

ONKYO® SERVICE MANUAL

AUDIO VIDEO CONTROL AMPLIFIER MODEL A-SV420



Black and Silver models

BMD, BMDN	120V AC, 60Hz
BMP	230V AC, 50Hz
BMW	120V or 220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

AMPLIFIER SECTION

Power Output: **Stereo mode**
 Front L/R channels
120 watts per channel min. RMS, at 8 ohms, both channels driven, from 20 Hz to 20,000 Hz, with no more than 0.08% total harmonic distortion.
 Continuous power output:
 2 x 140 watts at 8 ohms (DIN)

Surround mode and Multi source mode
 Front L/R and center channels
 75 W + 75 W + 75 W (1 kHz 0.08 % 8 ohms)
 Rear channels (Rear only driven)
 25 W + 25 W (1 kHz 0.8 % 8 ohms)
 Remote channels
 75 W + 75 W (1 kHz 0.1 % 8 ohms)

IM Distortion: 0.08% at rated power (FRONT)
 Damping Factor: 60 at 8 ohms (FRONT)
 Input sensitivities and impedance:
 Phono: 2.5 mV/50 kohms
 CD/Tuner/Tape play/Video in: 150 mV/50 kohms

Output level and impedance:
 Tape rec/Video out: 150 mV/2.2 kohms
 Pre out (SUBWOOFER): 1 V/2.2 kohms

Phono Overload: 120 mV RMS, at 1,000 Hz, 0.5% THD.
 Frequency Response: 20 to 30,000 Hz, +/-1 dB
 RIAA Deviation: 20 to 20,000 Hz, +/-0.8 dB
 Tone Control:
 BASS: +/-10 dB at 100 Hz
 TREBLE: +/-10 dB at 10,000 Hz
 PHONO: 80 dB (IHF A, 5 mV input)
 CD/TAPE: 100 dB (IHF A)
 - ∞ dB

VIDEO SECTION

Signal sensitivity and impedance: Input, output: 1 Vp-p, 75 ohms


GENERAL


Power Supply: USA & Canadian models
 AC120 V, 60 Hz
 European models
 AC230 V, 50 Hz
 Worldwide models
 120 and 220 V switchable, 50/60 Hz
 Dimensions (W x H x D): 455 x 170 x 389 mm
 17-15/16" x 6-11/16" x 15-5/16"
 Mass: 12.1 kg (26.7 lbs)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses

 This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

 Ce symbole indique que le fusible utilise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce dernier est indique la qu le present symbol est appose.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252146Y	5A-UL/T-237,Primary <D/W>
F902	252076	3.15A-TSC,Primary <P/W>
F903	252075	2.5A-SE-EAK,Primary <P>
F921,F922	252156Y	1A-UL/T-237 <D>
	252070	1A-SE-EAK <P/W>
	NOTE : <D> : 120V model only	
	<P> : 230V model only	
	<W> : Worldwide model only	

2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. Press and hold down the CD button, then press the POWER button.
2. Take the power supply cord from the socket while "TEST-" is displayed.
3. After "clear" is displayed, the preset memory and each mode stored in the memory, such as surround, are initialized and will return to the factory settings.

3. Safety-check out

(Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel.

Specifications: 3.3 Mohm±10% at 500V.

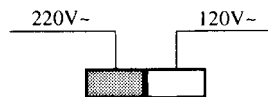
4. Change of voltage

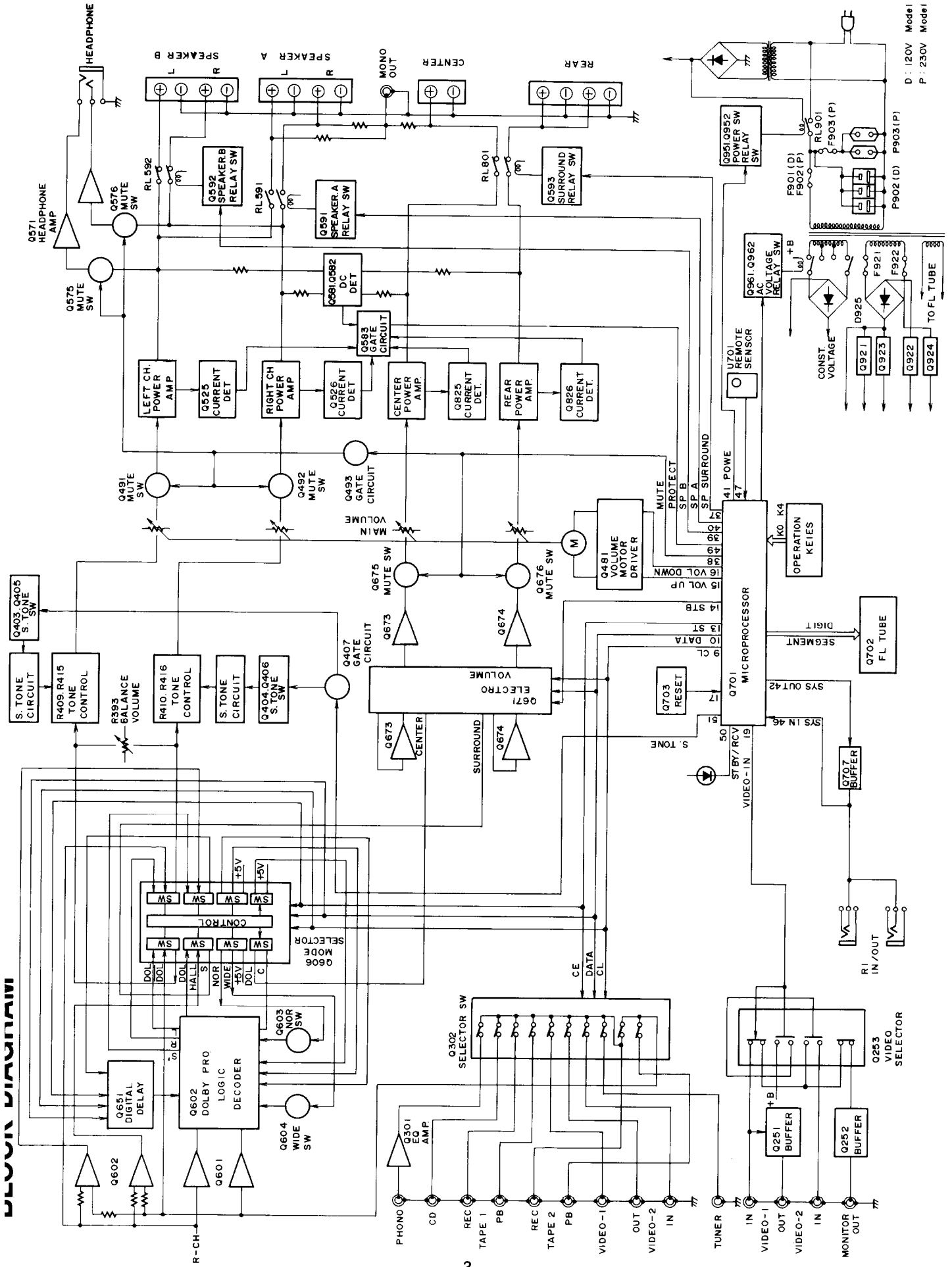
Worldwide models are equipment with a voltage selector to conform with local power supplies. This switch is located on the back panel.

Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

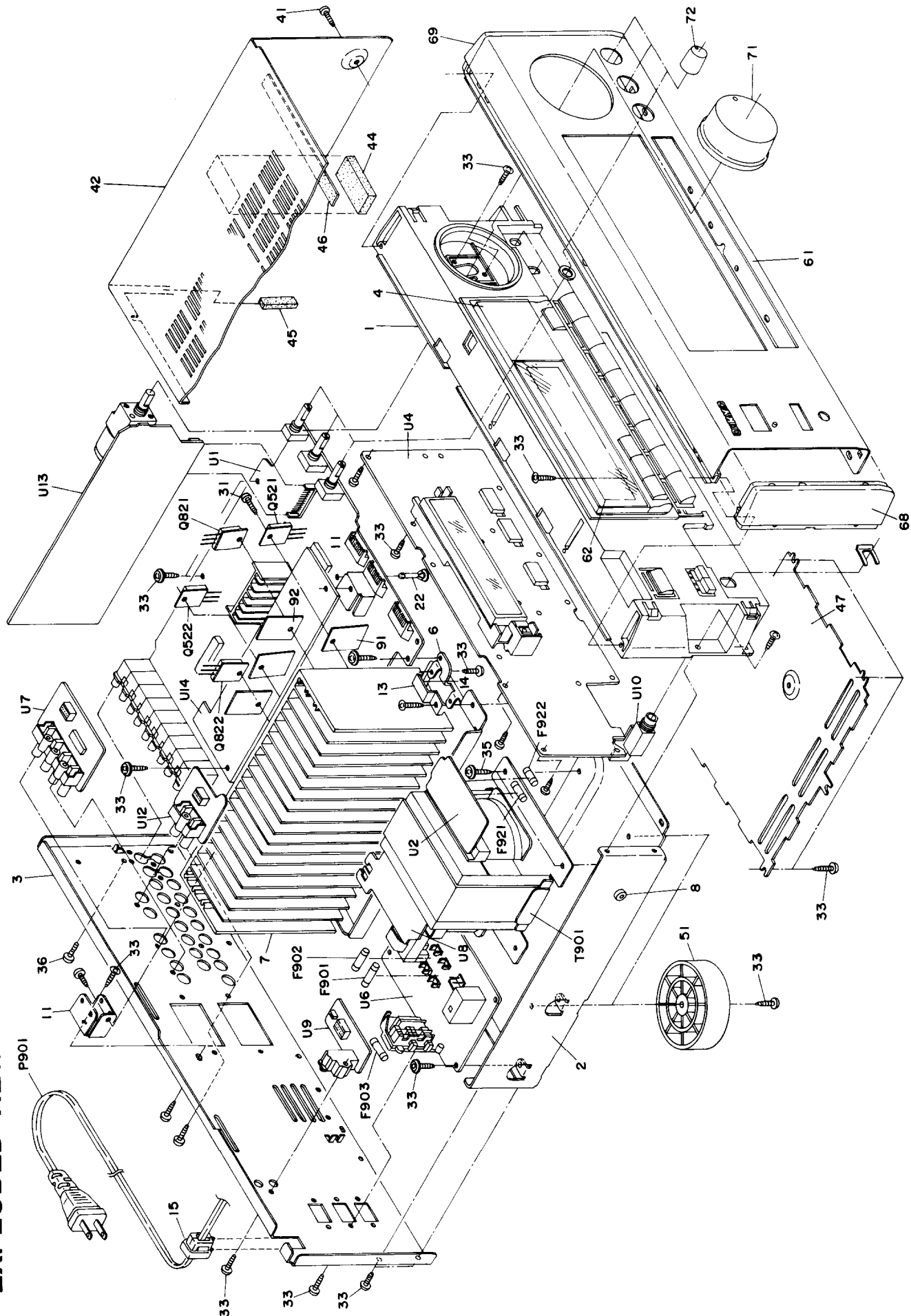
This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.

VOLTAGE SELECTOR





EXPLODED VIEW



PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	27110863AY	Front bracket 	68	28125285Y	End cap L <S>	End cap L <S>	U4	1A595599-2Y	NADIS-5399-2, Display circuit	NADIS-5399-2, Display circuit	U4	1A595599-2Y	NADIS-5399-2, Display circuit
2	27110864AY	Front bracket <S>	69	28125256AY	End cap R 	End cap R 			pc board ass'y <D>	pc board ass'y <D>			pc board ass'y <D>
3	27100278CY	Chassis		28125286Y	End cap R <S>	End cap R <S>			NADIS-5399-2A, Display circuit	NADIS-5399-2A, Display circuit			NADIS-5399-2A, Display circuit
3	27122091Y	Rear panel <D>	71	28325057	Volume knob ass'y 	Volume knob ass'y 			pc board ass'y <P/W/C>	pc board ass'y <P/W/C>			pc board ass'y <P/W/C>
3	27122108AY	Rear panel <C>		28325058	Volume knob ass'y <S>	Volume knob ass'y <S>			NAPS-5401-2, Power supply circuit	NAPS-5401-2, Power supply circuit			NAPS-5401-2, Power supply circuit
3	27122092AY	Rear panel <P>	72	28325055Y	Tone knob 	Tone knob 			pc board ass'y <D>	pc board ass'y <D>			pc board ass'y <D>
3	27122093Y	Rear panel <W>		28325056Y	Tone knob <S>	Tone knob <S>			NAPS-5401-2A, Power supply circuit	NAPS-5401-2A, Power supply circuit			NAPS-5401-2A, Power supply circuit
4	27122121Y	Rear panel <T>	91	223021	Isolation sheet	Isolation sheet			pc board ass'y <P>	pc board ass'y <P>			pc board ass'y <P>
4	27215258Y	Decorative frame 	92	260208	Wire tie	Wire tie			NAPS-5401-2B, Power supply circuit	NAPS-5401-2B, Power supply circuit			NAPS-5401-2B, Power supply circuit
4	27215261Y	Decorative frame <S>	93	223023	Isolation sheet	Isolation sheet			pc board ass'y <W>	pc board ass'y <W>			pc board ass'y <W>
5	27265289Y	Plate A 	F901	252164Y	5A-UL/T-237, Primary fuse <D/W>	5A-UL/T-237, Primary fuse <D/W>	U7	1A595502-2Y	NAETC-5402-2, Video circuit pc board ass'y	NAETC-5402-2, Video circuit pc board ass'y	U7	1A595502-2Y	NAETC-5402-2, Video circuit pc board ass'y
5	27265290Y	Plate A <S>	F902	252076	3.15A-SE-EAK, Primary fuse <P/W>	3.15A-SE-EAK, Primary fuse <P/W>			board ass'y	board ass'y			board ass'y
6	27130727Y	Bracket H	F903	252075	2.5A-SE-EAK, Primary fuse <P>	2.5A-SE-EAK, Primary fuse <P>	U8	1A595503-2Y	NAETC-5403-2, Primary circuit pc board ass'y	NAETC-5403-2, Primary circuit pc board ass'y	U8	1A595503-2Y	NAETC-5403-2, Primary circuit pc board ass'y
7	27160330CY	Radiator	F921, F922	252156Y	1A-UL/T-237, Secondary fuse <D>	1A-UL/T-237, Secondary fuse <D>	U9	1A595504-2Y	NAETC-5404-2, RI terminal pc board ass'y	NAETC-5404-2, RI terminal pc board ass'y	U9	1A595504-2Y	NAETC-5404-2, RI terminal pc board ass'y
8	27270212	Spacer <P/W>	P901	252070	1A-SE-EAK, Secondary fuse <P/W>	1A-SE-EAK, Secondary fuse <P/W>			board ass'y	board ass'y			board ass'y
11	27141623Y	Retainer H		253192HIT	AS-UC-6#18, Power supply cord <D>	AS-UC-6#18, Power supply cord <D>			NAETC-5405-2, Headphone terminal pc board ass'y <D/W>	NAETC-5405-2, Headphone terminal pc board ass'y <D/W>	U10	1A595505-2Y	NAETC-5405-2, Headphone terminal pc board ass'y <D/W>
12	27141530A	Retainer		253193HIT	AS-CEE, Power supply cord <P>	AS-CEE, Power supply cord <P>			pc board ass'y <D/W>	pc board ass'y <D/W>			pc board ass'y <D/W>
13	27141654Y	Retainer		253092-1A	AS-CEE-2, Power supply cord <W>	AS-CEE-2, Power supply cord <W>			NAETC-5405-2A, Headphone terminal pc board ass'y <P>	NAETC-5405-2A, Headphone terminal pc board ass'y <P>			NAETC-5405-2A, Headphone terminal pc board ass'y <P>
14	28141311Y	Cushion		253197HIT	AS-SAA, Power supply cord <A>	AS-SAA, Power supply cord <A>			pc board ass'y 	pc board ass'y 			pc board ass'y
15	27300750	▲ Cord bushing	P904, P905	253198HIT	AS-BS, Power supply cord 	AS-BS, Power supply cord 	U12	1A595508-2Y	NAETC-5408-2, Tuner terminal pc board ass'y	NAETC-5408-2, Tuner terminal pc board ass'y	U12	1A595508-2Y	NAETC-5408-2, Tuner terminal pc board ass'y
16	880011	Plastic rivet	Q521, Q522	25050904	NSCT-2P697, AC outlet <A>	NSCT-2P697, AC outlet <A>			pc board ass'y	pc board ass'y			pc board ass'y
22	27190524	KGLS-14RF, Holder		2202823 or	* 2SC5200-O or	* 2SC5200-O or	U13	1A595509-2Y	NAAF-5409-2, Surround circuit pc board ass'y	NAAF-5409-2, Surround circuit pc board ass'y	U13	1A595509-2Y	NAAF-5409-2, Surround circuit pc board ass'y
31	801433	3SMS8W, SW+14B(BC), Sems screw	Q523, Q524	2202813 or	* 2SA1943-O or	* 2SA1943-O or	U14	1A595510-2Y	NAAF-5410-2, Center and rear amplifier circuit pc board ass'y <D>	NAAF-5410-2, Center and rear amplifier circuit pc board ass'y <D>	U14	1A595510-2Y	NAAF-5410-2, Center and rear amplifier circuit pc board ass'y <D>
33	838130088	3TTB+8B, Self-tapping screw	Q821, Q822	2201473	* 2SA1302-O, Power amplifier transistor	* 2SA1302-O, Power amplifier transistor			NAAF-5410-2A, Center and rear amplifier circuit pc board ass'y <P/W>	NAAF-5410-2A, Center and rear amplifier circuit pc board ass'y <P/W>			NAAF-5410-2A, Center and rear amplifier circuit pc board ass'y <P/W>
35	830440089	4TTC+8C(BC), Self-tapping screw		2203043,	* 2SC5197-O,	* 2SC5197-O,			NOTE: :Black model only	:Black model only			:Black model only
36	838230088	3TTB+8B(Ni), Self-tapping screw		2202253 or	* 2SC4467-O or	* 2SC4467-O or			<S>:Silver model only	<S>:Silver model only			<S>:Silver model only
41	838430088	3TTB+8B(BC), Self-tapping screw 		2202503	* 2SC3181N-O, Power amplifier transistor	* 2SC3181N-O, Power amplifier transistor			<D>:120V model only	<D>:120V model only			<D>:120V model only
41	838230088	3TTB+8B(Ni), Self-tapping screw <S>		2203033,	* 2SA1940-O,	* 2SA1940-O,			<P>:230V model only	<P>:230V model only			<P>:230V model only
42	28184476BY	Top cover 	U1	2202243 or	* 2SA1694-O or	* 2SA1694-O or			<W>:Worldwide model only	<W>:Worldwide model only			<W>:Worldwide model only
42	28184599Y	Top cover <S>		2202493	* 2SA1264N-O, Power amplifier transistor	* 2SA1264N-O, Power amplifier transistor			<A>:Australian model only	<A>:Australian model only			<A>:Australian model only
44	28141306Y	6X5X30, Cushion	T901	2301100Y	NPT-1238D, Power transformer <D>	NPT-1238D, Power transformer <D>			<C>:Canadian model only	<C>:Canadian model only			<C>:Canadian model only
45	28141306Y	6X5X30, Cushion		2301101Y	NPT-1238P, Power transformer <P>	NPT-1238P, Power transformer <P>			<T>:Taiwanese model only	<T>:Taiwanese model only			<T>:Taiwanese model only
46	28140680	0.5X10X180, Cushion		2301102Y	NPT-1238DG, Power transformer <W>	NPT-1238DG, Power transformer <W>			:UK model only	:UK model only			:UK model only
47	27170302AY	Bottom board		1A595596-2Y	NAAR-5396-2, Main circuit pc board ass'y <D>	NAAR-5396-2, Main circuit pc board ass'y <D>							
51	27175300Y	Leg		1A595596-2AY	NAAR-5396-2A, Main circuit pc board ass'y <P/W>	NAAR-5396-2A, Main circuit pc board ass'y <P/W>							
61	1A595121Y	Front panel ass'y 	U2	1A595597-2Y	NAETC-5397-2, Power supply circuit pc board ass'y <D>	NAETC-5397-2, Power supply circuit pc board ass'y <D>							
61	1A596121Y	Front panel ass'y <S>		1A595597-2Y	NAETC-5397-2A, Power supply circuit pc board ass'y <D>	NAETC-5397-2A, Power supply circuit pc board ass'y <D>							
61a	8910301	CS-3, CS ring		1A595597-2AY	NAETC-5397-2A, Power supply circuit pc board ass'y <P/W>	NAETC-5397-2A, Power supply circuit pc board ass'y <P/W>							
61b	28198778	Facet											
61c	28135199	Badge											
62	28191714Y	Clear plate											
68	28125255AY	End cap L 											

A-SV420

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

MICROPROCESSOR TERMINAL DESCRIPTION

Pin No.	Function	I/O	Description
1~7	7G~1G	O	Grid control output pin. On at the high level.
8	VDD		Power supply pin (+5V)
9	CL	O	Clock output pin. Connect to the terminals CK of function switch Q302, surround mode switch Q606, electro volume Q671, digital delay Q651 and PLL IC Q171.
10	DATA	O	Data output pin. Connect to the terminals DATA of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay.
11	PLL	O	Chip enable output pin for PLL IC
13	SEL	O	Chip enable output pin. Connect to the terminals ST of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay.
15	VOLUP	O	Volume control output pin
16	VOLDOWN	O	Refer table 1.
17	RESET	I	System reset input pin
20	AVSS		Ground pin of A/D converter
21	MODE	I	Initializing input of operation mode
22	BAND	I	Initializing input of band region
23	MODE1	I	Initializing input of operation mode
24	K4	I	Operation key connection pin
25	K3	I	Operation key connection pin
26	K2	I	Operation key connection pin
27	K1	I	Operation key connection pin
28	K0	I	Operation key connection pin
29	AVDO		Analogue power supply of A/D converter
30	AVREF		Reference voltage input pin of A/D converter
31	XT1		Crystal connection pin for sub system clock resonator
32	XT2		Not used.
33	VSS		Ground pin
34	X1		Resonator connection terminal for main system clock
35	X2		Connect the ceramic resonator 4.19MHz.
36	TMUT	O	Muting output pin for tuner section
38	SMUT	O	Muting output pin for amplifier section
40	RELAY	O	Relay control pin for speaker
41	POWER	O	Power source control output pin
42	SYSOUT	O	System code output pin
43	RDSDATA	I	Data input pin from RDS decoder μ PD1346CS
43	SYSIN	I	System code input pin
44	RDSSCK	I	Clock input pin from RDS decoder IC μ PD1346CS
45	POFF	I	Power stoppage detector input pin
47	REMIN	I	Remote control signal input pin
48	IC		Internal connection pin. Connect to the ground terminal.
49	PROTECT	I	Detector input pin of protection circuit. H:On
50	STBY/RECV	O	Stand-by and received indicator output pin
52	VDD		Power supply pin (+5V)
53	STEREO	I	Detector input pin of FM stereo broadcast
54	SD	I	Detector input pin of broadcast more than muting level
55	RDSSIG	I	Detector input pin of RDS broadcast. L:RDS broadcast
56	RFIN	I	RF mode input pin. Local at the low level.
57~70	Pv~Pe	O	Segment output pins. On at the high level.
71	VLOAD	I	Pull-down resistor connection pin of controller and driver of FL.
72~75	Pd~Pa	O	Segment output pins. On at the high level.
76~80	12G~8G	O	Grid control output pin. On at the high level.

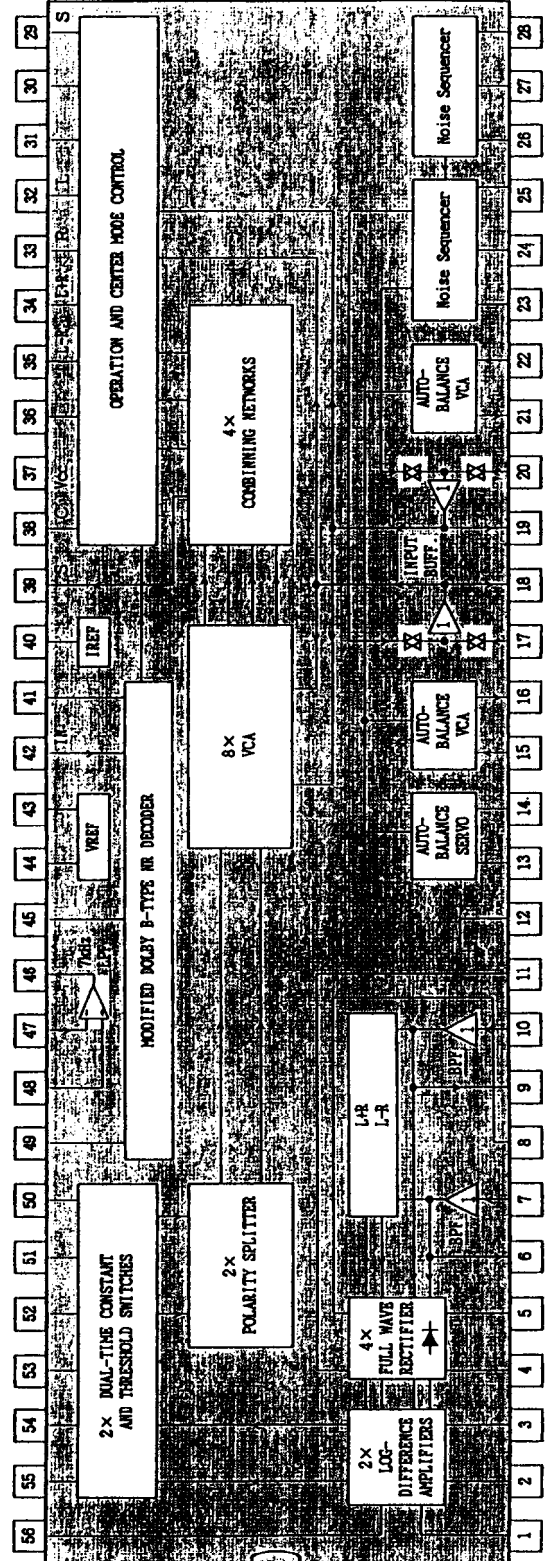
Operation	#39	#40
VOLUME UP	H	L
VOLUME DOWN	L	H
STOP	H	H

Table 1

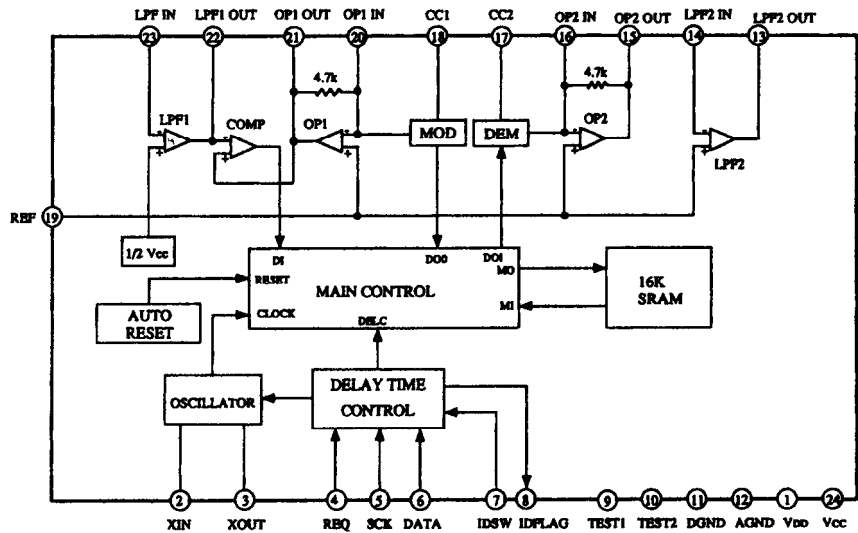
IC BLOCK DIAGRAM AND DESCRIPTIONS

NJM2177L / M69032P (Dolby Pro Logic)

C-RECT-OUT	1	56	S-RECT-OUT
R-RECT-OUT	2	55	VLR-TC2
L-RECT-OUT	3	54	VLR-TC1
S-RECT-TC	4	53	VCS-TC1
C-RECT-TC	5	52	VCS-TC2
L-BPF-OUT	6	51	VCS-TC3
L-BPF-IN	7	50	VLR-TC3
L-RECT-TC	8	49	NR-TC
R-BPF-OUT	9	48	LPP-NINV-IN LPP non-inversion output
R-BPF-IN	10	47	LPP-INV-IN LPP inversion input
R-RECT-TC	11	46	LPP-OUT LPP output
GND	12	45	NR-WT
AB-GATE	13	44	VREF
AB-HOLD-TC	14	43	VREF
L-AB-IN Auto balance L ch input	15	42	NR-IN NR input
L-AB-OUT Auto balance L ch output	16	41	NR-VCF
L-IN Left channel input	17	40	IREF
L-INBUF-OUT L ch input/Buffer output	18	39	S'-OUT Surround output before delay processing
R-INBUF-OUT R ch input/Buffer output	19	38	C-OUT Center channel output
R-IN Right channel input	20	37	Vcc
R-AB-OUT Auto balance R ch output	21	36	CENTER-MODE
R-AB-IN Auto balance R ch input	22	35	L-R-OUT Subtractor output (L-R)
NOISE-CNT-E Signal/Noise selector	23	34	L+R-OUT Adder output (L+R)
NOISE-CNT-A Noise output selector	24	33	R-OUT Right channel output
NOISE-CNT-B Noise output selector	25	32	L-OUT Left channel output
NOISE-REF	26	31	MODE-CNT 2/3/4 channels switch
NOISE-HPF	27	30	CENTER-CNT Center channel ON/OFF switch
NOISE-LPF	28	29	S-OUT Surround output

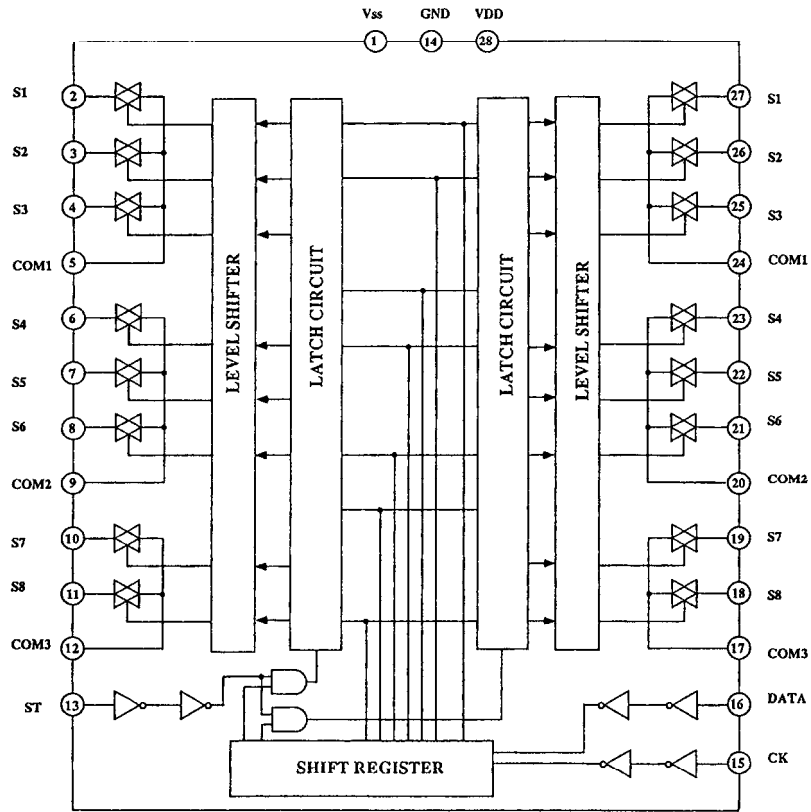


M65830P (Digital Delay)

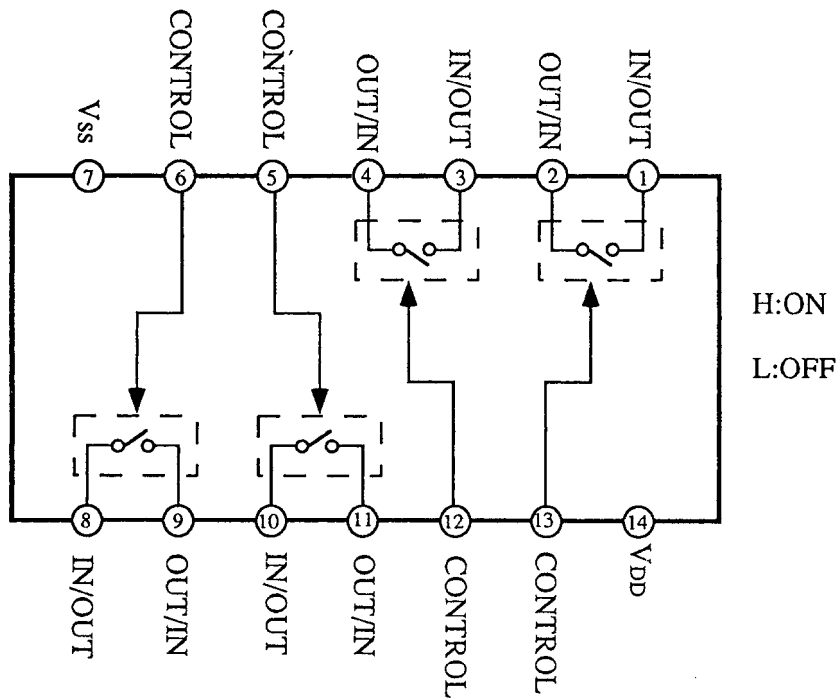


Pin No.	Mark	Function	I/O	Description
1	VDD	Digital power supply	-	
2	XIN	Resonator input	I	Connect the 2MHz ceramic resonator
3	XOUT	Resonator output	O	
4	REQ	Request	I	Data request input
5	SCK	Shift lock	I	Serial data shift clock input
6	DATA	Data	I	Serial data input
7	IDSW	ID switch	I	External input of 4th bit of ID code
8	IDFLAG	ID flag	O	Data input confirmation pulse and serial data output
9	TEST1	Test 1	-	Normal mode when low level
10	TEST2	Test 2	-	Normal mode when low level
11	D GND	Digital ground	-	
12	A GND	Analog ground	-	
13	LPF2 OUT	LPF filter 2 output	O	
14	LPF2 IN	LPF filter 2 input	I	
15	OP2 OUT	Operation amp. 2 output	O	
16	OP2 IN	Operation amp. 2 input	I	
17	CC2	Current control 2	-	Demodulation ADM control
18	CC1	Current control 1	-	Modulation ADM control
19	REF	Reference	-	Analog reference voltage=1/2VCC
20	OP1 IN	Operation amp. 1 input	I	
21	OP1 OUT	Operation amp. 1 output	O	
22	LPF1 OUT	LPF filter 1 output	O	
23	LPF1 IN	LPF filter 1 input	I	
24	VCC	Analog power supply	-	

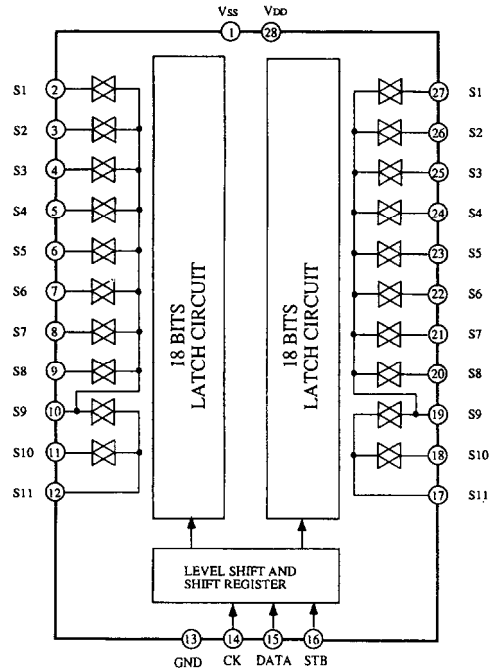
TC9162N (Function Switch)



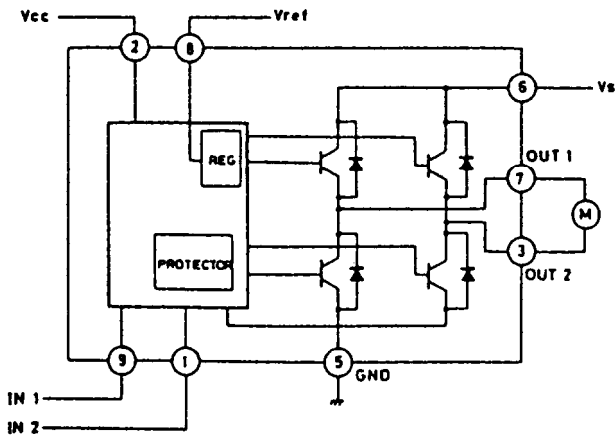
4066 (Analog Switch)



TC9273N-010 (Function Switch)



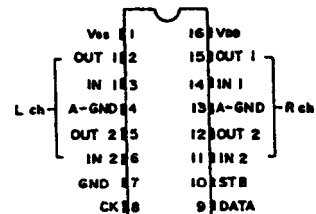
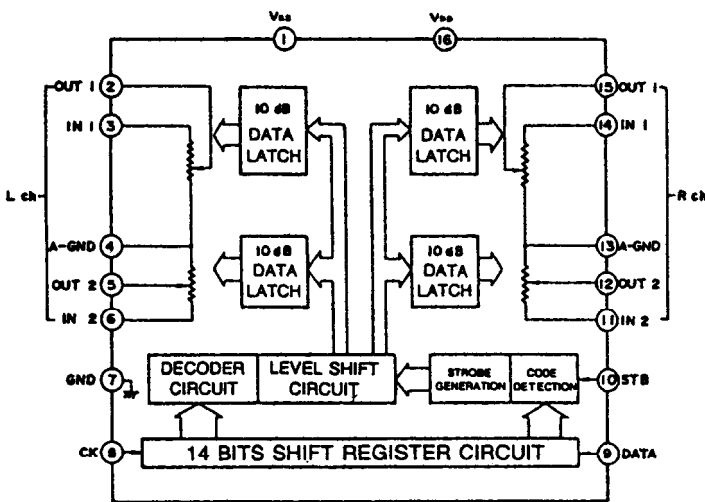
TA7291S (Volume driver)



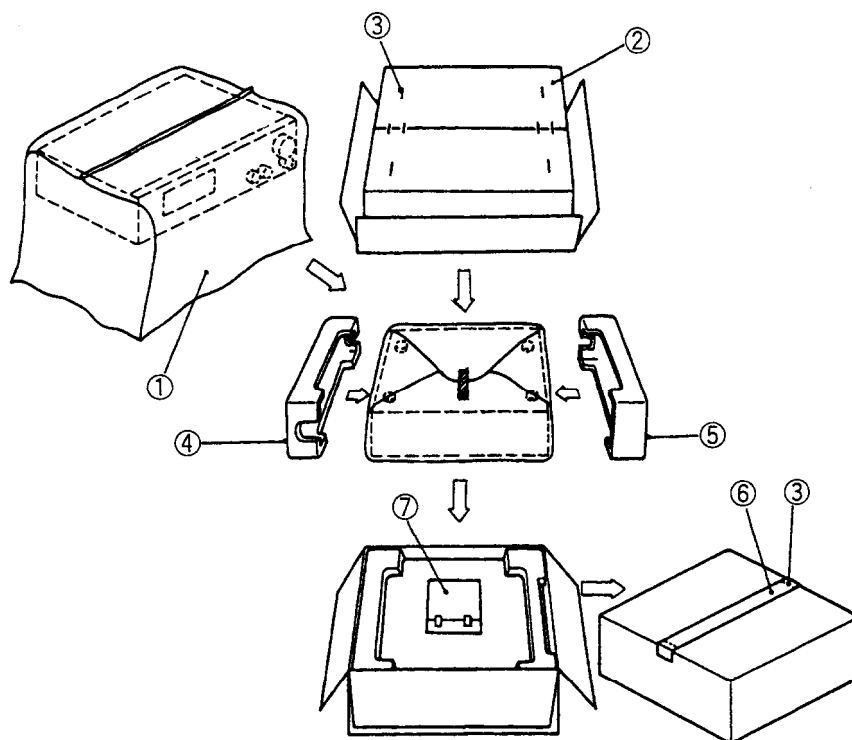
INPUT		OUTPUT		MODE
IN 1	IN 2	OUT 1	OUT 2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

CCW: Counter clockwise direction
 CW: Clockwise direction

TC9213P (Electro Volume)



PACKING VIEW



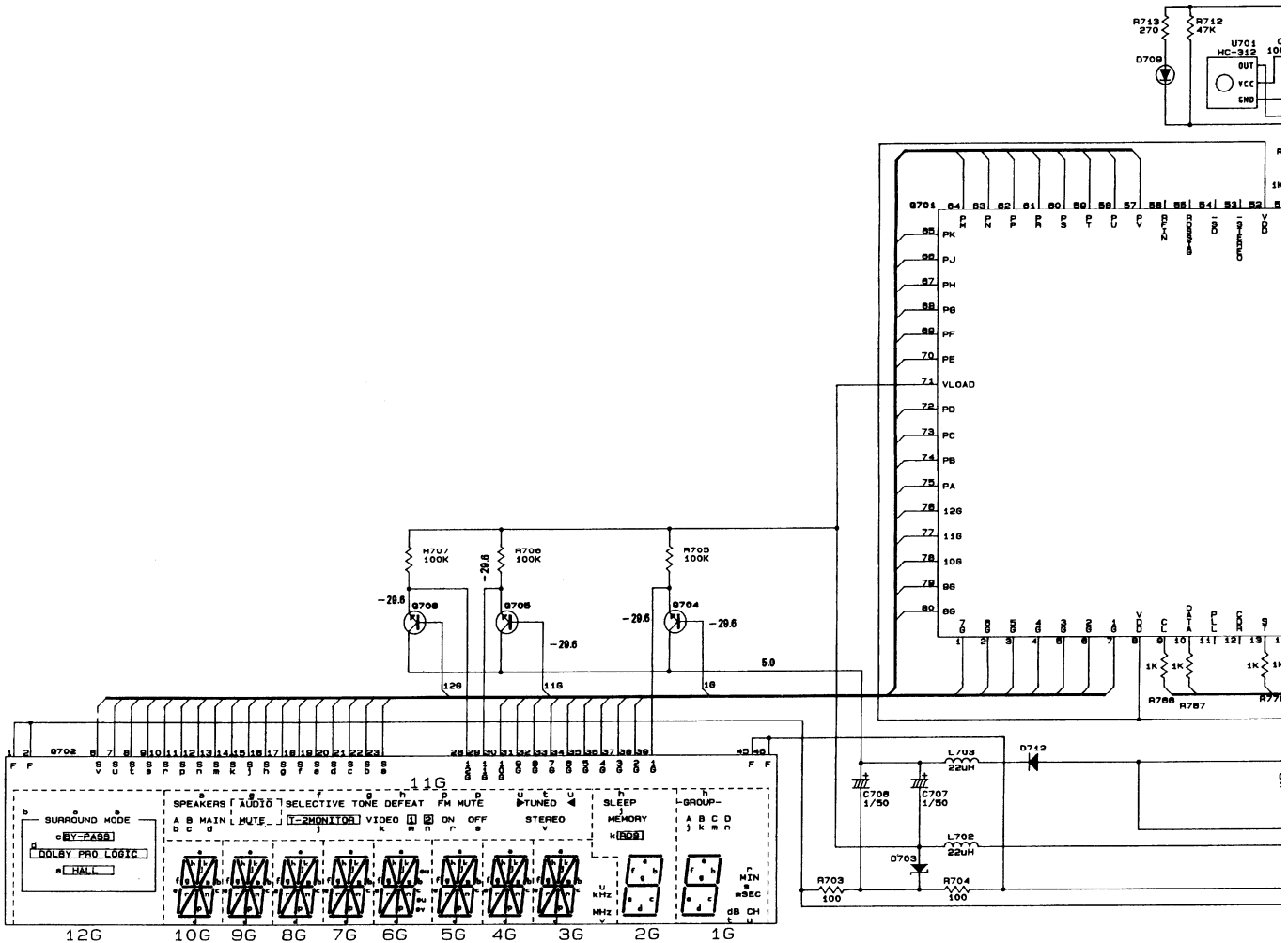
REF. NO. PART NO. DESCRIPTION

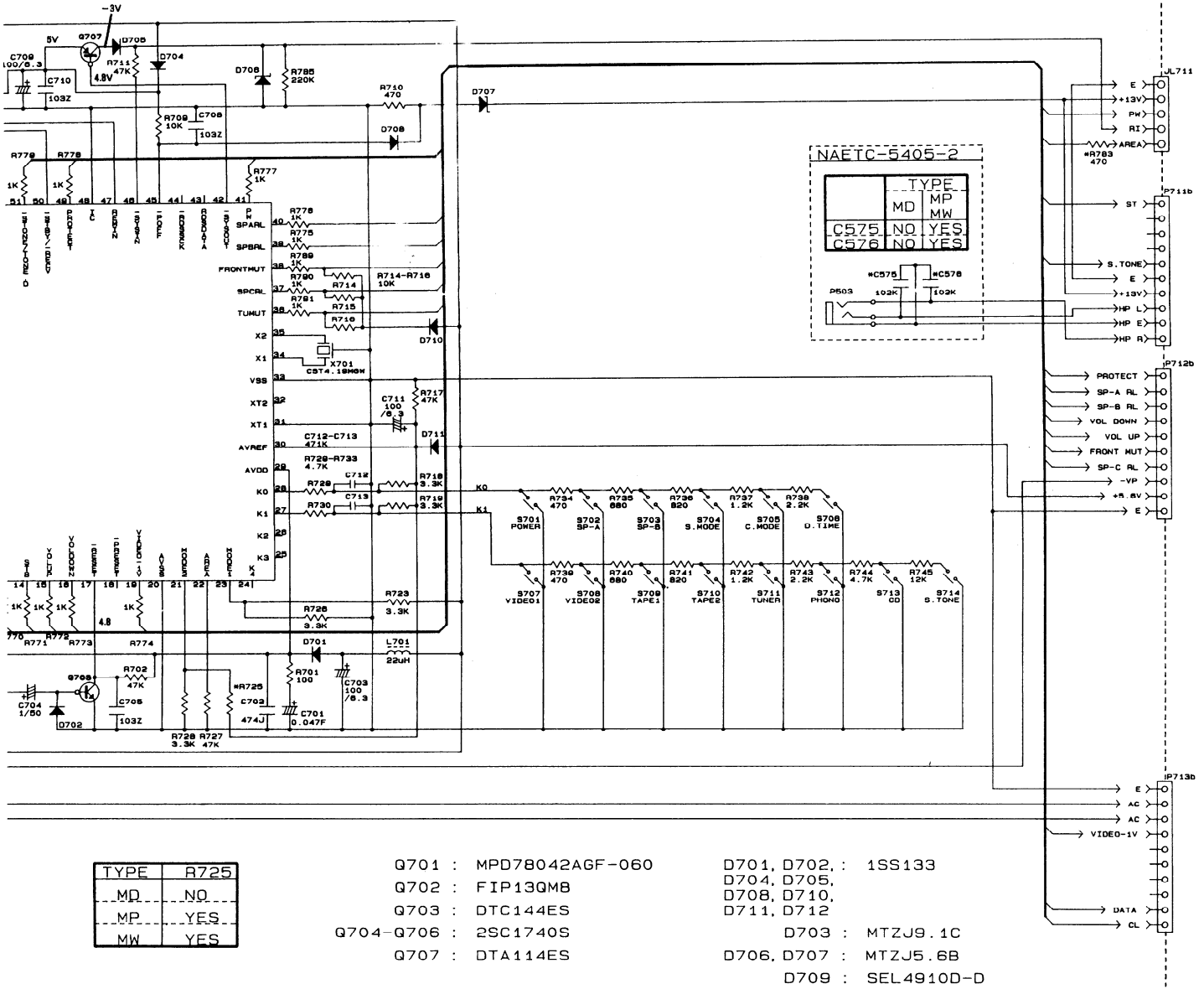
1	29100034-1Y	850×650, Styren bag
2	29052875AY	Carton box
	29052876AY	Carton box <S>
3	282301	Staple
4	29091651BY	Pad L
5	29091652CY	Pad R
6	29110071	PP tape
7	Accessory bag ass'y	
	2010200	Remote control cable
	3010054	UM-3, Two batteries
	25055018	CV-K-1, Conversion plug <W>
	29095745	Sheet U7 <P>
	24140295Y	RC-295S, Remote control transmitter
	29100097-1Y	350×250, Styren bag
	29342158Y	Instruction manual, English
	29342159Y	Instruction manual U6 <P>
	29342160Y	Instruction manual U3 <W/C>
	29358002K	Service station list <N>
	29360778Y	Label, flash <D>
	29361879Y	Label UPC <N>
	29365019B	Warranty card <N>

NOTE: :Black model only
 <S>:Silver model only
 <D>:120V model only
 <P>:230V model only
 <W>:Worldwide model only
 <N>:USA model only
 <A>:Australian model only
 <C>:Canadian model only

SCHEMATIC DIAGRAM

NADIS-5399-2, 2A



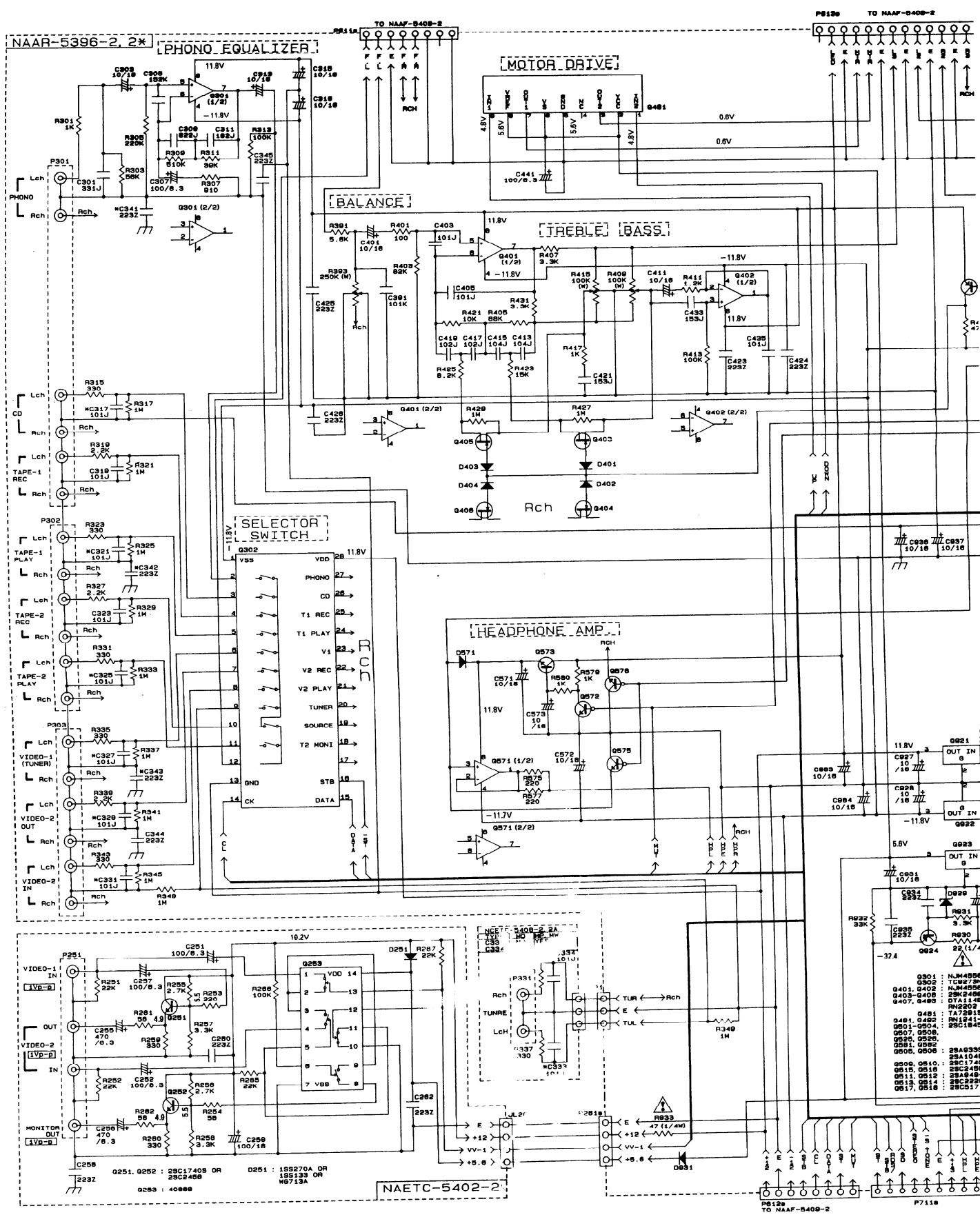


JL711: TO NAETC-5404-2

P711b, P712b, P713b: TO NAAR-5396-2, -2A

SCHEMATIC DIAGRAM

A
B
C
D
E
F

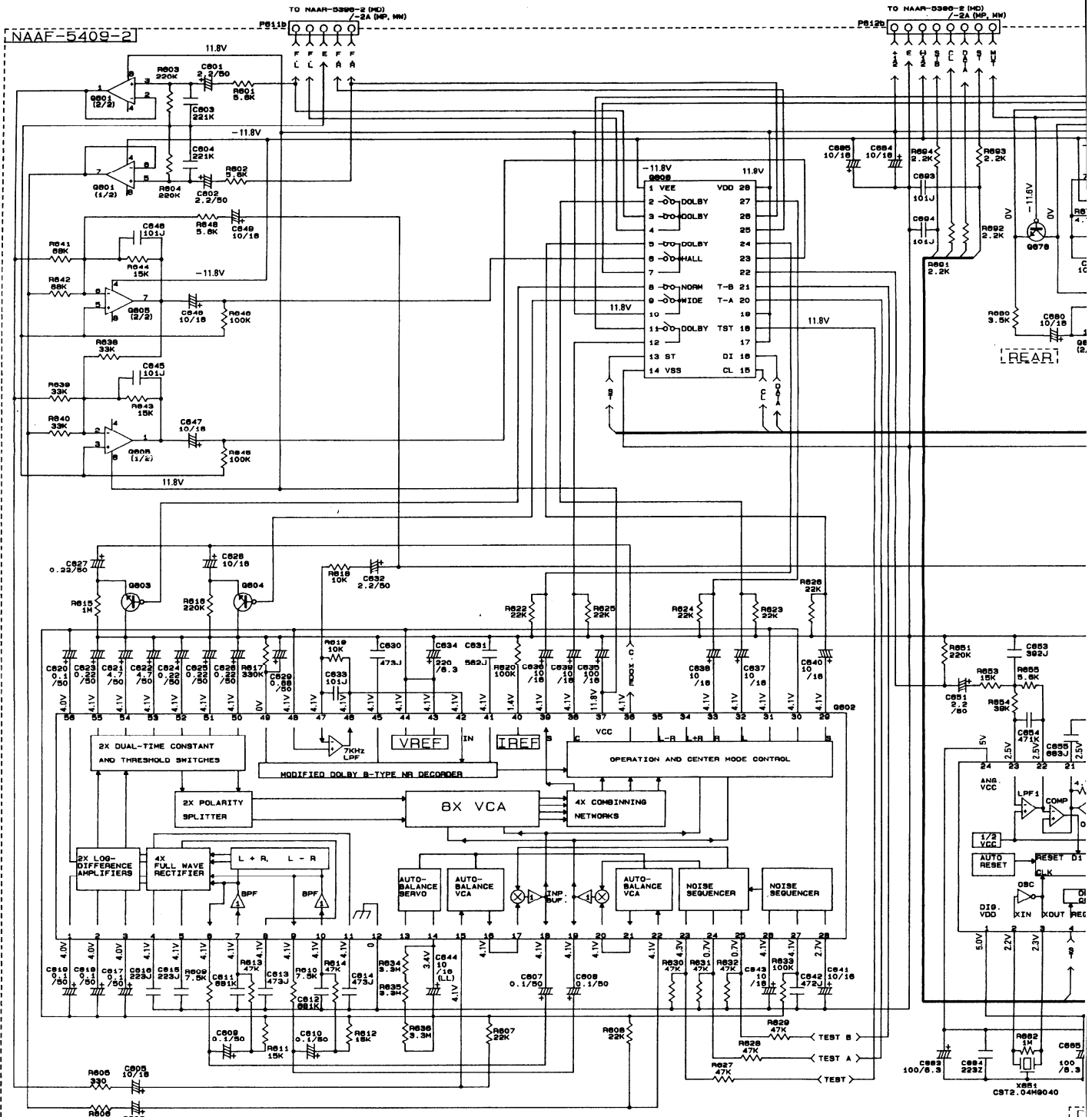


Q301	LM4558
Q302	TC6273N
Q401, Q402	LM4558
Q403, Q405	2SK2458
Q407, Q408	DYA1148
	1N4252
Q481	TAT2818
Q482	9A1241
Q501, Q502	2SC1845
Q503, Q504	
Q505, Q506	
Q507, Q508	2SA9336
Q509, Q510	2SA1041
Q511, Q512	2SC1740
Q513, Q514	2SC2458
Q515, Q516	2SC1845
Q517, Q518	2SC2281
Q519, Q520	2SC517

NAETC-5402-2

P8128 TO NAAF-8408-2 P7118

SCHEMATIC DIAGRAM



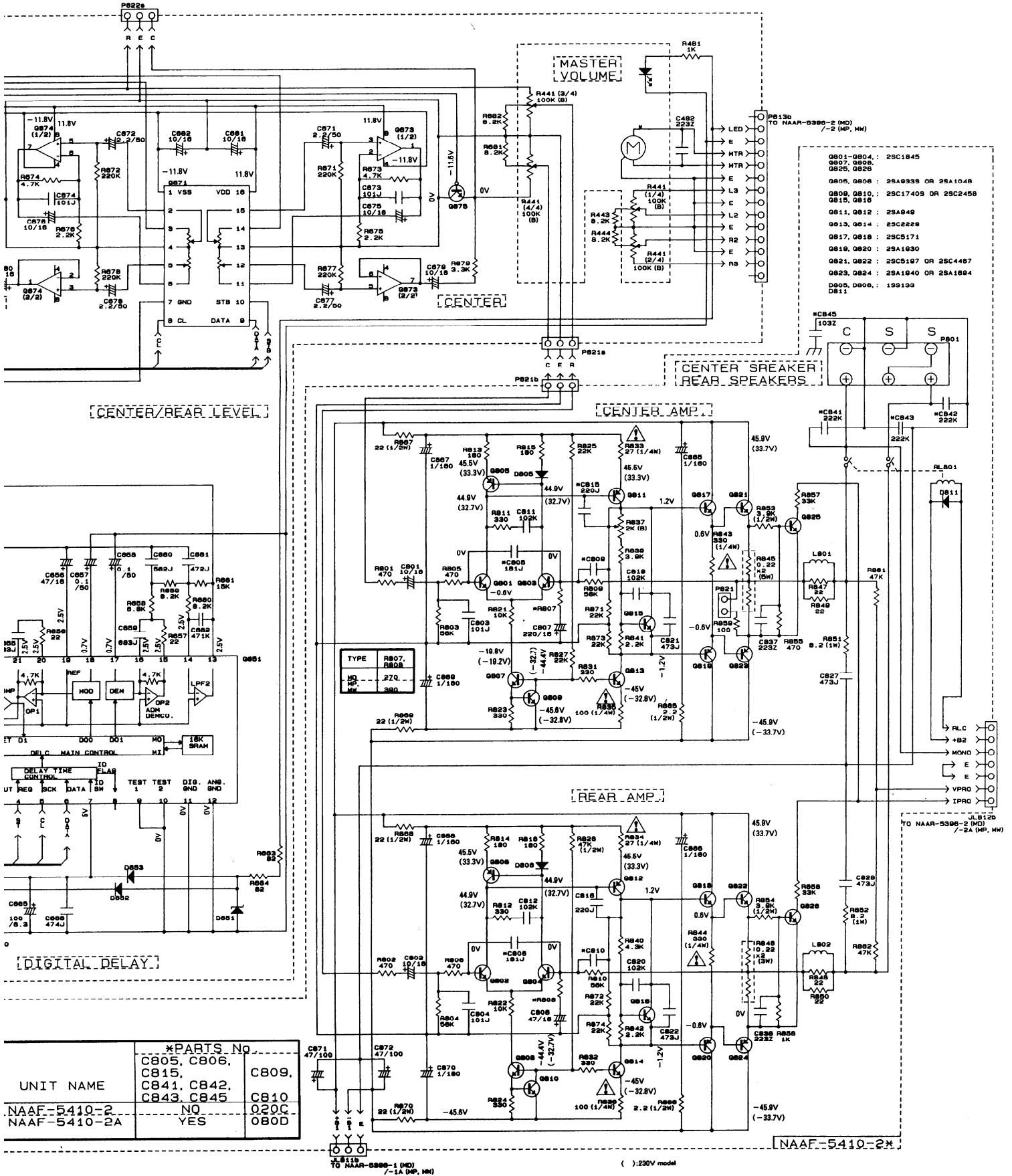
[DOLBY PRO LOGIC DECODER]

- Q601, Q605 : NJM4558L-D OR
- Q673, Q674 : BA15218N
- Q602 : M69032P OR NJM2177L
- Q603, Q604 : RN1241-A
- Q606 : TC9162N OR NJU7311AL
- Q651 : M65830P OR NJU9701D
- Q671 : TC9213P
- D651 : MTZJ5.6B
- D652, D653 : 1SS133

TEST H	TEST X	TEST A	TEST B	OUTPUT
L	X	X	X	TEST OFF
L	L	L	L	NOISE-L
L	L	L	H	NOISE-C
L	L	L	L	NOISE-B
L	L	H	H	NOISE-S

X: Don't care

TYPE	UI
MD	NAE
MP	NAE
MW	NAE



[CENTER/REAR LEVEL]

MASTER VOLUME

CENTER BREAKER REAR SPEAKERS

[CENTER AMP]

[REAR AMP]

[DIGITAL DELAY]

NAAF-5410-2*

UNIT NAME	*PARTS No.	
NAAF-5410-2	C805, C806, C815, C841, C842, C843, C845	C809, C810
NAAF-5410-2A	NO	020C
	YES	080D

TYPE	RES
HO	270
MP	380
MH	380

- 0801-0804: 25C1845
- 0807, 0808, 0825, 0826
- 0805, 0806: 25A0939 OR 25A1048
- 0809, 0810: 25C17409 OR 25C2458
- 0815, 0816
- 0811, 0812: 25A048
- 0813, 0814: 25C2228
- 0817, 0818: 25C5171
- 0819, 0820: 25A1030
- 0821, 0822: 25C5107 OR 25C4487
- 0823, 0824: 25A1040 OR 25A1094
- 0805, 0806, 199199
- 0811

TO NAAR-0300-1 (HD) /-1A (MP, MH)

() :20V model

TO NAAR-5300-2 (HD) /-2A (MP, MH)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Sockets	
P711a~P713a	25051046	NSCT-10P833
	Plugs	
P611a	25055678	NPLG-8P634
P612a	25055649	NPLG-8P605
P613a	25055652	NPLG-14P608
	Wire holders	
JL261a	25051088	NSCT-4P875
JL311a	25051087	NSCT-3P874
JL811a,JL914a	25051107	NSCT-3P894
JL812a	25051111	NSCT-7P898
JL912a	25051110	NSCT-4P895
JL913a	25051109	NSCT-5P896
	Radiators	
Q921a	27160209	RAD-67
D911a	27160227	RAD-076

POWER SUPPLY CIRCUIT PC BOARD(NAETC-5397-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q961	221282	DTC144ES,Transistor
Q962	2213640	DTC123JS,Transistor
D961	223163	1SS133,Diode
RL961,RL962	25065503	NRL-1P10A-DC24-091,Relay
F921,F922	252156Y	△ 1A-UL/T-237, Secondary fuse <D>
	252070	△ 1A-SE-EAK, Secondary fuse <P/W>
F921a,F922a	25050065	△ YSH403T,Fuseholder
JL912b	25051108	NSCT-4P895,Wire holder
JL913b	25051109	NSCT-5P896,Wire holder
JL914b	25051107	NSCT-3P894,Wire holder
A961	29360398	△ Fuse label <P/W>

DISPLAY CIRCUIT PC BOARD(NADIS-5399-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Remote sensor	
U701	24130010	HC-312
	IC	
Q701	22240901	μ PD78042AGF-060
	FL tube	
Q702	212143	FIP13QM8
	Transistors	
Q703	221282	DTC144ES
Q704~Q706	2213284	2SC1740S-R
Q707	2213510	DTA114ES
	Diodes	
D701,D702	223163	1SS133
D703	224470913	MTZJ9.1C
D704,D705	223163	1SS133
D706,D707	224470562	MTZJ5.6B
D708	223163	1SS133
D709	225291D	SEL4910D-D,LED
D710~D712	223163	1SS133
	Coils	
L701~L703	233454K220	NCH-1452,220K
	Resonator	
X701	3010163	CST4.19MGW,Ceramic

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C701	3000075	0.047F, 5.5V, Super
C702	375524744	0.47 μ F ± 5%,50V,Plastic
C703	354721019	100 μ F,6.3V,Elect.
C704	354780109	1 μ F,50V,Elect.
C706,C708	354780109	1 μ F,50V,Elect.
C709,C711	354721019	100 μ F,6.3V,Elect.
	Wire holder	
JL711a	25051089	NSCT-5P876
	Plugs	
P711b~P713b	25055695	NPLG-10P615
	Switches	
S701~S706	25035652	NPS-111-S604
S708~S713	25035652	NPS-111-S604
S715,S734	25035652	NPS-111-S604
	Holder	
Q702a	27190937AY	FL

POWER SUPPLY CIRCUIT PC BOARD(NAPS-5401-2/2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q951	221282	DTC144ES
Q952	2213650	DTD113ZS
	Diodes	
D951~D954	22380032	1SR139-100
D955	223163	1SS133
	Capacitors	
C901	3500065A	△ DE7150FZ103PAC400V/125V
C952	354742219	220 μ F,16V,Elect.
	Resistors	
R901	431523355	△ 3.3 MOhm ± 20%,1/2W,Solid <D>
R951	453530824	8.2 Ohm ± 5%,1/2W,Metal
	Fuses	
F901	252164Y	△ 5A-UL/T-237, Primary <D/W>
F902	252076	△ 3.15A-SE-EAK, Primary <P/W>
F903	252075	△ 2.5A-SE-EAK, Primary <P>
	Fuseholders	
F901a	25050065	△ YSH403T <D/W>
F902a	25050065	△ YSH403T <P/W>
F903a	25050065	△ YSH403T <P>
	Socket	
JL961a	25051087	NSCT-3P874
	AC outlet	
P902	25051126	△ NSCT-4P913 <D>
P903	25051125	△ NSCT-4P912 <P/W>
	Plug	
P901a	25055675	NPLG-2P631 <D/P>
	Relay	
RL901	25065483	△ NRL-1P5A-DC12-084
	Power transformer	
T902	2300670A	△ NPT-1111D <D>
	2300671AY	△ NPT-1111P <P>
	2300672AY	△ NPT-1111DG <W>
	Switch	
S901	25065437	△ NSS-22157P, Voltage selector <W>

VIDEO CIRCUIT PC BOARD(NAETC-5402-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q251,Q252	2212115 or 2213284	2SC2458-GR or 2SC1740S-R
	IC	
Q253	222840661	4066B
	Diode	
D251	223163	1SS133
	Capacitors	
C251,C252	354721019	100 μ F,6.3V,Elect.
C255,C256	354724719	470 μ F,6.3V,Elect.
C257	354721019	100 μ F,6.3V,Elect.
C259	354741019	100 μ F,16V,Elect.
	Wire trap	
JL261b	25055625	NPLG-4P587
	Terminal	
P251	25045339	NPJ-4PDYE190

RI TERMINAL PC BOARD(NAETC-5404-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P961	25045330	NPJ-2PDBL184,Terminal RI
JL711b	25055626	NPLG-5P588,Wire trap
JL961b	25051087	NSCT-3P874,Wire holder

HEADPHONE TERMINAL PC BOARD(NAETC-5405-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25045255	YKB21-5009,Headphone terminal

SURROUND CIRCUIT PC BOARD(NAAF-5409-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q601,Q605	22240247 or	BA15218N or
Q673,Q674	22240293	NJM4558L-D
Q602	22240683 or 22240692	NJM2177L or M69032P
Q606	22240398 or 22240751	TC9162N or NJU7311L
Q651	22240686 or 22240687	M65830P or NJU9701D
Q671	22240266	TC9213P
	Transistors	
Q603,Q604	2213631	RN1241-A
Q675,Q676	2213631	RN1241-A
	Diodes	
D651	224470562	MTZJ5.6B
D652,D653	223163	1SS133
	Capacitors	
C601,C602	354780229	2.2 μ F,50V,Elect.
C605,C606	354741009	10 μ F,16V,Elect.
C607~C610	354781099	0.1 μ F,50V,Elect.
C613,C614	374724734	0.047 μ F \pm 5%,50V,Plastic
C615,C616	374722234	0.022 μ F \pm 5%,50V,Plastic
C617~C620	354781099	0.1 μ F,50V,Elect.
C621,C622	354780479	4.7 μ F,50V,Elect.
C623~C627	354782299	0.22 μ F,50V,Elect.
C628	354741009	10 μ F,16V,Elect.
C629	354786899	0.68 μ F,50V,Elect.
C630	374724734	0.047 μ F \pm 5%,50V,Plastic
C631	374725624	5600pF \pm 5%,50V,Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C632	354780229	2.2 μ F,50V,Elect.
C634	354722219	220 μ F,6.3V,Elect.
C635	354741019	100 μ F,16V,Elect.
C636~C641	354741009	10 μ F,16V,Elect.
C642	374724724	4700pF \pm 5%,50V,Plastic
C643	354741009	10 μ F,16V,Elect.
C644	391141007	10 μ F,16V,Elect.
C647~C649	354741009	10 μ F,16V,Elect.
C651	354780229	2.2 μ F,50V,Elect.
C653	374723924	3900pF \pm 5%,50V,Plastic
C655	374726834	0.068 μ F \pm 5%,50V,Plastic
C656	354744709	47 μ F,16V,Elect.
C657,C658	354781099	0.1 μ F,50V,Elect.
C659	374726834	0.068 μ F \pm 5%,50V,Plastic
C660	374725624	5600pF \pm 5%,50V,Plastic
C661	374724724	4700pF \pm 5%,50V,Plastic
C663,C665	354721019	100 μ F,6.3V,Elect.
C666	375524744	0.47 μ F \pm 5%,50V,Plastic
C671,C672	354780229	2.2 μ F,50V,Elect.
C675,C676	354741009	10 μ F,16V,Elect.
C677,C678	354780229	2.2 μ F,50V,Elect.
C679~C682	354741009	10 μ F,16V,Elect.
C684,C685	354741009	10 μ F,16V,Elect.

	Resonator	
X651	3010217	CST2.04MG040,Ceramic
	Resistor	
R441	5104332Y	N16RQL100KBT25F
	Sockets	
P611b	25051127	NSCT-8P914
P612b	25050983Y	NSCT-8P770
P613b	25050986Y	NSCT-14P773
P621a	2000802UL	NSAS-6P758
	Plug	
P622a	25055405	NPLG-3P387

CENTER AND REAR AMPLIFIER CIRCUIT PC BOARD (NAAF-5410-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q801~Q804	2211732 or 2211733	* 2SC1845-F or * 2SC1845-E
Q805,Q806	2213354	2SA933S-R
Q807,Q808	2211732 or	2SC1845-F or
Q825,Q826	2211733	2SC1845-E
Q809,Q810	2213284	2SC1740S-R
Q811,Q812	2211353	2SA940-O
Q813,Q814	2211633	2SC2229-O
Q815,Q816	2213284	2SC1740S-R
Q817,Q818	2203010	2SC5171
Q819,Q820	2203000	2SA1930
Q821,Q822	2203043, 2202254, 2202256, 2202253 or	* 2SC5197-O, * 2SC4467-Y, * 2SC4467-P, * 2SC4467-O or
	2202503	* 2SC3181N-O
Q823,Q824	2203033, 2202244, 2202246, 2202243 or 2202493	* 2SA1940-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1694-O or * 2SA1264N-O

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D805,D806	223163	1SS133
D811	223163	1SS133
	Coils	
L801,L802	231176S	S-1.3C
	Capacitors	
C801,C802	354741009	10 μ F,16V,Elect.
C807	354742219	220 μ F,16V,Elect.
C808	354744709	47 μ F,16V,Elect.
C821,C822	374724734	0.047 μ F \pm 5%,50V,Plastic
C827,C828	374724734	0.047 μ F \pm 5%,50V,Plastic
C865~C867	354700109	1 μ F,160V,Elect.
C868,C870	354770109	1 μ F,63V,Elect.
C869	354700109	1 μ F,160V,Elect.
	Resistors	
R826	443524734	47 kOhm \pm 5%,1/2W,Metal oxide
R833,R834	4500081	27 Ohm \pm 5%,1/4W,Metal
R835,R836	4500095	100 Ohm \pm 5%,1/4W,Metal
R837	5215043	N08HR 2KBC, Trim
R843,R844	4500107	330 Ohm \pm 5%,1/4W,Metal
R845	4000132	RGC55 0.22 OHMK, Metal plate
R846	4000131	RGC22 0.22 OHMK, Metal plate
R851,R852	453630824	8.2 Ohm \pm 5%,1W,Metal
R853,R854	443523924	3.9 kOhm \pm 5%,1/2W,Metal oxide
R865,R866	453502204	22 Ohm \pm 5%,1/2W,Metal
R867~R870	443522204	22 Ohm \pm 5%,1/2W,Metal oxide
	Relay	
RL801	25065485	NRL-2P2A-DC24-086
	Terminal	
P801	25060191	NTM-6PDML113
	Plug	
P621b	25055234	NPLG-3P218
	Wire traps	
JL811b	25050280	NSCT-3P108
JL812b	25050284	NSCT-7P112

NOTE: <D>:120V model only
 <P>:230V model only
 <W>:Worldwide model only

CAUTION: Replacement for transistor of mark *, if necessary,
 must be made from the same beta group (HFE) as
 the original type.

**NOTE:THE COMPONENTS IDENTIFIED BY MARK Δ
 ARE CRITICAL FOR RISK OF FIRE AND
 ELECTRIC SHOCK. REPLACE ONLY WITH
 PART NUMBER SPECIFIED.**

ADJUSTMENT PROCEDURES

Preparation

1. Outputs

Connect the non-inductive type resistors of 8 ohms to the speaker terminals A unless otherwise noted.

2. Standard Knob Positions

Master Volume Control	Maximum
Bass Control	Center
Treble Control	Center
Balance Control	Center
Input selector	CD
Tape 2 Monitor.....	OFF
Muting	OFF
Selective tone	OFF
Speaker A	ON
Speaker B.....	OFF
Dolby Surround.....	OFF
Center Mode	Wide Band
Delay Time.....	20 ms
Center Level	0 dB
Rear Level	0 dB

Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, P522, and P821 (VCT and IID) on the main circuit pc board.

Adjust the trim resistors R537, R538 and R837 so that the indicator of voltmeter becomes -3.25 ± 0.25 mV.

NOTE: Adjust after switching on for 5 minutes.

Set Volume knob to the minimum position.