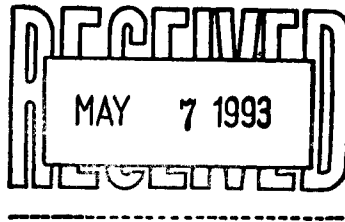


 **PIONEER®**  
The Art of Entertainment

# Service Manual



ORDER NO.  
ARP2724

AUDIO/VIDEO STEREO RECEIVER

# VSX-512S KU

## VSX-502 KU

- Refer to the service manual ARP2558 for VSX-501/KU.
- This manual is applicable to the following : VSX-512S/KU ; VSX-502/KU.

**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

**PIONEER ELECTRONICS SERVICE INC.** P.O. Box 1760, Long Beach, California 90801 U.S.A.

**PIONEER ELECTRONICS OF CANADA, INC.** 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada

**PIONEER ELECTRONIC [EUROPE] N.V.** Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium

**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

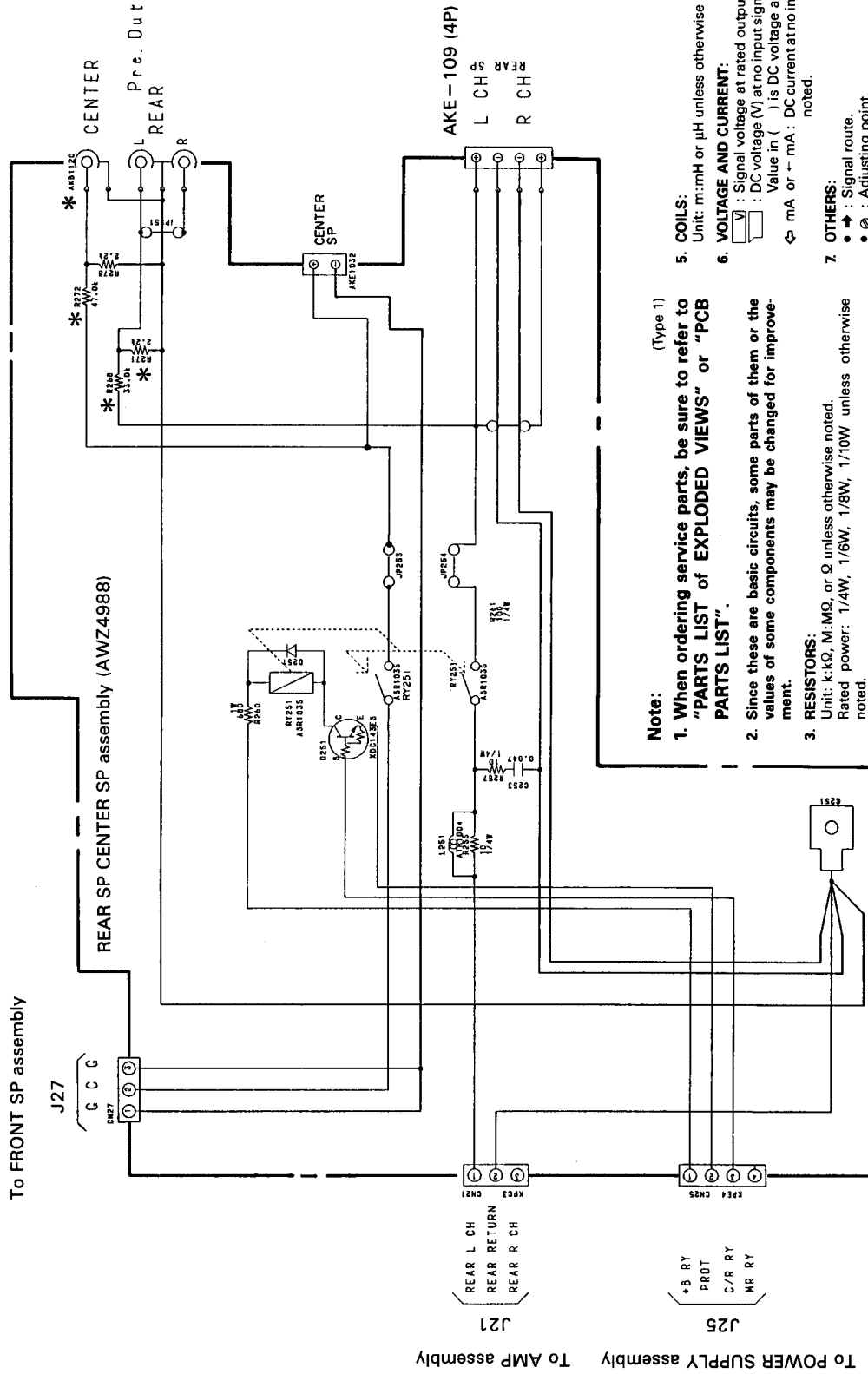
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DS MAR. 1993 Printed in Japan

# REAR SP CENTER SP ASSEMBLY

## Schematic Diagrams

Parts marked with \* are added to AWZ4256.



- Note:** (Type 1)
- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
  - Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
  - RESISTORS:**  
Unit: k:K, M:MQ, or Ω unless otherwise noted.  
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
Tolerance: (F): ±1%, (G): ±2%, (J): ±5%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
  - CAPACITORS:**  
Unit: p:pF or μF unless otherwise noted.  
Ratings: capacitor (μF)/voltage (V) unless otherwise noted.  
Rated voltage: 50V except for electrolytic capacitors.

- COILS:**  
Unit: m:mH or μH unless otherwise noted.
- VOLTAGE AND CURRENT:**  
V: Signal voltage at rated output.  
V: DC voltage (V) at no input signal unless otherwise noted.  
Value in ( ) is DC voltage at rated power.  
mA or mA: DC current at no input signal unless otherwise noted.
- OTHERS:**  
→: Signal route.  
⊙: Adjusting point.  
▼ (Red): Measurement point.  
The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SWITCHES** (Underline indicates switch position):

A

B

C

D

A

B

C

D

**REAR SP CENTER SP ASSEMBLY**

AWZ4988 and AWZ4256 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4256	AWZ4988	
R268		.....	RD1/8PM333J	
R271, R273		.....	RD1/8PM222J	
R272		.....	RD1/8PM473J	
3P Pin jack		.....	AKB1120	

**SCHEMATIC AND PCB DIAGRAMS**

● For assemblies which are different in VSX – 512S/KU (VSX – 502/KU) and VSX – 501/KU, the schematic and PCB diagrams are shown below. (There is no difference in assemblies between VSX – 512S/KU and VSX – 502/KU.)

**VOLUME ASSEMBLY**

**Schematic Diagrams**

● The differences in schematic diagrams between AWZ4269 and AWZ4982 are as follows.  
(For C845, C846 and whole schematic diagram, refer to pages 45 and 46 of the service manual ARP2558.)

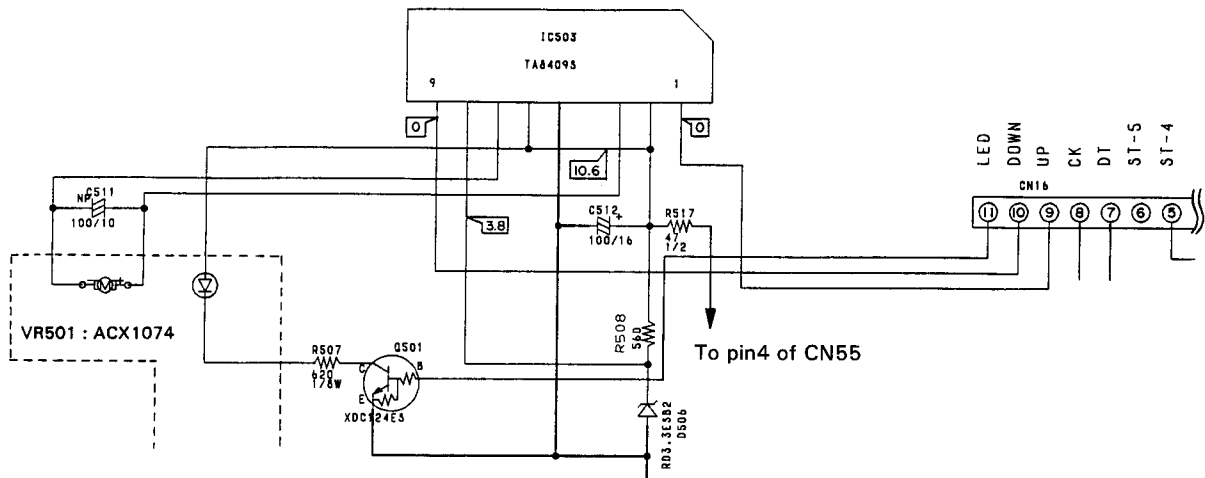


Fig. 1 AWZ4269

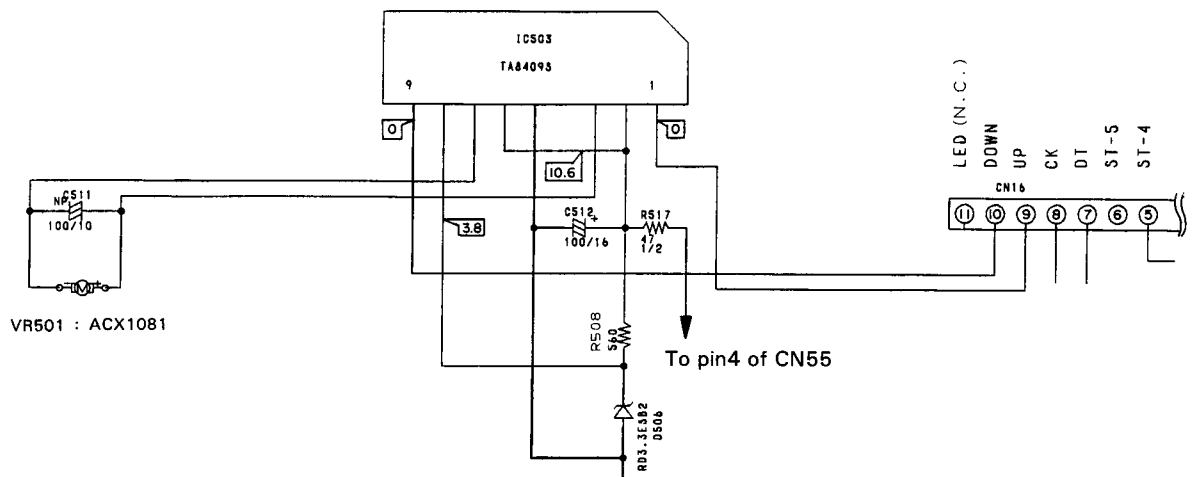
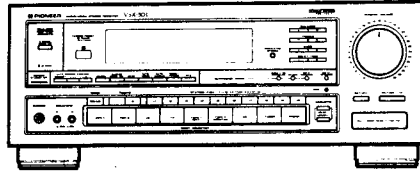


Fig. 2 AWZ4982

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5

# Service Manual



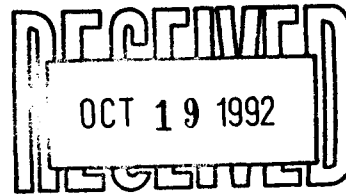
ORDER NO.  
ARZ2558

AUDIO/VIDEO STEREO RECEIVER

# VSX-501

# VSX-511S

# VSX-52

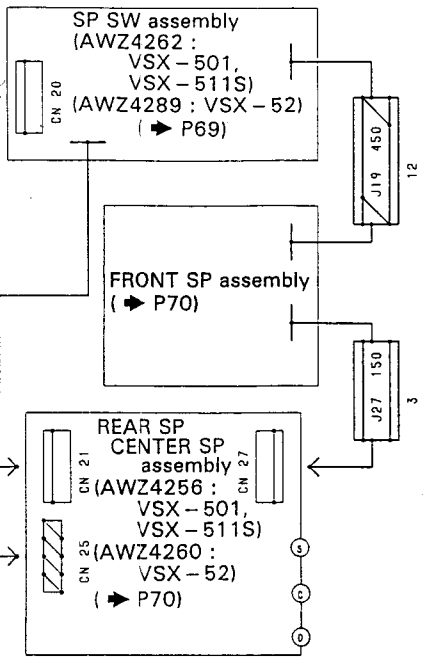


CIRCUIT DIAGRAMS &  
PATTERN LAYOUTS  
WITH MICROFICHE

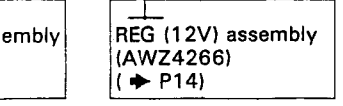
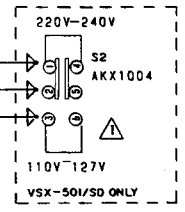
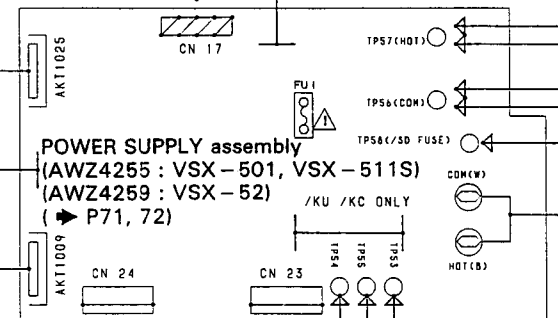
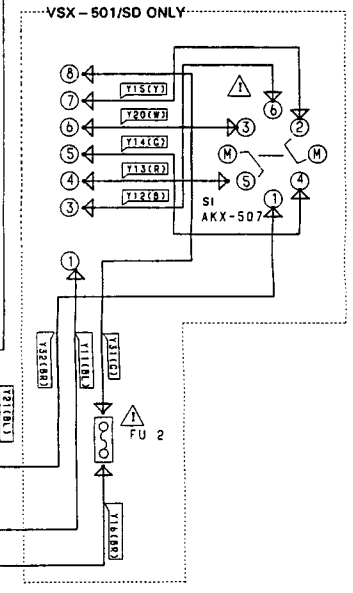
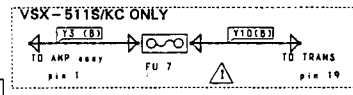
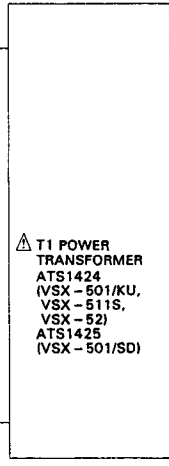
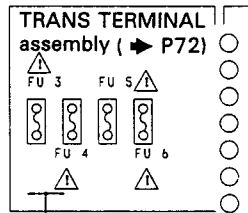
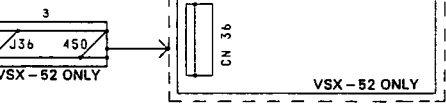
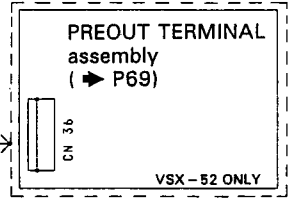
(MICROFICHE PORTION LOCATED INSIDE BACK COVER)

**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan  
**PIONEER ELECTRONICS SERVICE INC.** P.O. Box 1760, Long Beach, California 90801 U.S.A.  
**PIONEER ELECTRONICS OF CANADA, INC.** 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada  
**PIONEER ELECTRONIC [EUROPE] N.V.** Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium  
**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911  
**PIONEER ELECTRONIC CORPORATION 1992**

DFG JUNE 1992 Printed in Japan



PARTS NO.	PARTS NAME		
	VSX-501/KU VSX-511S/KU VSX-52/KU	VSX-501/SD	VSX-511S/KC
FU1	AEK1002 8A/125V	AEK-125 4A/125V	AEK1002 8A/125V
FU2		AEK-125 4A/125V	
FU3	AEK-125 4A/125V	AEK-125 4A/125V	AEK-125 4A/125V
FU4	AEK-125 4A/125V	AEK-125 4A/125V	AEK-125 4A/125V
FU5	AEK-120 1.25A/125V	AEK-120 1.25A/125V	AEK-120 1.25A/125V
FU6	AEK-120 1.25A/125V	AEK-120 1.25A/125V	AEK-120 1.25A/125V
FU7			AEK1002 8A/125V

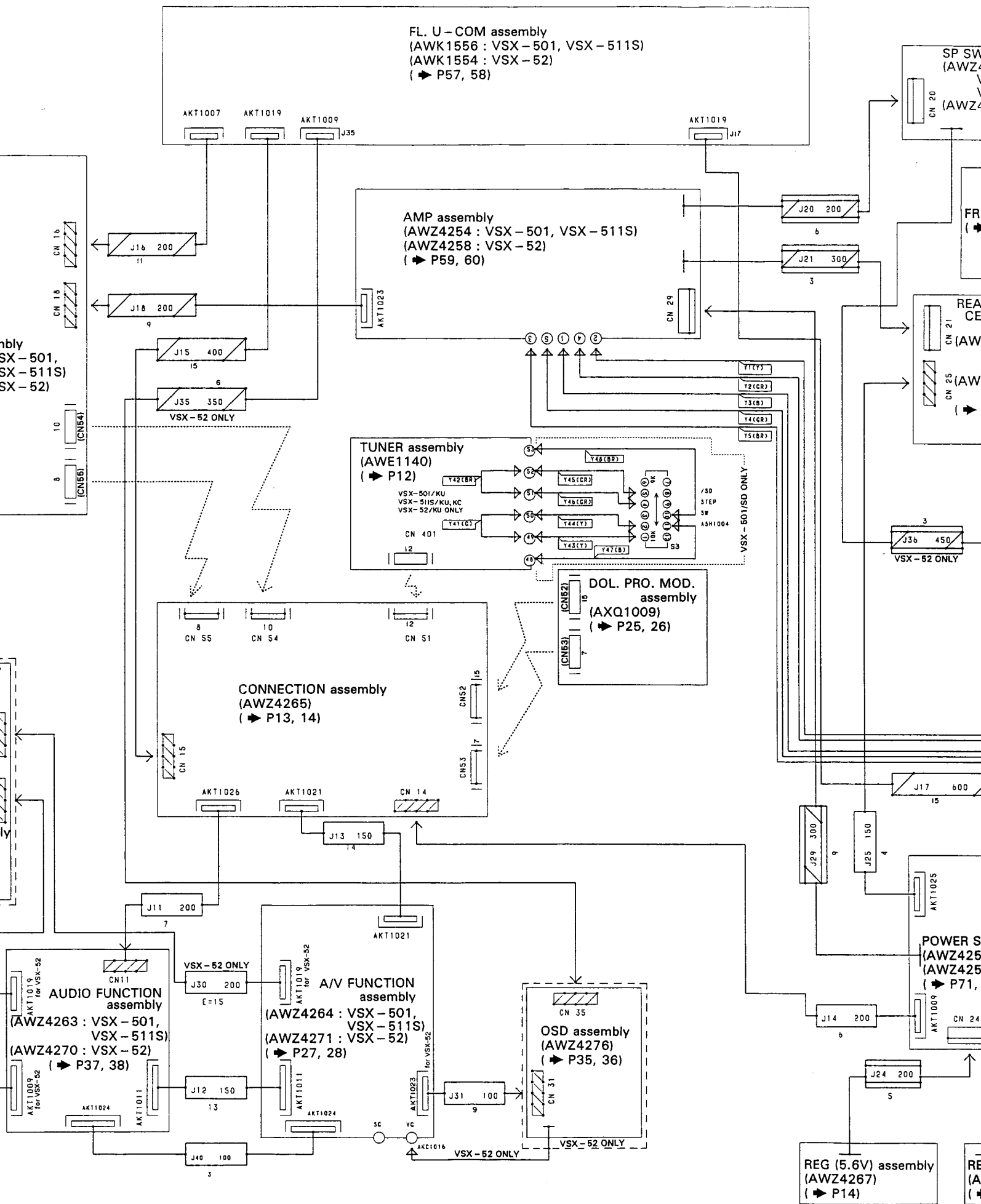


A

B

C

D



# 5. SCHEMATIC AND PCB CONNECTIONS DIAGRAMS

## 5.1 OVERALL SCHEMATIC DIAGRAM

Note: (Type 1)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:  
Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.  
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. CAPACITORS:  
Unit: p:pF or μF unless otherwise noted.  
Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.  
Rated voltage: 50V except for electrolytic capacitors.

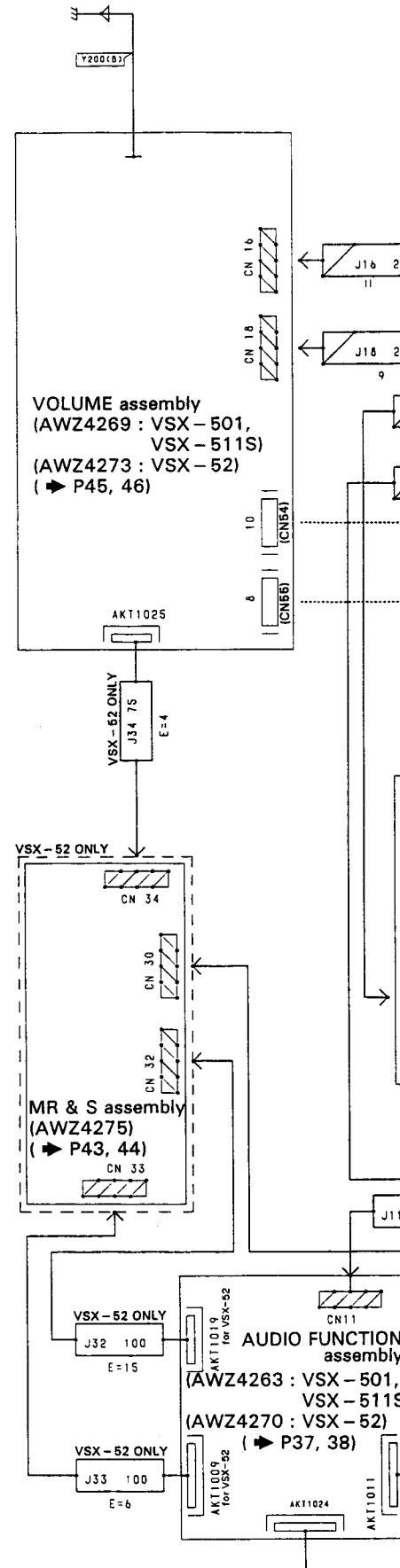
5. COILS:  
Unit: m:mH or μH unless otherwise noted.

6. VOLTAGE AND CURRENT:  
V: Signal voltage at rated output.  
V: DC voltage (V) at no input signal unless otherwise noted. Value in ( ) is DC voltage at rated power.  
mA or -mA: DC current at no input signal unless otherwise noted.

7. OTHERS:  
• → : Signal route.  
• ⊗ : Adjusting point.  
• ▼ (Red) : Measurement point.  
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

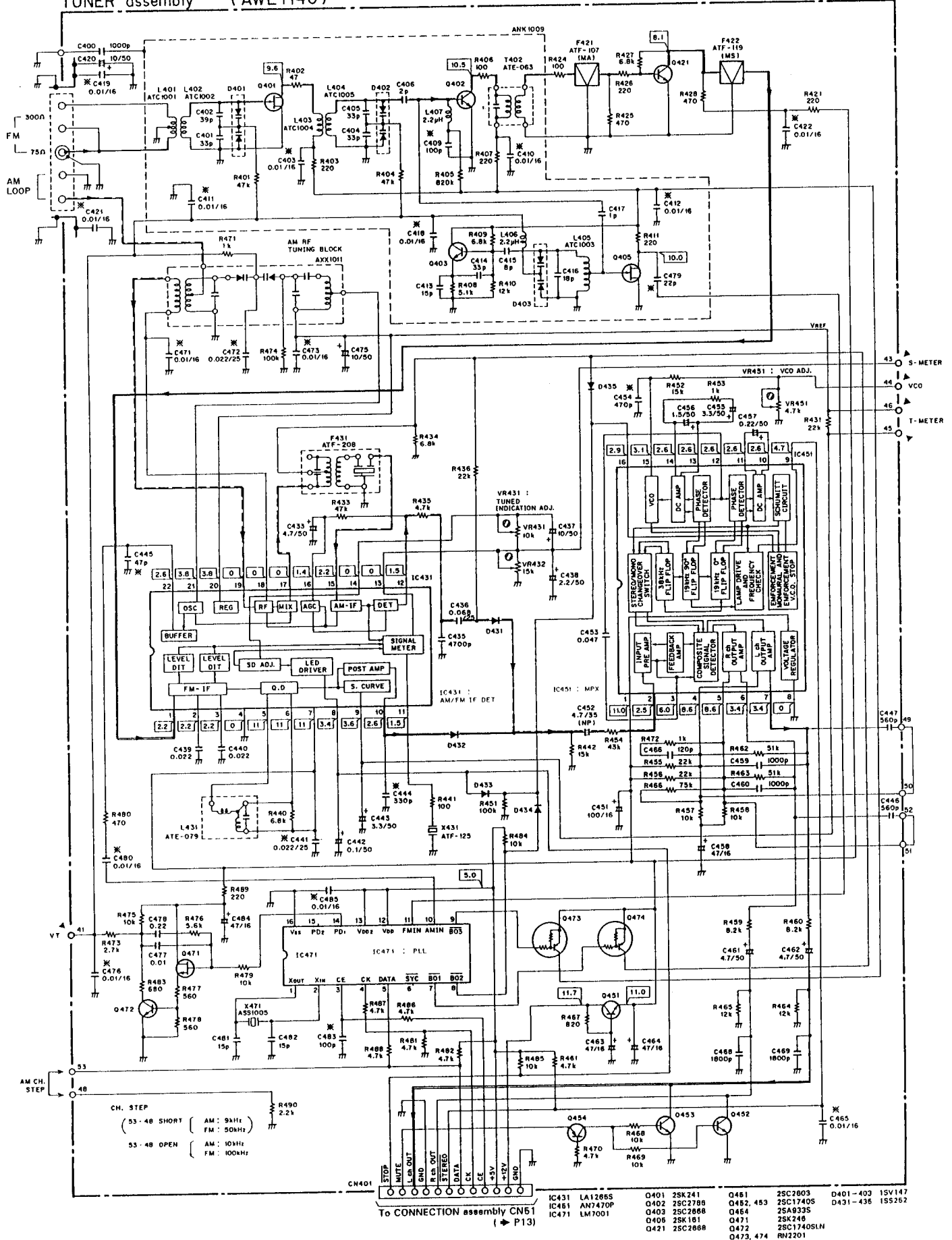
8. SWITCHES (Underline indicates switch position):  
S1 LINE VOLTAGE SELECTOR (VSX-501/SD ONLY)  
AC110V/120-127V/220V/240V  
S2 LINE VOLTAGE SELECTOR (VSX-501/SD ONLY)  
AC110-127V/220-240V  
S3 CH. STEP (VSX-501/SD ONLY)  
9kHz - 10kHz

	S631	4	
FL. U-COM assembly	S632	AUTO MANUAL	
S601	S633	EFFECT UP	
S602	S634	TAPE 1/DAT	
S603	S635	5	
S604	S636	DIRECT ACCESS	
S605	S637	BASS UP	
S606	S638	TAPE 2/MONITOR	
S607	S639	6	
S608	S640	HITS	
S609	S641	3CH LOGIC	
S610	S642	CD	
S611	S643	7	
S612	S645	TREBLE UP	
S613	S646	TUNER	
S614	S647	8	
S615	S649	BALANCE RCH	
S616	S650	PHONO	
S617	S651	9	
S618	S653	RETURN	
S619	S654	ACOUSTIC SELECT	
S620	S655	0	
S621	S657	MUTING	
S622	S658	ACOUSTIC MEMORY	
S623	S659	RESET	
S624			
S625	SP SW assembly		
S626	S251	SP-A ON/OFF	
S627		SP-B ON/OFF	
S628			
S629			



5.2 TUNER ASSEMBLY, CONNECTION ASSEMBLY, REG (12V) ASSEMBLY AND REG (5.6V) ASSEMBLY

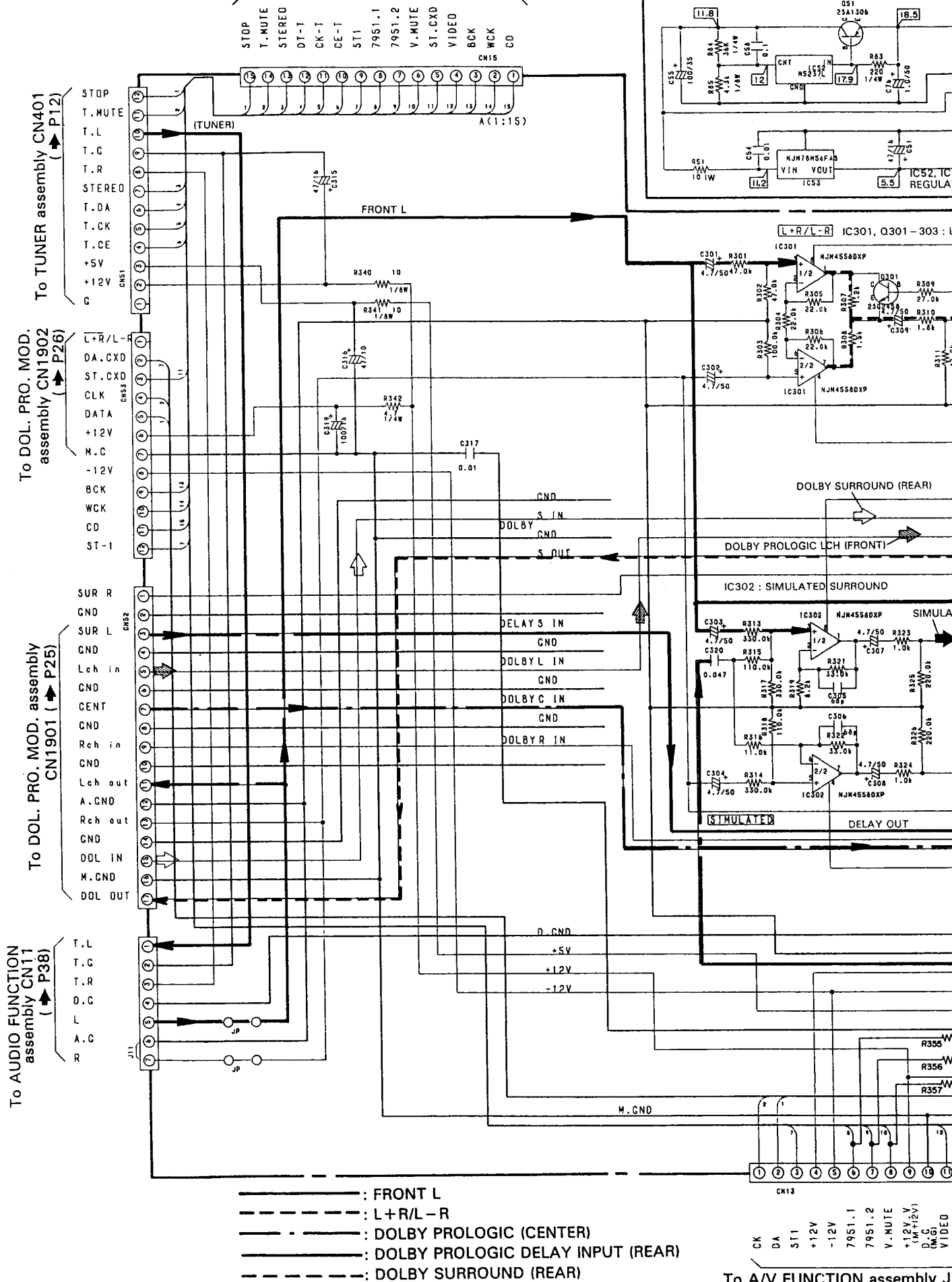
TUNER assembly (AWE1140)





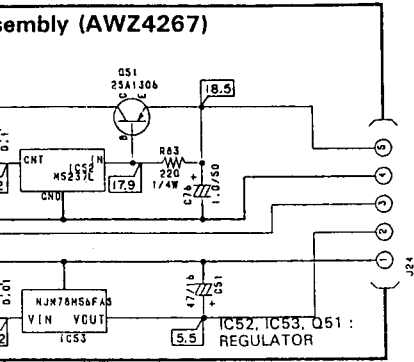
To FL. U - COM assembly J15 (➔ P57)

REG (5.6V) assembly (AWZ4267)

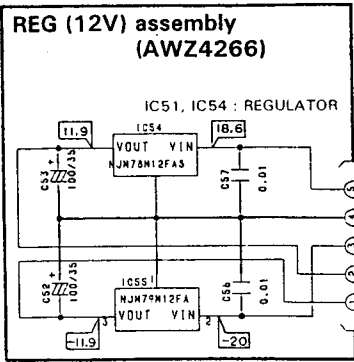


- : FRONT L
- - - - - : L+R/L-R
- . - . - : DOLBY PROLOGIC (CENTER)
- — — — : DOLBY PROLOGIC DELAY INPUT (REAR)
- - - - - : DOLBY SURROUND (REAR)

To A/V FUNCTION assembly J1



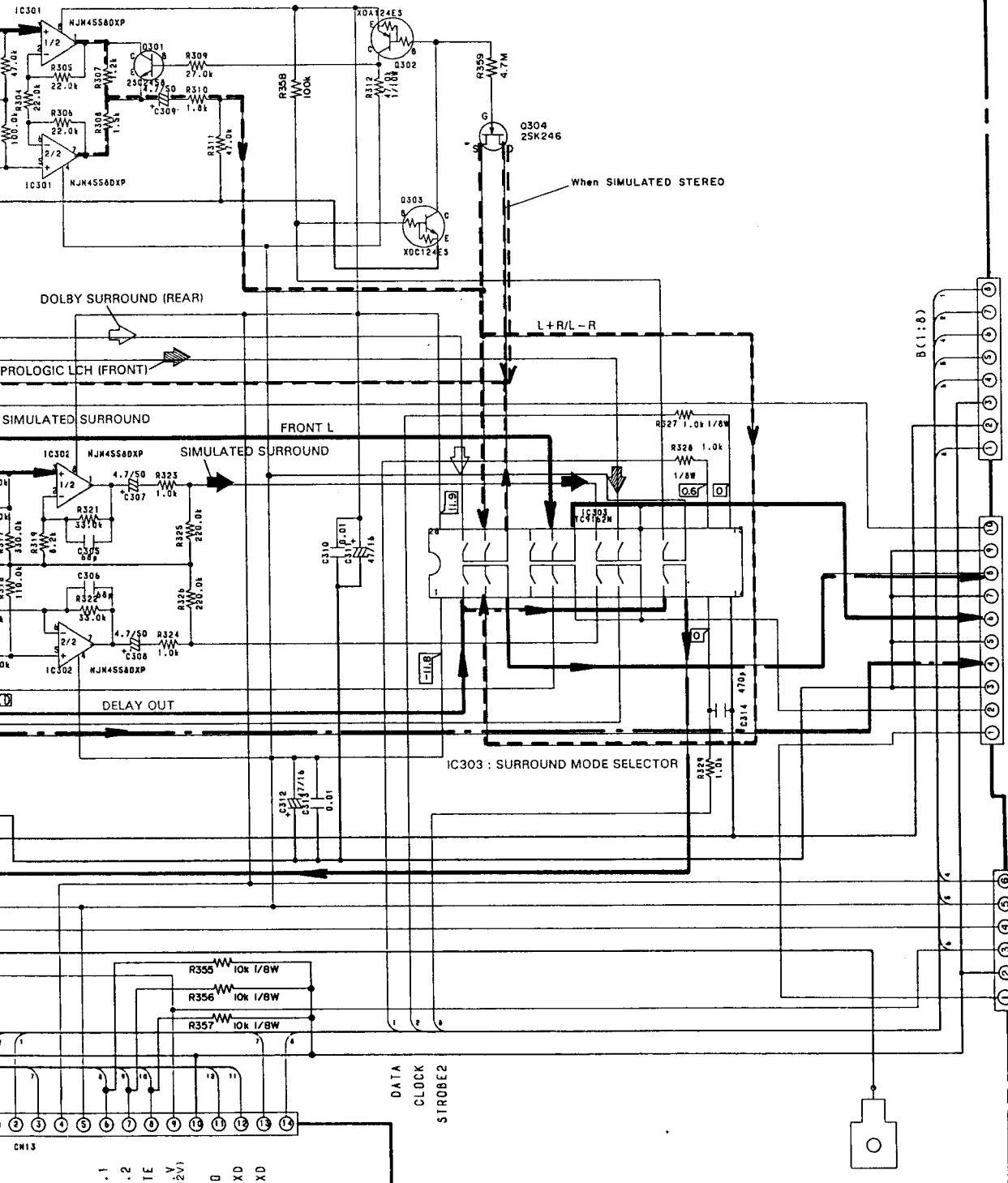
To POWER SUPPLY  
assembly CN24  
(▶ P71)



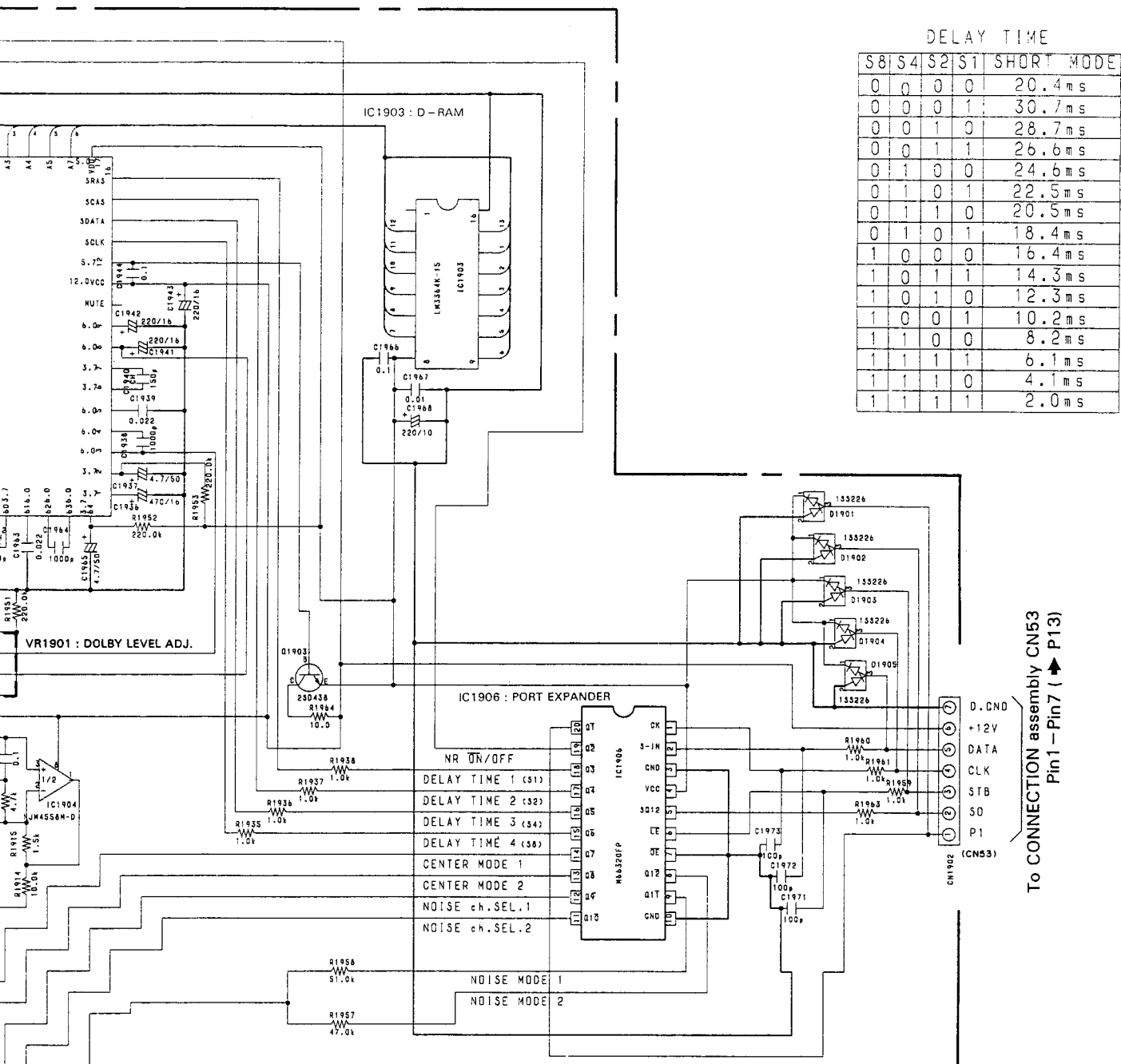
To POWER SUPPLY  
assembly CN23  
(▶ P71)

L+R/L-R IC301, Q301 - 303 : L+R/L-R

**CONNECTION assembly (AWZ4265)**



V FUNCTION assembly J13 (▶ P28)



DELAY TIME

S8	S4	S2	S1	SHORT MODE
0	0	0	0	20.4ms
0	0	0	1	30.7ms
0	0	1	0	28.7ms
0	0	1	1	26.6ms
0	1	0	0	24.6ms
0	1	0	1	22.5ms
0	1	1	0	20.5ms
0	1	1	1	18.4ms
1	0	0	0	16.4ms
1	0	1	1	14.3ms
1	0	1	0	12.3ms
1	0	0	1	10.2ms
1	1	0	0	8.2ms
1	1	1	1	6.1ms
1	1	1	0	4.1ms
1	1	1	1	2.0ms

A

B

C

D

To CONNECTION assembly CN53  
Pin1 - Pin7 (▲ P13)

NOISE MODE1	NOISE MODE2	
H	H	3ch
H	L	4ch
L	H	4ch
L	L	NOISE

NOISE ch.SEL.1	AUTO BALANCE
H	ON
L	OFF
NOISE ch.SEL.2	AUTO BALANCE
H	ON
L	Test Mode

(\* 3,4ch MODE)

CENTER MODE1	CENTER MODE2	
L	L	NORMAL
L	H	WIDE
H	L	PHANTOM
H	H	OFF

(\* 3,4ch MODE)

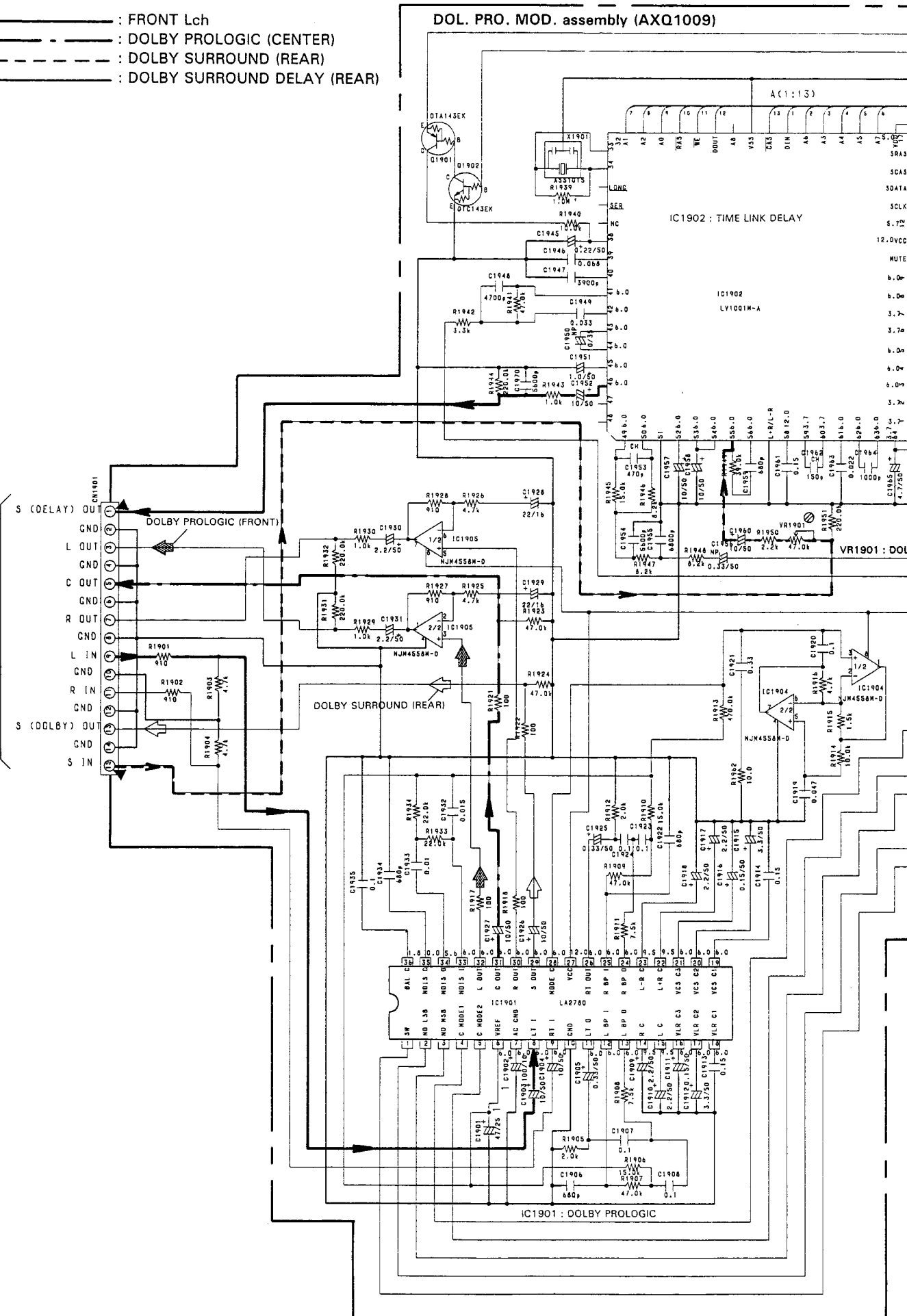
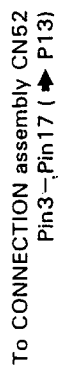
NOISE ch.SEL.1	NOISE ch.SEL.2	ch
L	L	Lch
L	H	Cch
H	L	Rch
H	H	Sch

(\* NOISE MODE)

- : FRONT Lch
- - - - - : DOLBY PROLOGIC (CENTER)
- : DOLBY SURROUND (REAR)
- : DOLBY SURROUND DELAY (REAR)

DOL. PRO. MOD. assembly (AXQ1009)

To CONNECTION assembly CN52  
Pin3 - Pin17 ( ← P13)



A

B

C

D

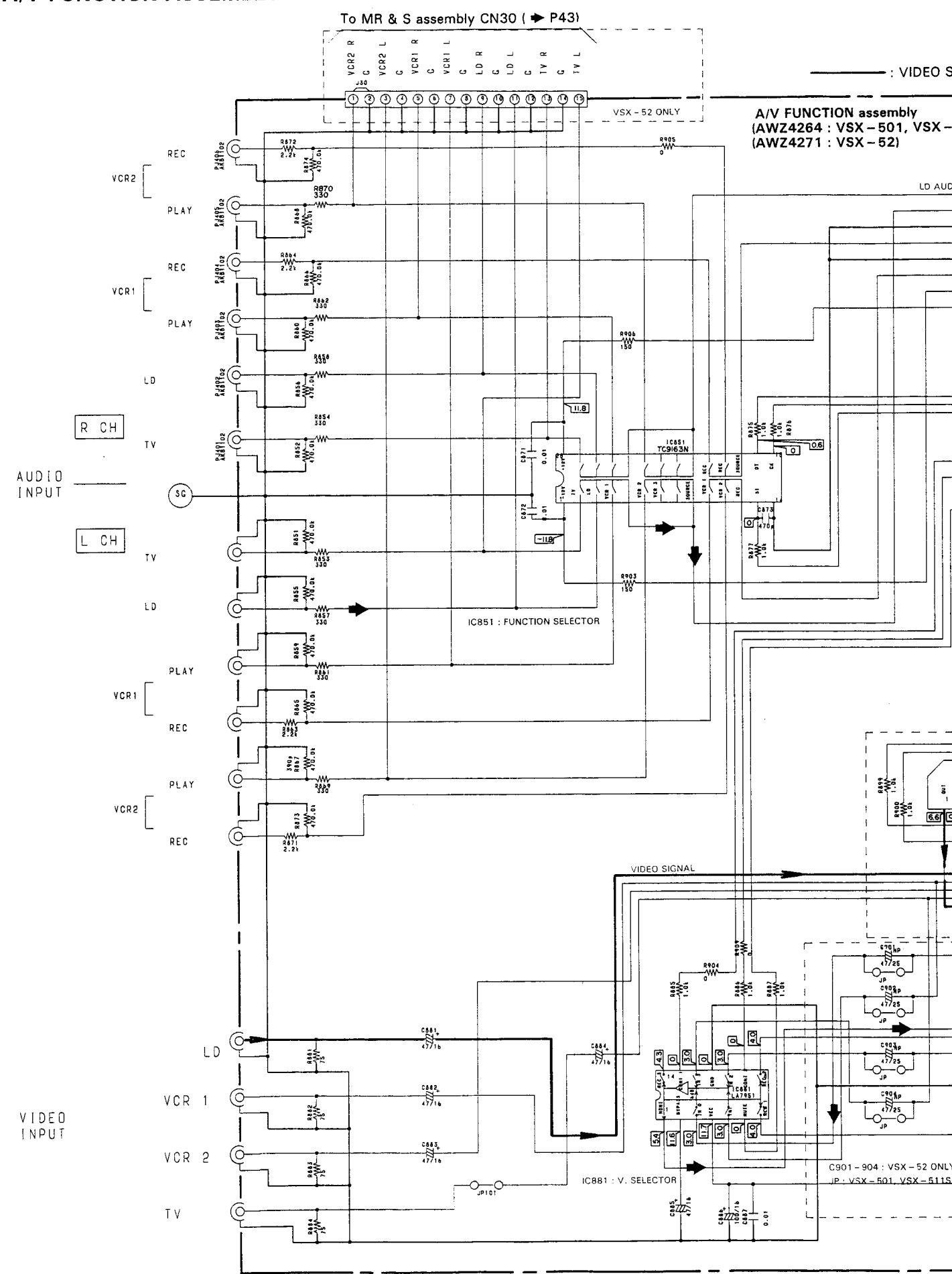
5.4 A/V FUNCTION ASSEMBLY

A

B

C

D



A/V FUNCTION assembly  
 (AWZ4264 : VSX-501, VSX-511S)  
 (AWZ4271 : VSX-52)

VIDEO SIGNAL

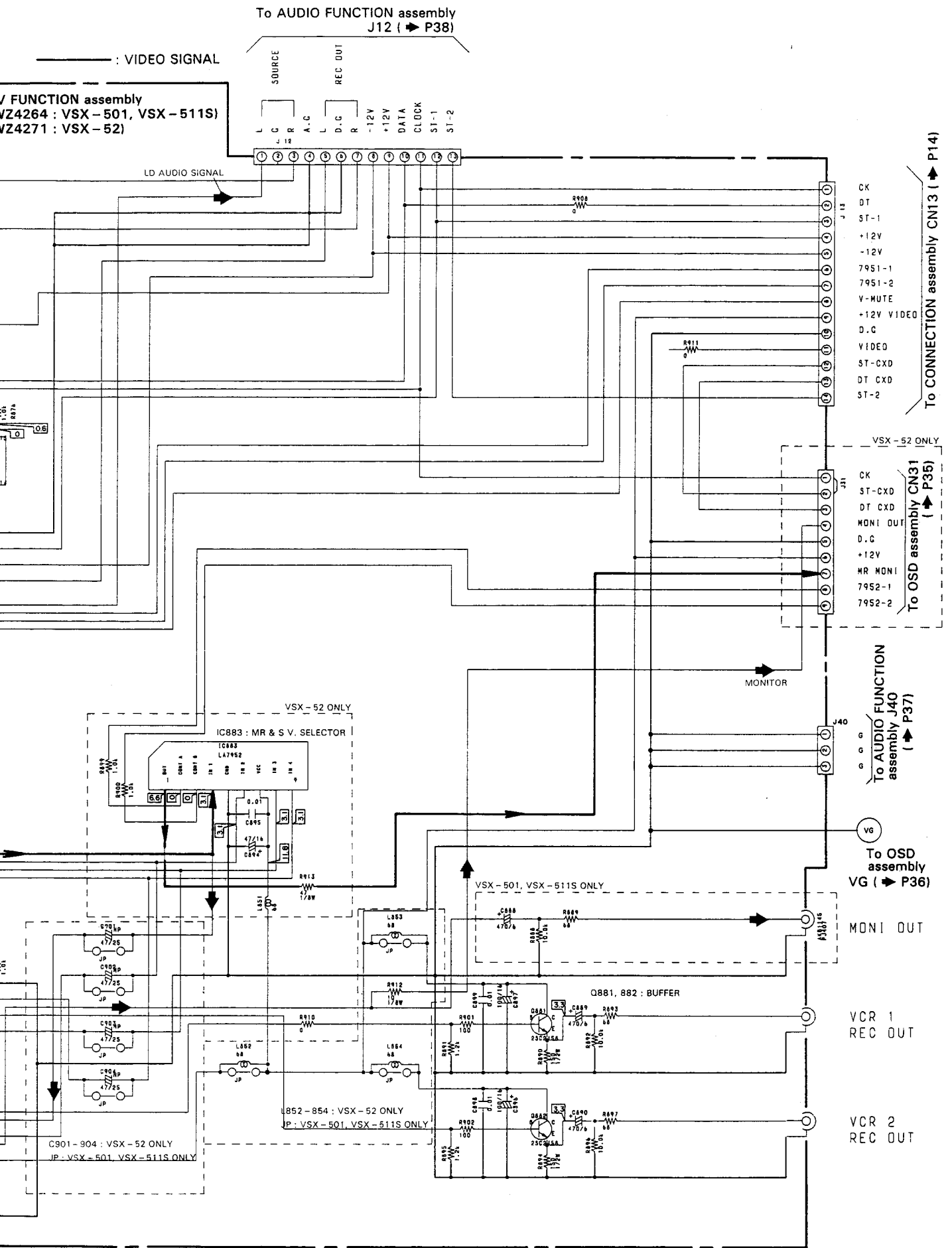
LD AUDIO

IC851 : FUNCTION SELECTOR

VIDEO SIGNAL

IC881 : V. SELECTOR

C901 - 904 : VSX-52 ONLY  
 JP- VSX-501, VSX-511S ONLY



A

B

C

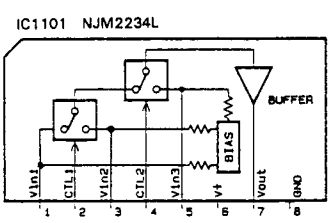
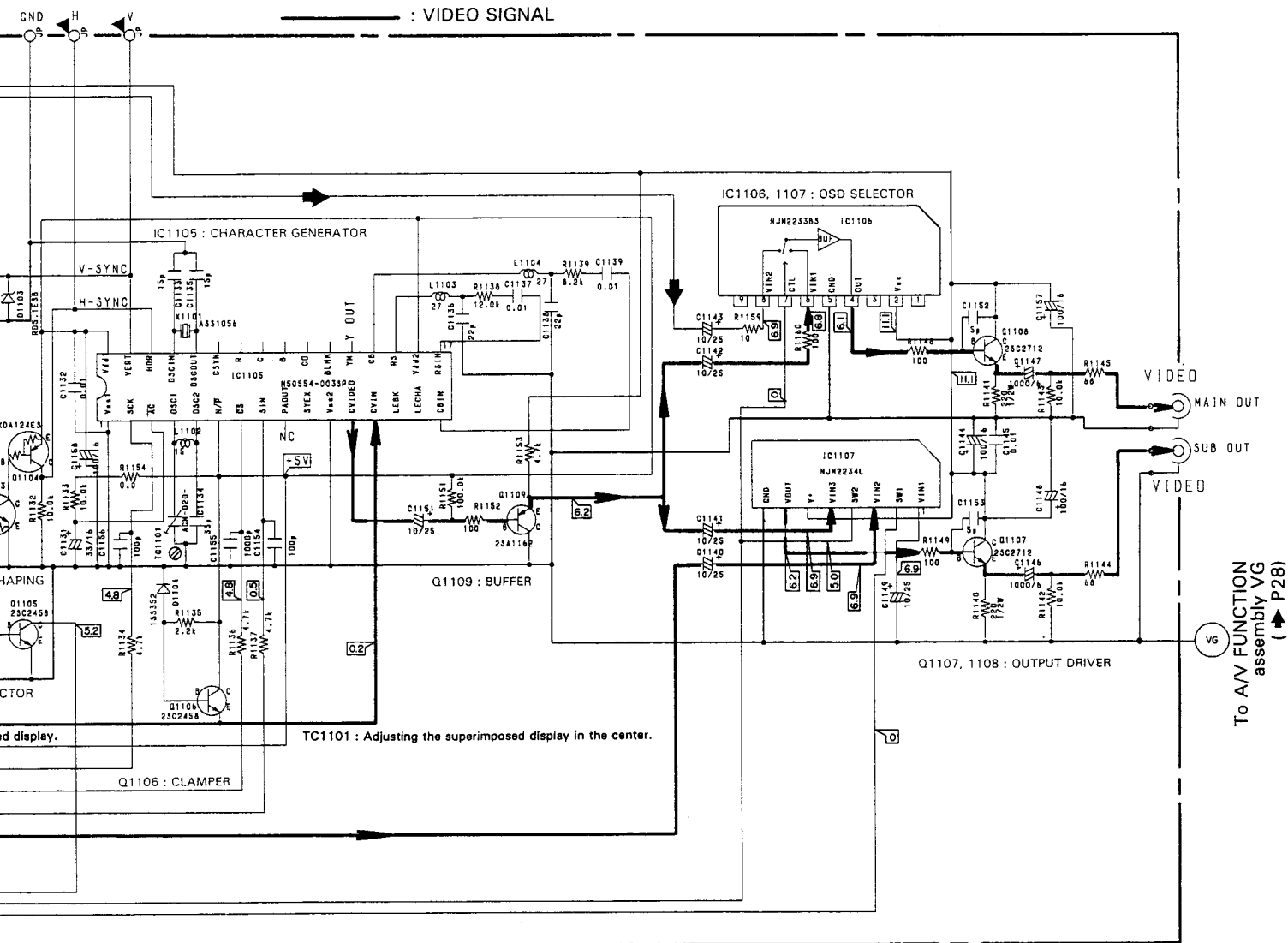
D

A

B

C

D



A

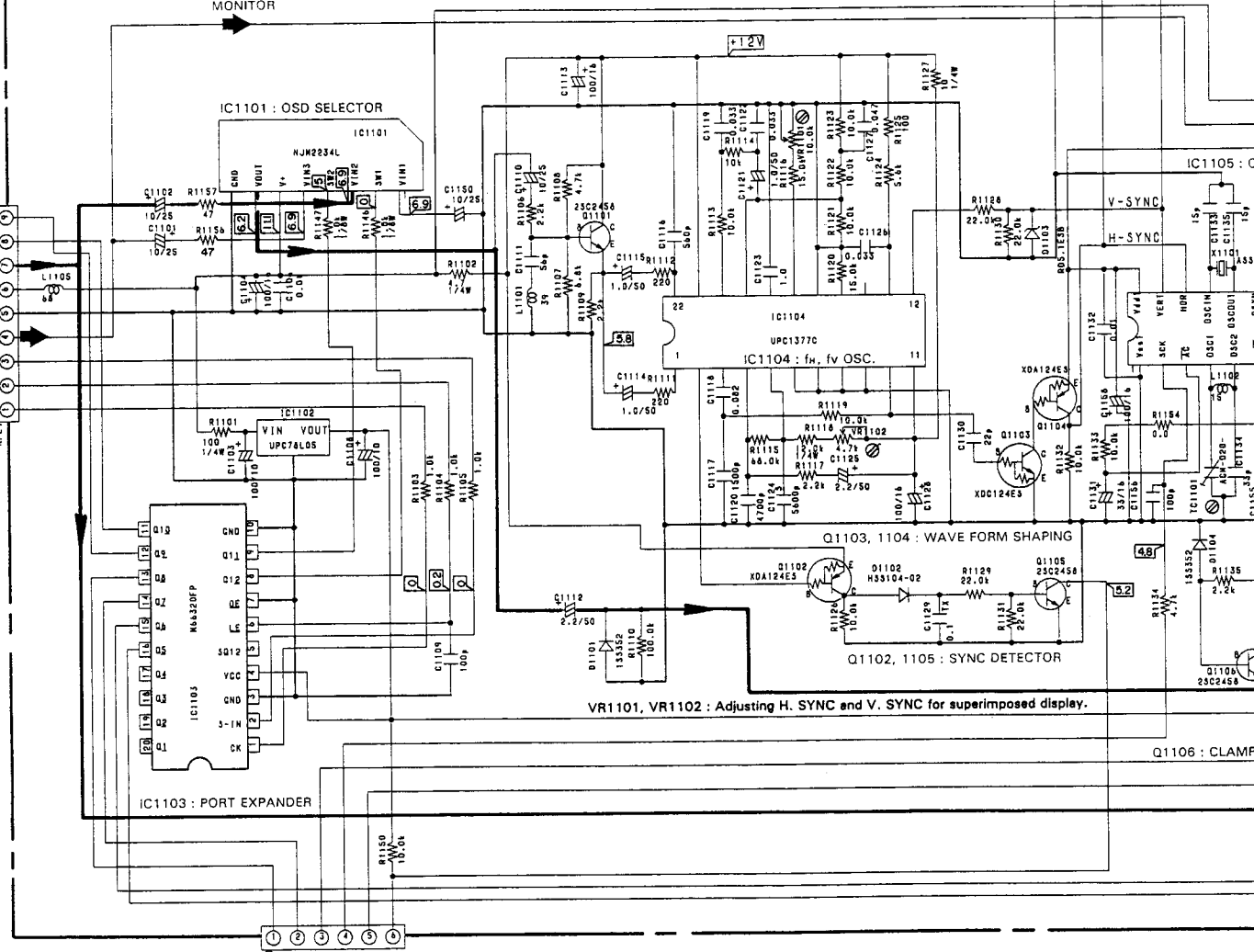
B

C

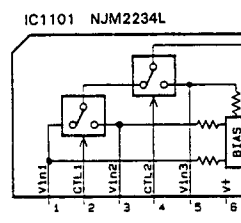
D

To A/V FUNCTION assembly J31 ( P28)

### OSD assembly (AWZ4276 : VSX - 52 ONLY)



To FL. U - COM assembly J35 ( P57)





5.6 AUDIO FUNCTION ASSEMBLY

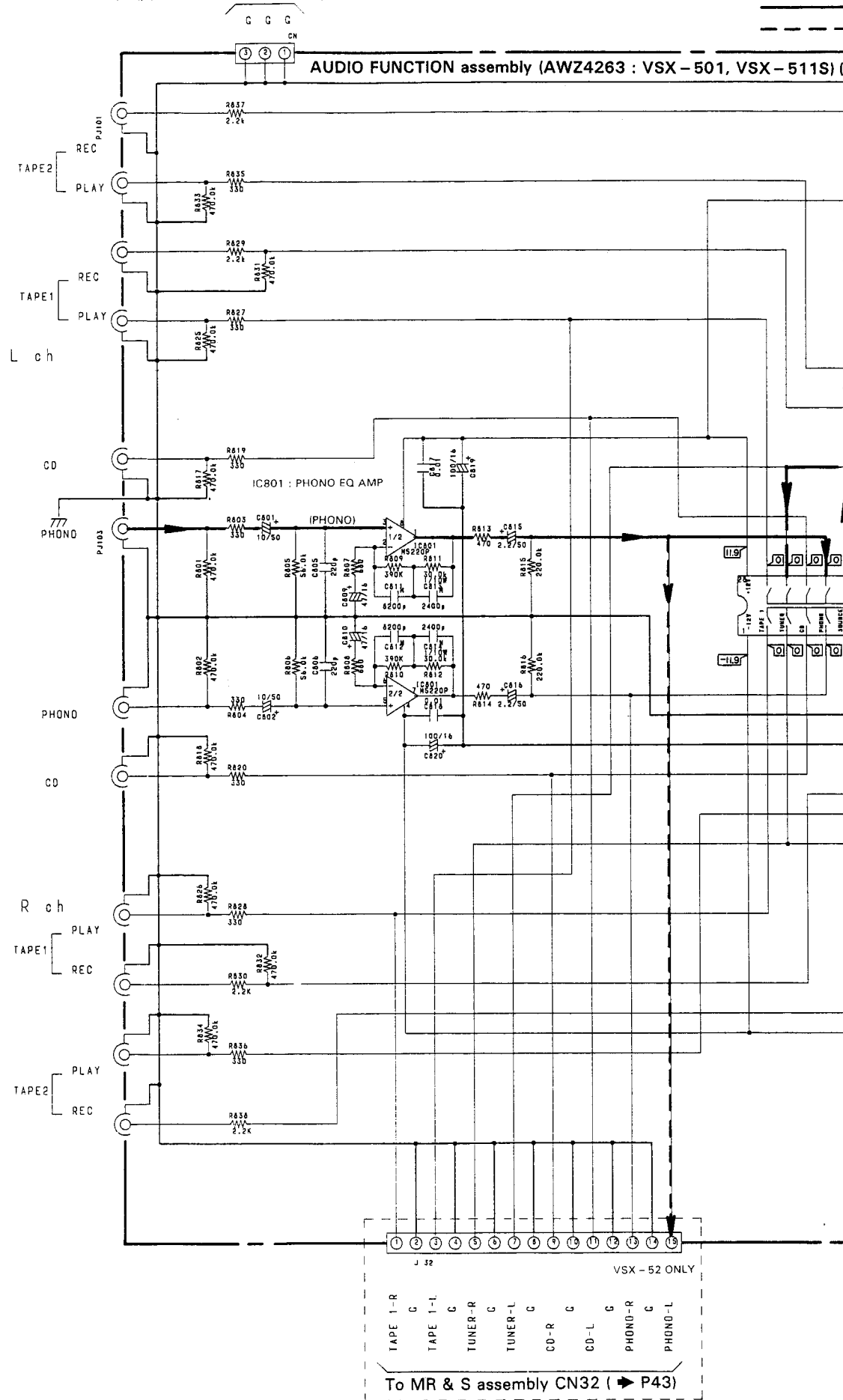
To A/V FUNCTION assembly J40 (▶ P28)

A

B

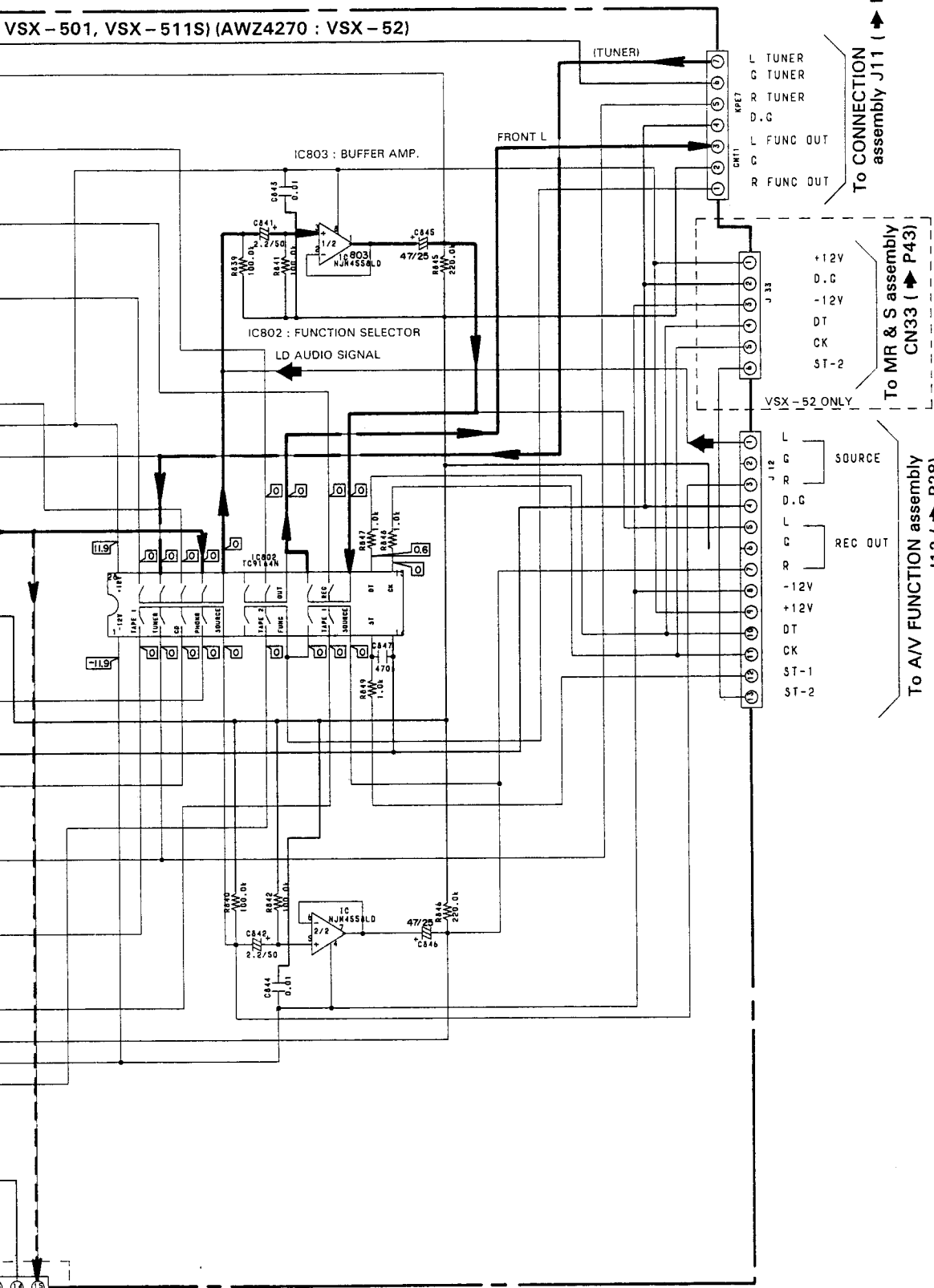
C

D



————— : AUDIO SIGNAL FRONT L  
 - - - - - : AUDIO SIGNAL REAR L (VSX-52 ONLY)

VSX-501, VSX-511S) (AWZ4270 : VSX-52)



To CONNECTION  
assembly J11 ( P13)

To MR & S assembly  
CN33 ( P43)

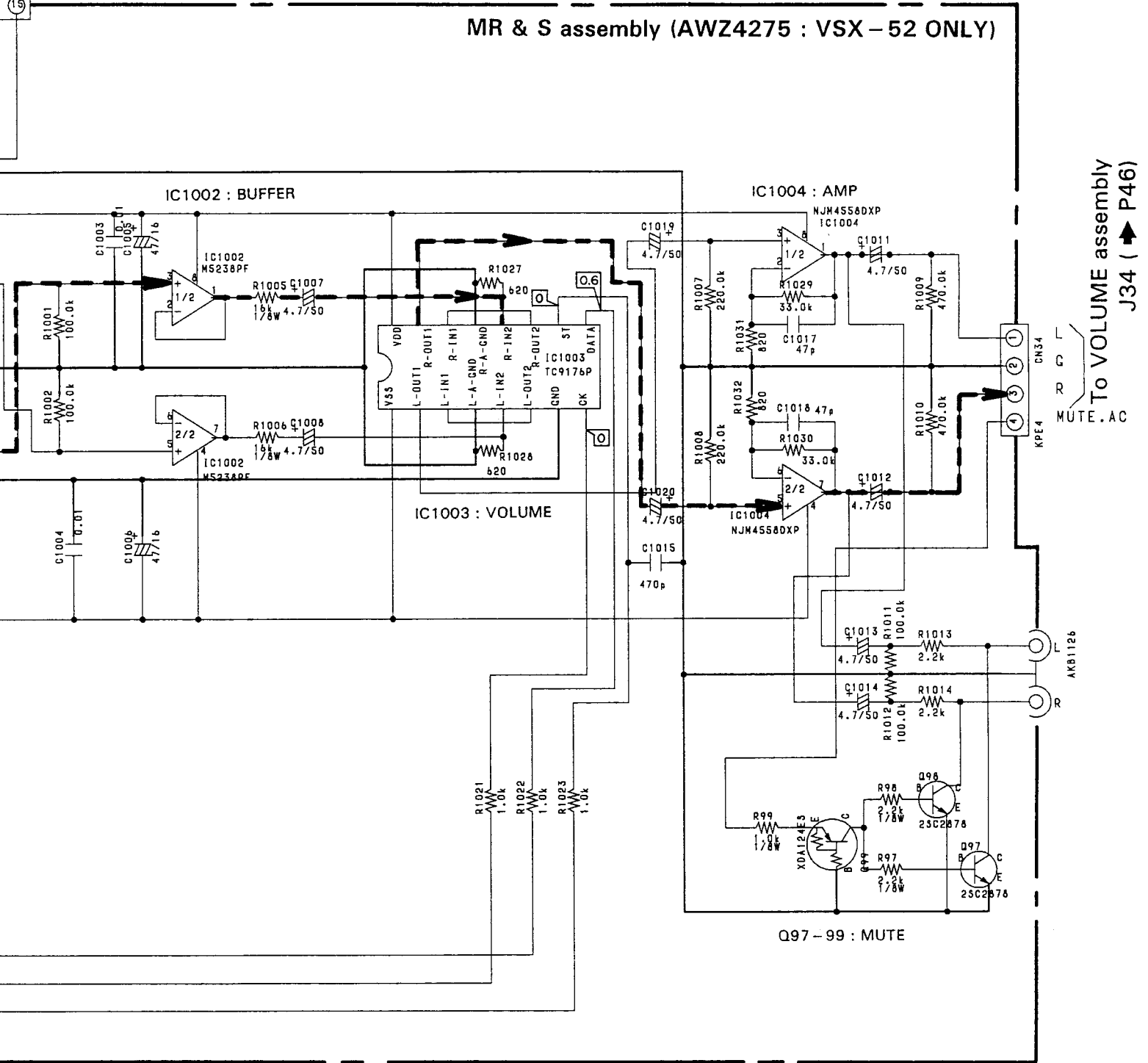
To A/V FUNCTION assembly  
J12 ( P28)

- 52 ONLY  
PHONO-L  
P43)

P27)

REAR L

MR & S assembly (AWZ4275 : VSX-52 ONLY)



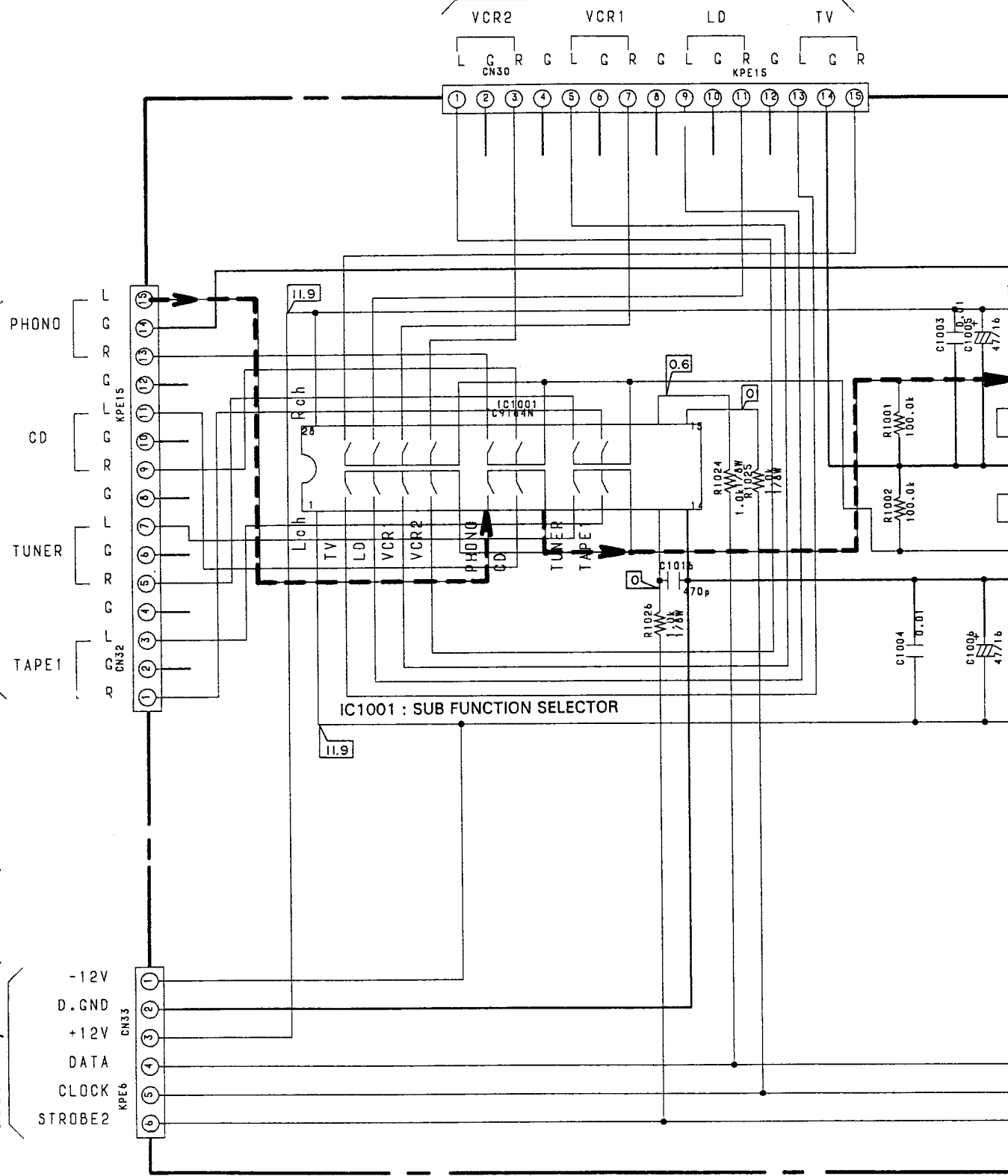
To VOLUME assembly J34 (▲ P46)

AKB1126

To A/V FUNCTION assembly J30 ( → P27)

To AUDIO FUNCTION assembly J32 ( → P37)

To AUDIO FUNCTION assembly J33 ( → P38)



5.8 VOLUME ASSEMBLY

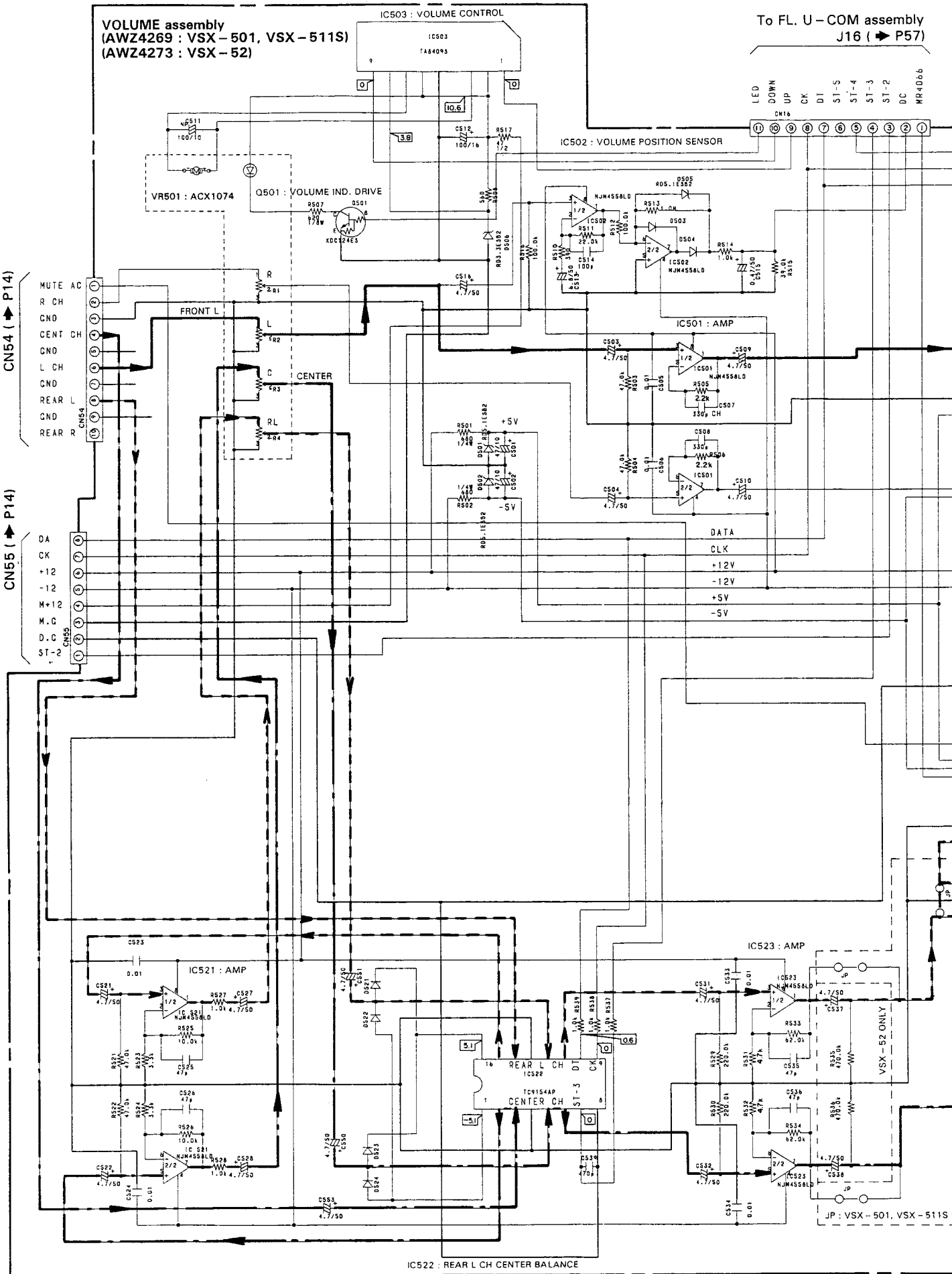
VOLUME assembly (AWZ4269 : VSX - 501, VSX - 511S) (AWZ4273 : VSX - 52)

To FL. U - COM assembly J16 (P57)

- LED
- DOWN
- UP
- CM16
- ①
- ②
- ③
- ④
- ⑤
- ⑥
- ⑦
- ⑧
- ⑨
- ⑩
- ⑪
- ⑫
- ⑬
- ⑭
- ⑮
- ⑯
- ⑰
- ⑱
- ⑲
- ⑳
- ㉑
- ㉒
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- ㊿
- MR4066

To CONNECTION assembly CN54 (P14)

To CONNECTION assembly CN55 (P14)

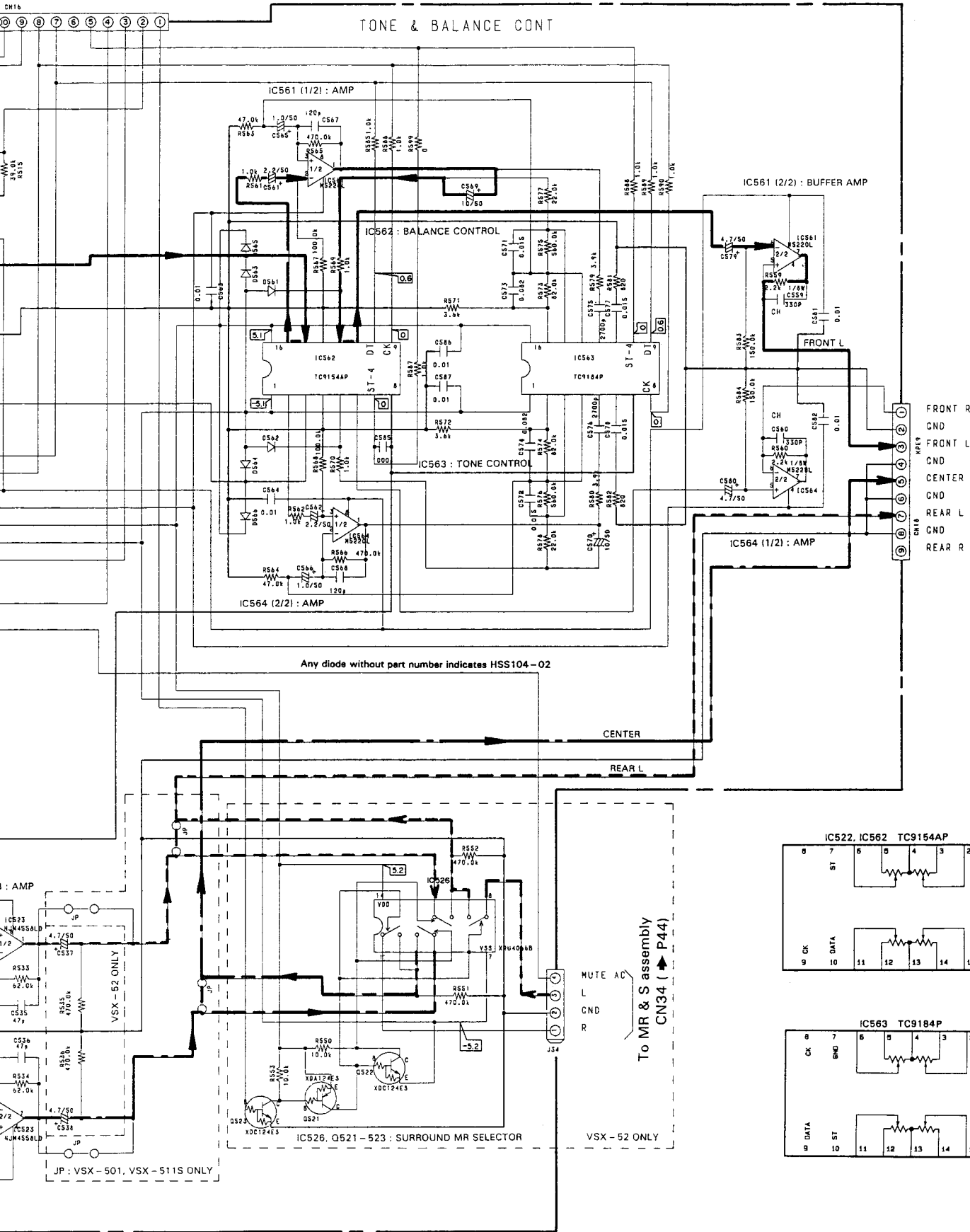


JP : VSX - 501, VSX - 511S O

FL. U - COM assembly  
J16 (P57)

— : FRONT L  
- - - : CENTER  
- - - : REAR L

DOWN  
UP  
CK  
DT  
ST-5  
ST-4  
ST-3  
ST-2  
DC  
MR4056



Any diode without part number indicates HSS104-02

CENTER  
REAR L

FRONT R  
GND  
FRONT L  
GND  
CENTER  
GND  
REAR L  
GND  
REAR R

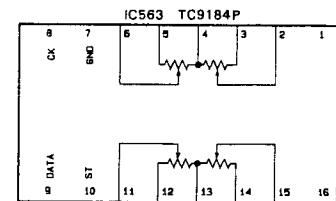
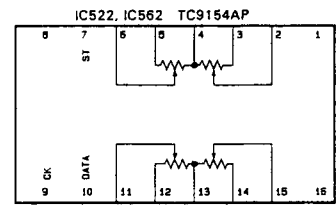
To AMP assembly J18 (P59)

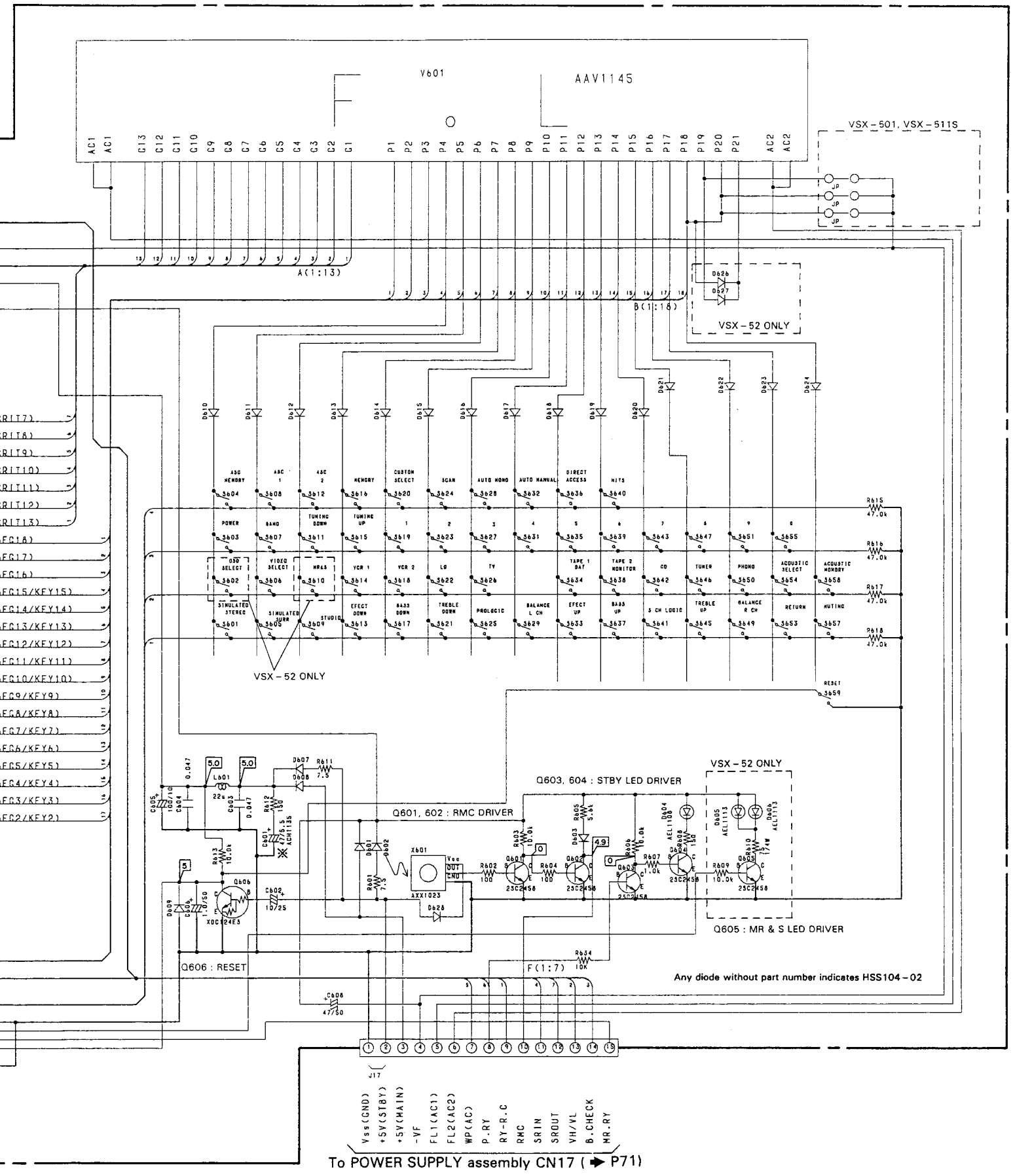
MUTE AC  
L  
GND  
R

To MR & S assembly  
CN34 (P44)

VSX - 52 ONLY

JP : VSX - 501, VSX - 511S ONLY





To POWER SUPPLY assembly CN17 (▶ P71)

- VSS (GND)
- +5V(STBY)
- +5V(CHAIN)
- VF
- FL1(AC1)
- FL2(AC2)
- WP(AC)
- P.RY
- RY-R.C
- RMC
- SRIN
- SR0UT
- VH/VL
- B.CHECK
- MR.RY

FL. U-COM assembly (AWK1556 : VSX - 501, VSX - 511S)  
 (AWK1544 : VSX - 52)

To CONNECTION assembly  
 CN15 (▶ P13)

- STOP
- T. MUTE
- STEREO
- DT-T
- CK-T
- CE-T
- ST1
- 7951.1
- 7951.2
- V. MUTE
- STCXD
- VIDEO
- BCK
- WCK
- CD

To VOLUME assembly  
 CN16 (▶ P46)

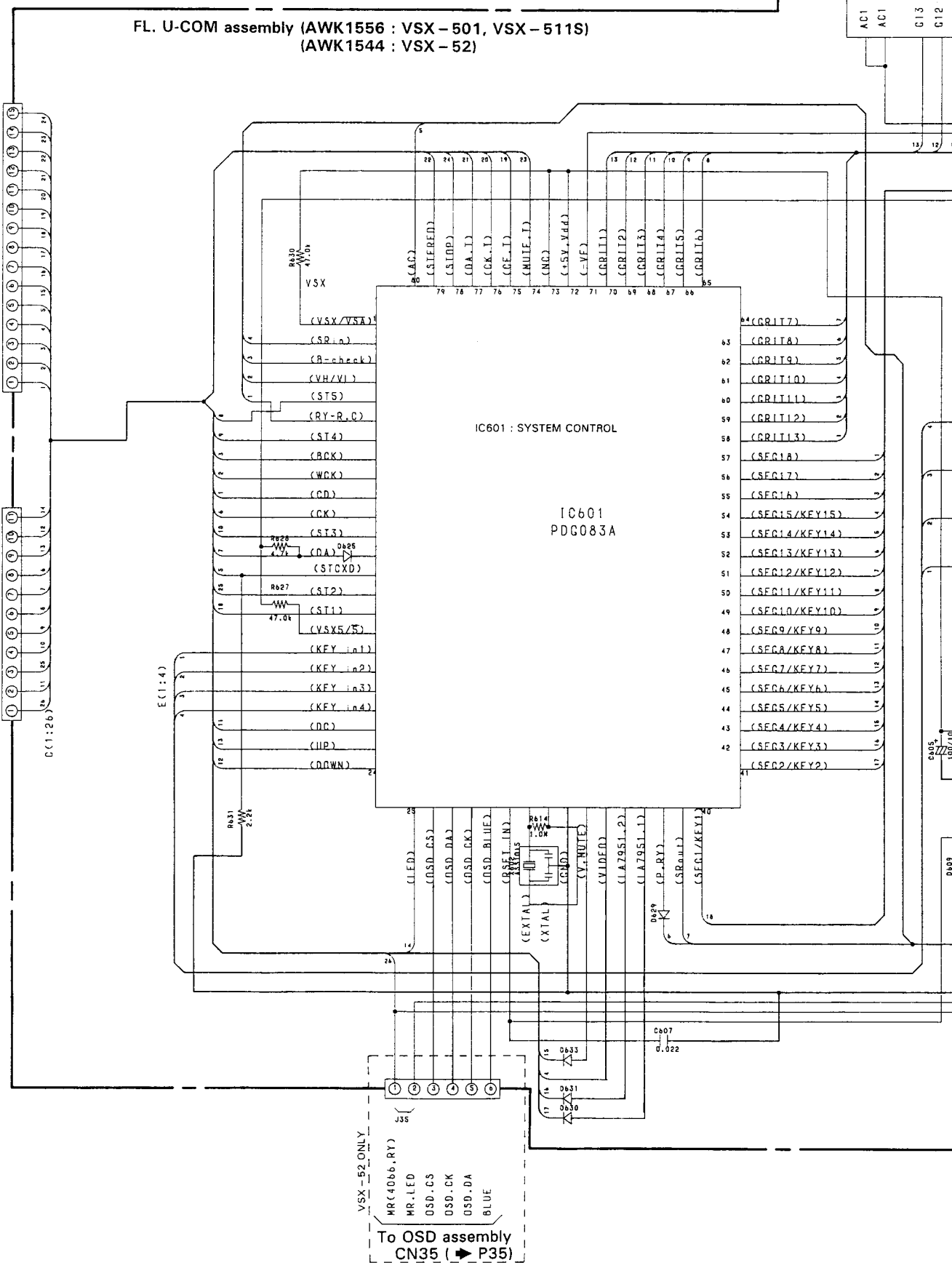
- LED
- DOWN
- UP
- CK
- DA
- STS
- ST4
- ST3
- ST-2
- DC
- MR4066

E(1:4)

VSX - 52 ONLY

- MR(4066,RY)
- MR.LED
- OSD-CS
- OSD-CK
- OSD-DA
- BLUE

To OSD assembly  
 CN35 (▶ P35)



A

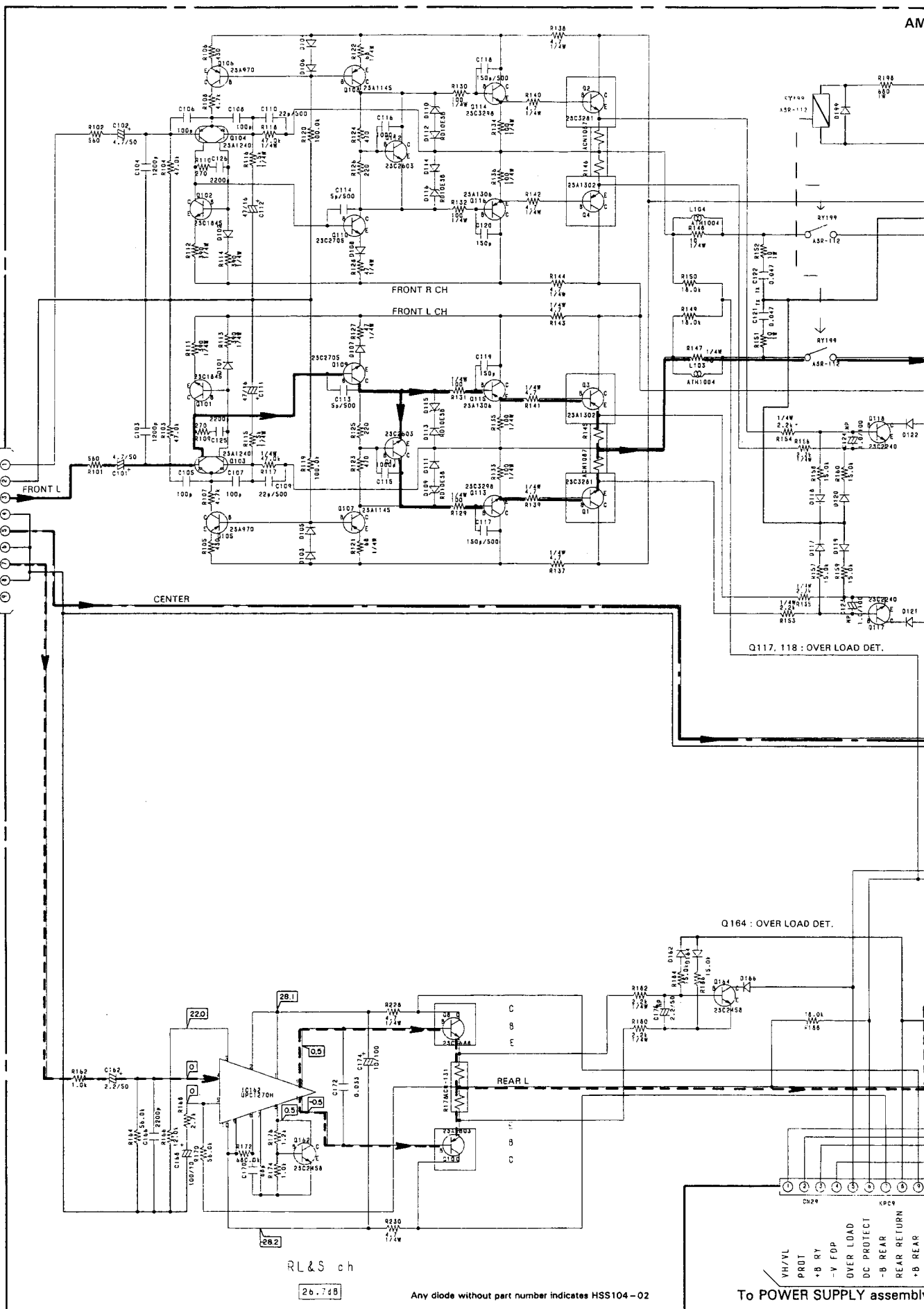
C

D

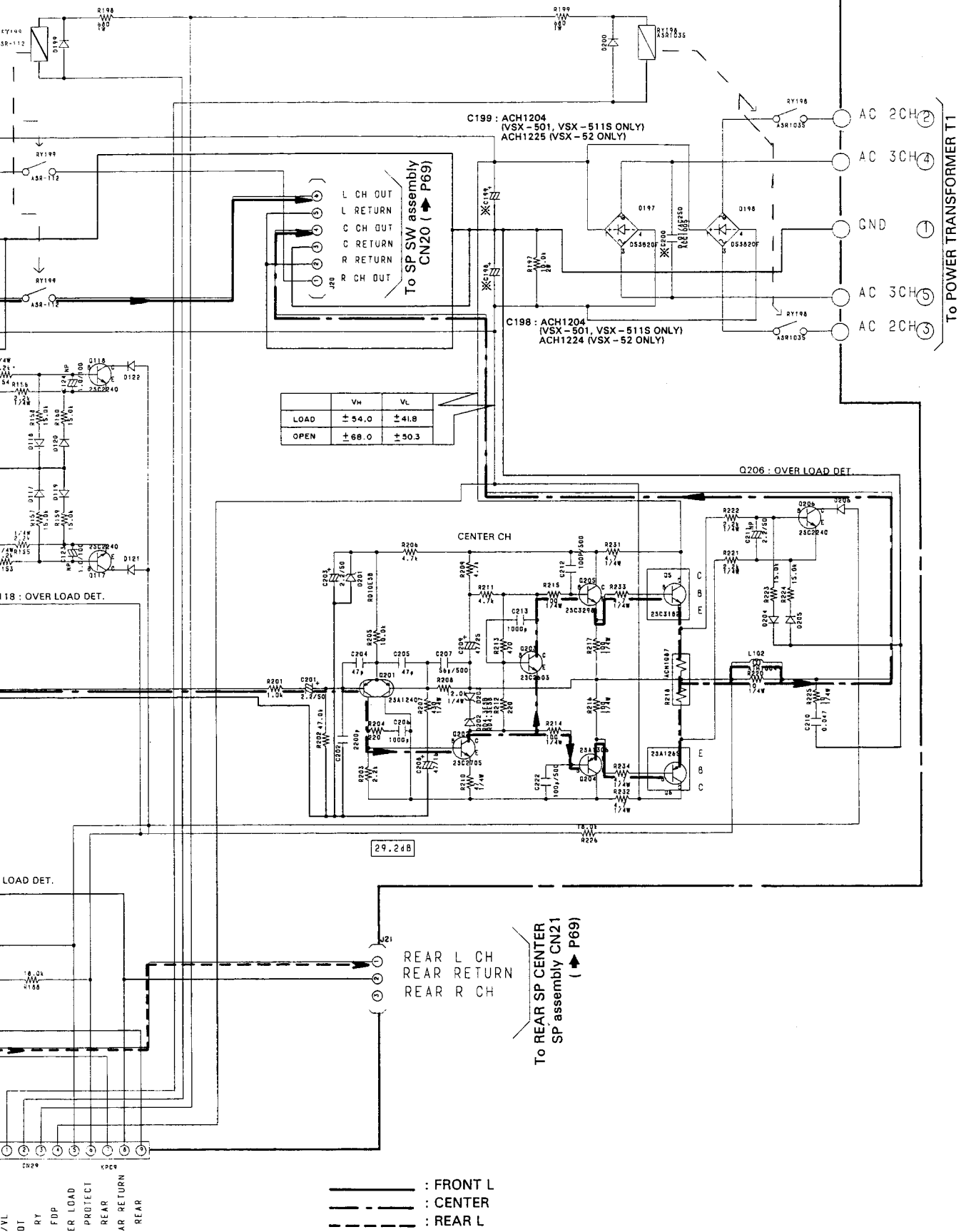


5.10 AMP ASSEMBLY

To VOLUME assembly CN18 (P46)



AMP assembly (AWZ4254 : VSX - 501, VSX - 511S)  
 (AWZ4258 : VSX - 52)



	VH	VL
LOAD	+ 54.0	+ 41.8
OPEN	+ 68.0	+ 50.3

To POWER TRANSFORMER T1

To REAR SP CENTER  
 SP assembly CN21  
 (P69)

— : FRONT L  
 - - - : CENTER  
 - - - : REAR L

POWER SUPPLY assembly J29 (P72)

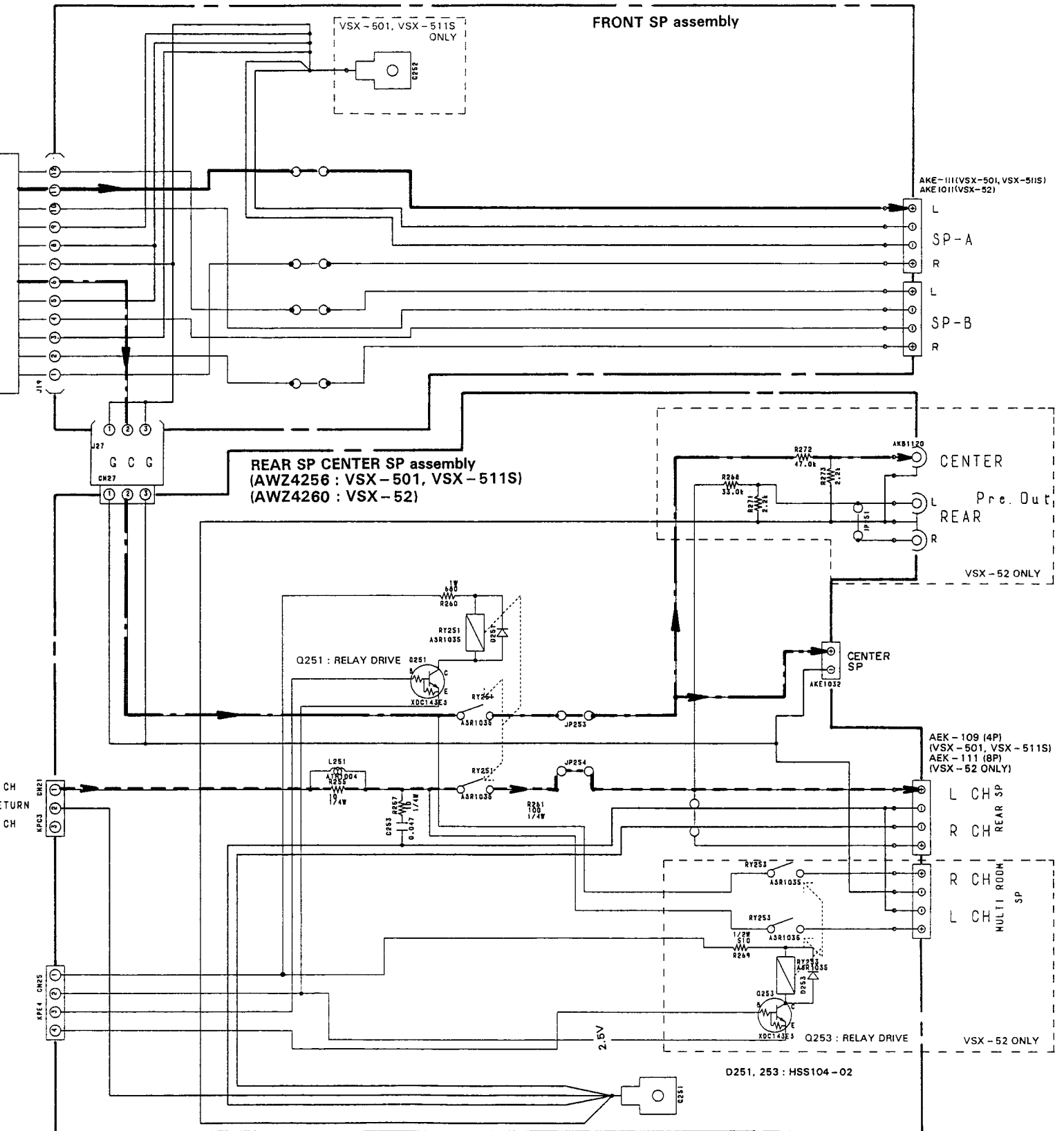
A

B

C

D

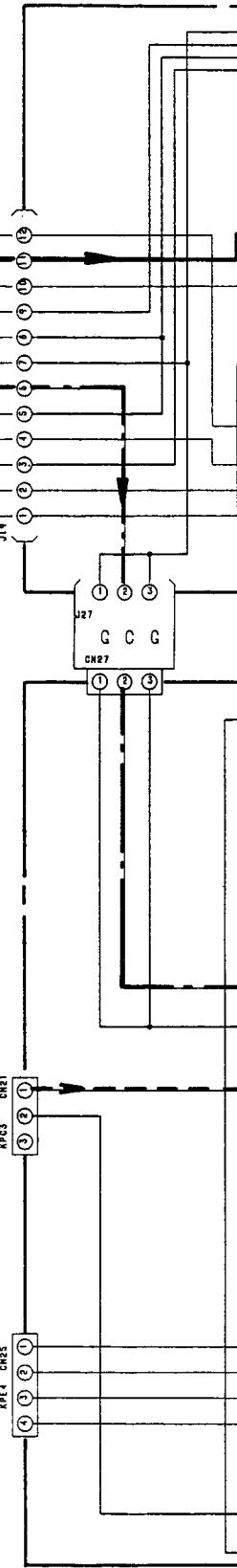
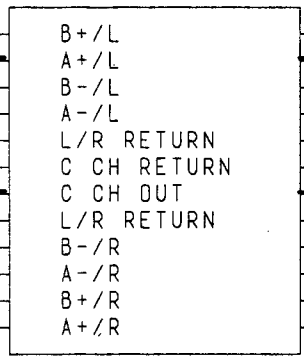
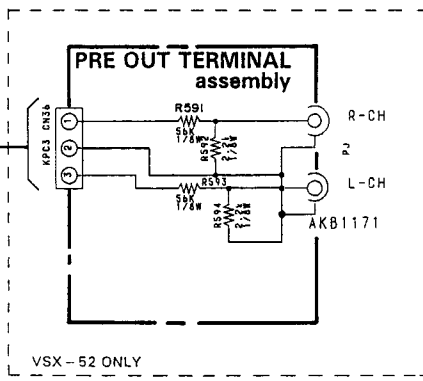
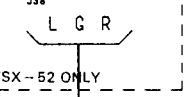
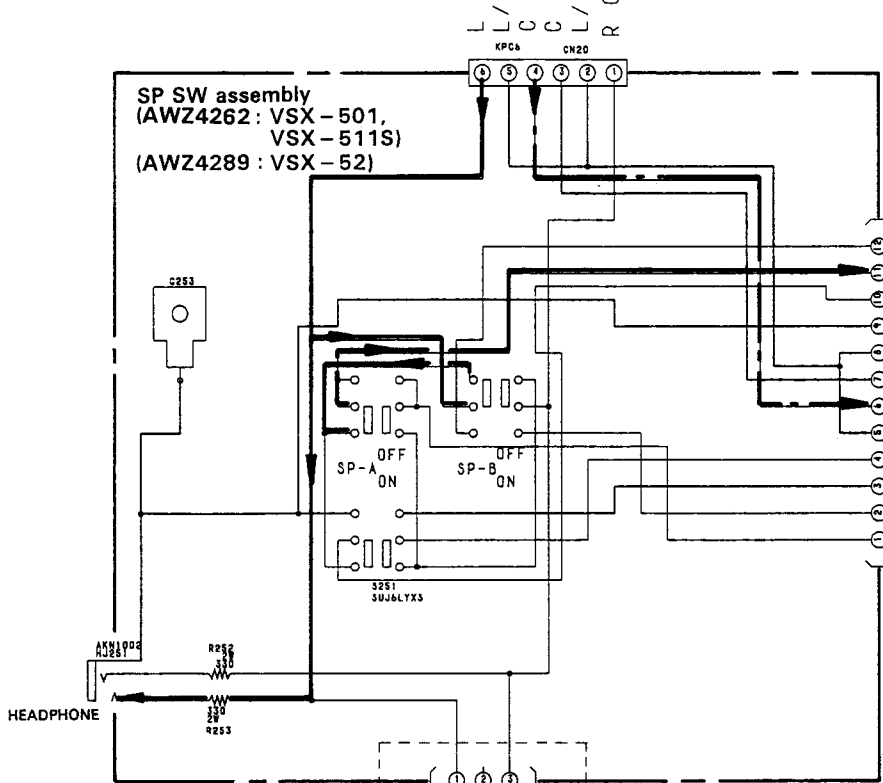
ONT L  
TER  
R L



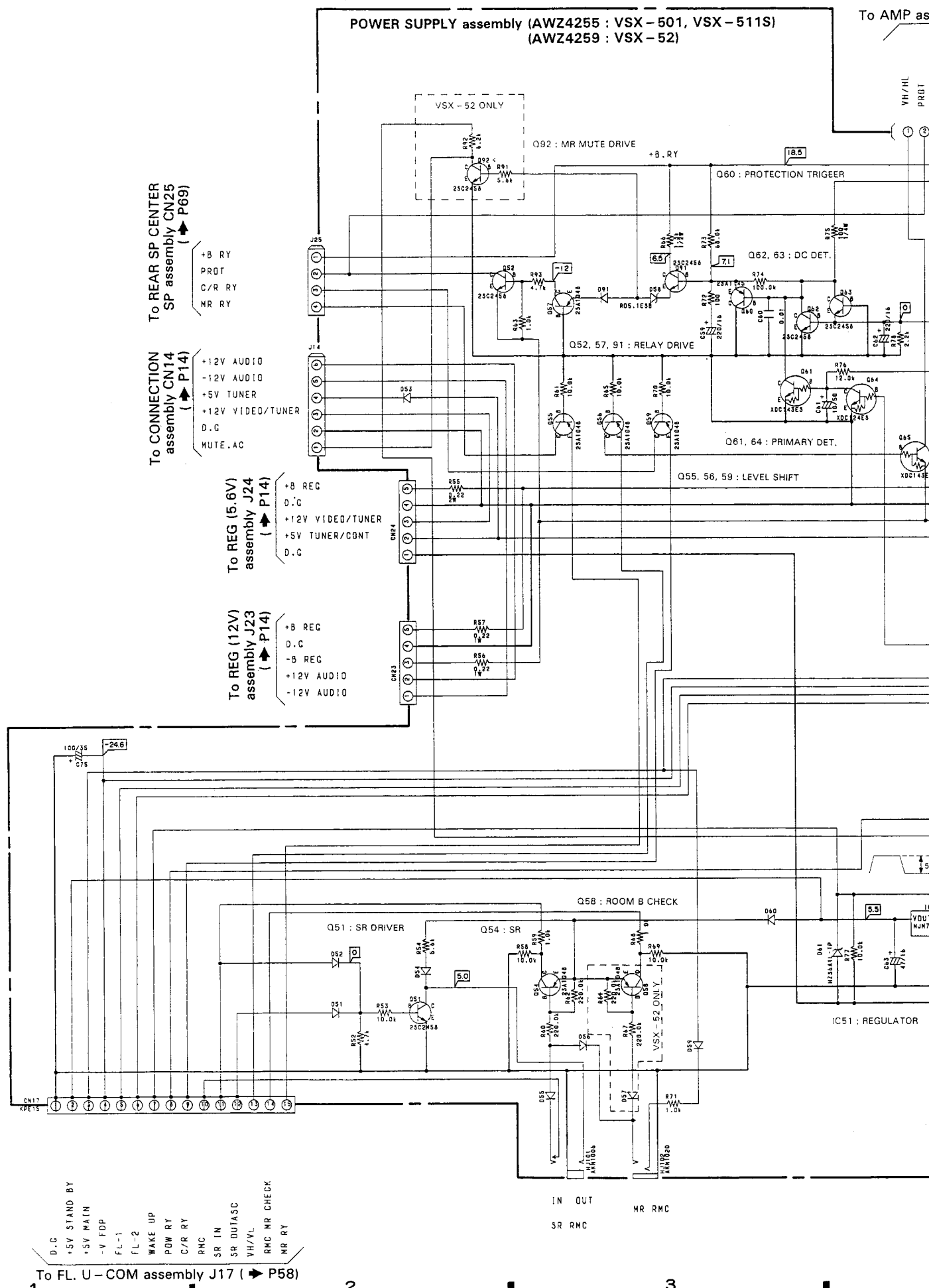
To AMP assembly J20 (▶ P60)

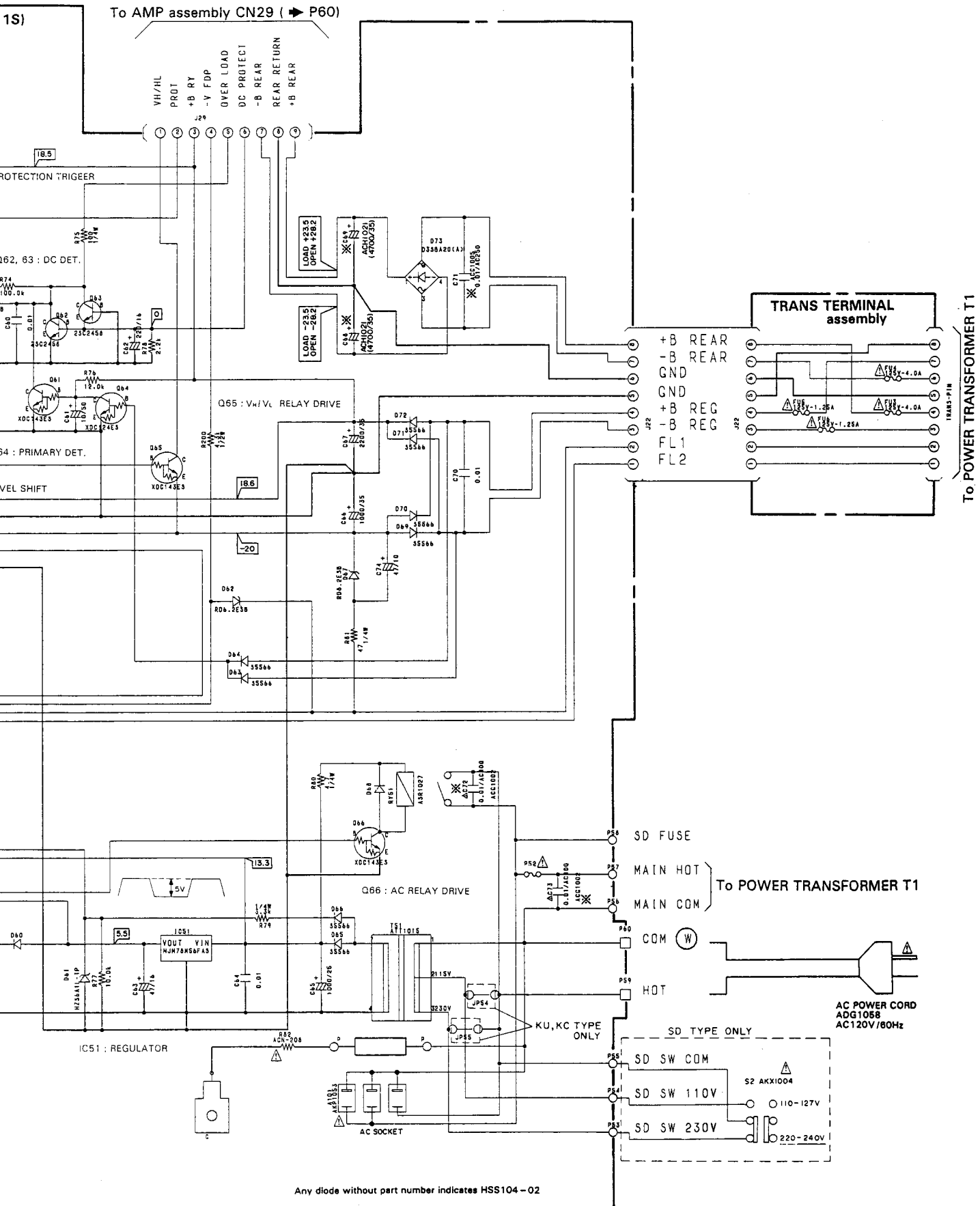
\_\_\_\_\_ : FRONT L  
 - - - - - : CENTER  
 - - - - - : REAR L

SP SW assembly  
 (AWZ4262 : VSX-501,  
                   VSX-511S)  
 (AWZ4289 : VSX-52)

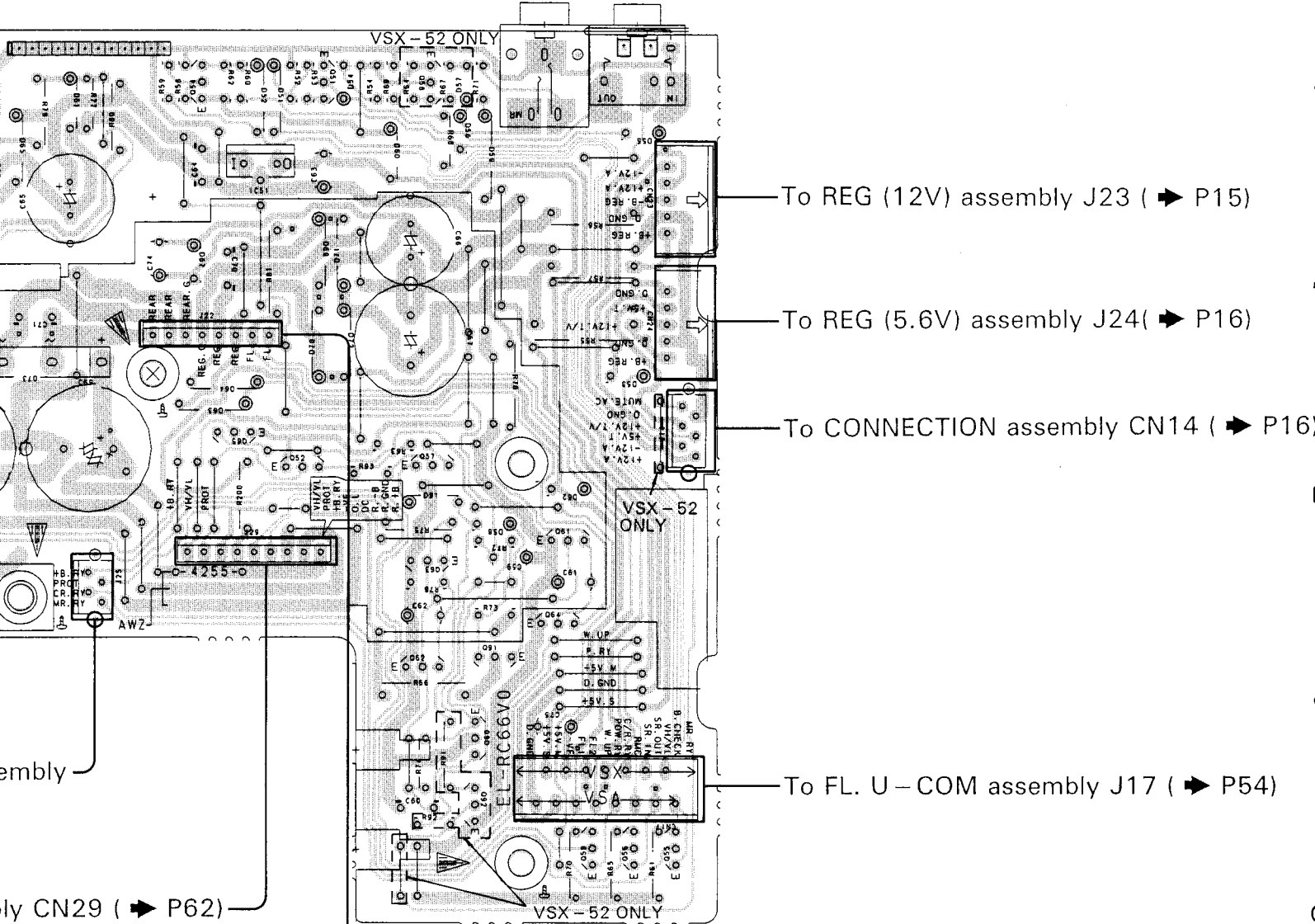


5.12 POWER SUPPLY ASSEMBLY AND TRANS TERMINAL ASSEMBLY





Q54 IC51 Q51 Q58  
 Q65 Q52 Q57 Q63 Q64 Q61  
 Q62 Q60 Q92 Q91 Q59 Q56 Q55



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.
3. The capacitor terminal marked with ⊙ (double circles) shows negative terminal.
4. The diode terminal marked with ⊙ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarized)
		Capacitor (Non-polarized)

Others

P.C.B. pattern diagram indication	Part Name
	IC
	Switch
	Relay
	Coil
	Filter
	Variable resistor or Semi-fixed resistor

(FOR CANADIAN MODEL ONLY)  
 Fuse symbols (Fast Operating Fuse) and/or (Slow Operating Fuse) on P.C.B. indicate that replacement parts must be of identical designation.

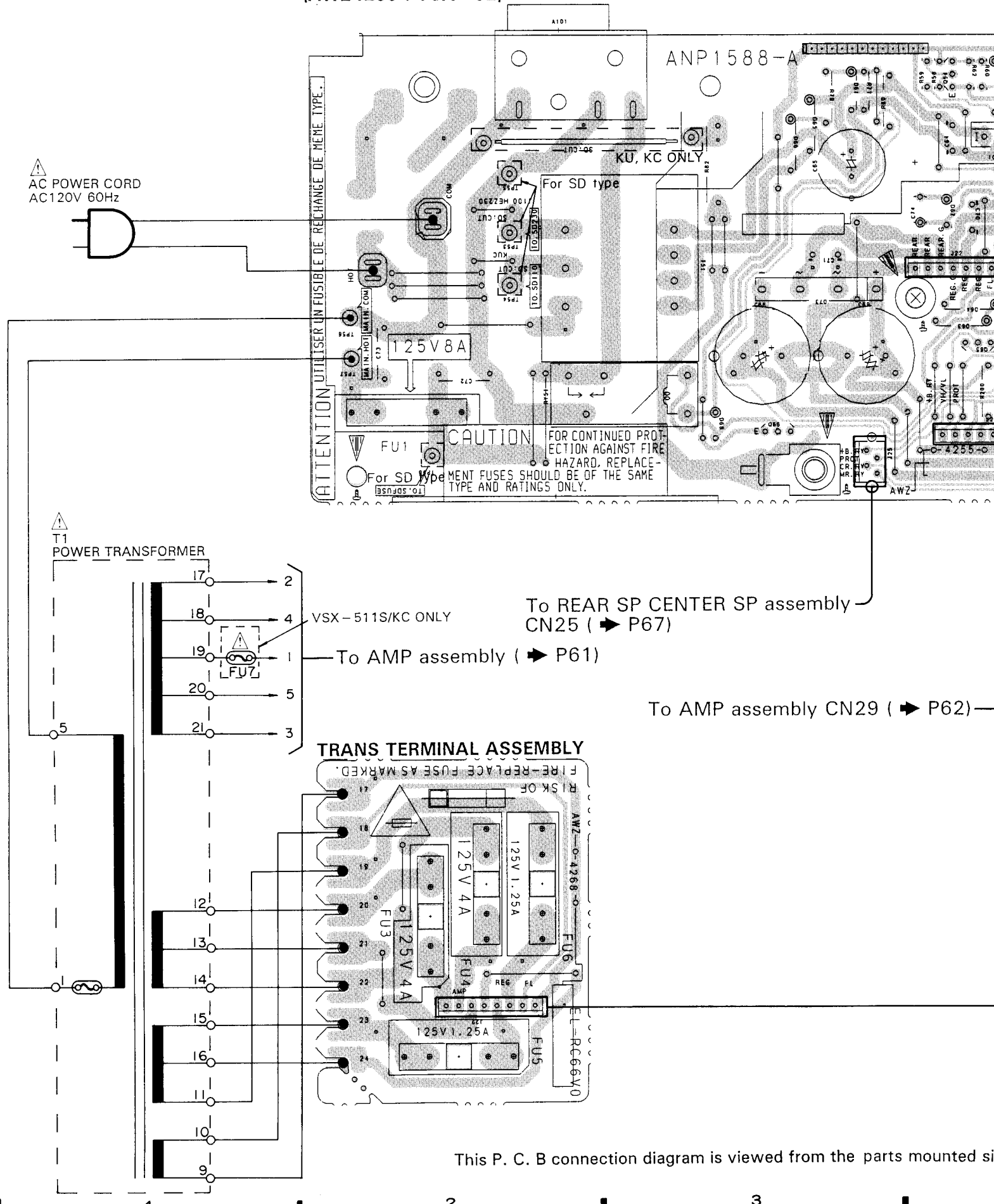
(POUR MODÈLE CANADIEN SEULEMENT)  
 Sur P.C.I., les symboles de fusible (Fusible de type rapide) et/ou (Fusible de type lent) indiquent que les pièces de remplacement doivent avoir la même désignation.

from the parts mounted side.

**POWER SUPPLY ASSEMBLY**  
 (AWZ4255 : VSX - 501, VSX - 511S)  
 (AWZ4259 : VSX - 52)

Q66

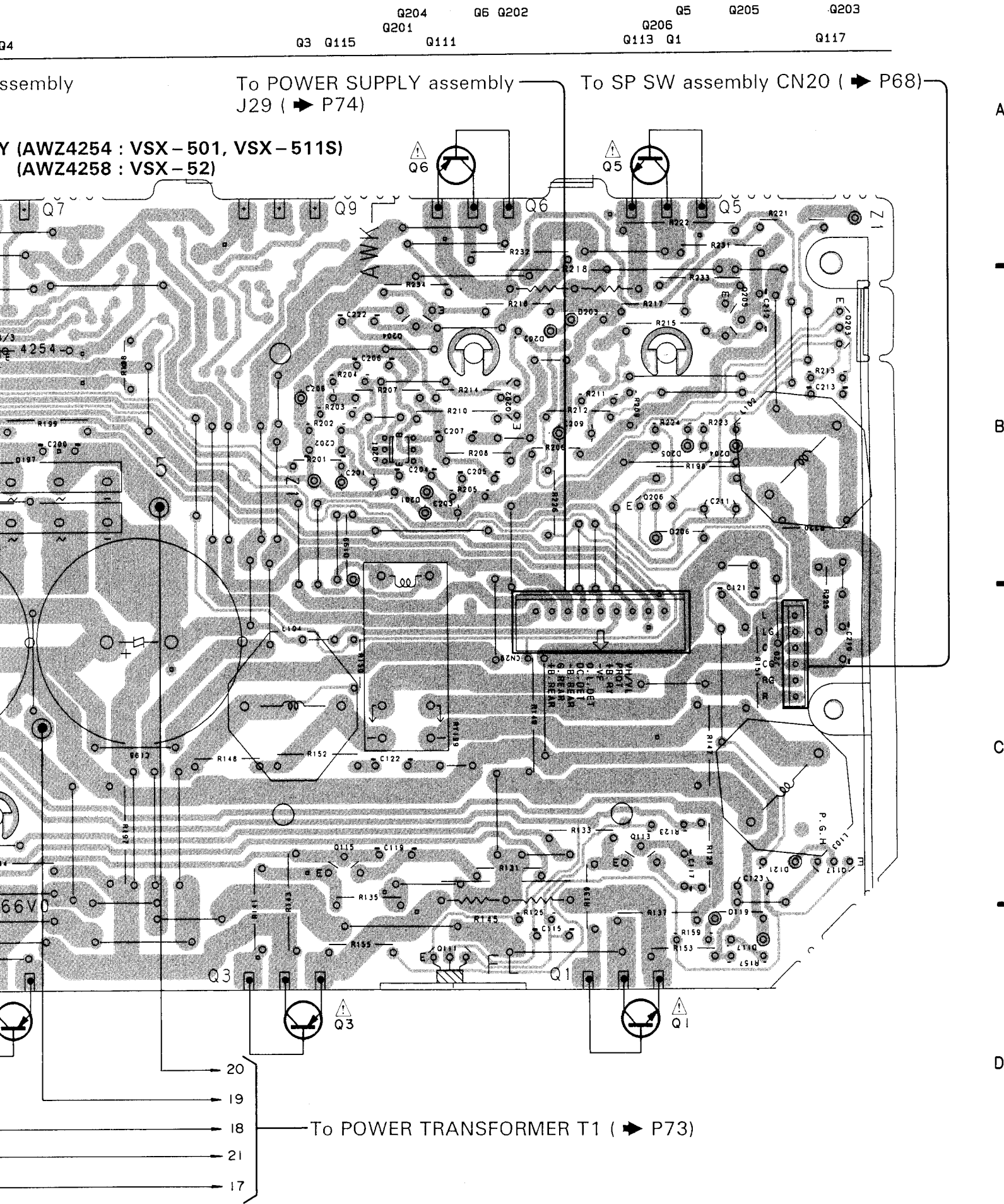
Q54 IC5  
Q65



This P. C. B connection diagram is viewed from the parts mounted side.



ved from the parts mounted side.



assembly

To POWER SUPPLY assembly  
J29 ( P74)

To SP SW assembly CN20 ( P68)

Y (AWZ4254 : VSX - 501, VSX - 511S)  
(AWZ4258 : VSX - 52)

66VDC

To POWER TRANSFORMER T1 ( P73)

This P. C. B connection diagram is viewed from the parts mou

IC162	Q164	Q162	Q10	QB				
Q106	Q104	Q102	Q103	Q101	Q109	Q105		
Q118	Q108	Q114	Q110	Q2	Q116	Q112	Q107	Q4

To VOLUME assembly CN18 ( ➔ P48)

To REAR SP CENTER SP assembly CN21 ( ➔ P67)

AMP ASSEMBLY (AWZ4254 : VSX -  
(AWZ4258 : VSX -

