XWZ3946
XWZ3966
XWZ3941
XWZ3942
XWZ3943
XWZ3944
XWZ3945
XWZ3947
XWZ3948
XWZ3949
FU2
FU3
J51
J52
J12
J11
J13
GREY
RED
BLACK
IC52
491.500
IC51
NJM78M56
Q51
NEUTRAL
N
L
LIVE
FU1
J603
BLUE
KNIFE
SPACE
J602
GREEN
J21
RETURN
AMP G
GREY
BLACK
J752
J46
PRODUCTION CODE
J36
RED
WHITE
J501
J601
J751
ATTENTION
REMPLACER LE IC
LINKS COMME
INDIQUE.DE CHEZ
LITTELFUSE INC.
CAUTION
REPLACE IC LINKS
AS MARKED. MFD. AS
LITTLEFUSE INC.
AMP&PRIMARY
REPLACE IC LINKS
AS MARKED.MFD.AS
ROHM CO.LTD.
YELLOW
J604
BLUE
J603
491010
IC609
IC608
IC605
IC604
J604
YELLOW
491001
IC610
IC601
word surface
(XNP3091-C)

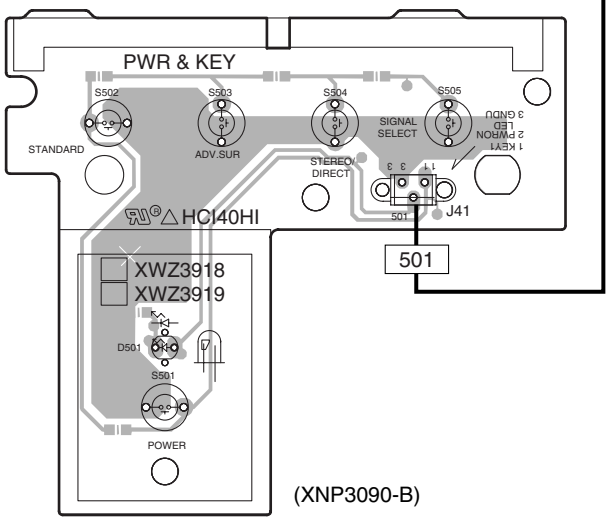
4.6 F. DISPLAY, R. ENCODER, P. SW & KEY, H. P. and F. KEY ASSYS

SIDE A

M FRONT DISPLAY ASSY

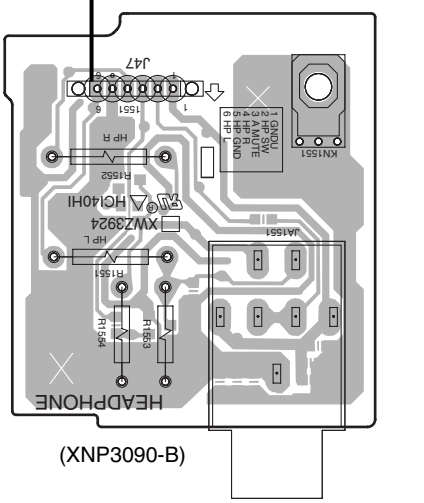


O POWER SW & KEY ASSY

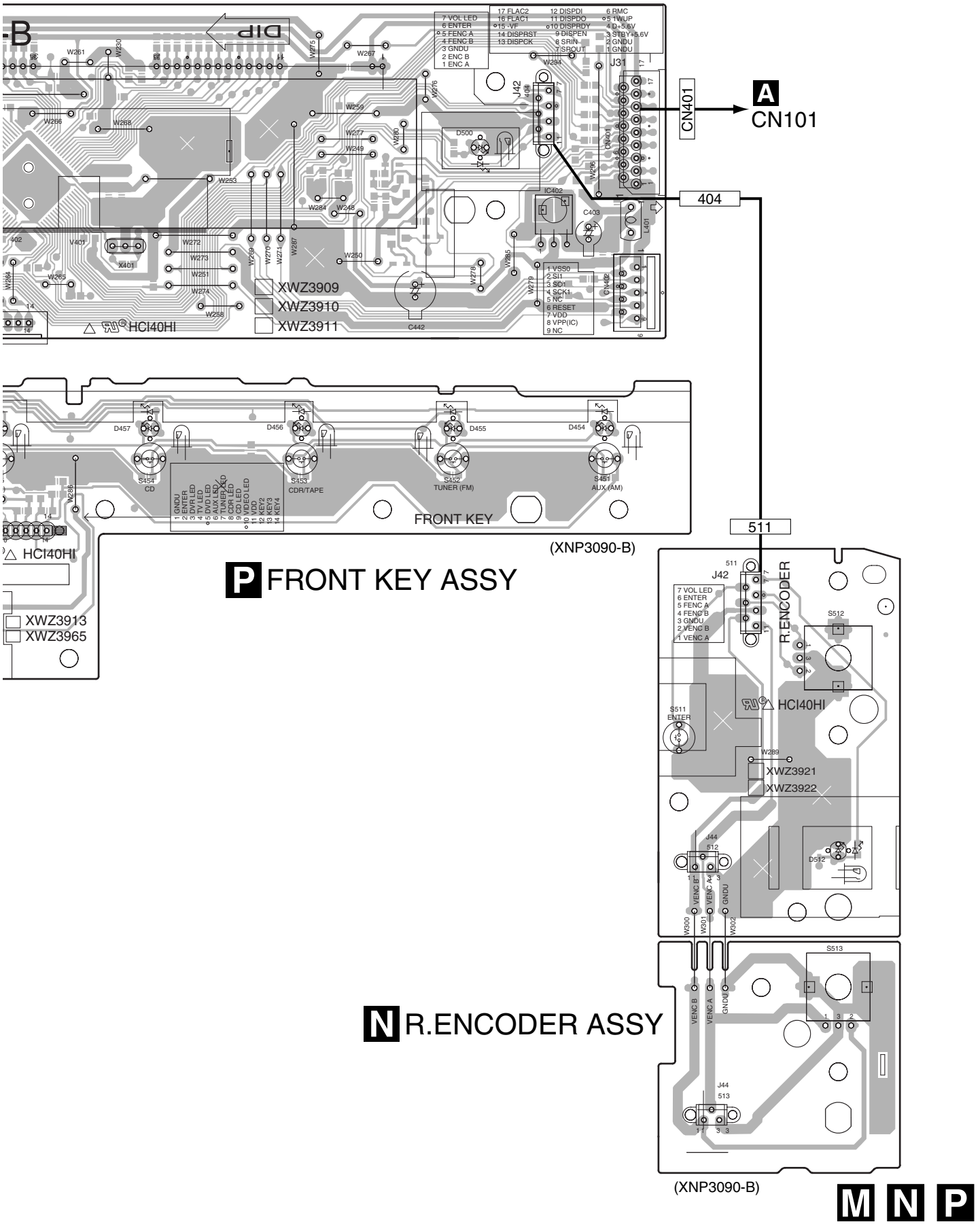


C CN702

R H.P ASSY

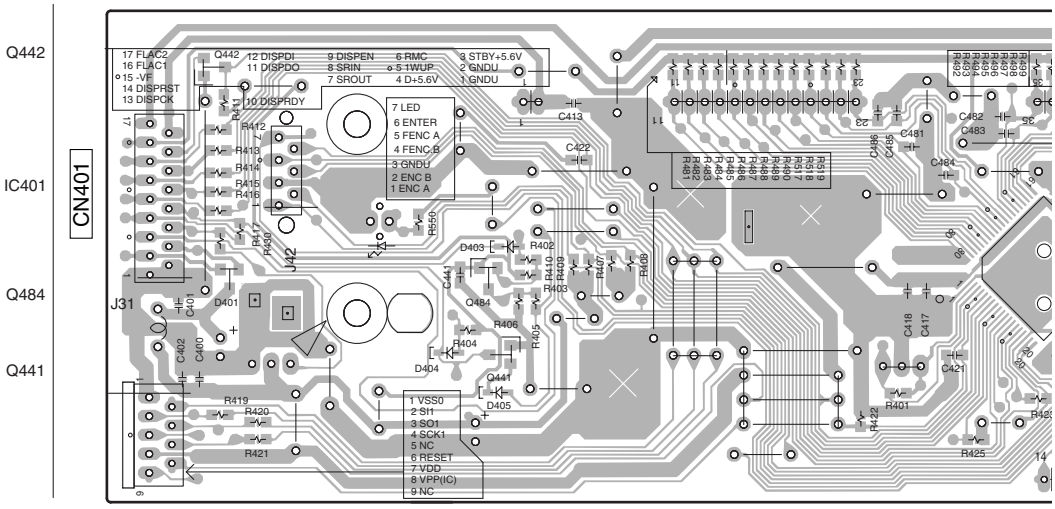


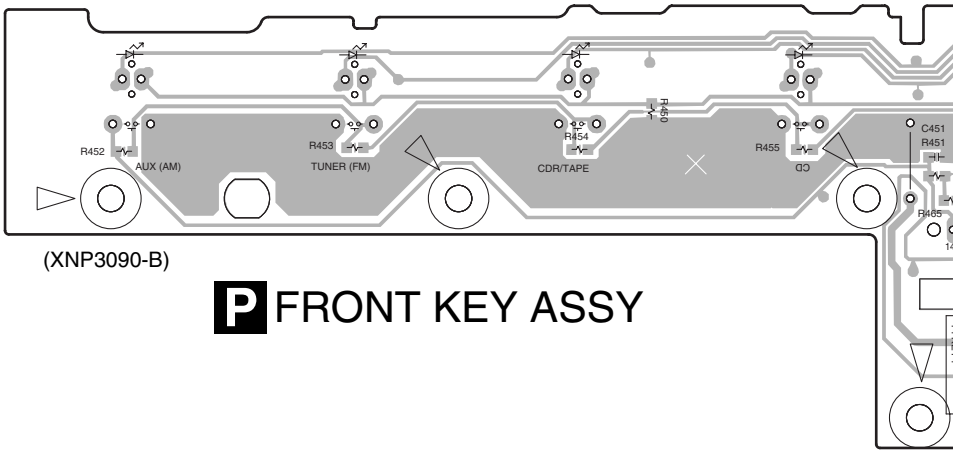
SIDE A


CN401
A
CN101
404
511
XWZ3909
XWZ3910
XWZ3911
HCI40HI
FRONT KEY
(XNP3090-B)
P FRONT KEY ASSY
XWZ3913
XWZ3965
R.ENCODER
XWZ3921
XWZ3922
N R.ENCODER ASSY
(XNP3090-B)
M N P

SIDE B

404

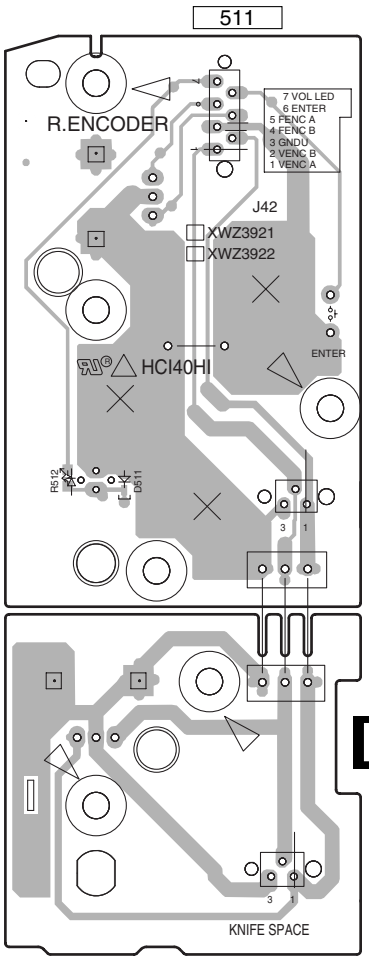




(XNP3090-B)

P FRONT KEY ASSY

511



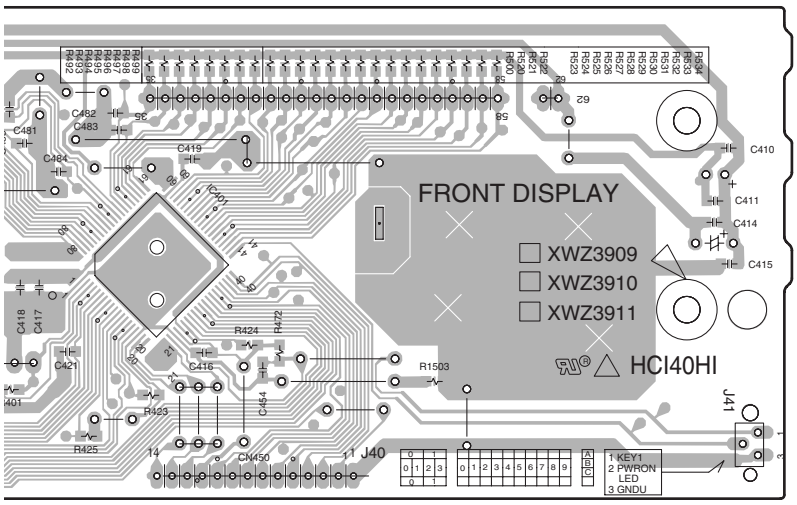
(XNP3090-B)

N R.ENCODER ASSY

M N P

SIDE B

M FRONT DISPLAY ASSY

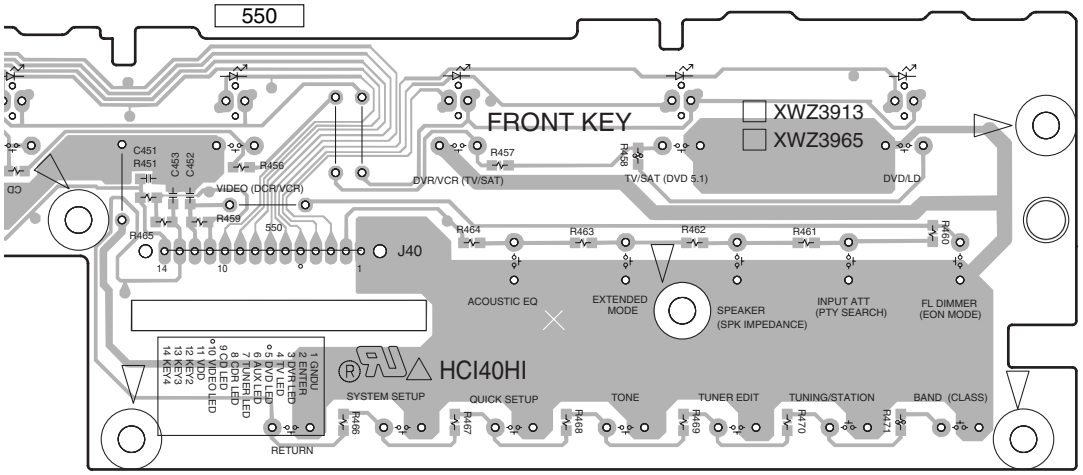


471

(XNP3090-B)

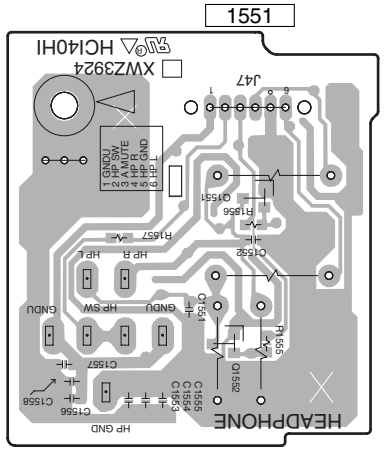
CN450

550



R H.P ASSY

1551

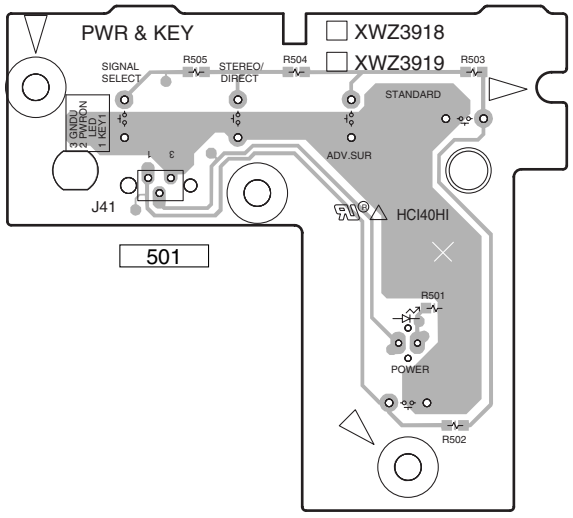


Q1551

Q1552

(XNP3090-B)

O POWER SW & KEY ASSY



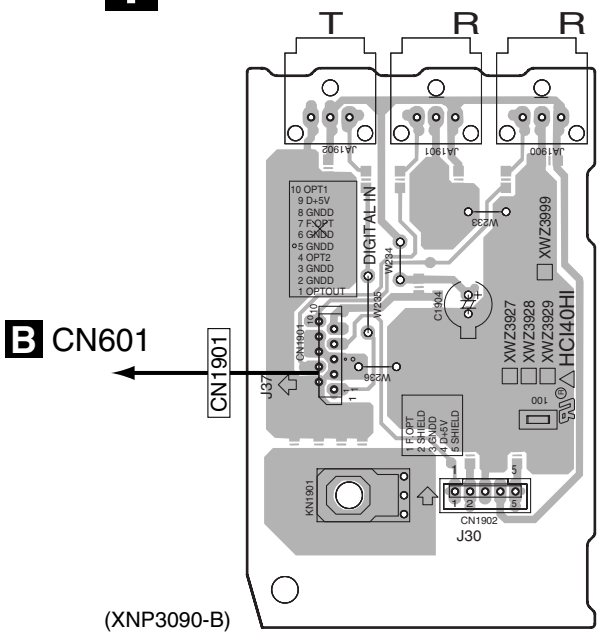
501

(XNP3090-B)

4.7 DIGITAL IN, VIDEO and 5.1CH ASSYS

SIDE A

T DIGITAL IN ASSY



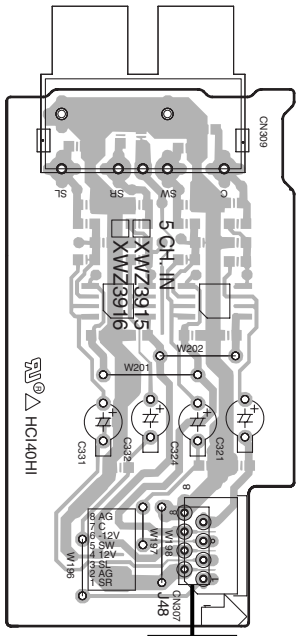
B CN601

CN1901

(XNP3090-B)

SIDE A

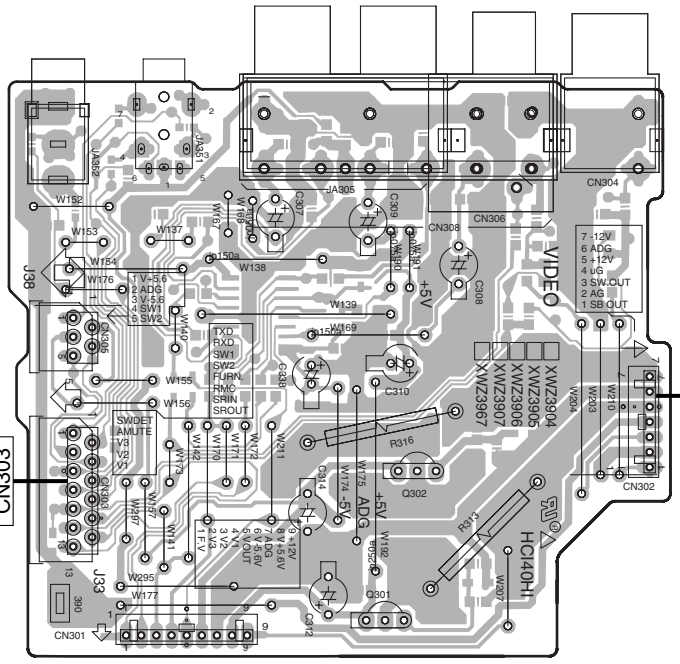
J 5.1CH ASSY



(XNP3090-B)

A CN105

I VIDEO ASSY



A CN104

Q302

Q301

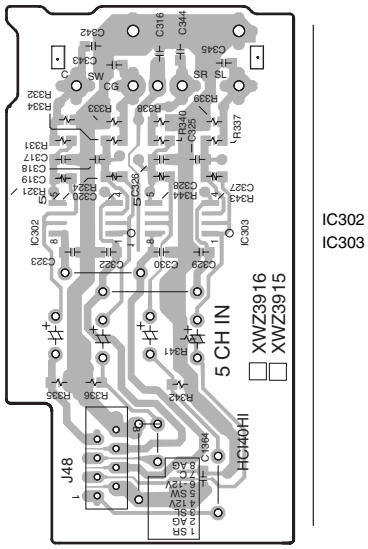
F CN803

(XNP3090-B)

SIDE B

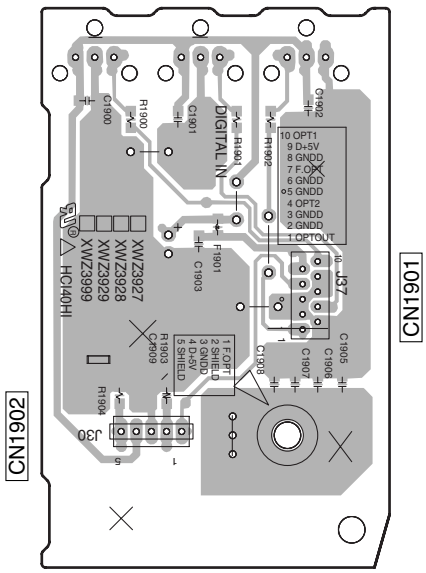
SIDE B

J 5.1CH ASSY



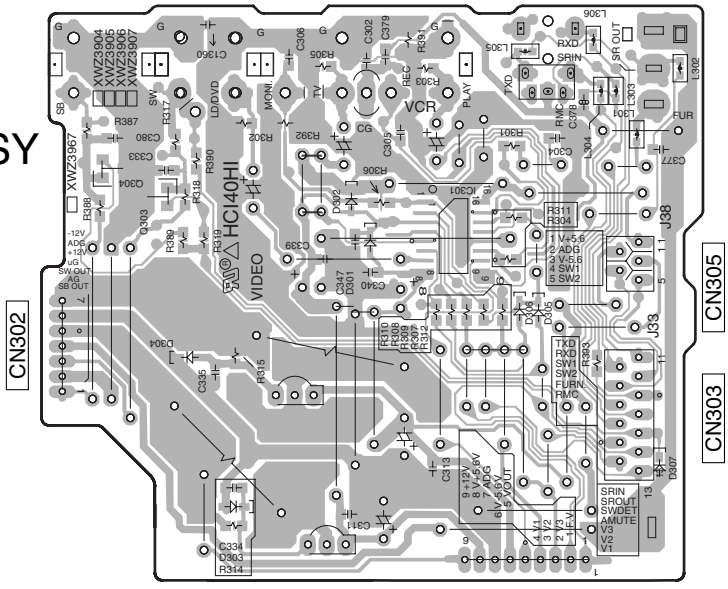
(XNP3090-B)

T DIGITAL IN ASSY



(XNP3090-B)

I VIDEO ASSY



(XNP3090-B)

4.8 FRONT INPUT ASSY

SIDE A

SIDE A

A

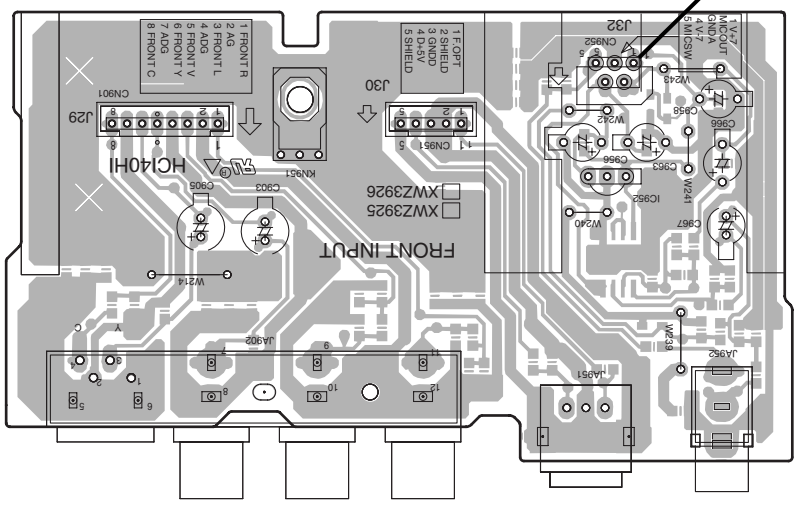
A CN108

CN952

B

V
FRONT
INPUT
ASSY

IC952



(XNP3090-B)

C

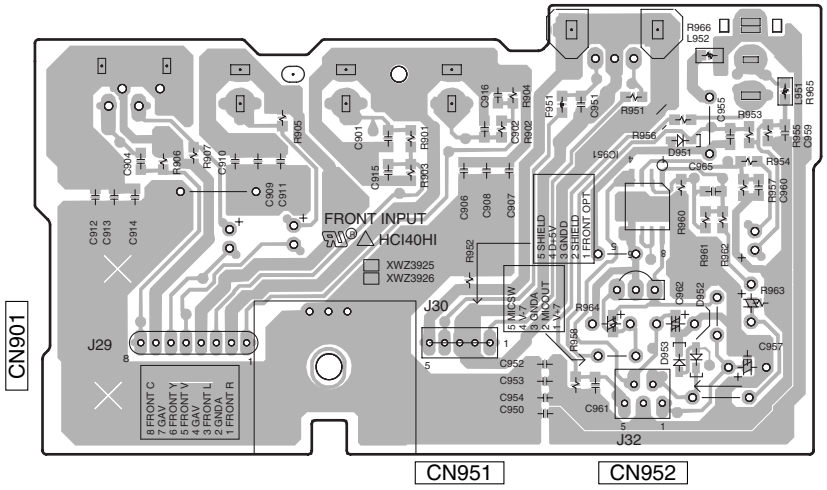
SIDE B

SIDE B

D

V
FRONT
INPUT
ASSY

IC951



(XNP3090-B)

E

F

V **V**

5. PCB 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.*
- *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 Ω	→ *56 x 10^1* →	*561*	*RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10^3* →	*473*	*RD1/4PU 4 7 3 J*
0.5 Ω	→ *R50*		*RN2H R 5 0 K*
1 Ω	→ *1R0*		*RS1P 1 R 0 K*

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

5.62k Ω	→ *562 x 10^1* →	*5621*	*RN1/4PC 5 6 2 1 F*

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

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

Mark	No.	Description	Part No.
	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)
COILS AND FILTERS			
	L9001, L9002 CHIP SOLID INDUCTOR		ATL7002
	L5001, L9003		LFEA2R2J
	L101–L104, L111, L112, L5002 CHIP SOLID INDUCTOR		QTL1013
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		CEAT100M50
	C249, C250, C269, C270, C290		CEAT100M50
	C301–C306, C321, C322		CEAT100M50
	C341, C342, C361, C362, C380		CEAT100M50
	C384		CEAT100M50
	C5015		CEAT101M10
	C5007		CEAT101M16
	C169		CEAT221M6R3
	C201, C202, C241, C242		CEAT2R2M50
	C261, C262, C282, C5011, C9005		CEAT2R2M50
	C9007		CEAT331M6R3
	C325, C326, C345, C346, C365		CEAT470M25
	C388		CEAT470M25
	C155, C156		CEAT470M50
	C333, C334		CEAT471M10
	C9013		CEAT471M6R3
	C165, C166, C370		CEAT4R7M50
	C170		CKSQYB104K16
	C320, C392, C5001, C5016		CKSRYB102K50
	C9015, C9016		CKSRYB102K50
	C115, C116, C153, C154, C171		CKSRYB103K50
	C179, C180, C199, C215–C218		CKSRYB103K50
	C251, C252, C266, C271, C272		CKSRYB103K50
	C291, C292, C315, C316, C319		CKSRYB103K50
	C327–C330, C347, C348		CKSRYB103K50
	C367, C368, C390, C393, C5002		CKSRYB103K50
	C5008, C9004, C9008, C9017		CKSRYB103K50
	C219, C220, C309–C312, C9018		CKSRYB104K16
	C5003, C9006		CKSRYB105K10
	C264		CKSRYB223K25
	C257, C258, C277, C278, C298		CKSRYB472K50
	C307, C308, C364, C5020		CKSRYB472K50
	C9011, C9014		CKSRYB473K16
	C268		CKSRYB562K50
	C391		CKSRYF104Z16
	C9003 (1F/5.5V)		PCH1132

RESISTORS

⚠	R311, R312	RS1LMF101J
	Other Resistors	RS1/16S###J

OTHERS

	CN105 8P CONNECTOR	52044-0845
	CN103 11P CONNECTOR	52044-1145
	CN104 13P CONNECTOR	52044-1345
	CN108	52045-0545
	CN102 10P CONNECTOR	52045-1045
	CN112 15P CONNECTOR	52045-1545
	CN101 17P CONNECTOR	52045-1745
	CN106 21P CONNECTOR	52045-2145
	CN109, CN111 20P SOCKET	KP200TA20L
	105 PCB BINDER	VEF1040
	JA103, JA104 PIN JACK (4P)	XKB3017
	JA105 PIN JACK (6P)	XKB3037
	X5001 CRYSTAL RESONATOR (4.332 MHz)	ASS7004
	X9001 CERAMIC RESONATOR (15.7 MHz)	XSS3004

B DSP ASSY

Mark	No.	Description	Part No.

SEMICONDUCTORS

	IC601	AK4114VQ
	IC701	AK4628VQE
	IC801	DSPC56371AF180
⚠	IC902	LM1117DT-ADJ
⚠	IC901	NJM2391DL1-33
	IC851	PDC121A8
	IC501	TC74HCU04AF
	IC952	TC74VHCT244AFTS1
	IC871	TC7WH125FU
	IC802	TC7WU04FU
	Q801	UN5212
	D702	DAN202K
	D701	DAP202K
	D901, D902	UDZS5R6(B)

COILS AND FILTERS

	L802, L803, L901, L902 CHIP SOLID INDUCTOR	ATL7002
	L501–L503, L601, L602, L605	QTL1013
	L701, L702, L801, L804, L851	QTL1013
	L871, L952 CHIP SOLID INDUCTOR	QTL1013

CAPACITORS

	C705	CCSRCH101J50
	C612, C613	CCSRCH120J50
	C505, C506	CCSRCH470J50
	C511, C605, C608, C620, C702	CCSRCH471J50
	C707–C714, C717, C801, C803	CCSRCH471J50
	C805, C807, C809, C814, C818	CCSRCH471J50
	C821, C823, C826, C828, C830	CCSRCH471J50
	C832, C851, C871, C916, C919	CCSRCH471J50
	C954	CCSRCH471J50
	C816, C817	CCSRCH8R0D50
	C956	CEVW100M16
	C513, C703, C715, C834, C835	CEVW101M16
	C908, C909	CEVW101M16
	C607, C618, C718	CEVW470M6R3
	C617	CKSRYB102K50
	C503, C504, C701, C820, C825	CKSRYB103K50
	C917	CKSRYB103K50
	C606, C609, C614, C619, C704	CKSRYB104K16
	C706, C716, C720, C802, C804	CKSRYB104K16
	C806, C808, C810, C815, C819	CKSRYB104K16
	C822, C824, C827, C829, C831	CKSRYB104K16
	C833, C852, C872, C907, C918	CKSRYB104K16
	C955	CKSRYB104K16
	C512	CKSRYB105K6R3
	C621	CKSRYB474K10

RESISTORS

	R802	RAB4C101J
	R962, R970	RAB4C104J
	R628	RS1/16S1802F
	Other Resistors	RS1/16S###J

OTHERS

	JA501 2P PIN JACK	AKB7131
	CN601 10P CONNECTOR	VKN1414
	CN902 13P SOCKET	XKP3077
	CN952 15P SOCKET	XKP3078
	CN701 19P SOCKET	XKP3080
	X601 CRYSTAL RESONATOR (12.288MHz)	ASS7046

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

C AMP & PRIMARY ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
⚠	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

Mark	No.	Description	Part No.
	L751–L754, L761, L762	COIL	ATH1004
⚠	L51	LINE FILTER	XTF3004

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	RY751–RY753		XSR3009
⚠	RY51		XSR3010

CAPACITORS

Mark	No.	Description	Part No.
	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
	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

Mark	No.	Description	Part No.
⚠	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

Mark	No.	Description	Part No.
	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

Mark	No.	Description	Part No.
⚠	IC851–IC853	PROTECTOR (4A)	AEK7018

OTHERS

Mark	No.	Description	Part No.
	851	7P CABLE HOLDER	XKP3047

E TRANS3 ASSY

TRANS3 ASSY has no service part.

F REGULATOR ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
⚠	IC803, IC804		NJM78M05FA
⚠	IC801, IC805		NJM78M12FA
⚠	IC806		NJM78M56FA
⚠	IC802		NJM79M12FA
	Q801, Q803		DTA124ES
	Q802, Q804		DTC114ES
	D809–D811		MTZJ6.2B
⚠	D801–D804		S5688G

CAPACITORS

Mark	No.	Description	Part No.
	C811, C815		CEAT101M10
	C813		CEAT101M16
	C801, C802		CEAT222M25

Mark	No.	Description	Part No.
	C809		CEAT472M16
	C808		CEHAT101M10
	C805, C806		CEHAT101M16
	C803, C804, C807, C810, C812		CKPUYF103Z25
	C814		CKPUYF103Z25
	RESISTORS		
⚠	R801		RS3LMF331J
	OTHERS		
	CN808	15P CONNECTOR	52045-1545
	CN801	23P CONNECTOR	52045-2345
	CN802, CN804	20P PLUG	KM200TA20
	CN803	7P PLUG	KM200TA7
	CN805	13P PLUG	XKP3066
	CN807	15P PLUG	XKP3067
	CN806	19P PLUG	XKP3069

G AMP INPUT ASSY

	SEMICONDUCTORS		
	IC251		NJM4558D-D
	Q257		2SA933S
	Q251, Q256		2SC5974A
	Q252		2SD1858X
	Q254		DTA124ES
	Q253, Q255		DTC124ES
	D251, D252		1SS133
	D253		MTZJ27D
	D254		MTZJ5.1B
	CAPACITORS		
	C251		CEANP470M25
	C254		CEAT101M25
	C252, C253		CKPUYF103Z25
	RESISTORS		
	Other Resistors		RD1/4PU###J
	OTHERS		
	CN251	3P CONNECTOR	52044-0345
	CN254	21P CONNECTOR	52044-2145
	CN253	20P SOCKET	KP200TA20L
	CN252	3PIN CONNECTOR	S3B-EH

I VIDEO ASSY

	SEMICONDUCTORS		
	IC301		NJM2595M
	Q302		2SA1515
	Q301		2SC3377
	Q303		2SC5938A
	D301, D302, D305, D306		1SS355
	D307		UDZS5R1(B)
	D303, D304		UDZS6R2(B)
	CAPACITORS		
	C347		CCSRCH470J50
	C307–C310, C312, C314, C338		CEAT470M25
	C1360, C302		CKSRYB103K50
	C339, C340		CKSRYB104K25
	C304–C306		CKSRYB221K50
	C333		CKSRYB331K50
	C311, C313		CKSRYB473K25
	RESISTORS		
⚠	R313, R316		RS3LMF560J
	Other Resistors		RS1/16S###J
	OTHERS		
	CN303	13P CONNECTOR	52044-1345
	JA305	PIN JACK(4P)YELLOW	AKB7100
	CN302	7P SOCKET	KP200TA7L
	390	PCB BINDER	VEF1040
	CN306	2P PIN JACK	XKB3041

J 5.1CH ASSY

	CAPACITORS		
	C342–C345		CCSRCH101J50
	C321, C324, C331, C332		CEAT4R7M50
	C1364		CKSRYB102K50
	C316		CKSRYB103K50
	C317, C318, C325, C326		CKSRYB221K50
	RESISTORS		
	All Resistors		RS1/16S###J
	OTHERS		
	CN307	8P CONNECTOR	52044-0845
	CN309	PIN JACK (4P)	XKB3035

M FRONT DISPLAY ASSY

	SEMICONDUCTORS		
	IC402		GP1UM27XK0VF
	IC401		PE5487A
	Q484		2SA1037K
	Q442		DTC124EK
	D403		1SS355
	D401		DAN202K
	D500		SLI-343DCW
	COILS AND FILTERS		
	L401		LFEA2R2J
	CAPACITORS		
	C482, C483		CCSRCH221J50
	C481		CCSRCH471J50
	C442		CEAL470M10
	C403		CEAT221M6R3
	C412		CEAT470M50
	C415, C454		CKSRYB102K50
	C401, C402, C410, C411, C419		CKSRYB103K50
	C441		CKSRYB103K50
	C418, C421		CKSRYB104K16
	C420 (220uF/35V)		XCH3011
	RESISTORS		
	All Resistors		RS1/16S###J
	OTHERS		
	471	CABLE HOLDER (3P)	51063-0305
	404	CABLE HOLDER (7P)	51063-0705
	CN401	17P CONNECTOR	52044-1745
	CN402	9P CONNECTOR	52492-0920
	V401	FL TUBE	XAV3025
	X401	CERAMIC RESONATOR	VSS1142

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

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.

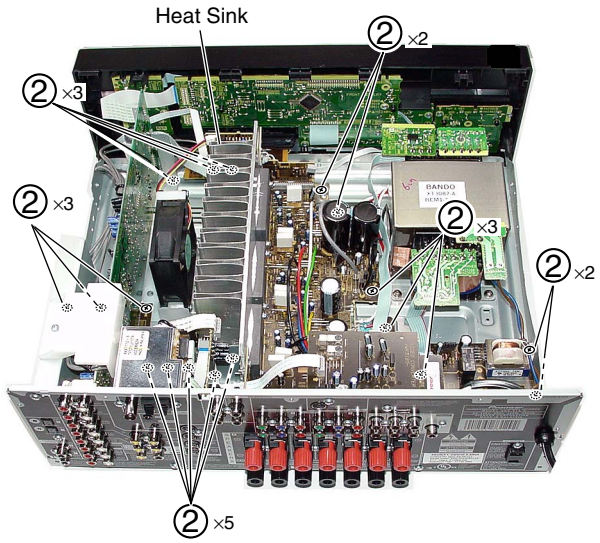
7. GENERAL INFORMATION

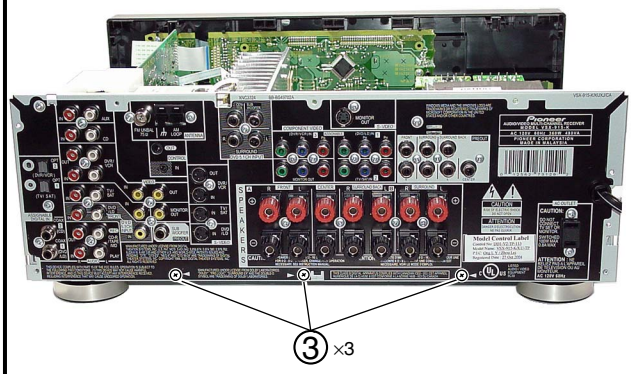
7.1 DIAGNOSIS

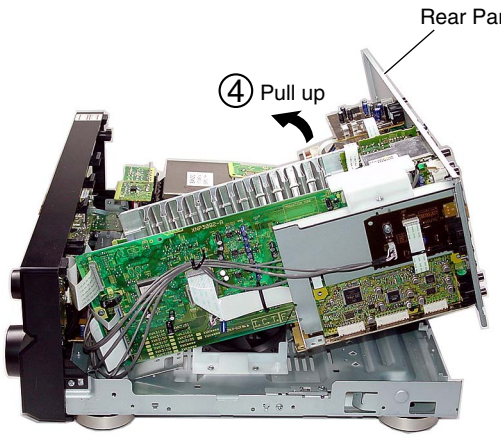
7.1.1 DISASSEMBLY

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.

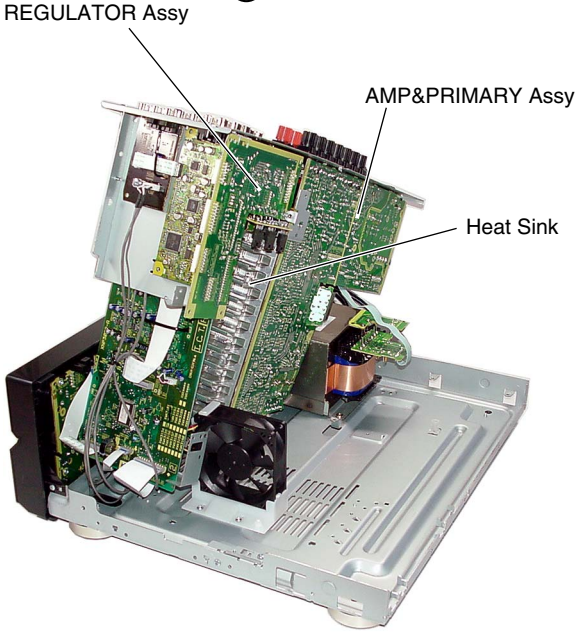
① Remove the top cover (seven screws).





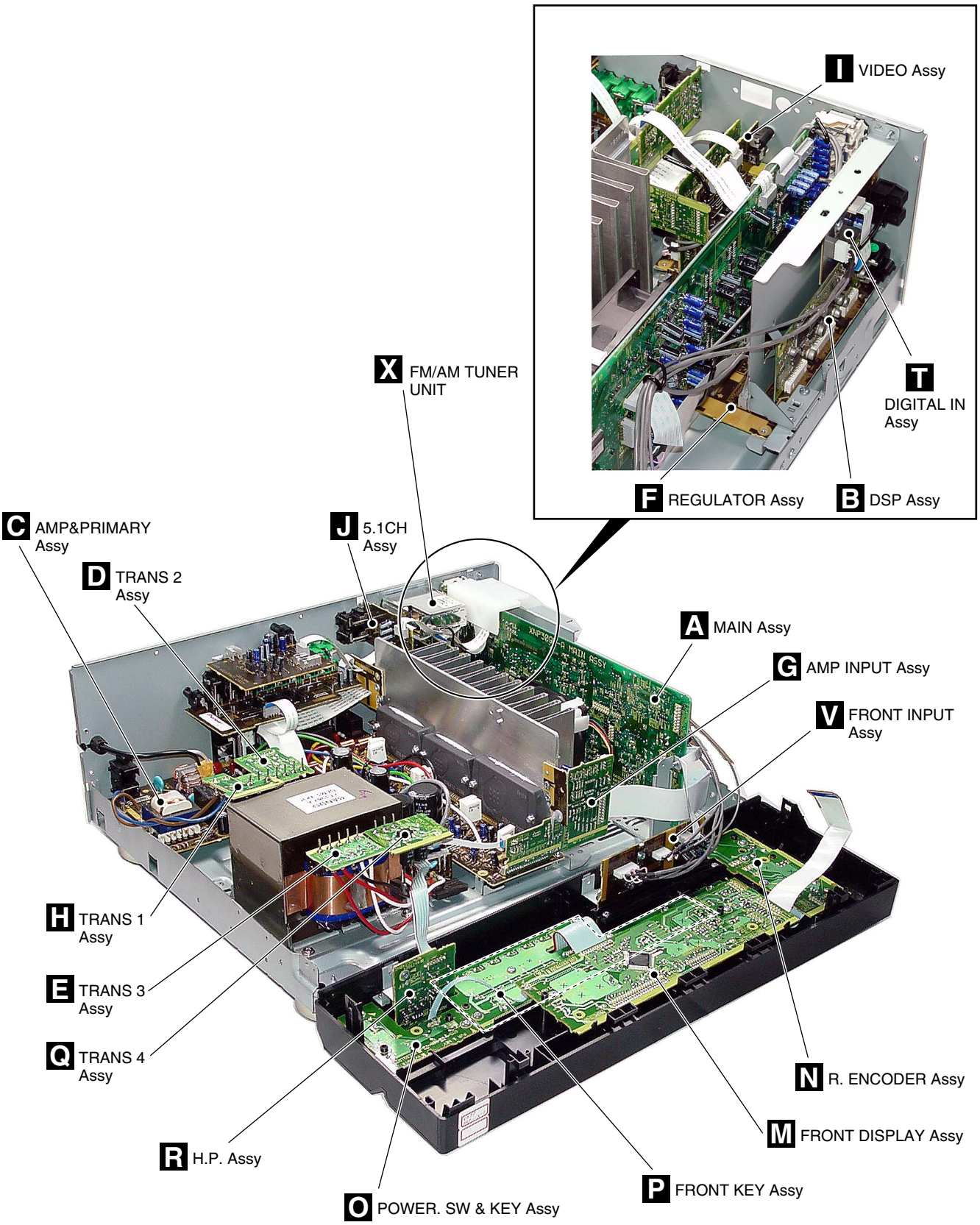


⑤ Diagnosis



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.


I VIDEO Assy
T DIGITAL IN Assy
F REGULATOR Assy
B DSP Assy
X FM/AM TUNER UNIT
C AMP&PRIMARY Assy
J 5.1CH Assy
D TRANS 2 Assy
A MAIN Assy
G AMP INPUT Assy
V FRONT INPUT Assy
H TRANS 1 Assy
E TRANS 3 Assy
Q TRANS 4 Assy
N R. ENCODER Assy
M FRONT DISPLAY Assy
R H.P. Assy
P FRONT KEY Assy
O POWER. SW & KEY Assy

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.

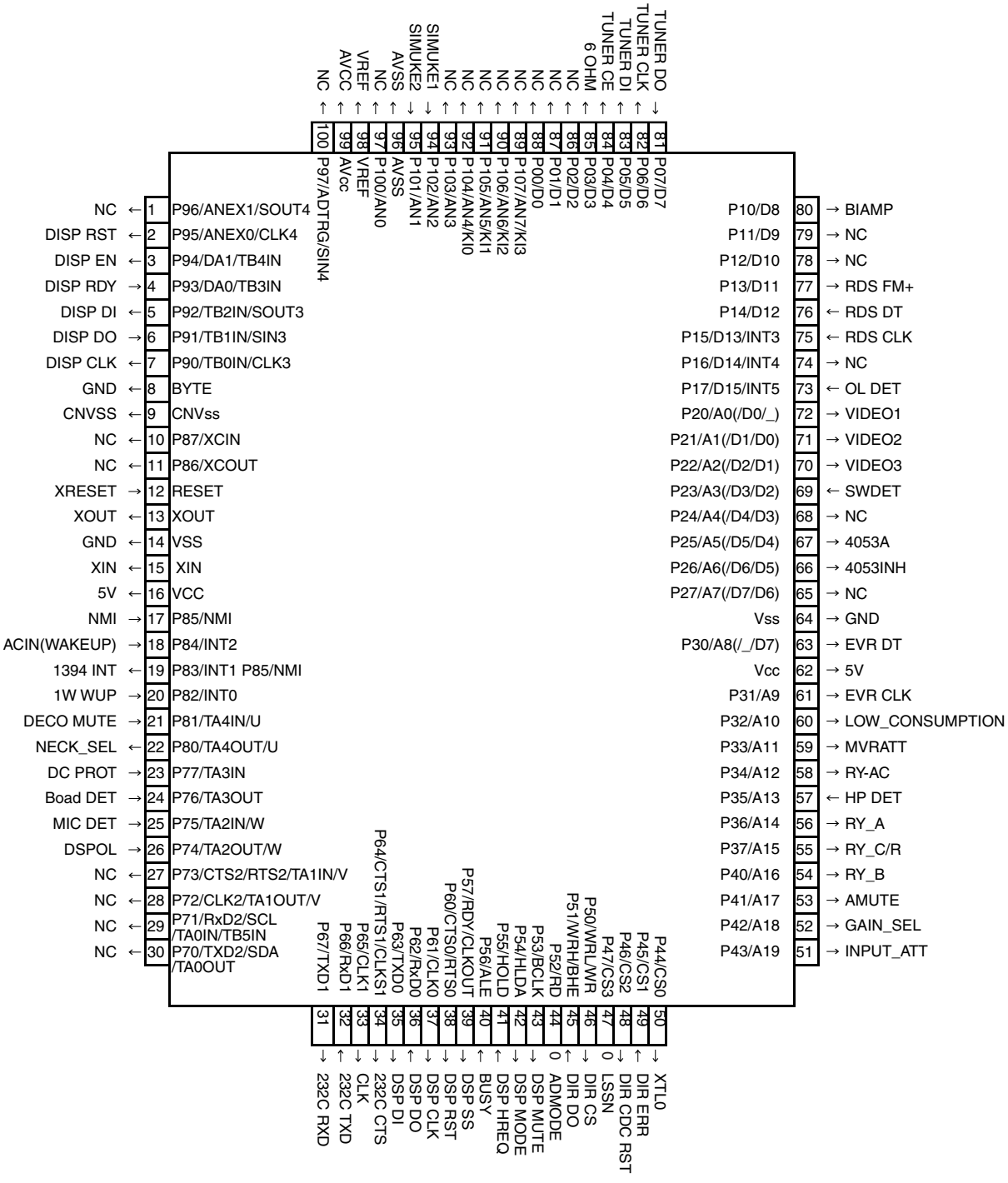
• List of IC

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

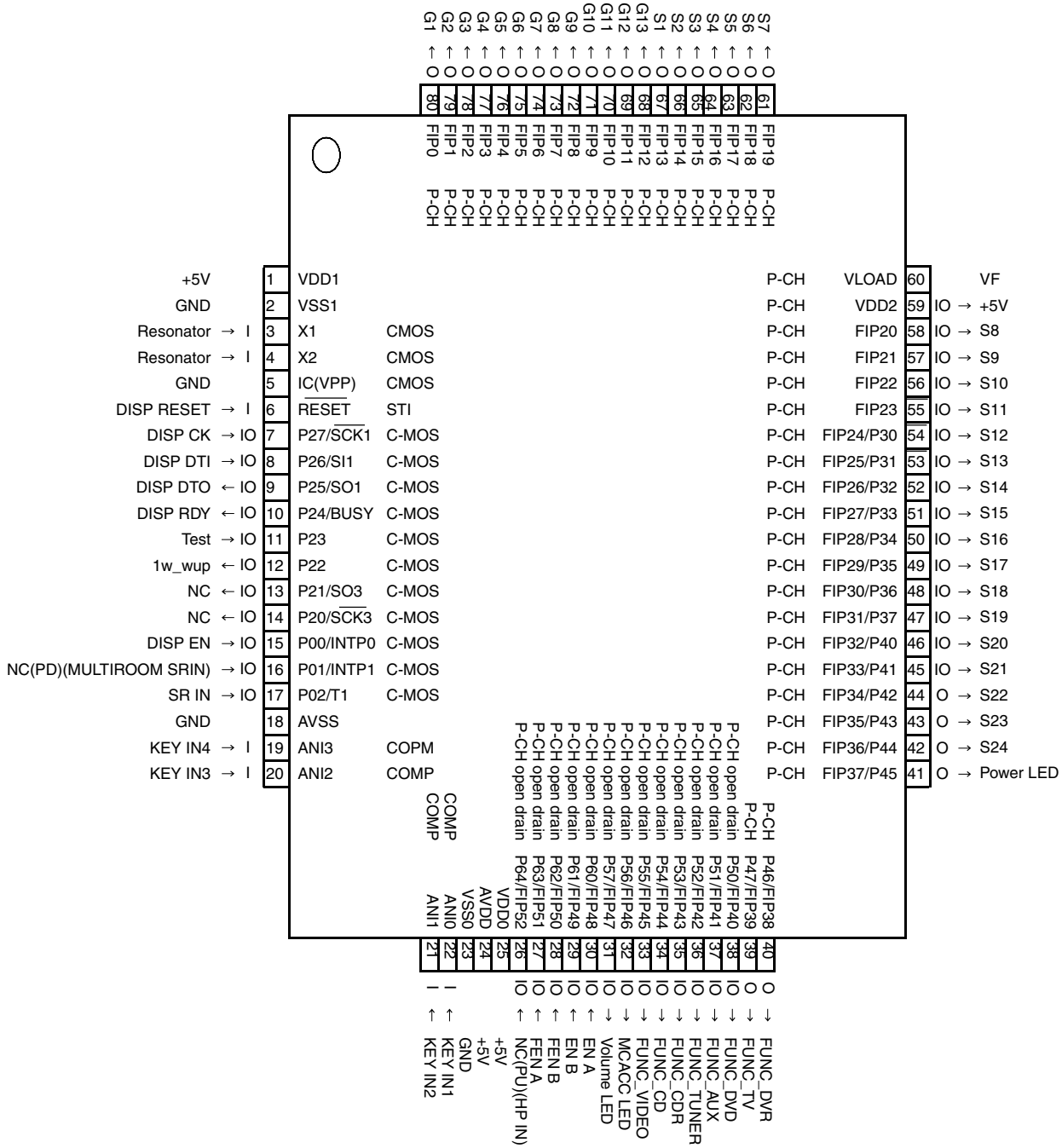
• Pin Function

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 contorol
82	P06/D6	TUNER CLK	I/O	Clock signal for tuner contorol
83	P05/D5	TUNER DI	I/O	Data output signal for tuner contorol
84	P04/D4	TUNER CE	I/O	Chip select signal for tuner contorol
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	

■ 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

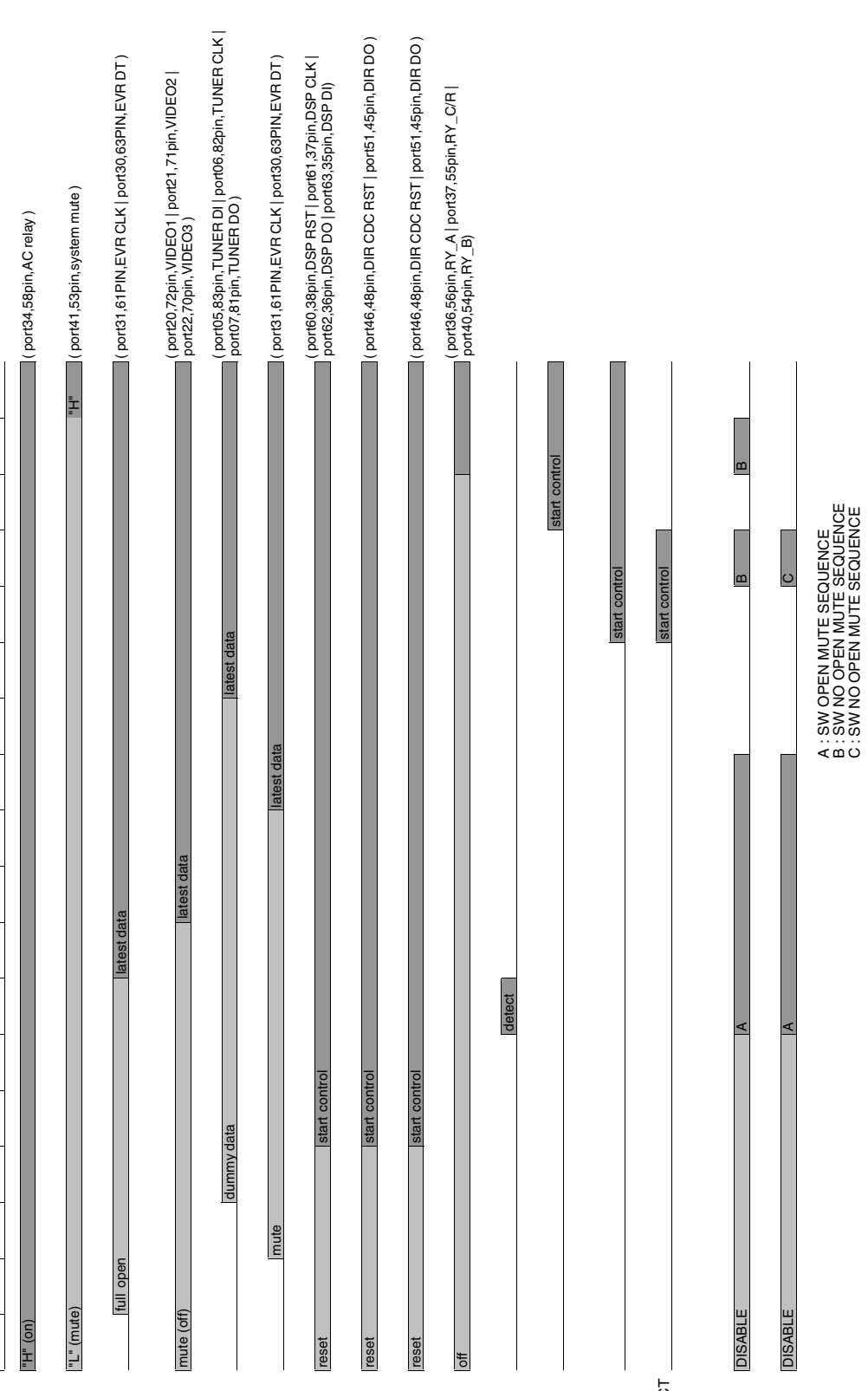
• Pin Function

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

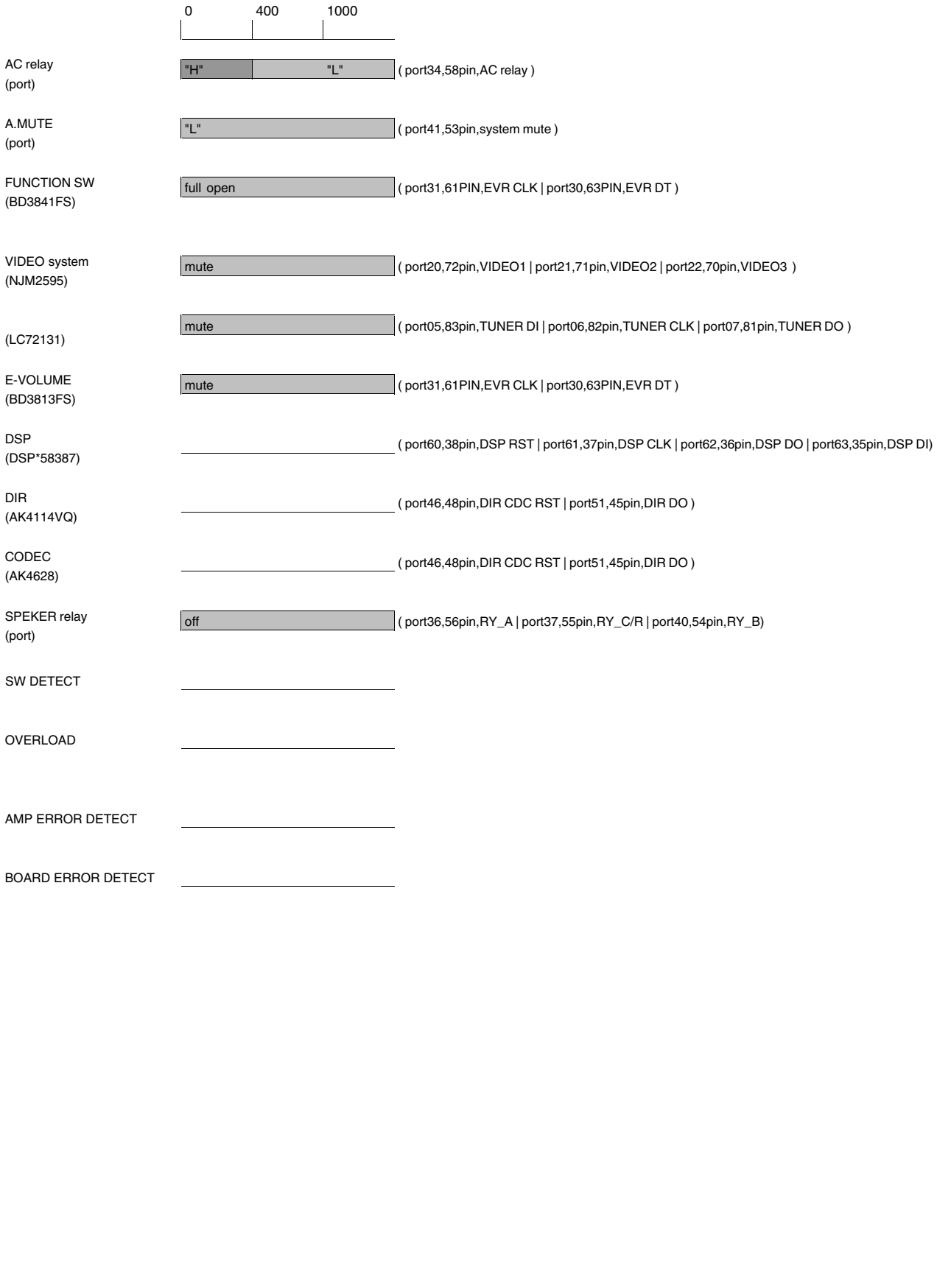
7.3 EXPLANATION

7.3.1 POWER ON AND OFF INITIAL TIMING CHART

■ POWER ON INITIAL TIMING CHART



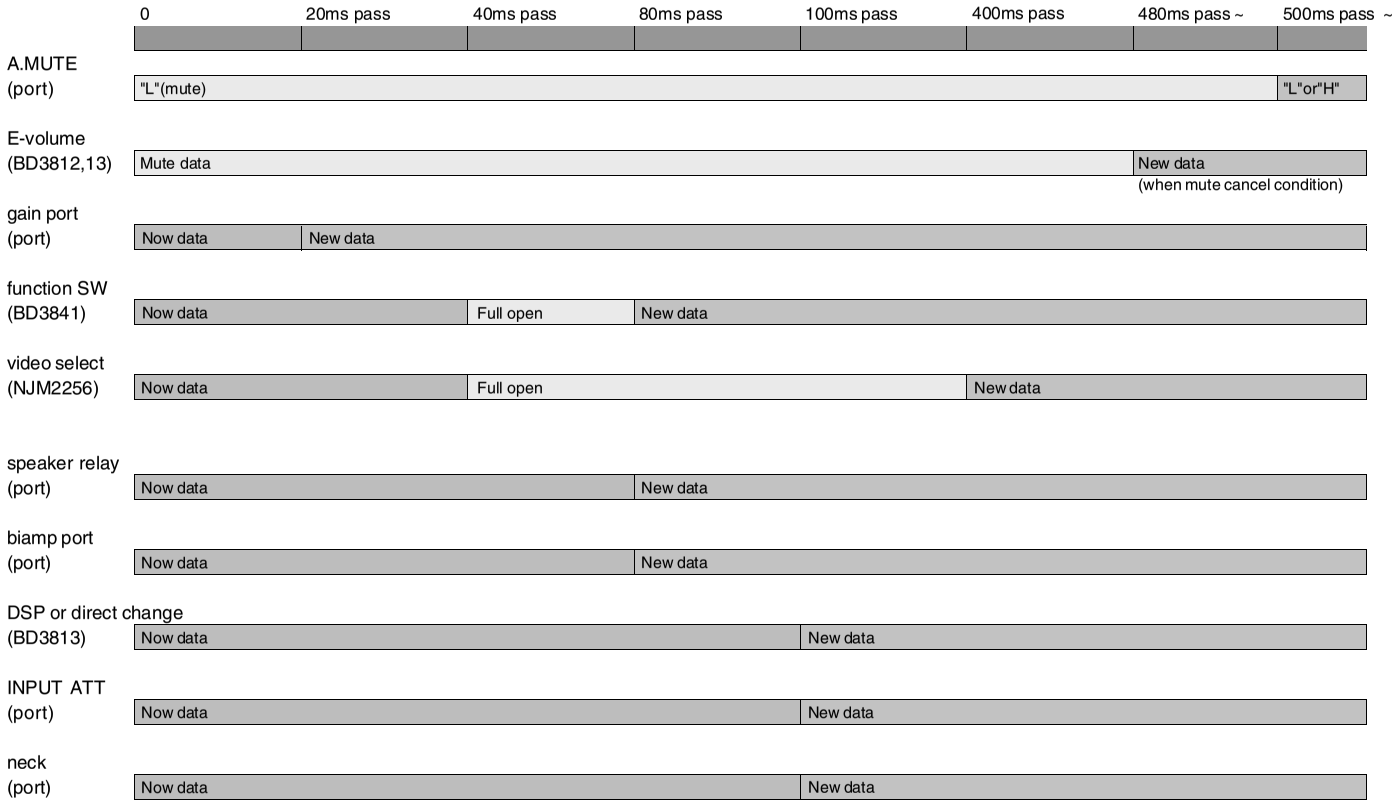
■ POWER OFF INITIAL TIMING CHART



7.3.2 IC DATA TRANSMISSION TIMING CHART

■ IC data transmission timing chart

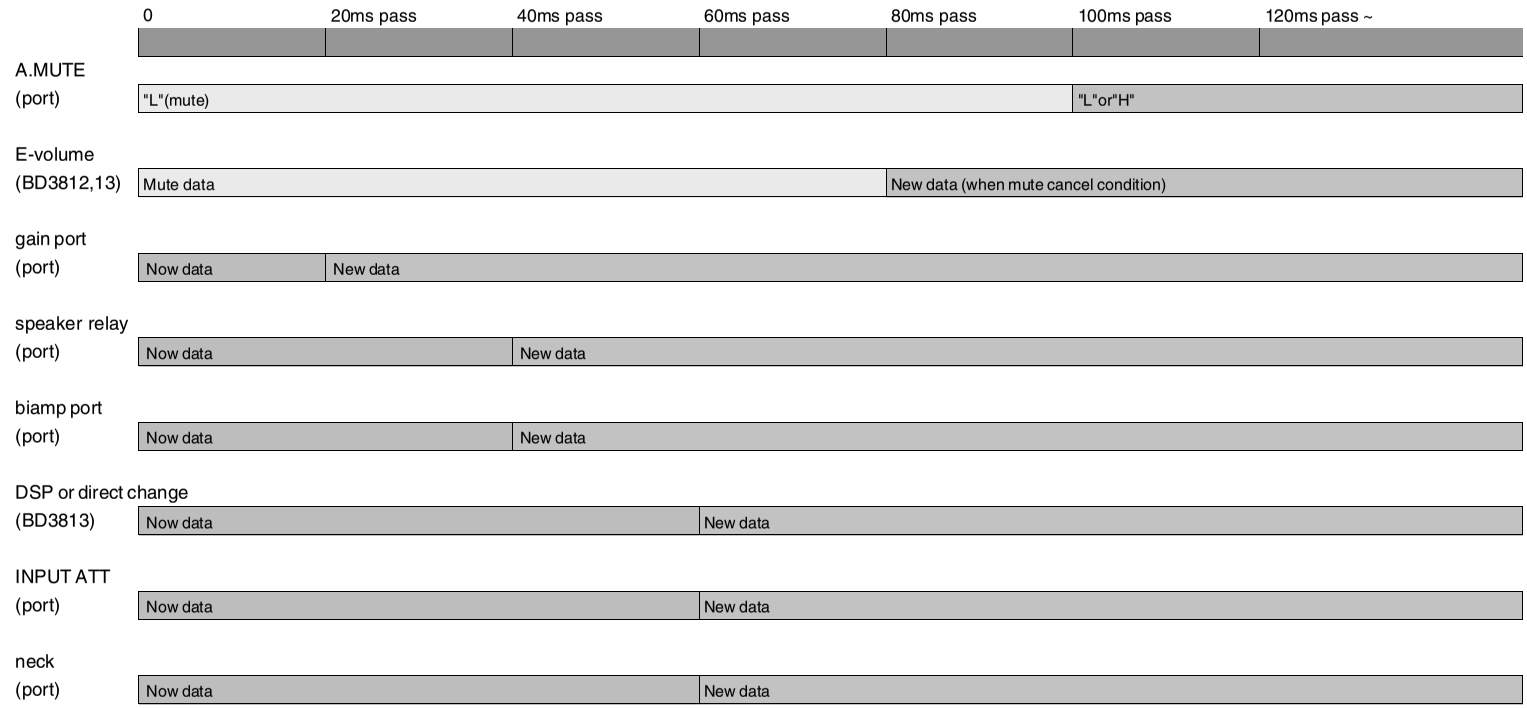
1.When function chage



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

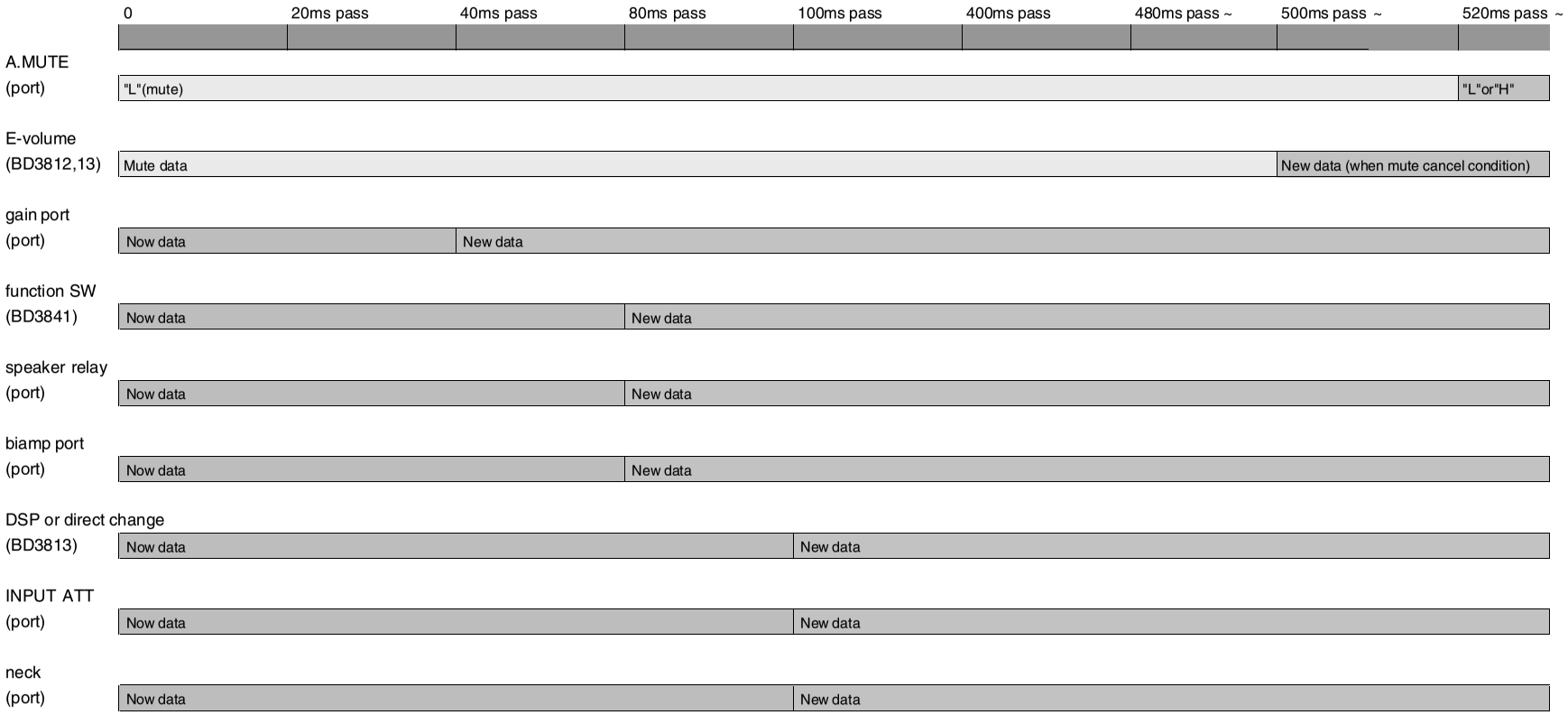
2.When except function chage



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

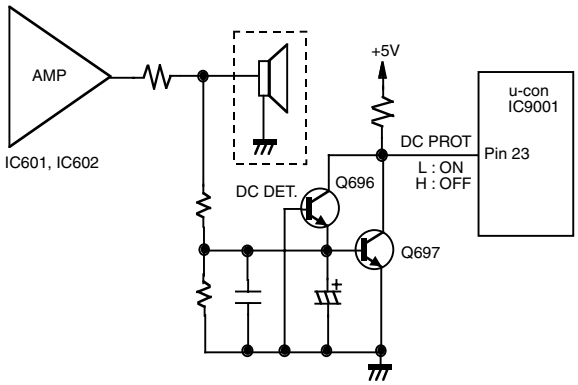
3.When except function chage(case 2)



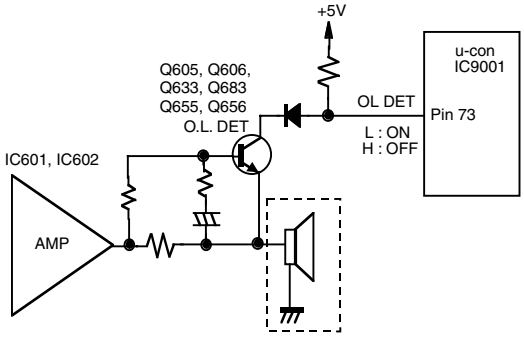
(1) When standard mode change.
(2) When listening mode change.
(3) When surround back ch chenge.
(4) When "dolby_set_with_mete" function call.

7.3.3 DETECTION CIRCUIT

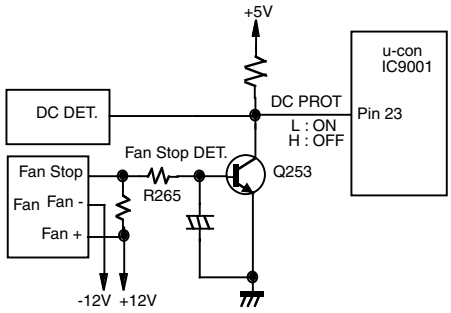
1.DC Detection Circuit Diagram:



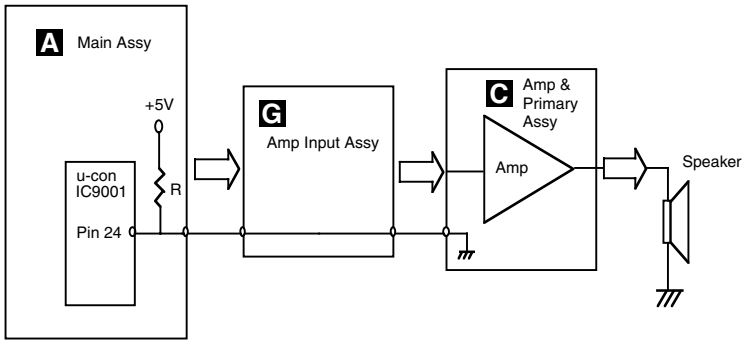
2. Overload Detection Circuit Diagram:



3. Fan Stop Prottection Circuit Diagram:



4. PCB Board Protection Circuit Diagram

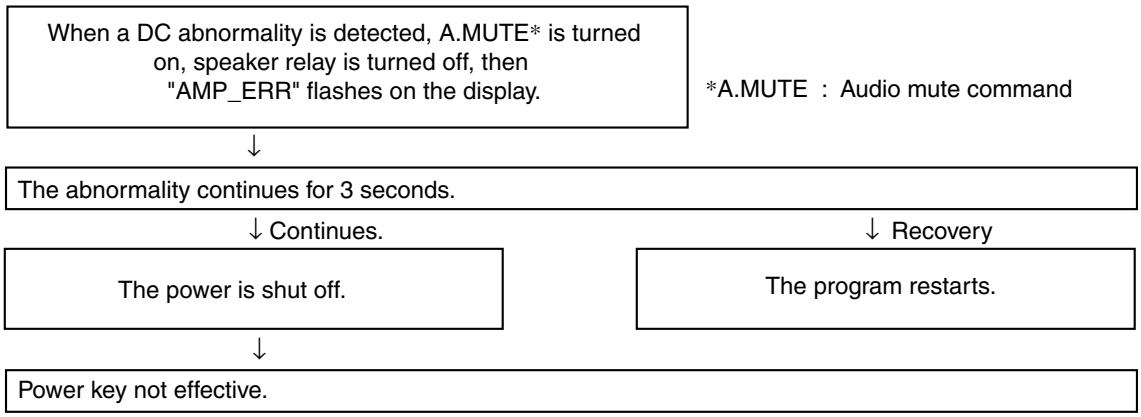


7.3.4 AMPLIFIER SYSTEM PROTECTION OPERATION SPECIFICATION

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.

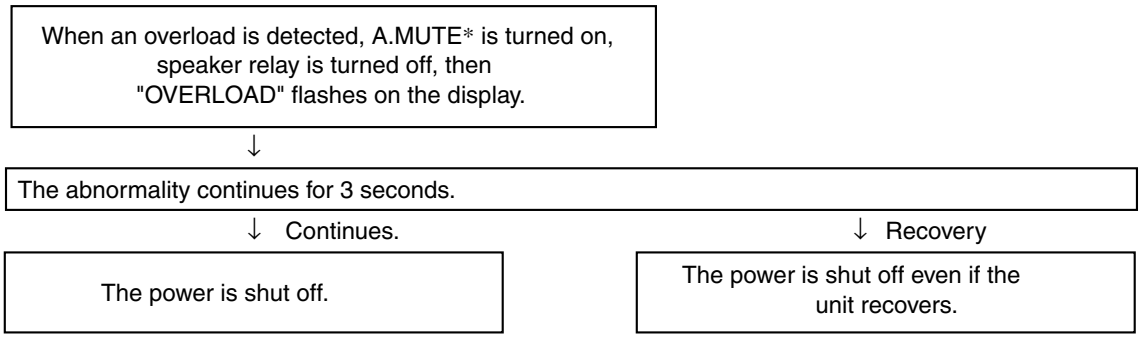
In the case of simultaneous detection with the overload protection circuit, DC-abnormality detection is performed preferentially to overload detection.



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

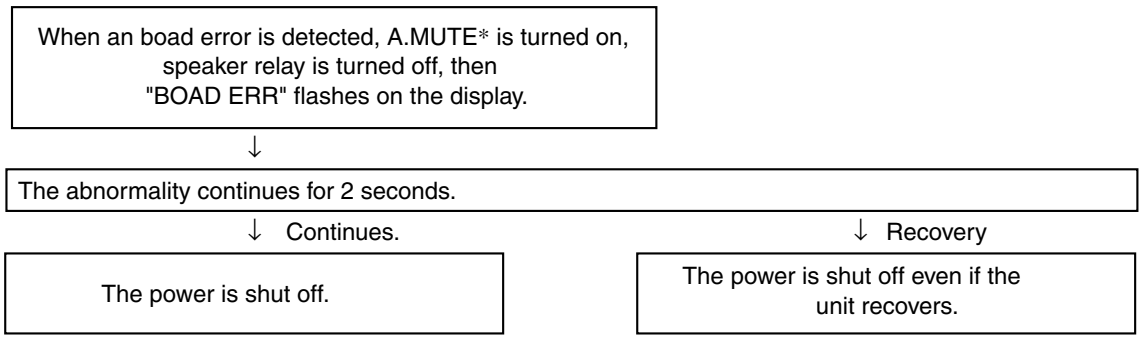
If the speaker terminals are short-circuited or low-load driving is detected, the OL_DET port becomes “L”.
If the “L” is detected, the microprocessor will perform as following flow chart.



3. Board detection

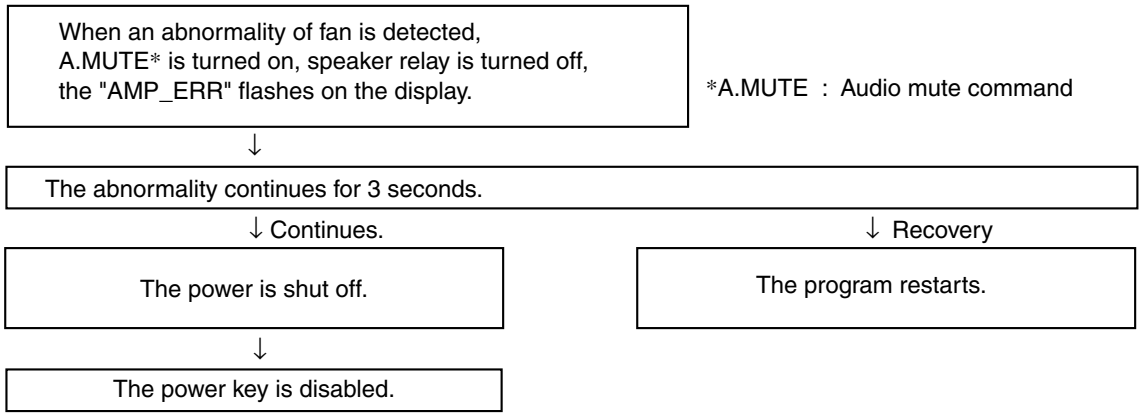
If the board connection from Main Ass'y to Amp&Primary Ass'y is interrupted,
the BOARD_DET port becomes "H".
If the "H" is detected, the microprocessor will perform as following flow chart.

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.

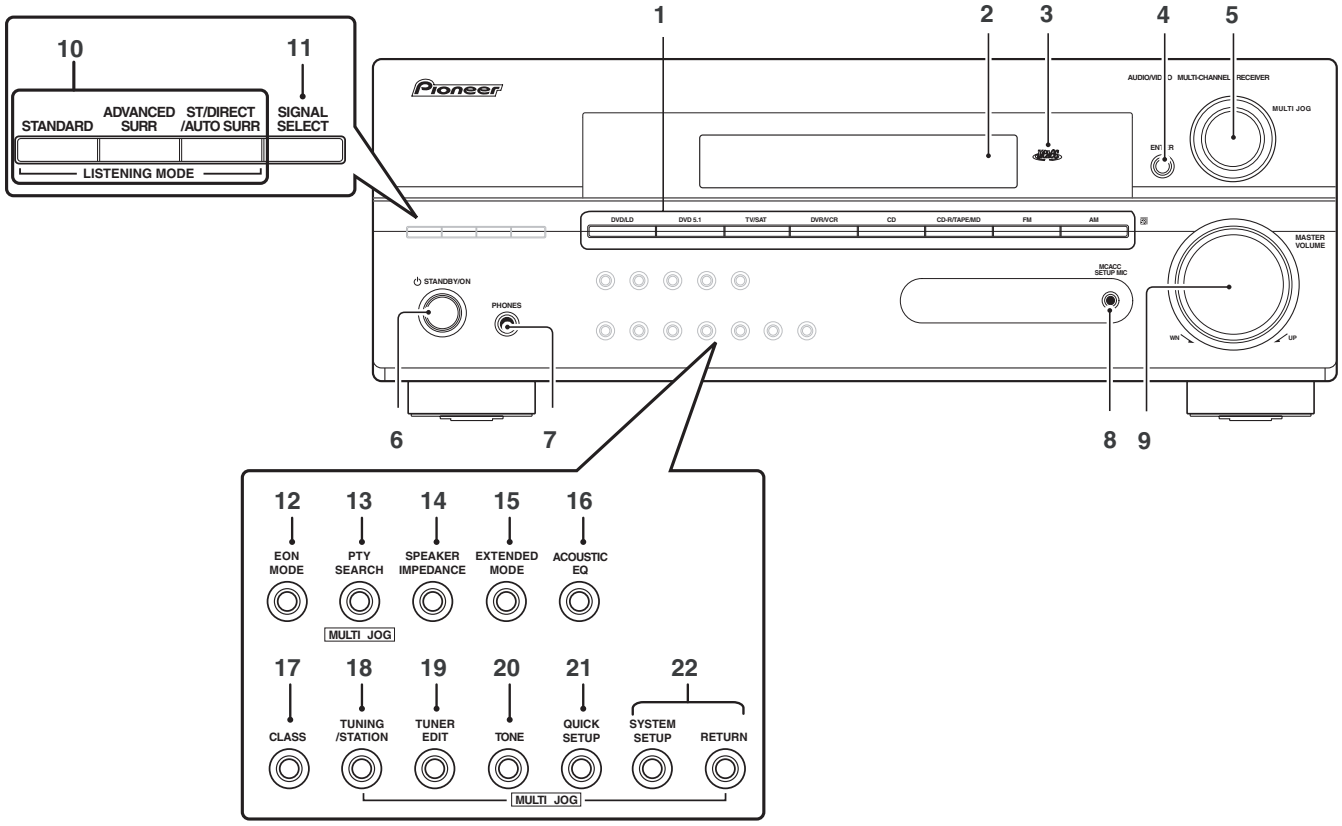
4) Whether the voltage of pin3 of IC601 or IC602 is equal to (VL-0.7V). If not (eg, equal to VH), then change the corresponding power pack IC601 or IC602.

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 .

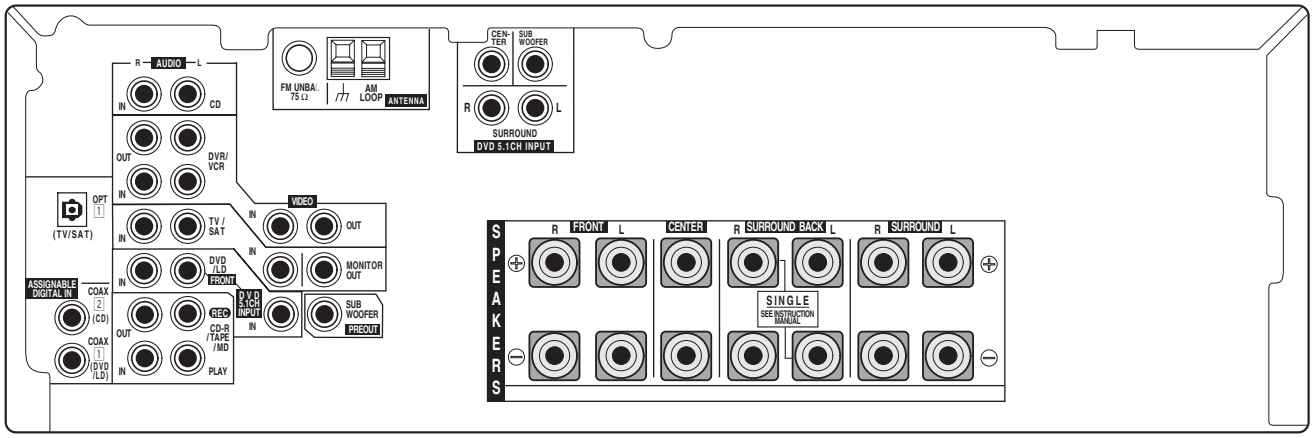
21 QUICK SETUP
See Using the Quick Setup.

22 System Setup menu controls

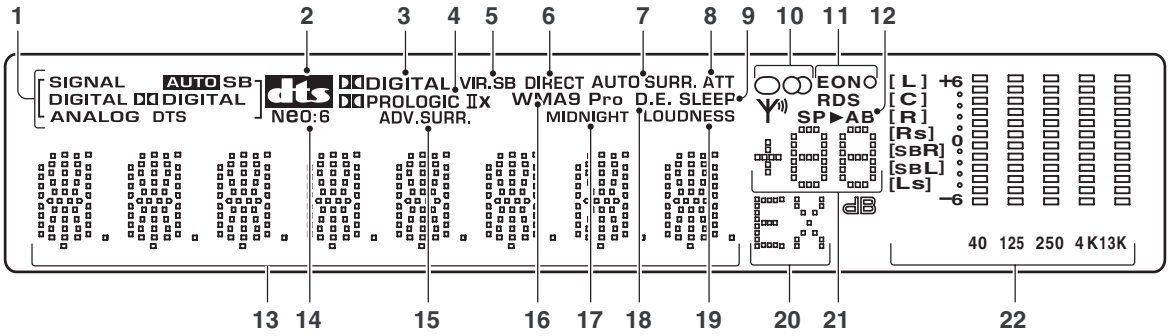
SYSTEM SETUP
Use with the **MULTI JOG** dial to access the System Setup menu.

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, **PRO LOGIC II** lights to indicate Pro Logic II decoding.

– **PRO LOGIC II x** 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.

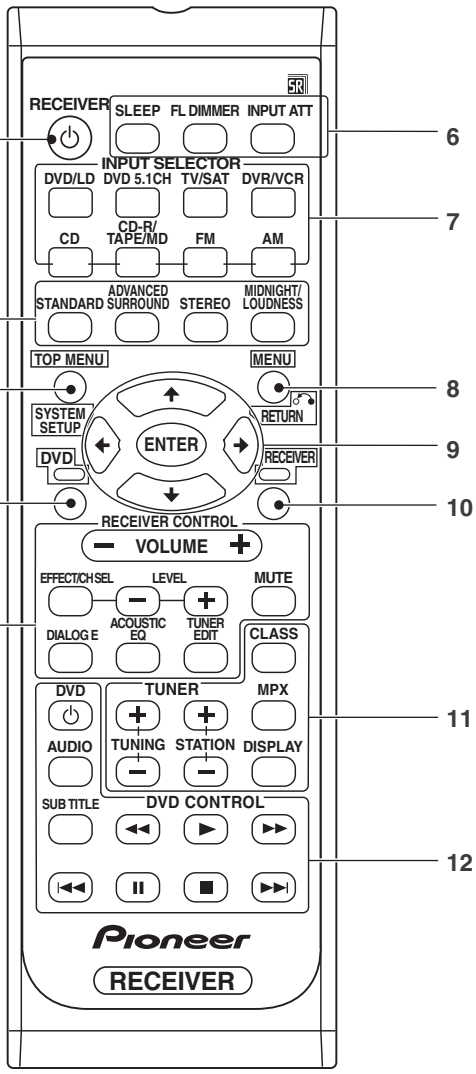
Depending on your level settings for each channel, the maximum volume can range between - 10 dB and - 0 dB.

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



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

■ 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
Fans	Cleaning paper : GED-008