

Service Manual

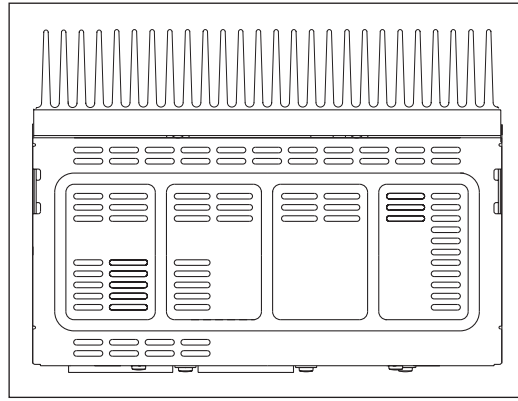
Pioneer
TOYOTA

ORDER NO.
CRT2562

LEXUS SC430 **AUDIO SYSTEM** **POWER AMPLIFIER**

VEHICLE	DESTINATION	PRODUCED AFTER	TOYOTA PART No.	ID No.	PIONEER MODEL No.
LEXUS SC430	Europe	April 2001	86280-24240	—	GM-8117ZT/E
					GM-8117ZT-91/E

GM-8117ZT,8117ZT-91



NOTE:

- The GM-8117ZT-91/E is supplementally genuine part for a TOYOTA vehicle, and a Pioneer product for recycling stock.
- As for the electrical system, there is no difference between the GM-8117ZT-91/E and GM-8117ZT/E.
- Supplementally model is identical to the original except for the addition of following items.

*:Non spare part

Description	Part No.
	GM-8117ZT-91/E
Cover	*CEG1088
Protector(x2)	CHP2357
Protector(x2)	CHP2358
Carton	CHA3118
Contain Box	CHL4343

- When diagnosing a product, take care of its heated portion.
 - Power IC (IC801,802,803)
 - Power Supply IC (IC901,902)
 - DSP IC (IC201,251)
 - Heat Sink
 - IC Holder

CONTENTS

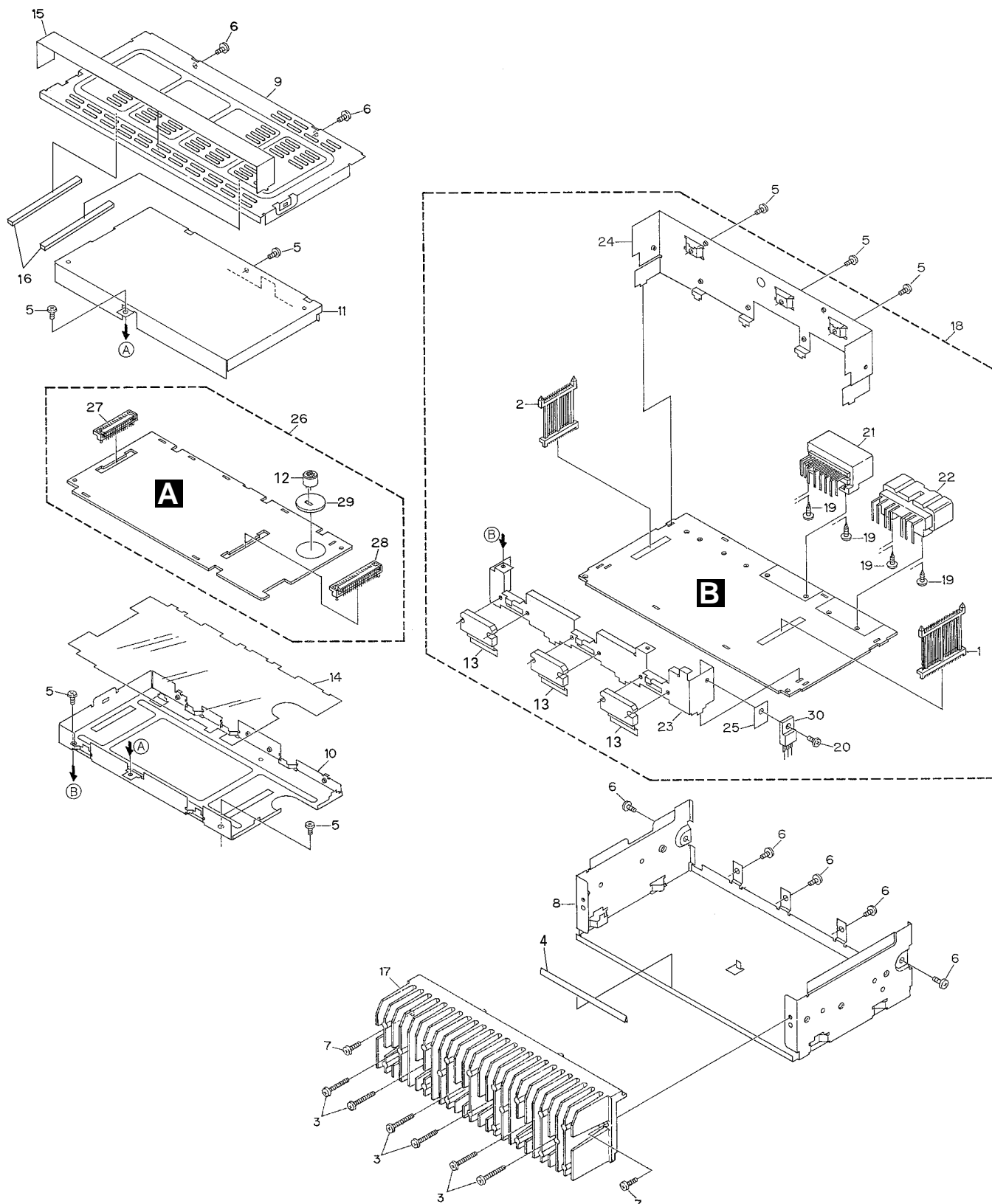
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1. SAFETY INFORMATION

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.

2. EXPLODED VIEWS AND PARTS LIST

2.1 EXTERIOR



GM-8117ZT,8117ZT-91

NOTE:

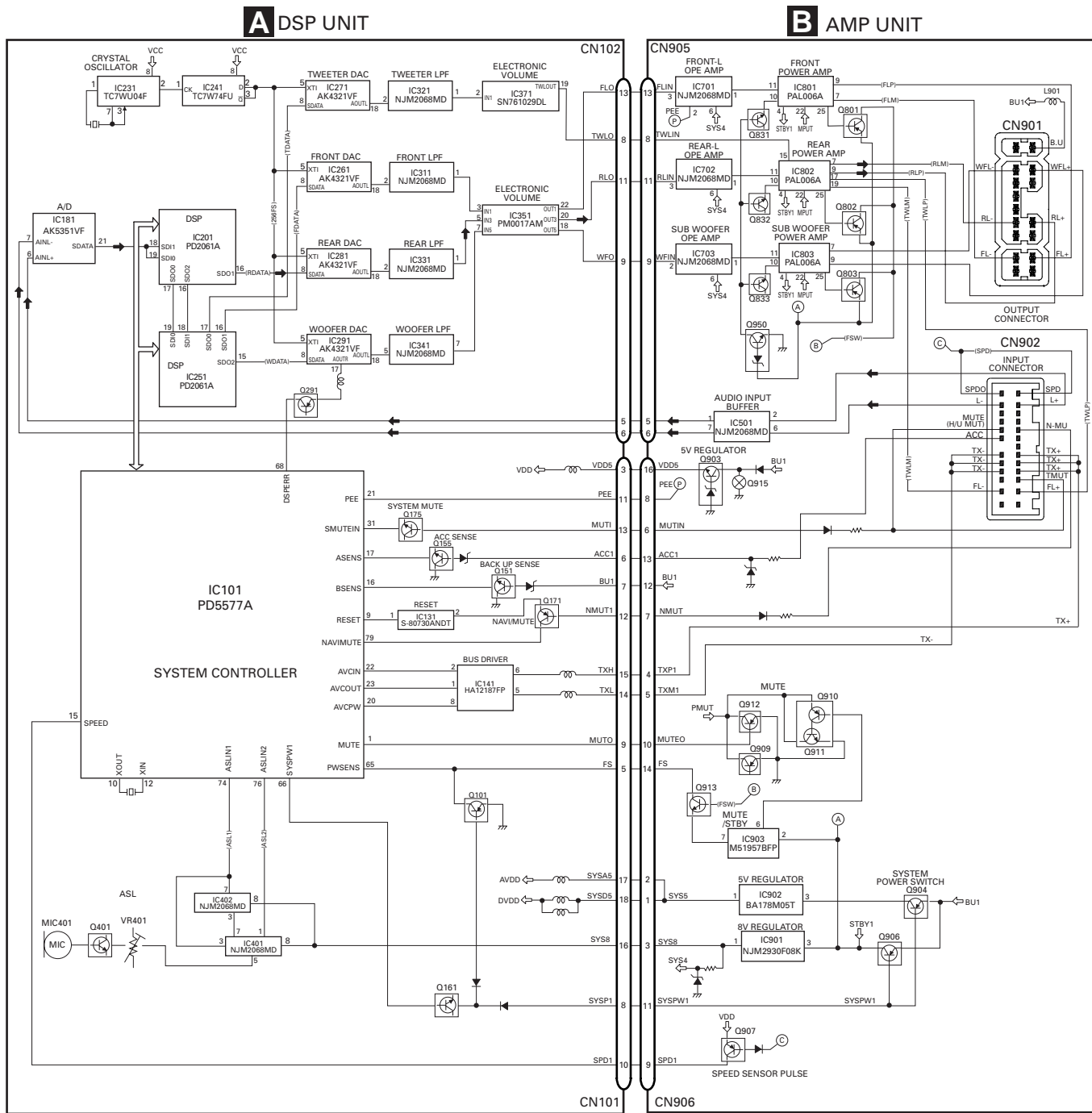
- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Plug(CN906)	CKS4240	16	Cushion	CNM7034
2	Plug(CN905)	CKS4242	17	Heat Sink	CNR1566
3	Screw	BMZ30P200FMC	18	Amp Unit	CWM7033
4	Seal	CNM7170	19	Screw	BPZ30P060FSN
5	Screw	BSZ26P060FMC	20	Screw	BSZ26P060FMC
6	Screw	BSZ30P060FMC	21	Connector(CN902)	CKM1308
7	Screw	BSZ30P100FMC	22	Connector(CN901)	CKM1310
8	Chassis	CNA2142	23	Holder	CNC8187
9	Case	CNB2429	24	Bracket	CNC8681
10	Shield Case	CNC8185	25	Sheet	CNM7015
11	Shield Case	CNC8186	26	DSP Unit	CWM7034
12	Microphone(MIC401)	CPM1011	27	Socket(CN102)	CKS3632
13	IC(IC801,802,803)	PAL006A	28	Socket(CN101)	CKS4241
14	Insulator	CNM6145	29	Spacer	CNV6284
15	Seal	CNM6686	30	IC(IC902)	BA178M05T

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

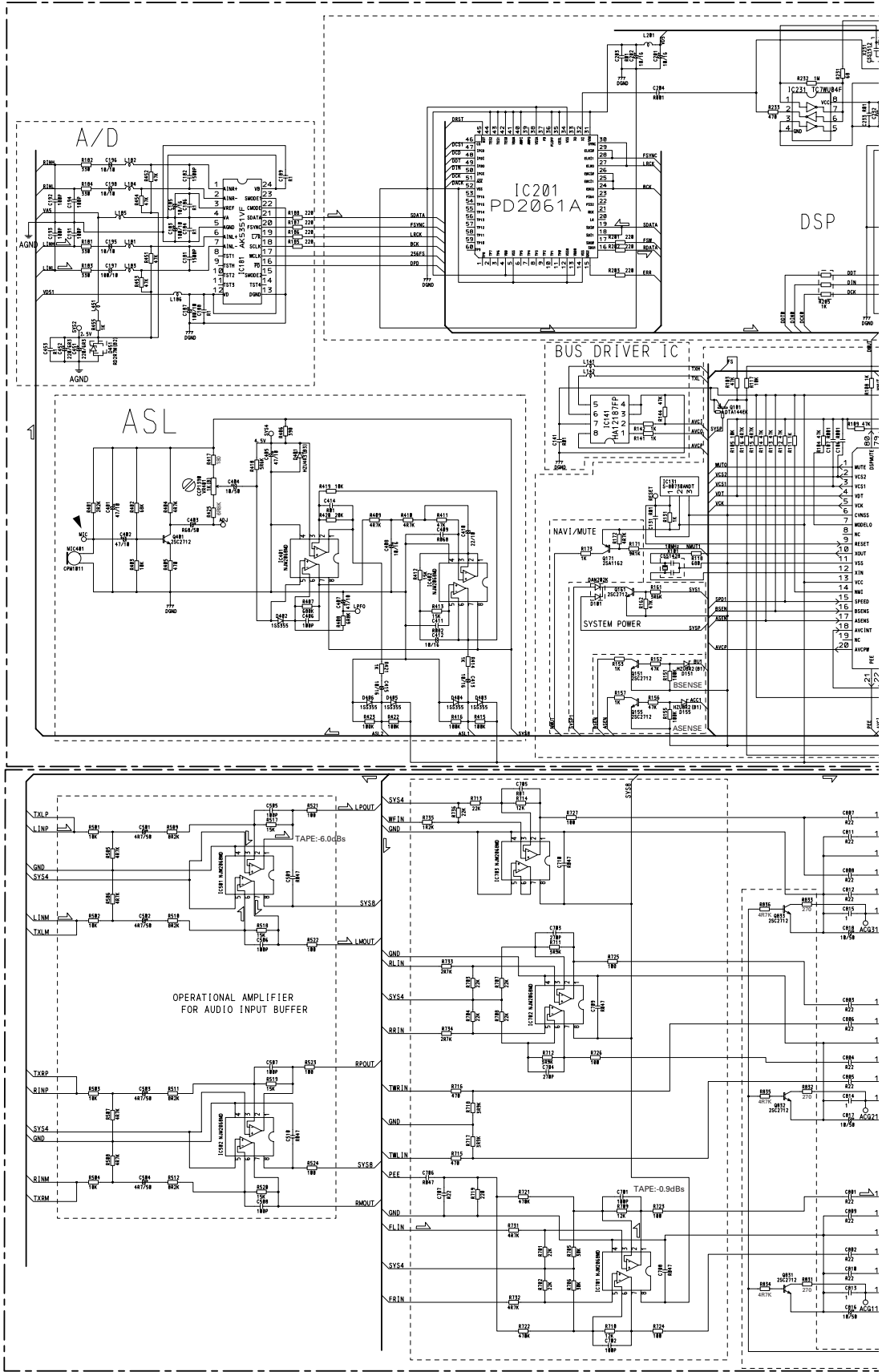
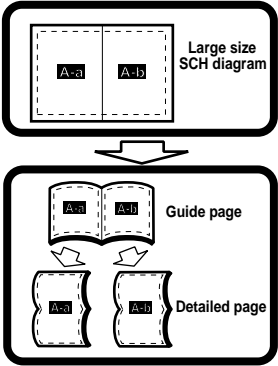
3.1 BLOCK DIAGRAM



3.2 OVERALL CONNECTION SCHEMATIC DIAGRAM(GUIDE PAGE)

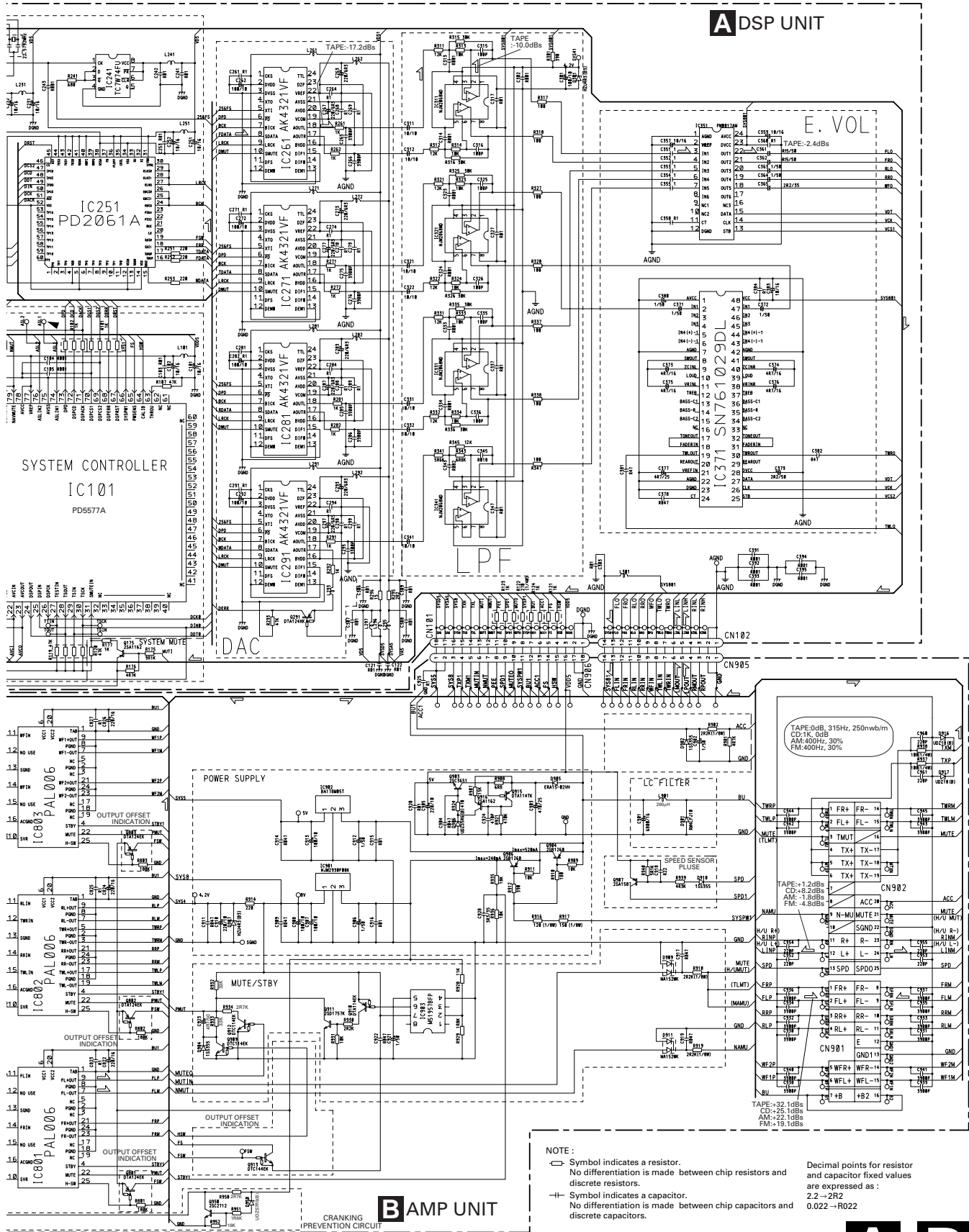
Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

A-a



A B

A-b



NOTE:
 □ Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.
 —|— Symbol indicates a capacitor.
 No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
 2.2 → 2R2
 0.022 → R022



A-a

A

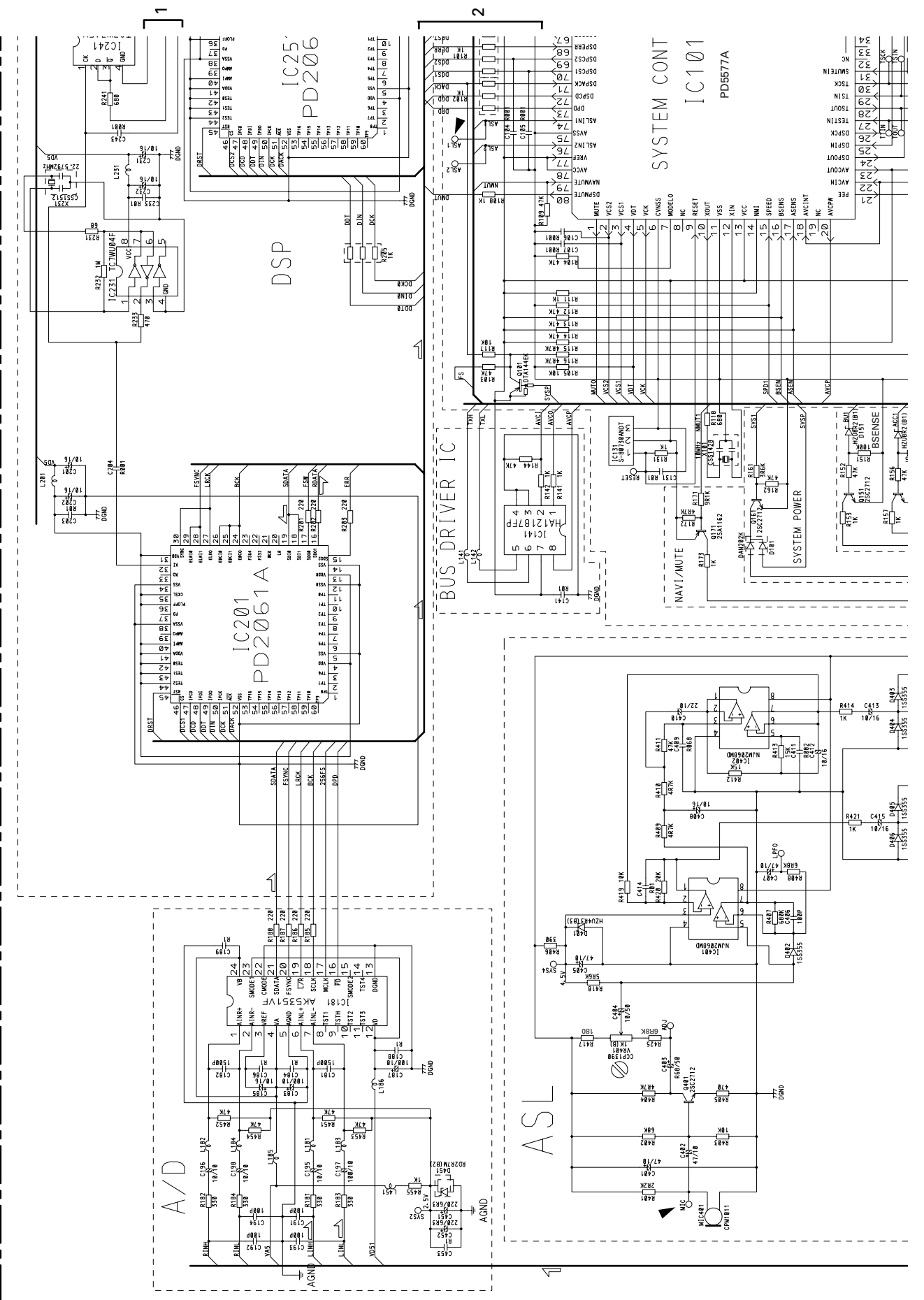
B

C

D

0

A-a

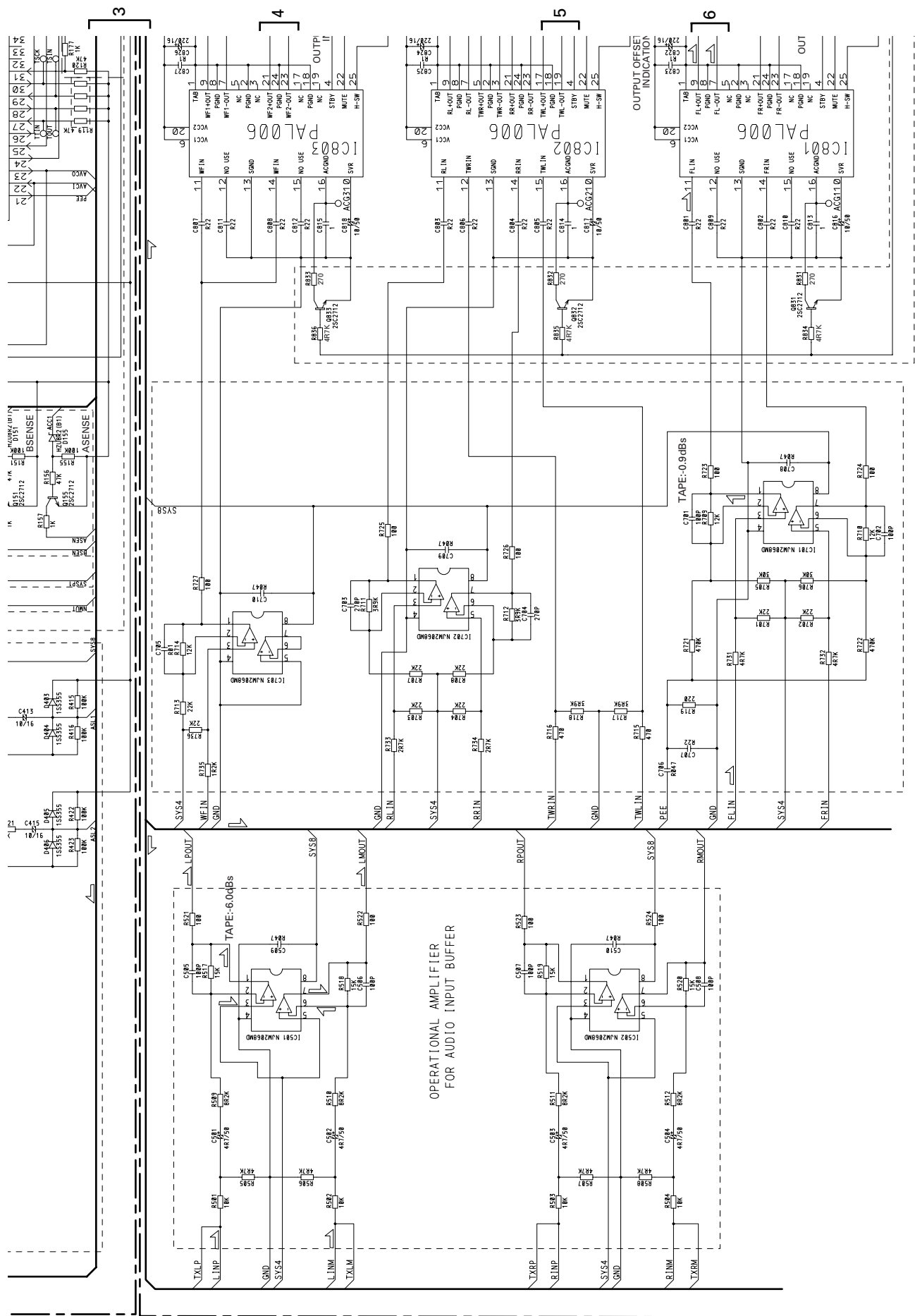


1

2

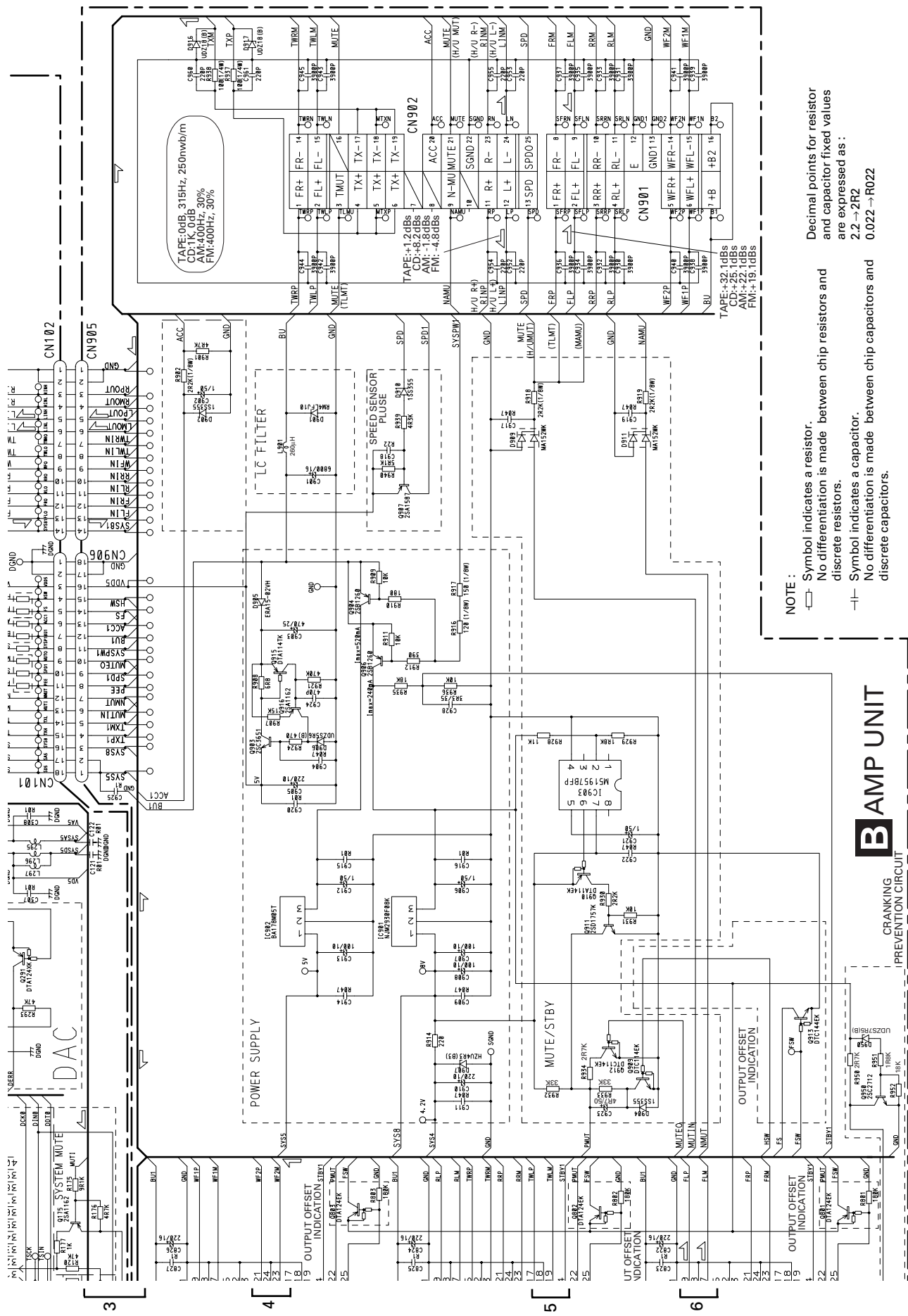
3

4



A-a A-b

A-a B



NOTE:

- Symbol indicates a resistor.
- No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
- No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as :
 2.2 → 2R2
 0.022 → R022

A-a A-b

B AMP UNIT

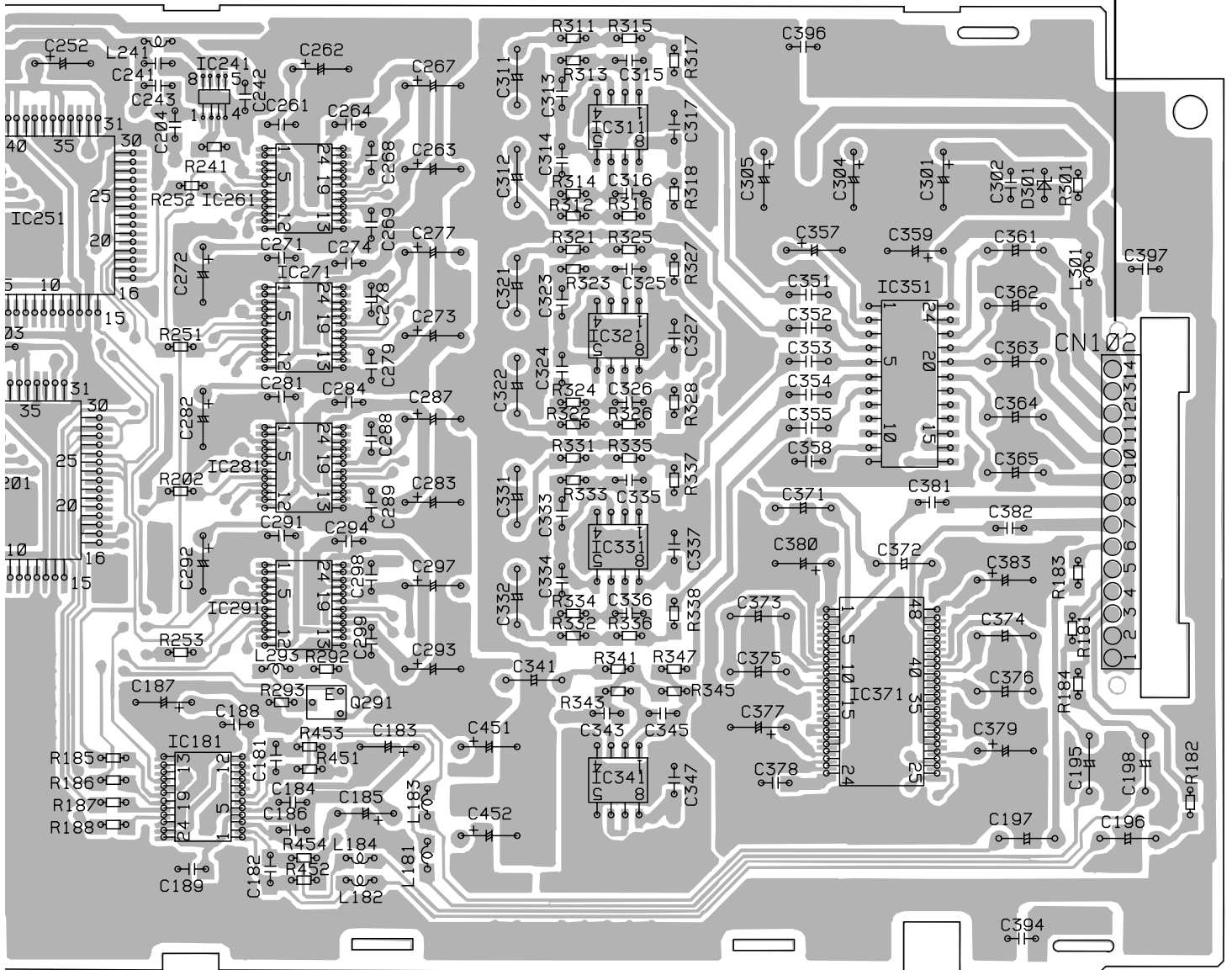
CRANKING
PREVENTION CIRCUIT

A-b

B

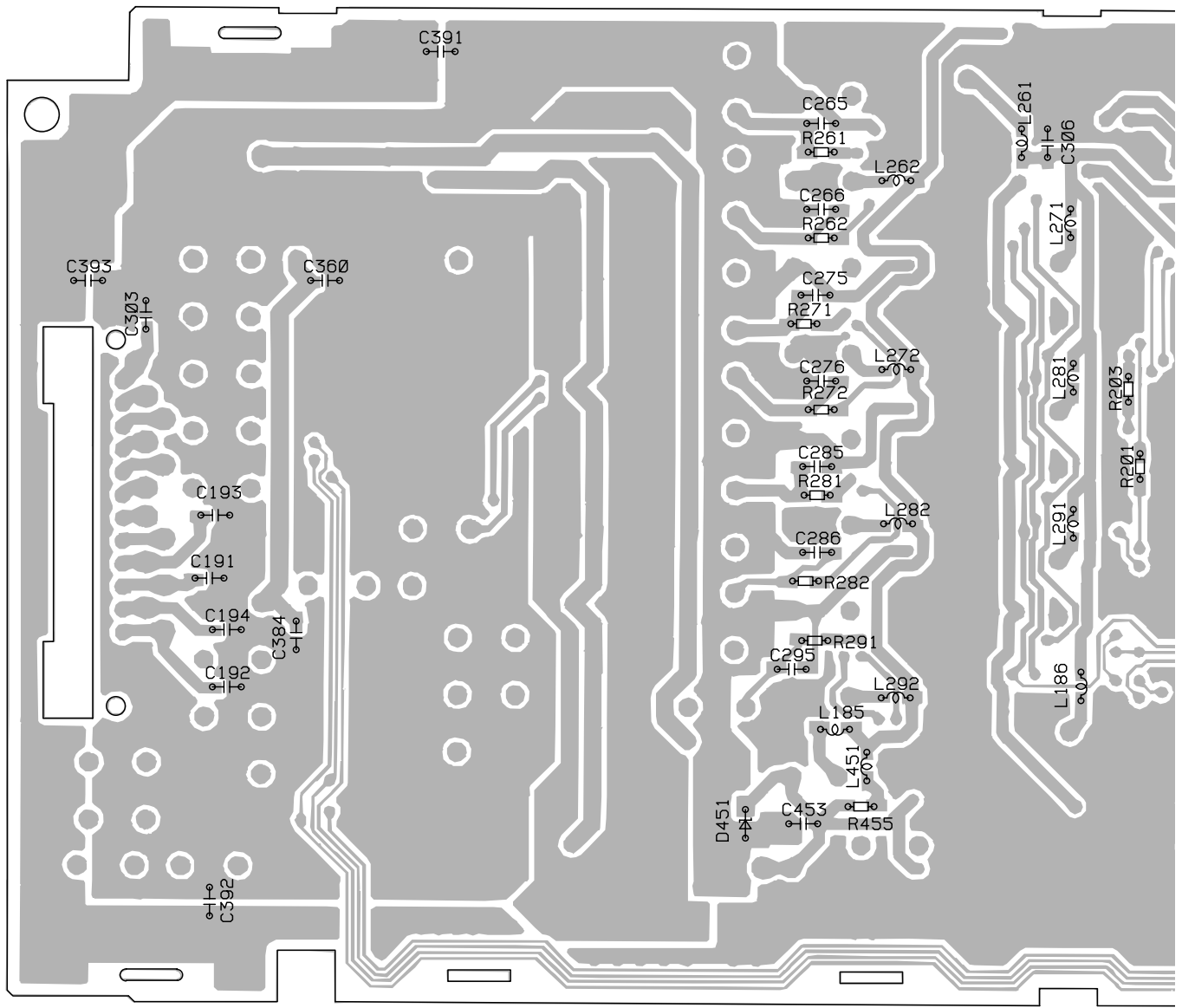
SIDE A

B CN905



A

A DSP UNIT



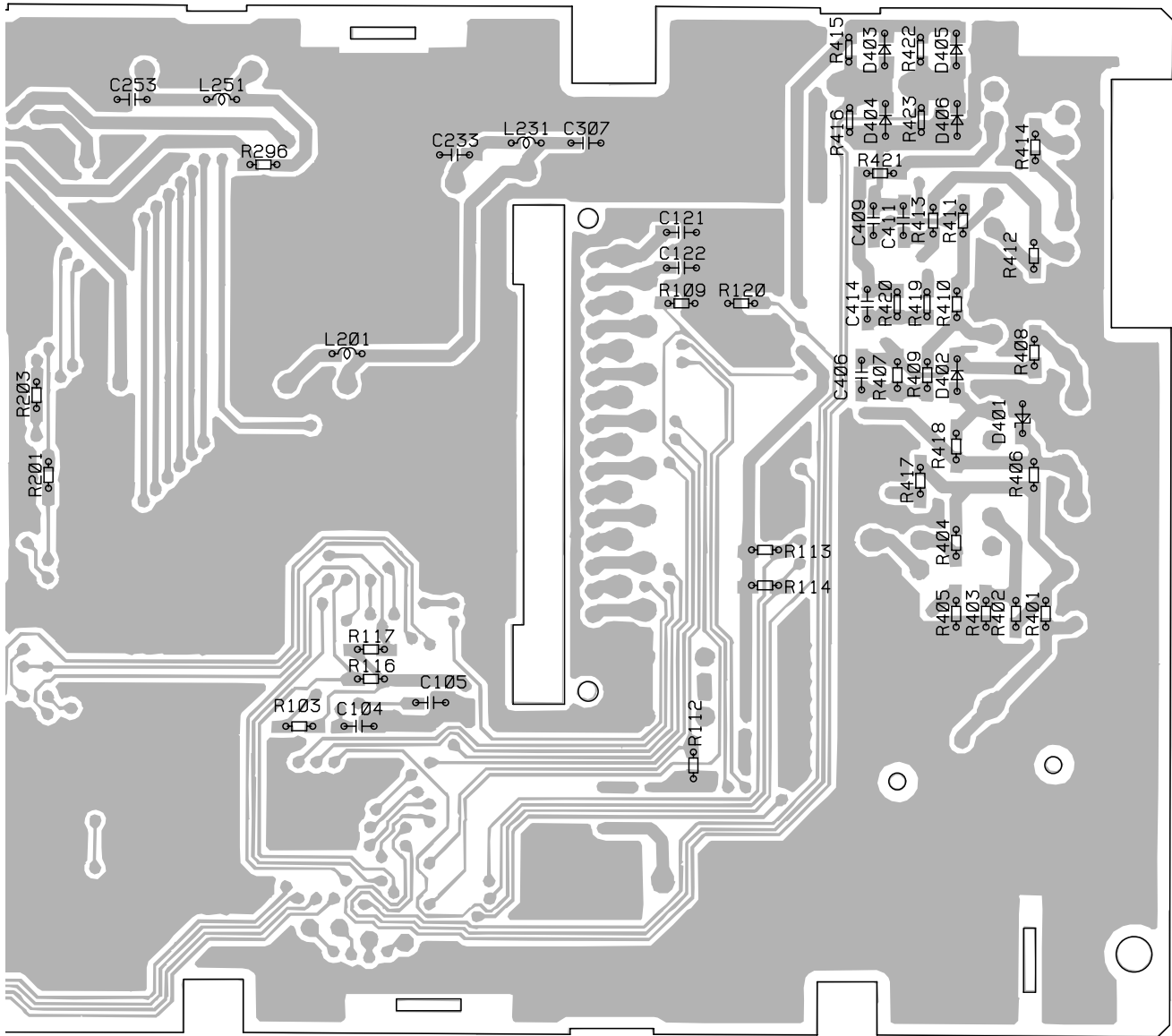
A

SIDE B

B

C

D



4.2 AMP UNIT

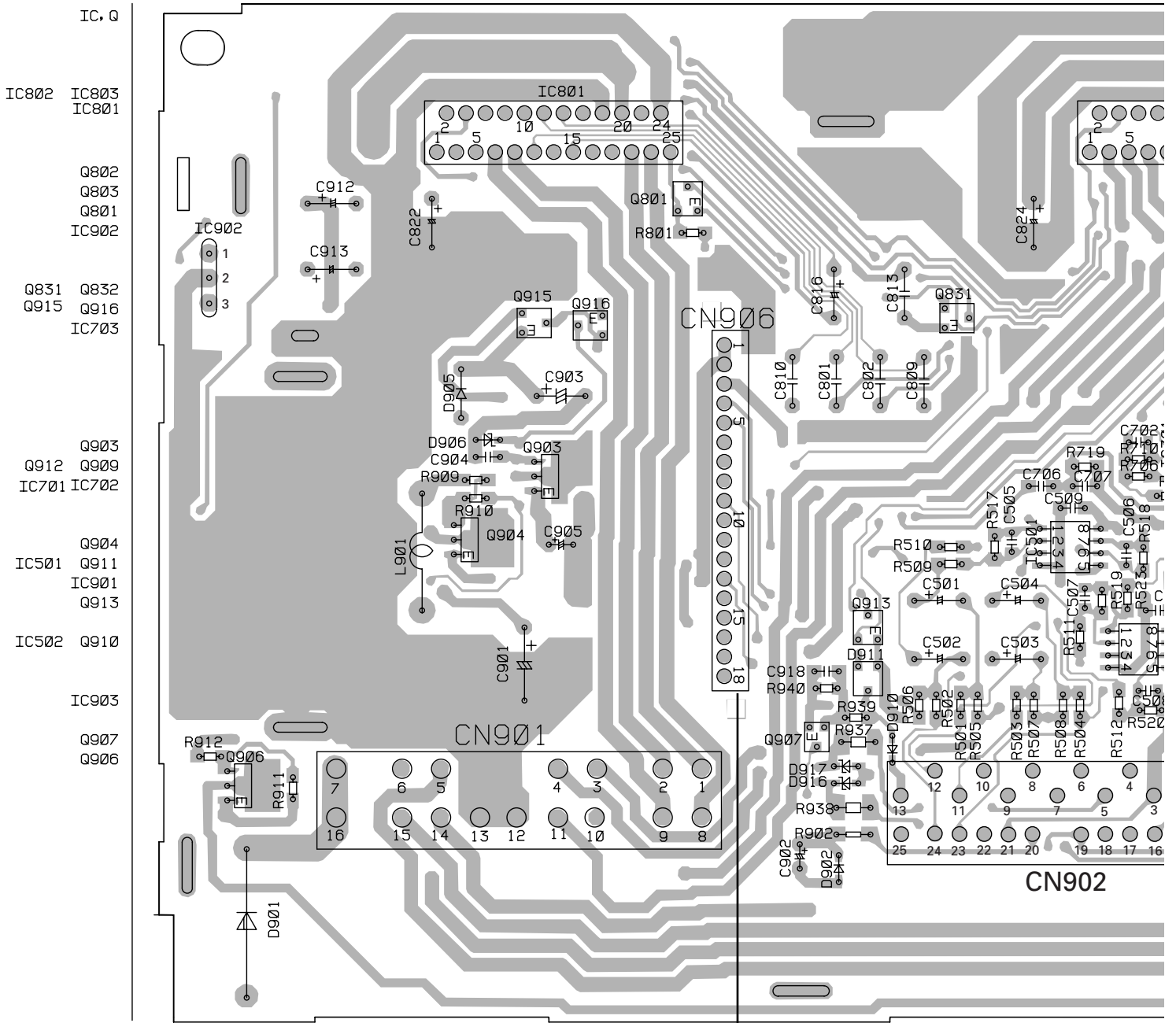
B AMP UNIT

A

B

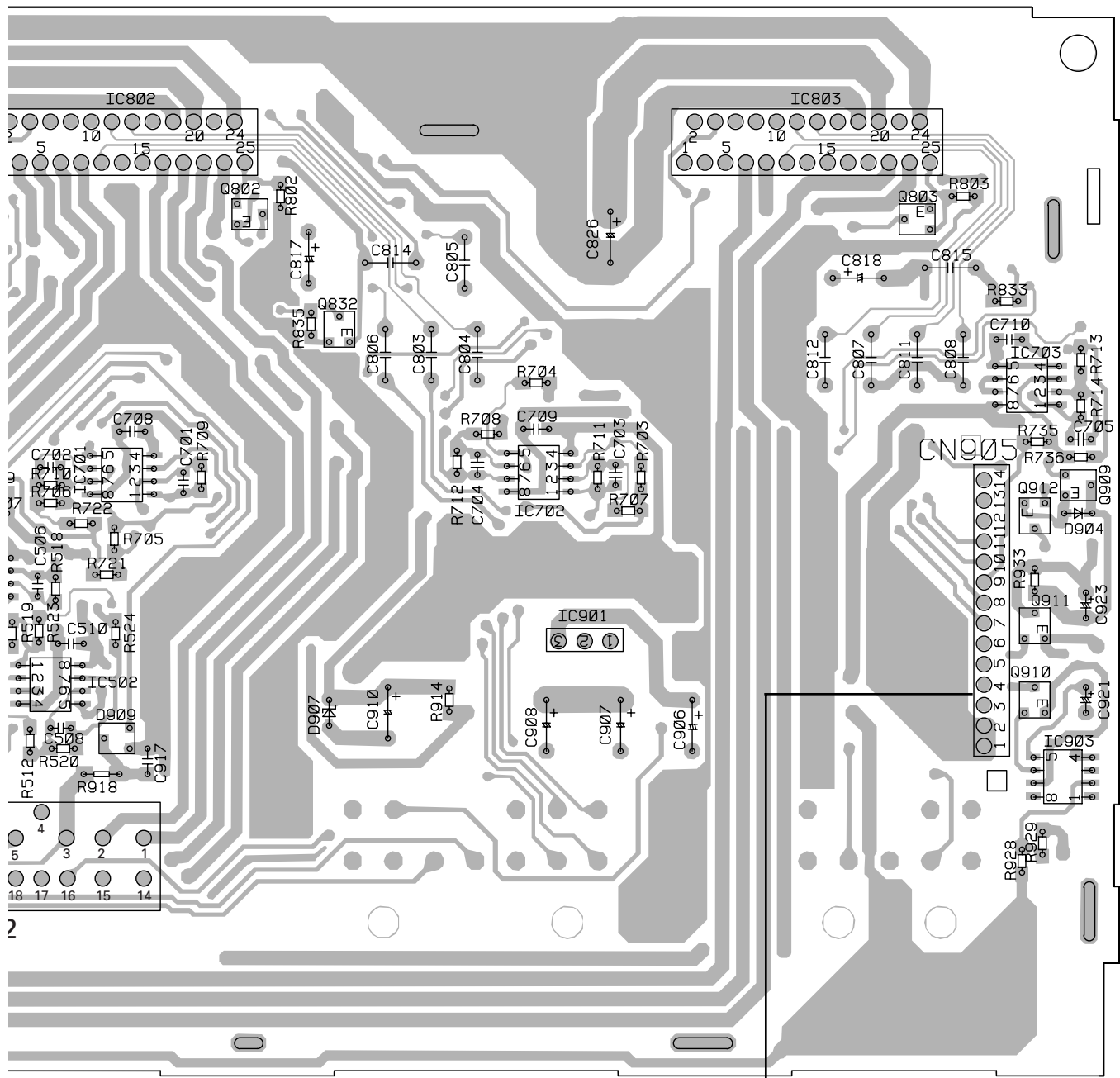
C

D



A CN101

SIDE A



A

B

C

D

A CN102

B

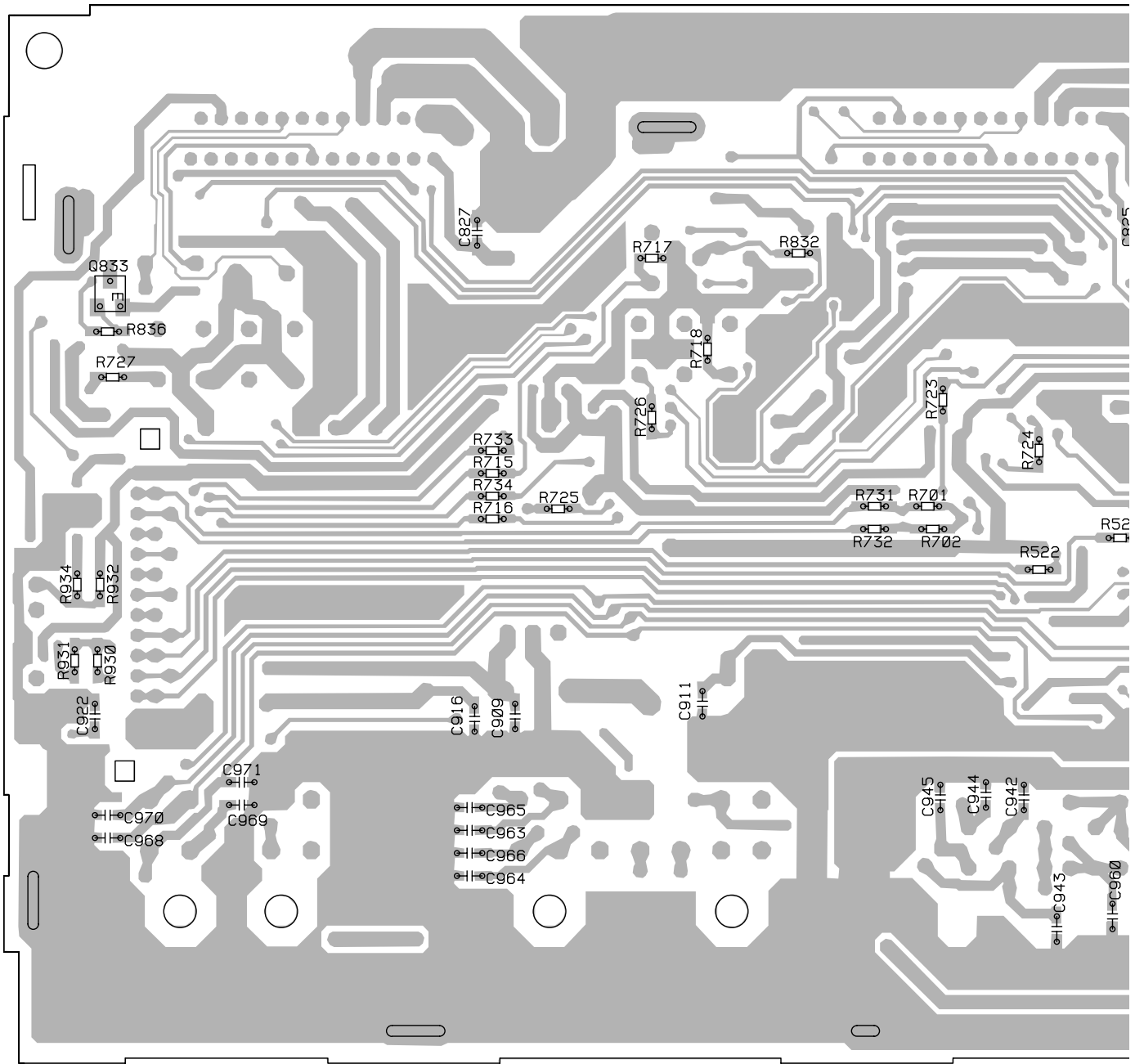
A

B AMP UNIT

B

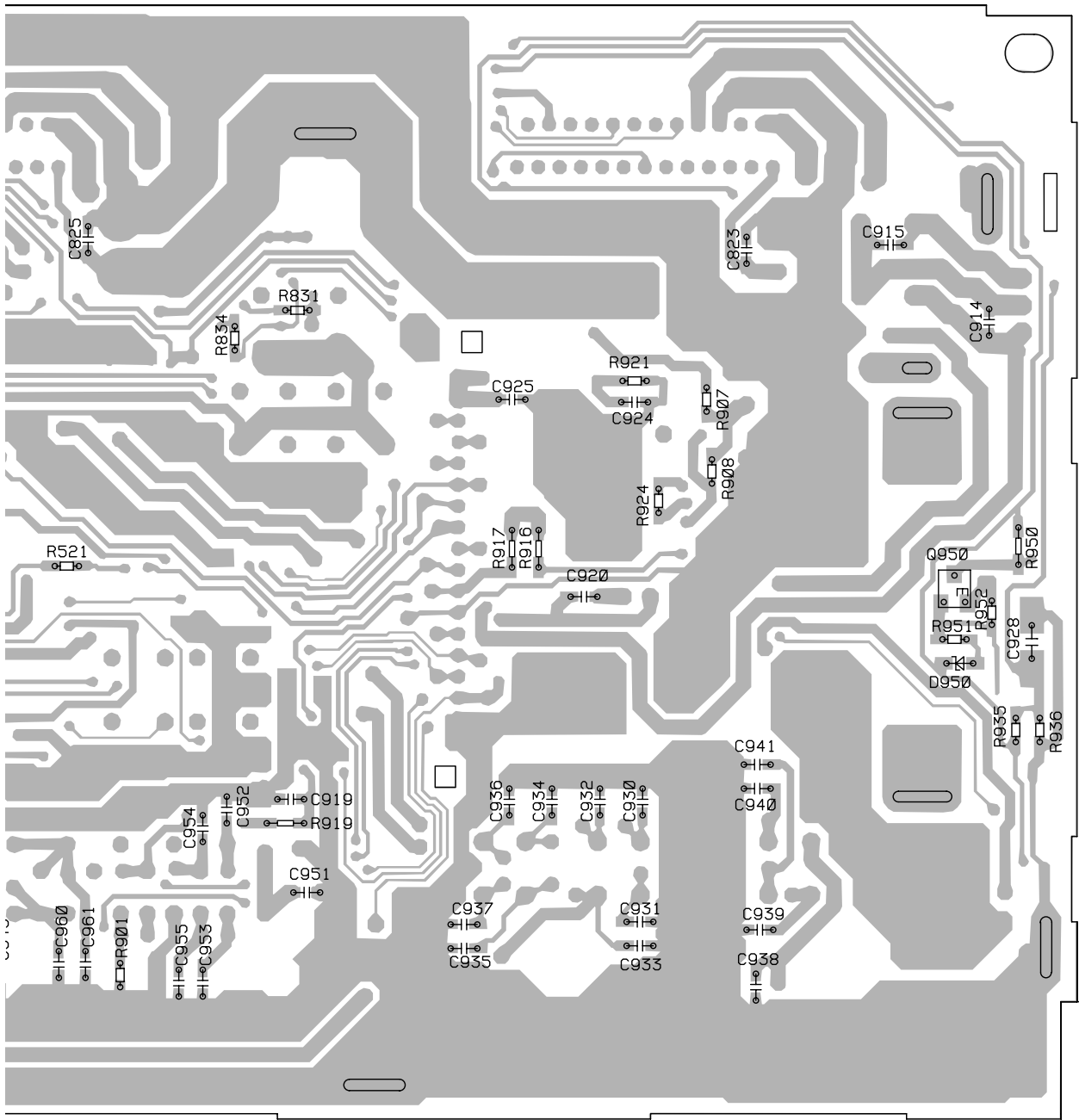
C

D



A

SIDE B



IC, Q

Q833

Q950

B

C

D

B

5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/OSOOOJ,RS1/OOSOOOJ

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

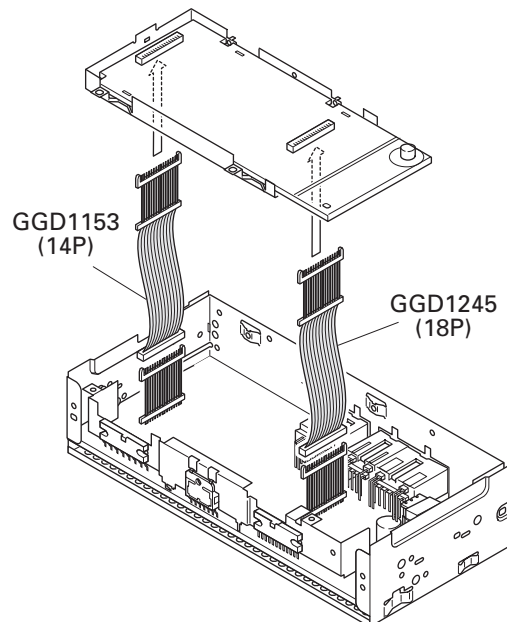
====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
A Unit Number : CWM7034		L 241 Inductor	LCTB1R0K2125
Unit Name : DSP Unit		L 251 Inductor	LCTBR82K2125
MISCELLANEOUS		L 261 Inductor	LCTB1R0K2125
IC 101 IC	PD5577A	L 262 Inductor	LCTB120K2125
IC 131 IC	S-80730ANDT	L 271 Inductor	LCTB1R0K2125
IC 141 IC	HA12187FP	L 272 Inductor	LCTB120K2125
IC 181 IC	AK5351VF	L 281 Inductor	LCTB1R0K2125
IC 201 IC	PD2061A	L 282 Inductor	LCTB120K2125
IC 231 IC	TC7WU04F	L 291 Inductor	LCTB1R0K2125
IC 241 IC	TC7W74FU	L 292 Inductor	LCTB120K2125
IC 251 IC	PD2061A	L 293 Inductor	LCTB1R0K2125
IC 261 IC	AK4321VF	L 295 Inductor	LCTB1R0K3216
IC 271 IC	AK4321VF	L 296 Chip-Inductor	LCTA2R2J3225
IC 281 IC	AK4321VF	L 297 Chip-Inductor	LCTA2R2J3225
IC 291 IC	AK4321VF	L 301 Inductor	LCTB1R0K2125
IC 311 IC	NJM2068MD	L 451 Inductor	LCTB4R7K2125
IC 321 IC	NJM2068MD	X 101 Radiator 10.00MHz	CSS1428
IC 331 IC	NJM2068MD	X 231 Ceramic Resonator 22.5792MHz	CSS1512
IC 341 IC	NJM2068MD	VR 401 Semi-fixed 1kΩ(B)	CCP1390
IC 351 IC	PM0017AM	MIC 401 Microphone	CPM1011
IC 371 IC	SN761029DL	RESISTORS	
IC 401 IC	NJM2068MD	R 101 1kΩ	CCN1120
IC 402 IC	NJM2068MD	R 102	RA3C102J
Q 101 Transistor	DTA144EK	R 103	RS1/10S473J
Q 151 Chip Transistor	2SC2712	R 104	RS1/10S473J
Q 155 Chip Transistor	2SC2712	R 105	RS1/10S103J
Q 161 Chip Transistor	2SC2712	R 107	RS1/10S473J
Q 171 Transistor	2SA1162	R 108	RS1/10S102J
Q 175 Transistor	2SA1162	R 109	RS1/10S473J
Q 291 Transistor	DTA124XK	R 111	RS1/10S102J
Q 401 Chip Transistor	2SC2712	R 112	RS1/10S473J
D 101 Diode	DAN202K	R 113	RS1/10S473J
D 151 Diode	HZU8R2(B1)	R 114	RS1/10S473J
D 155 Diode	HZU8R2(B1)	R 115	RS1/10S472J
D 301 Diode	HZU4R3(B3)	R 116	RS1/10S472J
D 401 Diode	HZU4R3(B3)	R 117	RS1/10S103J
D 402 Diode	1SS355	R 118	RS1/10S681J
D 403 Diode	1SS355	R 119 47kΩ	CCN1131
D 404 Diode	1SS355	R 120	RS1/10S473J
D 405 Diode	1SS355	R 121	RA2CQ102J
D 406 Diode	1SS355	R 122	RS1/4S271J
D 451 Diode	RD2R7M(B2)	R 123	RA3C102J
L 101 Inductor	LCTB1R0K2125	R 124	RA2CQ102J
L 141 Inductor	CTF1305	R 131	RS1/10S102J
L 142 Inductor	CTF1305	R 141	RS1/10S102J
L 181 Inductor	LCTB1R0K2125	R 142	RS1/10S102J
L 182 Inductor	LCTB1R0K2125	R 144	RS1/10S473J
L 183 Inductor	LCTB1R0K2125	R 151	RS1/10S104J
L 184 Inductor	LCTB1R0K2125	R 152	RS1/10S473J
L 185 Inductor	LCTB4R7K2125	R 153	RS1/10S102J
L 186 Inductor	LCTB120K2125	R 155	RS1/10S104J
L 201 Inductor	LCTBR82K2125	R 156	RS1/10S473J
L 231 Inductor	LCTB1R0K2125	R 157	RS1/10S102J
		R 161	RS1/10S362J
		R 162	RS1/10S473J
		R 171	RS1/10S912J

GM-8117ZT,8117ZT-91

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
C 801	CFTNA224J50	C 917	CKSQYB473K25
C 802	CFTNA224J50	C 918	CKSQYB224K25
C 803	CFTNA224J50	C 919	CKSQYB473K25
C 804	CFTNA224J50	C 920	CKSQYB103K50
C 805	CFTNA224J50	C 921	CEAT1R0M50
C 806	CFTNA224J50	C 922	CKSQYB473K25
C 807	CFTNA224J50	C 923	CEAT4R7M50
C 808	CFTNA224J50	C 924	CKSQYB471K50
C 809	CFTNA224J50	C 925	CKSQYB104K25
C 810	CFTNA224J50	C 928	CSZSR3R3M35
C 811	CFTNA224J50	C 930	CKSQYB392K50
C 812	CFTNA224J50	C 931	CKSQYB392K50
C 813	CFTNA105J50	C 932	CKSQYB392K50
C 814	CFTNA105J50	C 933	CKSQYB392K50
C 815	CFTNA105J50	C 934	CKSQYB392K50
C 816	CEAS100M50	C 935	CKSQYB392K50
C 817	CEAS100M50	C 936	CKSQYB392K50
C 818	CEAS100M50	C 937	CKSQYB392K50
C 822	CEHAQ221M16	C 938	CKSQYB392K50
C 823	CKSQYB104K25	C 939	CKSQYB392K50
C 824	CEHAQ221M16	C 940	CKSQYB392K50
C 825	CKSQYB104K25	C 941	CKSQYB392K50
C 826	CEHAQ221M16	C 942	CKSQYB392K50
C 827	CKSQYB104K25	C 943	CKSQYB392K50
C 901	6800µF/16V CCH1390	C 944	CKSQYB392K50
C 902	CEAT1R0M50	C 945	CKSQYB392K50
C 903	CEAT471M25	C 952	CKSQYB221K50
C 904	CKSQYB473K25	C 953	CKSQYB221K50
C 905	CEAT221M10	C 954	CKSQYB221K50
C 906	CEAS1R0M50	C 955	CKSQYB221K50
C 907	100µF/10V	C 960	CKSQYB221K50
C 908	100µF/10V	C 961	CKSQYB221K50
C 909	CKSQYB473K25		
C 910	CEAT221M10		
C 911	CKSQYB473K25		
C 912	CEHAQ1R0M50		
C 913	100µF/10V CCH1282		
C 914	CKSQYB473K25		
C 915	CKSQYB103K50		
C 916	CKSQYB103K50		

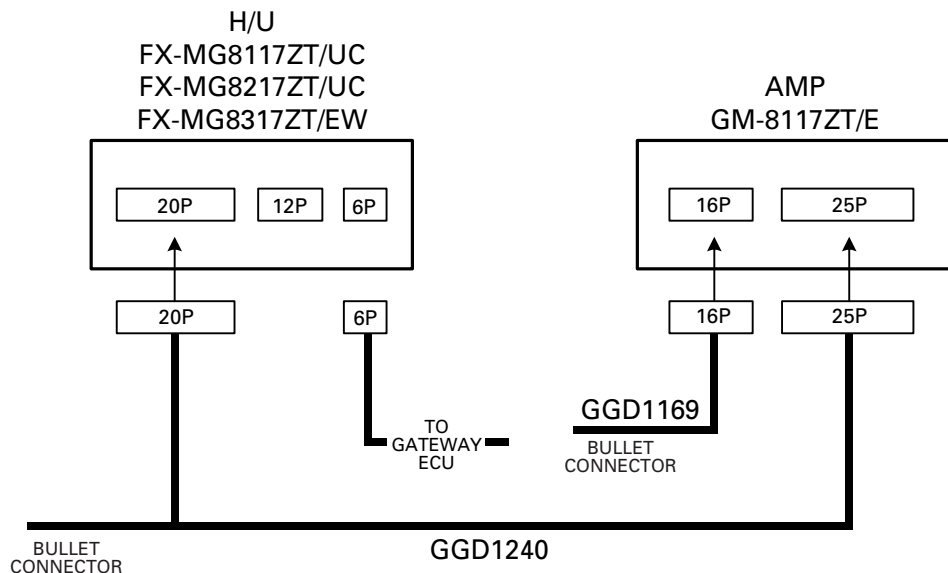
6. ADJUSTMENT

● Jigs

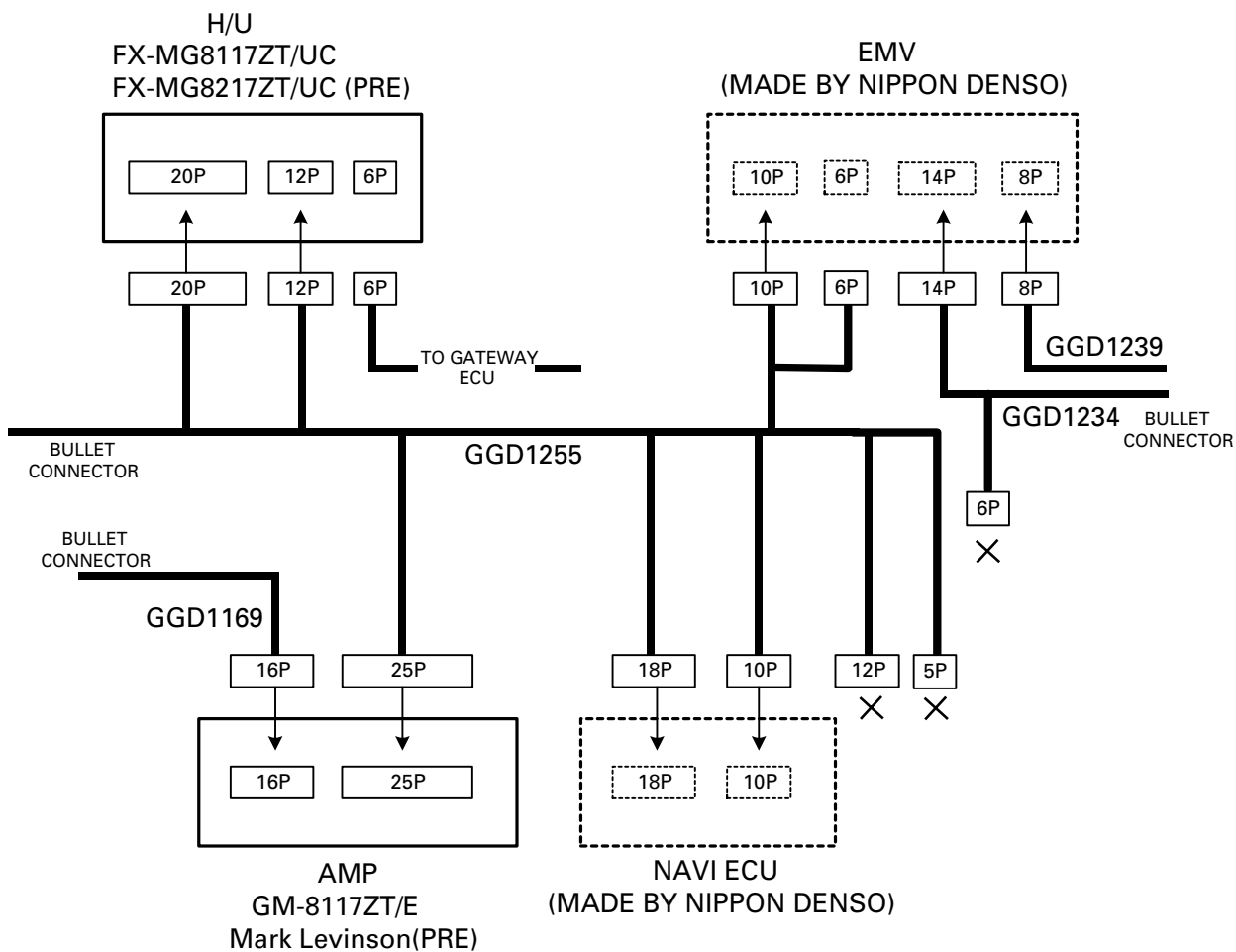


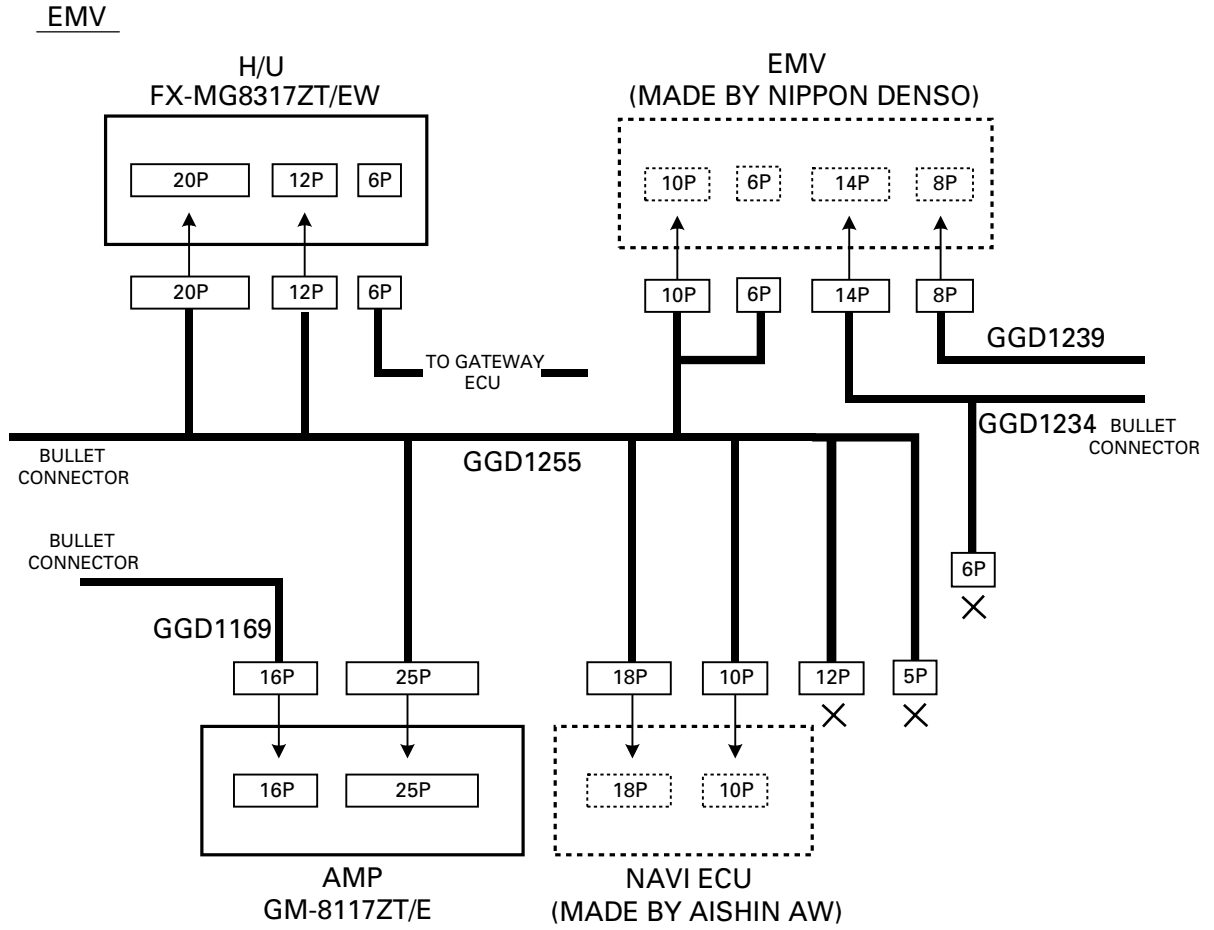
● Connection Diagram

NO EMV



EMV





ASL SECTION ADJUSTMENT

Preset conditions

1. Set VR401 around the center of the adjustable range.

Input (MIC)	Output (Pin 74 : test point "ASL1")	Adjustment	
		Adj.point	Spec.
By using the jig(CAN-906,CAN-912), apply a sine wave of 100dB SPL voltage directly to the MIC terminal. (Close up as much as possible.)	Observe the output at ASL1 on a audio analyzer (Corresponding to analog meter 7Hz).	VR401	100dB SPL 314±28mV

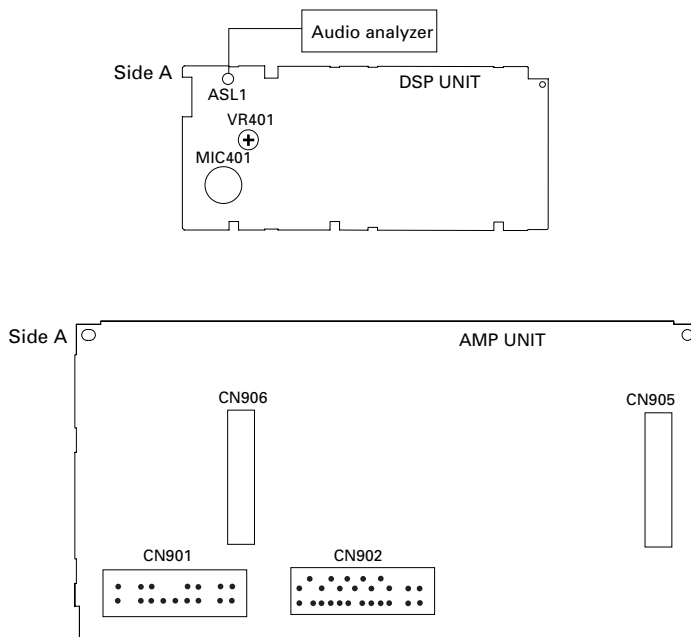
To connect the Amp unit and the DSP unit, use Jig GGD1153 and GGD1245.

Caution:

- 1) Before starting measurement, be sure to perform the initial check for the ASL adjustment jig. (The sound pressure level should be 100dB SPL at the sound emission section.)
- 2) Note that it may take 20 seconds or more to obtain waveforms, in some cases. Do not switch off the jig soon after starting measurement.

Conditions:

- 1) This adjustment is sensitive to external shocks or wind. During adjustment, keep away the product and jig from them.



7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● Removing the Case and the Shield Case(Fig.1)

- ➔ 1** Remove the two screws and then remove the Case.
- ➔ 2** Remove the two screws and then remove the Shield Case.

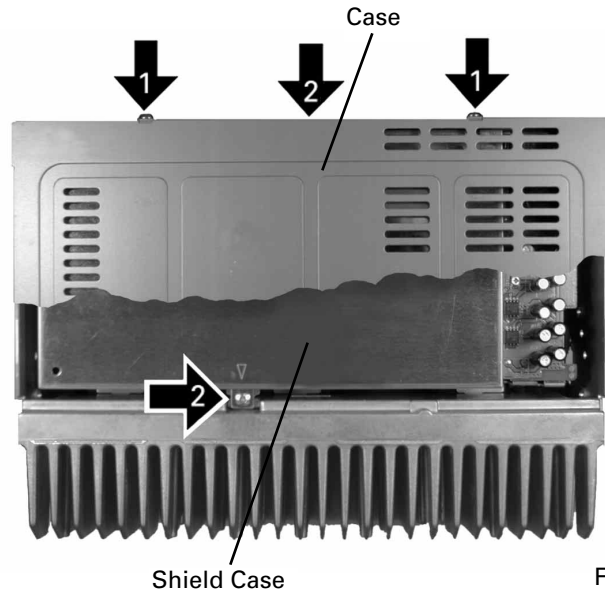


Fig.1

● Removing the DSP Unit and the Shield Case (Fig.2)

- ➔ 1** Remove the five screws and then remove the Shield Case and the DSP Unit at the same time.
- ➔ 2** Remove the five claws and then remove the DSP Unit from the Shield Case.

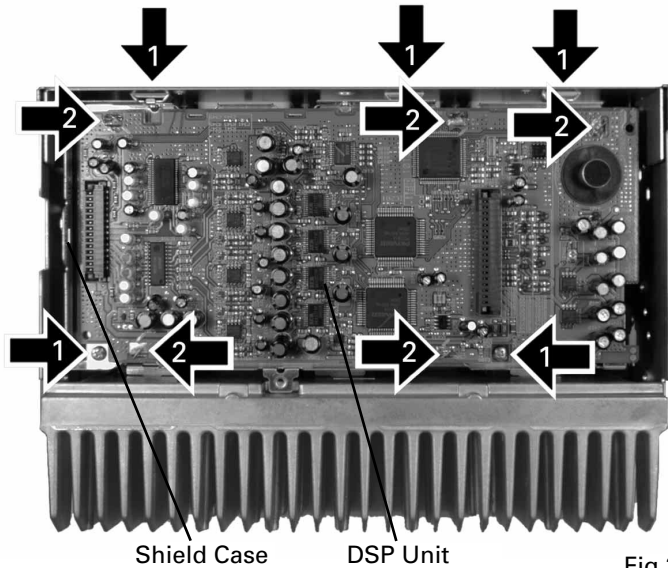


Fig.2

● Removing the AMP Unit (Fig.3)

- ➔ 1** Remove the two screws .
- ➔ 2** Remove the five screws and then remove the Amp Unit from the Chassis.

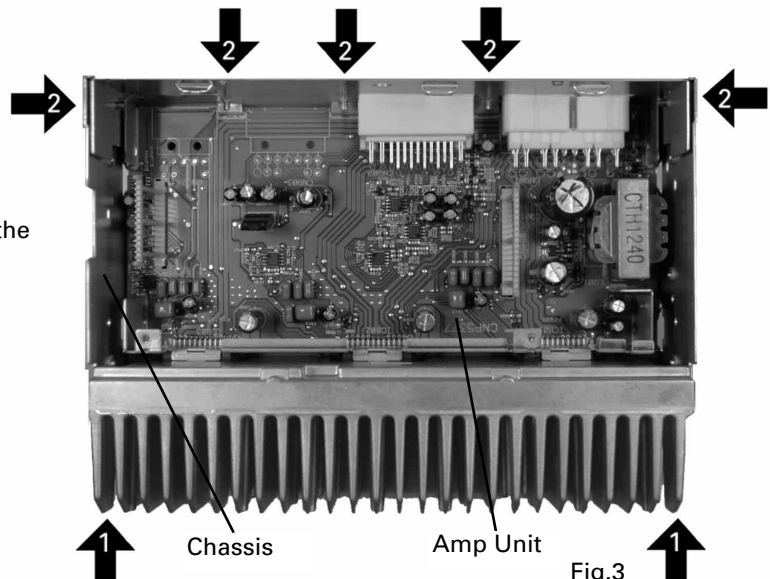
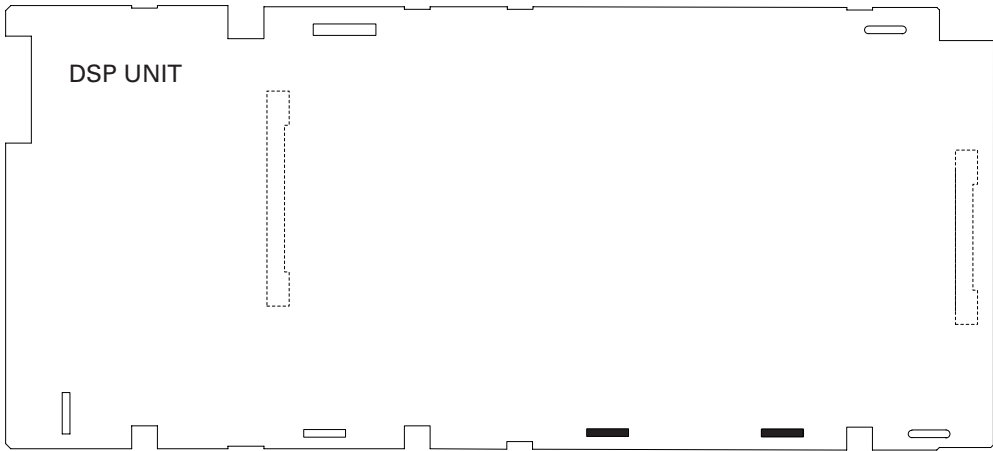
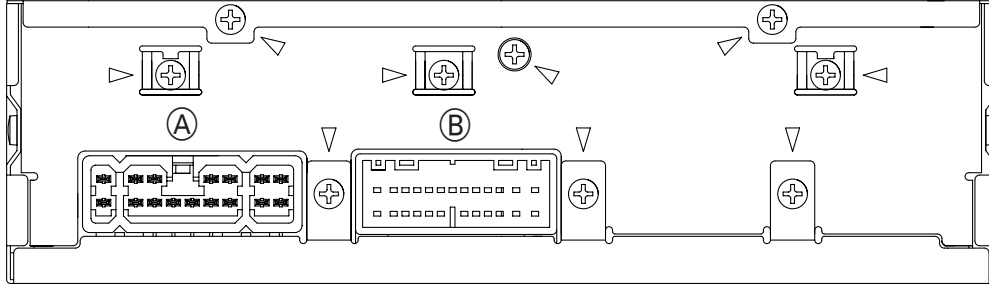


Fig.3

- “Pawl bending and soldering” points of the pawls for securing the base plate of a shielded case (bottom case).
- The portion marked by is a point in which pawl bending and soldering are not performed. (Faulty pawl bending point)
- The portion marked by is a point in which pawl bending and soldering are necessary.



7.1.2 CONNECTOR FUNCTION DESCRIPTION



Ⓐ

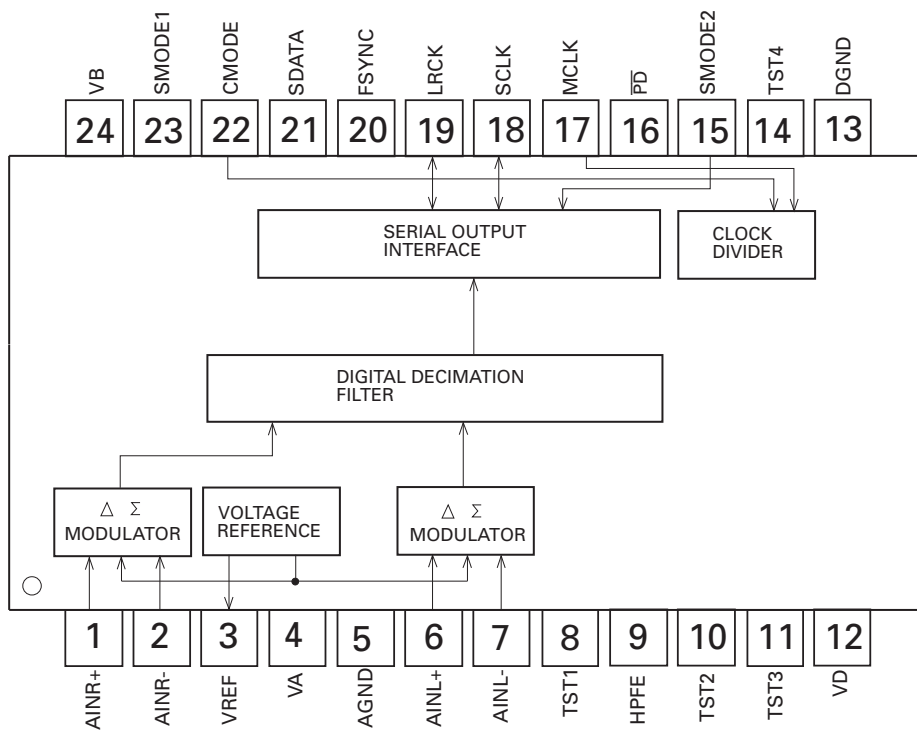
+B	WFL+	WFR+			RL+	RR+	FL+	FR+
+B2	WFL-	WFR-	GND	E	RL-	RR-	FL-	FR-

Ⓑ

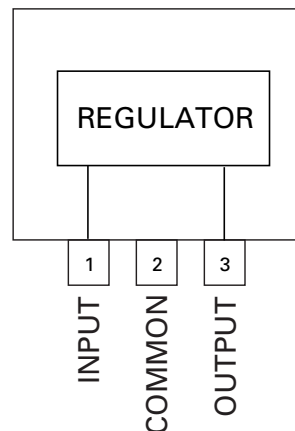
SPD	L+	R+	/	N-MU	/				TX+	TX+	TX+	TMUT	FL+	FR+
SPDO	L-	R-	SGND	MUTE	ACC				TX-	TX-	TX-	/	FL-	FR-

7.2 IC

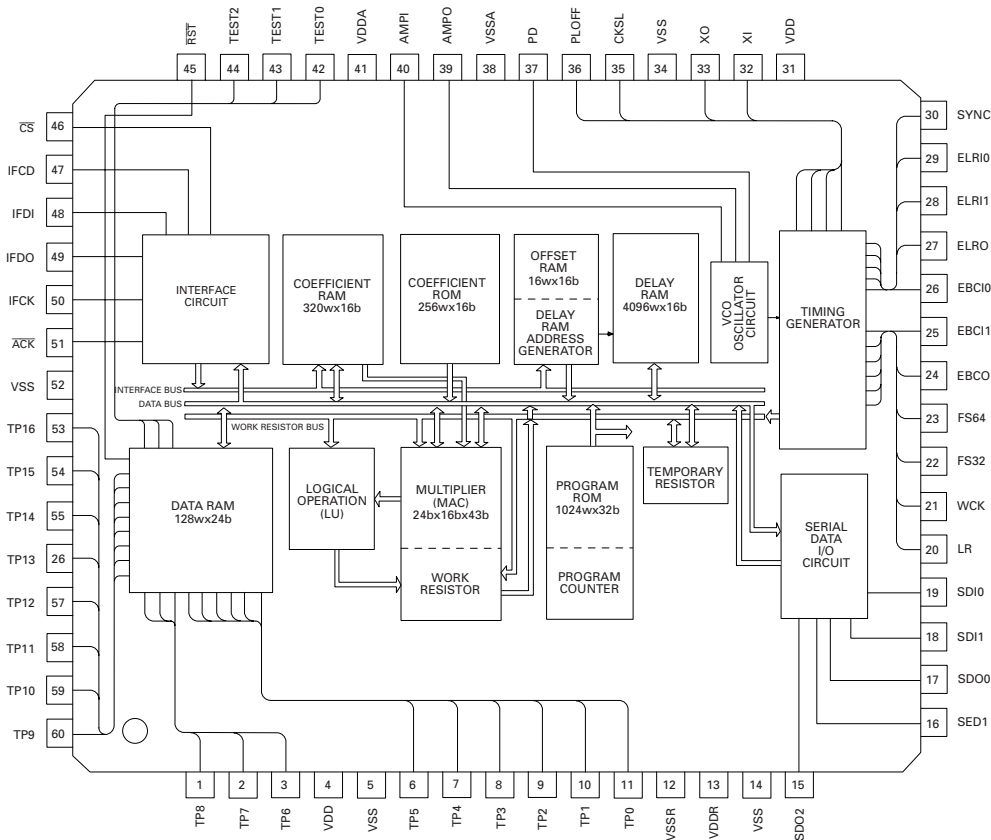
AK5351VF



BA178M05T



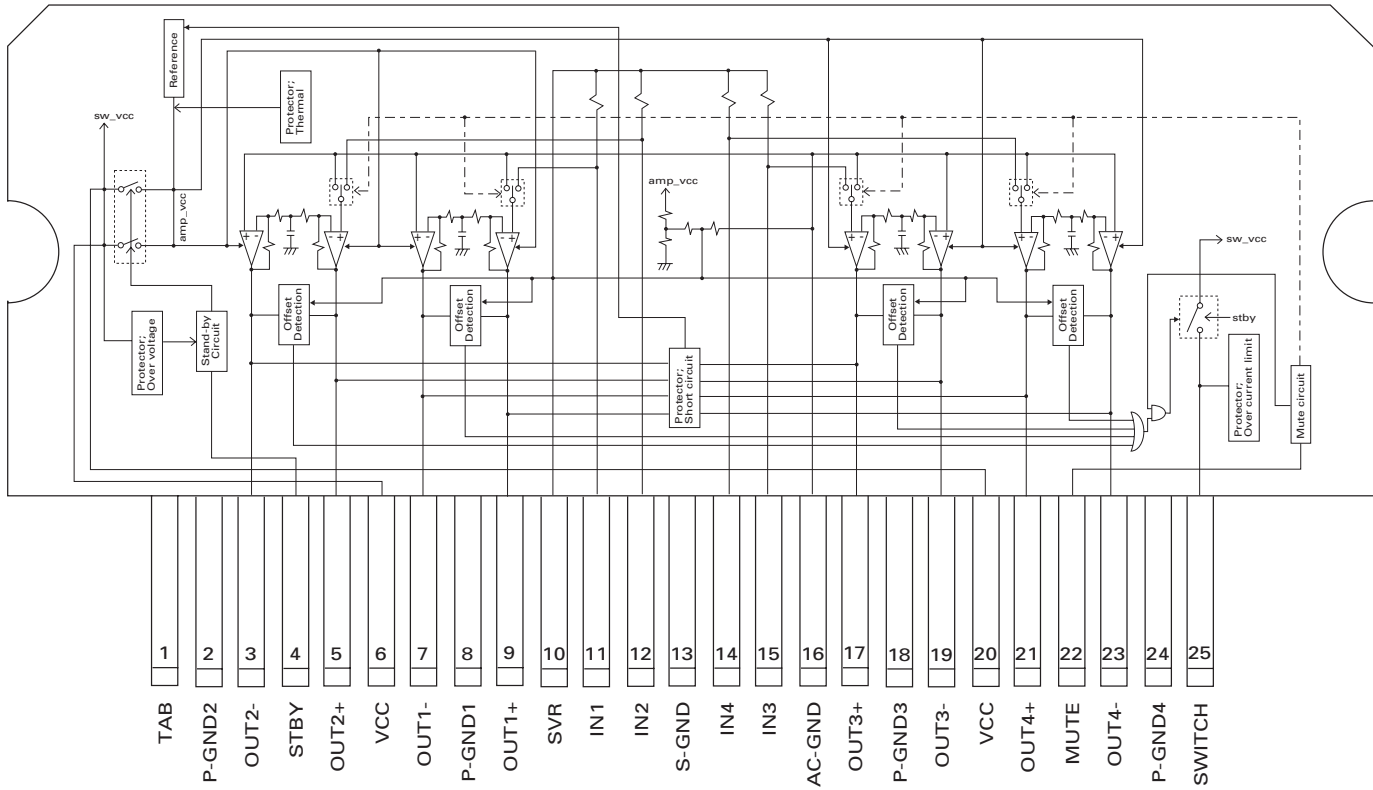
*PD2061A



IC's marked by* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

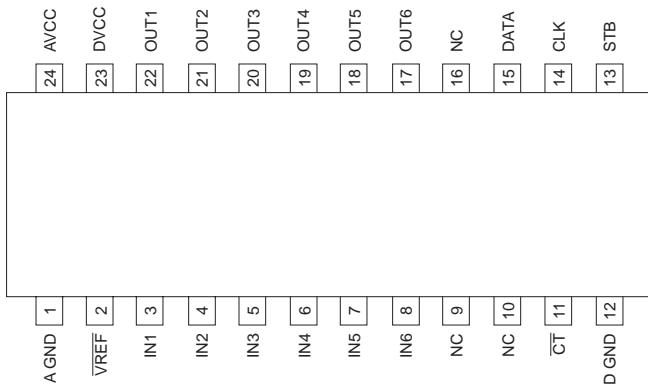
PAL006A



● Pin Functions (PM0017AM)

Pin No.	Pin Name	I/O	Function and Operation
1	AGND		Analog GND
2	VREF		Reference voltage noise cut
3-8	IN1-6	I	CH1-6 input
9,10	NC		Not used
11	CT		Terminal to set forced switching time
12	DGND		Digital GND
13	STB	I	Strobe input
14	CLK	I	Clock input
15	DATA	I	Data input
16	NC		Not used
17-22	OUT6-1	O	CH6-1 output
23	DVCC		Digital GND
24	AVCC		Analog GND

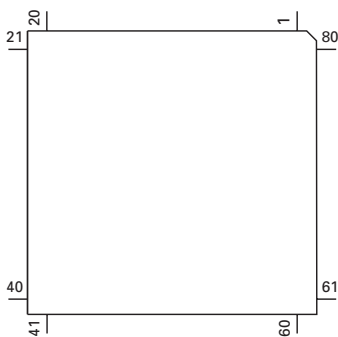
*PM0017AM



● Pin Functions (PD5577A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	MUTE	O	C	Mute output
2	VCS2	O	C	SN761029 strobe output
3	VCS1	O	C	PM0017AM strobe output
4	VDT	O	C	Data output for electronic volume
5	VCK	O	C	Clock output for electronic volume
6	CVNSS			Connect to VSS
7	MODEL0	I		Model select input
8	NC			Not used
9	RESET	I		Reset input
10	XOUT	O		Crystal oscillating element connection pin
11	VSS			GND
12	XIN	I		Crystal oscillating element connection pin
13	VCC			5V
14	NMI			Connect to VCC
15	SPEED	I		Speed sensor pulse input
16	BSEN	I		Back up power sense input
17	ASENS	I		ACC power sense input
18	AVCINT	I		AVC-LAN data input
19	NC			Not used
20	AVCPW	O	C	AVC-LAN driver power supply output
21	PEE	O	C	Beep tone output
22	AVCIN	I		AVC-LAN data input
23	AVCOUT	O	C	AVC-LAN data output
24	DSPOUT	O	C	DSPI/F serial data output
25	DSPIN	I		DSPI/F serial data input
26	DSPCK	O	C	DSPI/F serial clock output
27	TESTIN	I		Test program start input
28	TSOUT	O	C	Test serial data output
29	TSIN	I		Test serial data input
30	TSCK	I		Test serial clock input
31	SMUTEIN	I		System mute input
32-62	NC			Not used
63	THROU	I		Test terminal
64	CALIB	O	C	Power IC control output
65	PWSENS	I		Power IC heat sense input
66	SYSPW1	O	C	System power output
67	DSPRST	O	C	DSP hard reset output
68	DSPERR	I		DSP error detect input
69	DSPCS2	O	C	TC9332F chip select 2
70	DSPCS1	O	C	TC9332F chip select 1
71	DSPACK	I		DSP-IC ACK input
72	DSPCD	O		DSP command/data output
73	DPD	O	C	AD/DAC power down output
74	ASLIN1	I		Difference of noise and signal input 1
75	AVCC			VSS
76	ASLIN2	I		Difference of noise and signal input 2
77	VREF	I		A/D converter reference voltage input
78	AVCC			VCC
79	NAVMUTE	I		Navigation mute input
80	DSPMUTE	O	C	DSP mute output

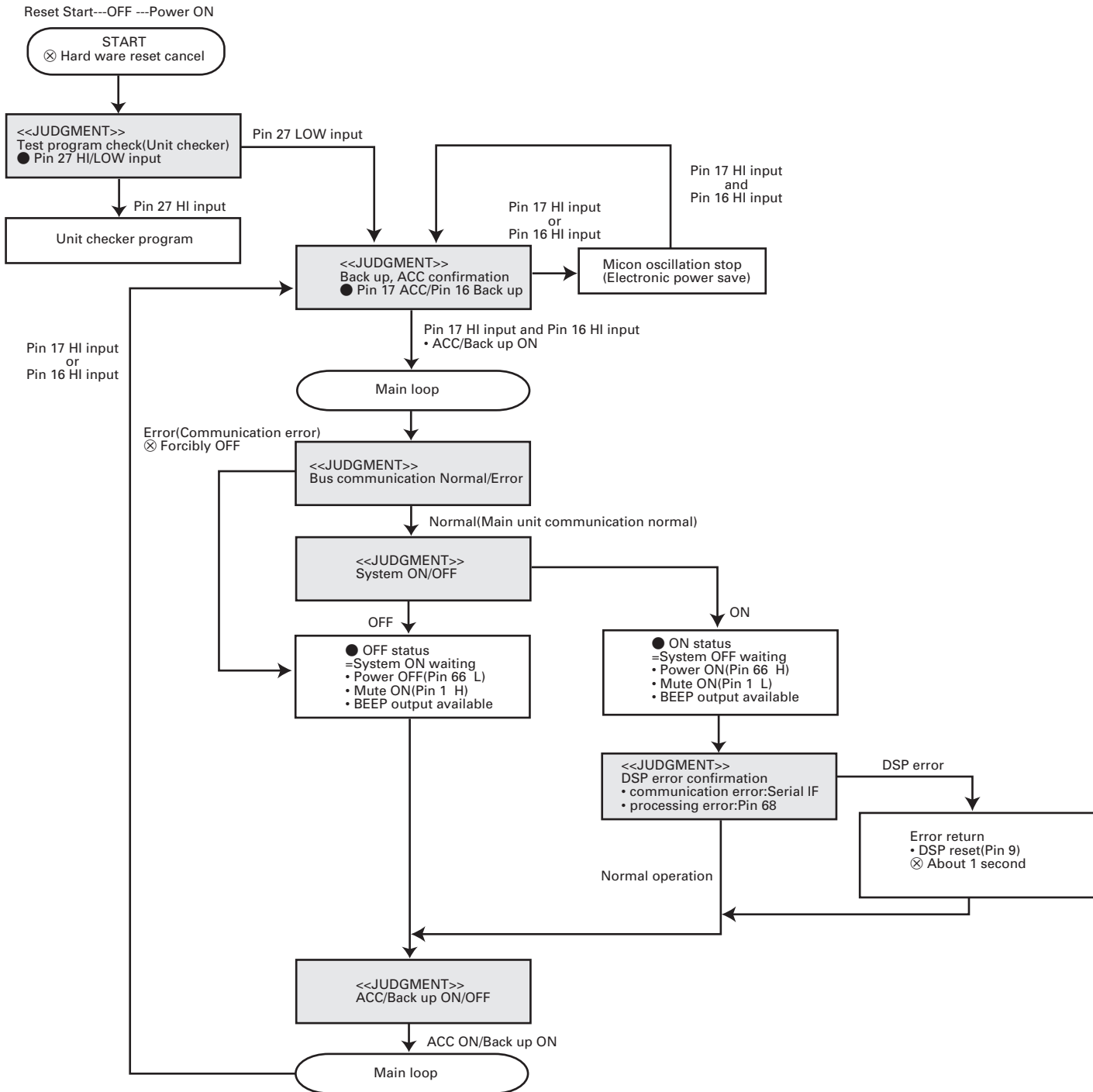
*PD5577A



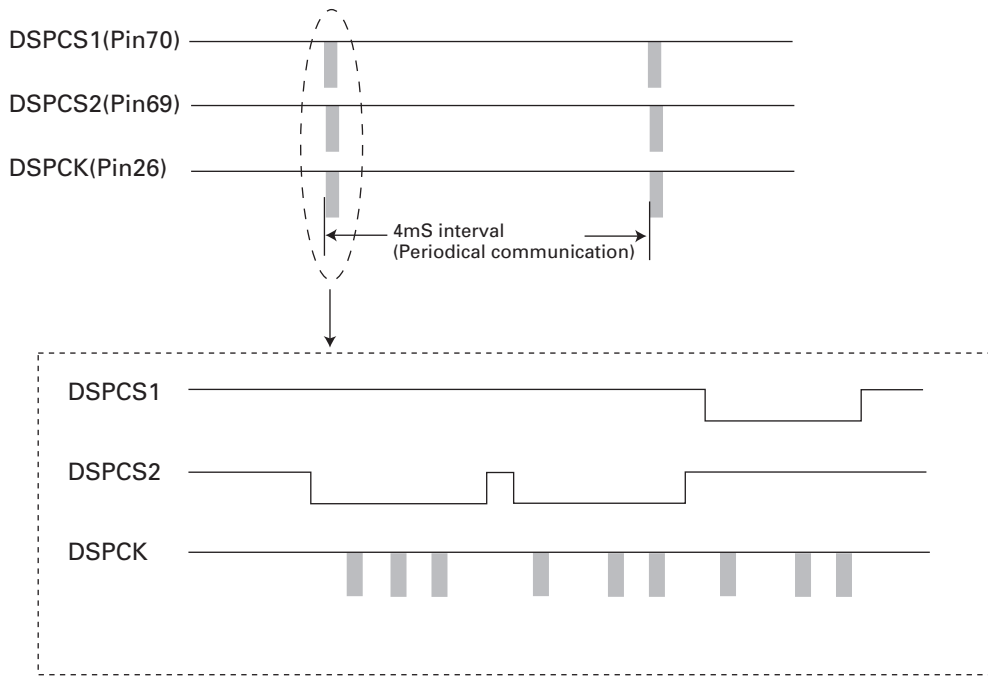
Format	Meaning
C	C MOS

7.3 EXPLANATION

7.3.1 OPERATIONAL FLOW CHART



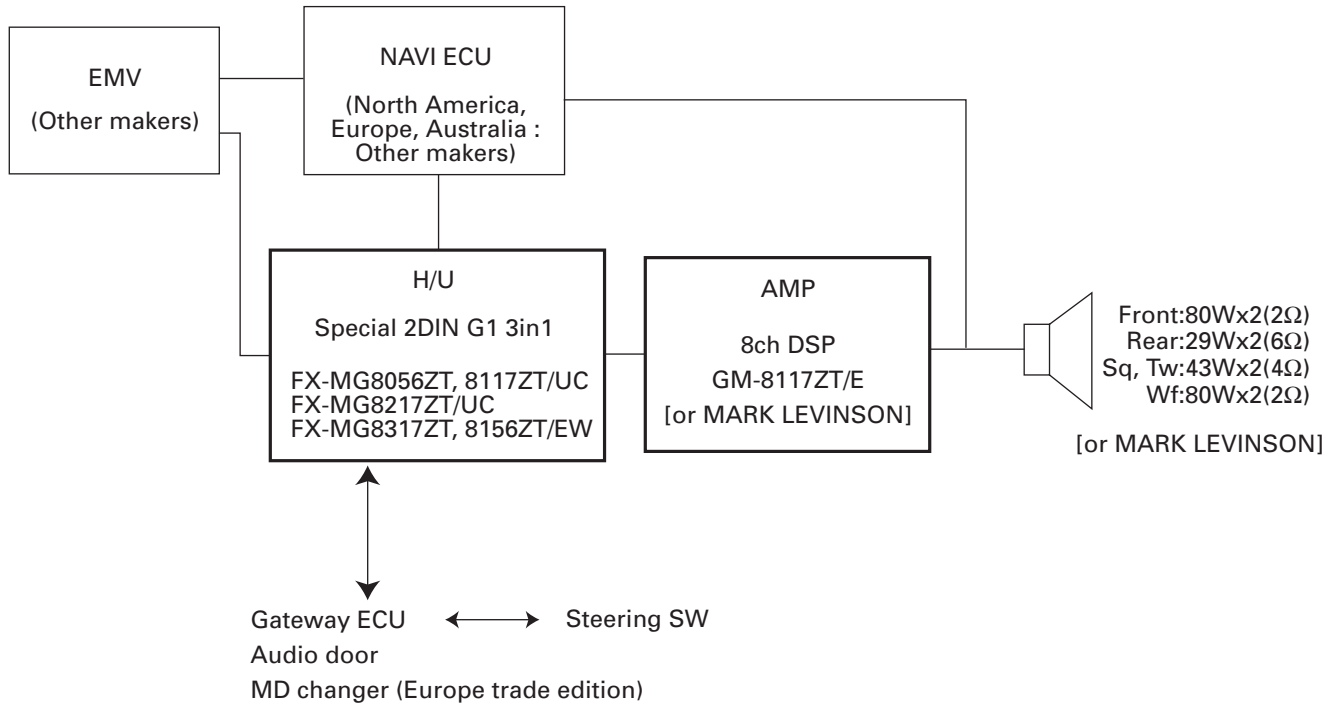
● DSP error check (Normal)



● DSP error check ---Error continuation



7.3.2 SYSTEM BLOCK DIAGRAM



- EMV, NAVI, and TV TU depends on the model.
- MD changers are available for the European models.(Dealer options)
- Amplifier has the sound exchange function between left and right when received BUS information from the gateway.

Product combination

Destination	H/U	Amplifier
North America	FX-MG8117ZT/UC	GM-8117ZT/E
North America MARK LEVINSON	FX-MG8217ZT/UC	MARK LEVINSON
Europe/ Australia/ Areas but Japan, North America, Europe and Australia.	FX-MG8317ZT/EW	GM-8117ZT/E
Europe MARK LEVINSON	FX-MG8056ZT/EW	MARK LEVINSON

PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE 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