

SERVICE MANUAL

NAD

SERVICE SAFETY PRECAUTIONS (UL)

1. Use exact replacement parts for critical locations marked "⚠"
2. Return lead dress to original position and re-install protective covers.
3. Before returning to customer, test for shock hazard; use either method A or B:

A. Leakage test "cold":

1. Unplug the AC cord; turn power switch ON.
2. Connect one lead of High Voltage Insulation Tester to both prongs of the AC plug.
3. Touch other lead to all exposed metal parts.
4. Impedance measurement must be 0.3-5.0 Megohms.

B. Leakage test, "live" :

1. Plug unit directly into the AC outlet: do not use isolation transformer.
2. Connect one lead of the Leakage Current Tester to earth ground.
3. Touch other lead to all exposed metal parts.
4. Leakage measurement must be less than 0.5 milliamps.

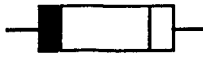
AV716

RECEIVER

AV716
RECEIVER

SERVICE SAFETY PRECAUTIONS

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.

Circuit No.	Part No.	Description
F901	252166Y	6.3A-UL/T-237, Primary <AH>
F902	252076 or 252076Y	3.15A-SE-EAK, Primary <B1><C>
F903	252075 or 252075Y	2.5A-SE-EAK, AC outlet <C>
F911	252166Y	6.3A-UL/T-237, Secondary <AH>
	252079	6.3A-SE-EAK, Secondary <B1><C>
F912	252166Y	6.3A-UL/T-237, Secondary <AH>
	252079	6.3A-SE-EAK, Secondary <B1><C>

NOTE: <AH>: U.S.A., Canadian model only

: U.K. model only

<B1>: Australian model only

<C>: European model only

2. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

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 \pm 10% at 500V.

ALIGNMENT METHOD

IMPORTANT

The tape path (heads, tape guides, capstan, pinch roller) should be cleaned and degaussed before alignment.

This tape recorder is designed to work well with a variety of tapes, however, maximum performance will be obtained with recommended tapes or similar tape formulations.

Recommended tapes	For North America	For Europe-DIN
Type I	Maxell UDS-I	Maxell UD-I, BASF TP18 no, R723DG
Type II	Maxell XL-II	Maxell XL-II, Teac MTT-5561
Type IV	Maxell MX	Maxell MX, Maxell MX 422

All adjustments done with Dolby NR OFF, MPX filter (on back panel) OFF and BIAS FINE ADJUST in center position.

DOLBY NR level 200 nWb/m = 245 mV RMS on testpoints TP001(L) and TP002(R)/TP003(L) and TP004(R) (PLAYBACK/RECORDING) on Main PCB; approximately 505 mV at line outputs.

1. TAPE SPEED

Connect one output to Wow and Flutter Meter or Frequency Counter, Play speed test tape TEAC MTT-111 = 3 kHz or TEAC MTT-211 = 3.15 kHz and adjust SVR851, for correct reading on Wow and Flutter Meter or Frequency Counter. (See Fig. A)

Tolerance: $\pm 1\%$

2. AZIMUTH

Connect VTVM's and/or Oscilloscope to outputs. Set tape selector to normal and start playing Azimuth tape TEAC MTT-113 or MTT-114. Rotate azimuth screw for maximum output and/or maximum and in phase on Oscilloscope. Reseal adjustment screw with nail polish or similar (do not use glue). (See Fig. B)

3. PLAYBACK EQ

THIS ADJUSTMENT IS NOT NEEDED UNLESS THE HEAD HAS BEEN REPLACED OR REPAIR HAS BEEN DONE IN HEADAMP CIRCUIT.

Play level/azimuth tape TEAC MTT-256 and adjust SVR001(L) and SVR002(R) for identical output at 315/6300 Hz (MTT-255) or 250/6300 Hz (MTT-256).

Tolerance: ± 0.5 dB

4. PLAYBACK HIGH FREQUENCY EQ

THIS ADJUSTMENT SHOULD BE DONE ONLY WHEN HEAD HAS BEEN REPLACED.

Play frequency response tape TEAC MTT-256 or MTT-256U and check playback level at 14 kHz. Before adjust, cut the center of jumper leads E001(L) and E002(R). Adjust by disconnecting R001(L) and R002(R) if 14 kHz is too low and connecting E001(L) and E002(R) if 14 kHz is too high. Leave same component values in both channels.

Tolerance: ± 1 dB

5. PLAYBACK LEVEL

Connect VTVM to testpoints. Play Dolby NR level tape TEAC MTT-150 and adjust SVR003(L) and SVR004(R) for 245 mV RMS at testpoint TP001(L) and TP002(R) on Main PCB.

Tolerance: ± 2.5 mV RMS

Output should be approximately 505 mV RMS.

6. METER LEVEL

Play Dolby NR level tape MTT-150 and adjust SVR501(L) and SVR502(R) so that 0 dB LED's just turn on.

7. BIAS TRAP

Insert a blank type I tape and start recording. Turn record level all the way down and set tape selector to type IV position. Connect VTVM's and/or oscilloscope probe to testpoint MP201-3(L) and adjust F301 for minimum. Connect probe to MP201-1 and adjust F302 for minimum.

Tolerance: Less than 300 mV RMS.

8. RECORD LEVEL

Set tape selector to type IV tape. Connect audio oscillator to line inputs, turn record levels to maximum (clockwise). Adjust audio oscillator frequency to 400 Hz and output so that VTVM's read 30 - 40 mV. (Use a convenient reference point on the VTVM's).

Reset tape counter to 0 and release pause to start recording. Record for approximately 5 seconds, rewind to 0 on tape counter and play back while observing the VTVM's. The VTVM's should indicate the same level as when the tape was recorded. Adjust SVR005(L) and SVR006(R) if necessary and repeat the record / play procedure until the readings are the same.

Tolerance: ± 0.5 dB from record level. Less than 0.5 dB difference between channels.

9. BIAS ADJUST TYPE I TAPE (NORMAL)

Set audio generator to 1.2 kHz without changing output level. Reset tape counter to 0 and start recording. After 5 seconds change audio generator frequency to 12 kHz (do not stop the machine or change levels) and continue recording for another 5 seconds. Stop and rewind to 0 on tape counter. Play back while observing VTVM's. There should be no level difference between the 1.2 kHz and the 12 kHz tone when played back. If 12 kHz is different in level for 1.2 kHz, adjust SVR301(L) and SVR302(R) and repeat the record / play procedure until both frequencies play back at same level.

Tolerance: ± 0.5 dB

WARNING: Greater tolerance will grossly affect the Dolby NR tracking and especially the Dolby C tracking.

Record level (step 8) should be checked and if necessary adjusted.

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SPECIFICATIONS

AMPLIFIER SECTION

POWER OUTPUT:

Stereo Mode:	2 x 80 Watts cont. into 8 ohms
	2 x 115 Watts cont. 4 ohms, 1 kHz
Surround or Multi Source Mode	3 x 55 Watts (left, right, center)
	2 x 20 Watts Rear or Remote Channels
Total Harmonic Distortion	0.08% at rated power (Front)
IM Distortion	0.08% at rated power (Front)
Damping factor	60 at 8 ohms (Front)
Sensitivity and Impedance:	
Phono:	2.5 mV/50 kohms
Line:	150 mV/50k ohms
Frequency Response	20 to 30,000 Hz, ± 1dB
RIAA Deviation	20 to 20,000 Hz, ± 1dB
Tone Controls	
Bass:	± 10 dB at 100Hz
Treble:	± 10 dB at 10,000Hz
Signal to Noise Ratio	
Phono:	80 dB (IHF A, 5mV input)
Line:	100 dB (IHF A)

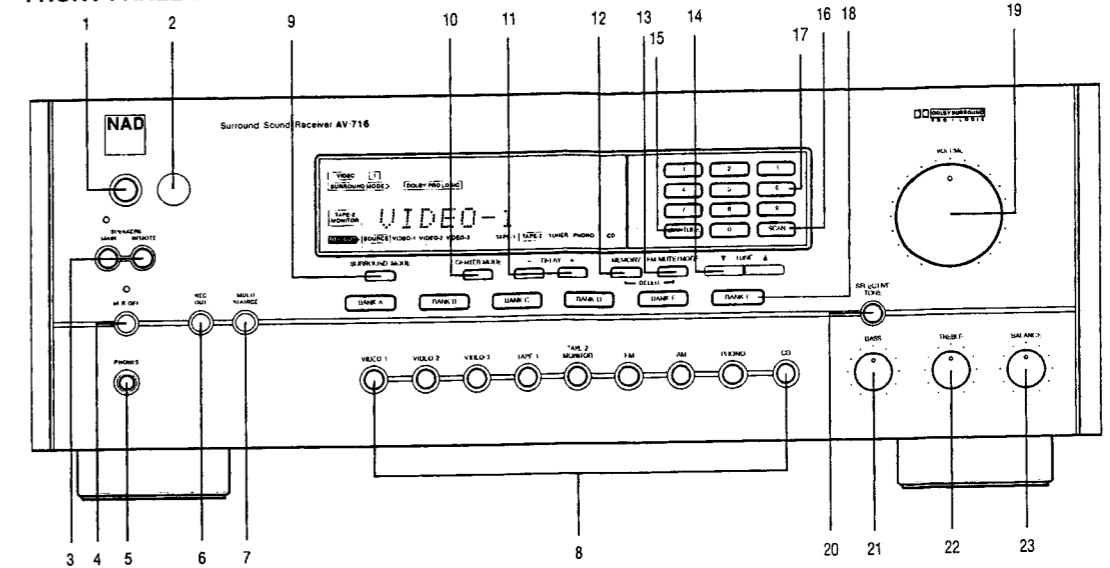
TUNER SECTION

FM:	
Input Sensitivity	1 μV
Total Harmonic Distortion	
Mono:	0.15%
Stereo:	0.25%
Stereo Separation	45 dB at 1 kHz
Signal to Noise Ratio	
Mono:	73 dB
Stereo:	67 dB
AM:	
Usable Sensitivity	30 μV
Signal to Noise Ratio	40dB
Total Harmonic Distortion	0.7%

Dimensions in mm (W x H x D)	455 x 168 x 375
Net Weight	13.2 kg/29.1 lbs.

WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE

FRONT PANEL CONTROLS



- 1. POWER
- 2. REMOTE CONTROL SENSOR
- 3. SPEAKERS MAIN & REMOTE SELECTORS
- 4. MR OFF
- 5. PHONES
- 6. REC OUT
- 7. MULTI SOURCE
- 8. SOURCE SELECTORS
- 9. SURROUND MODE
- 10. CENTER MODE
- 11. DELAY TIME +/-
- 12. MEMORY
- 13. FM MUTE/MODE
- 14. TUNE ▲AND▼
- 15. DIAL TUNE
- 16. SCAN
- 17. NUMERIC KEY-PAD 0 to 9
- 18. BANK A to F
- 19. VOLUME
- 20. SELECTIVE TONE
- 21. BASS
- 22. TREBLE
- 23. BALANCE

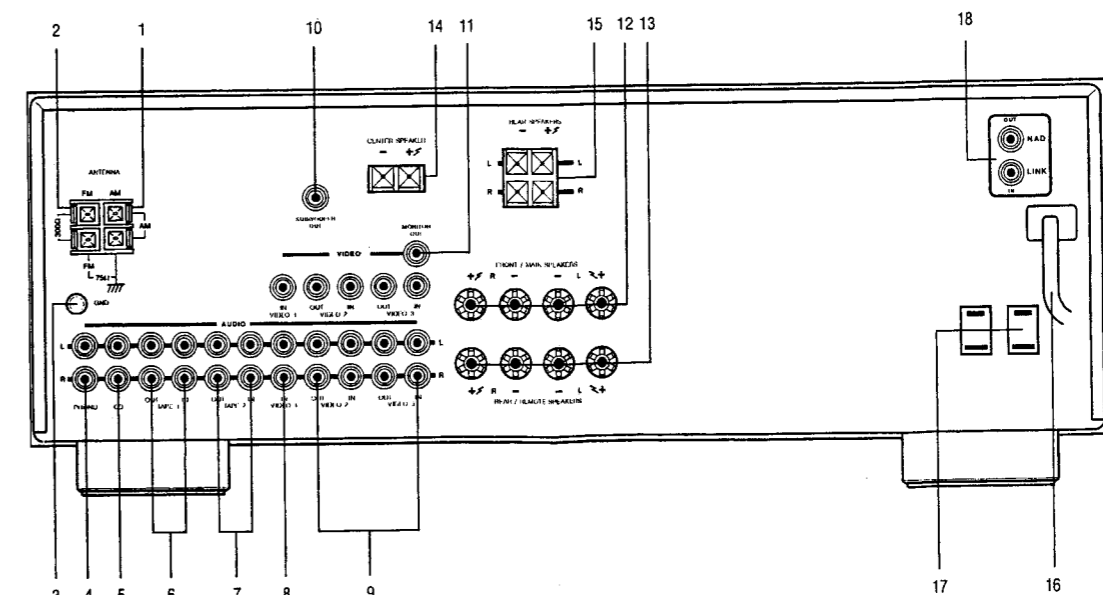


The lightning flash with arrowhead, within an equilateral triangle is intended to alert the user of the presence of un-insulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.



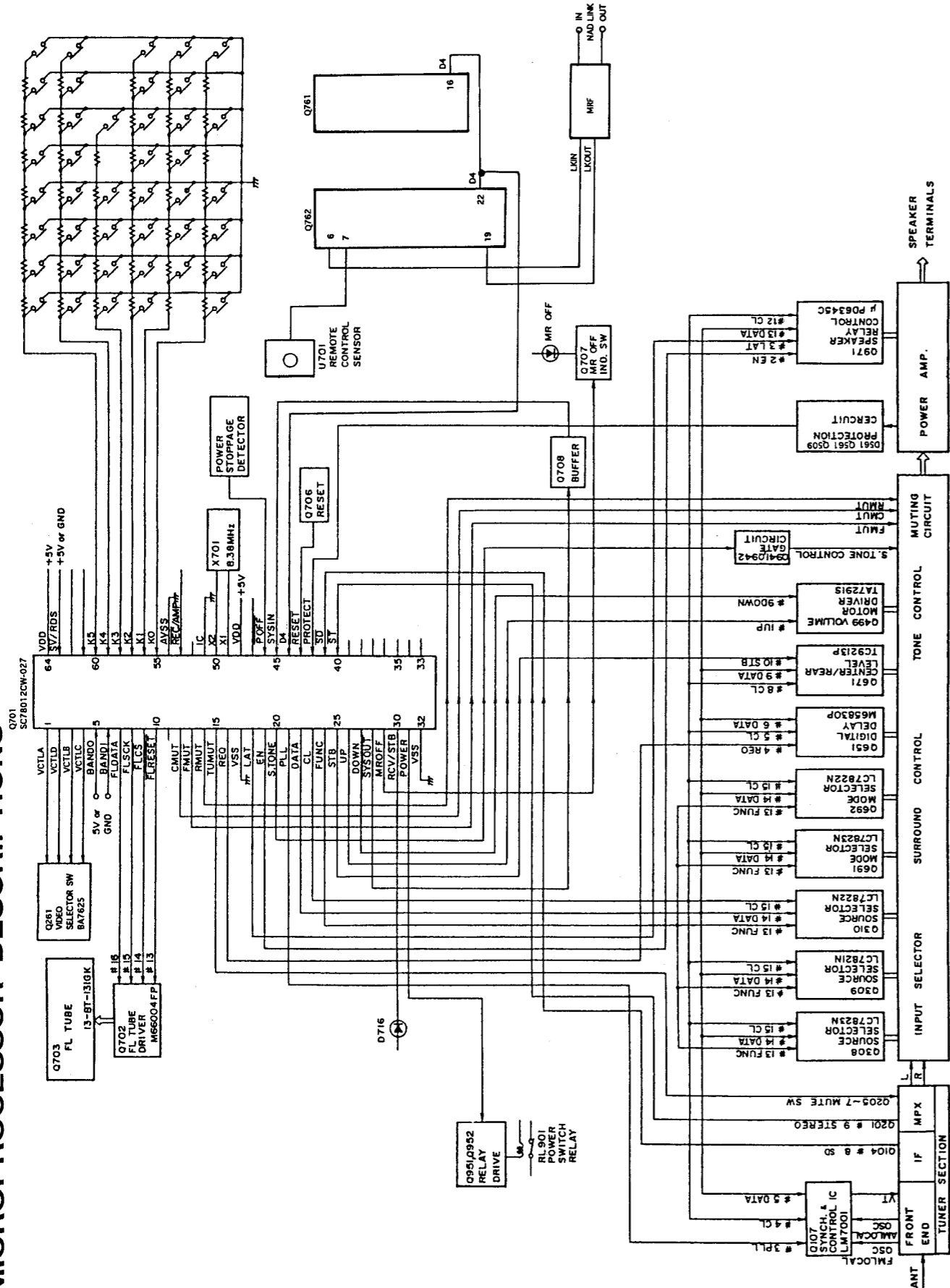
The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

REAR PANEL CONNECTIONS



- 1. AM ANTENNA TERMINALS
- 2. FM ANTENNA INPUT
- 3. PHONO GROUND
- 4. PHONO INPUT
- 5. CD INPUT
- 6. TAPE-1 IN/OUT
- 7. TAPE-2 IN/OUT
- 8. VIDEO-1 INPUT
- 9. VIDEO-2 & VIDEO-3 IN/OUT
- 10. SUBWOOFER OUT
- 11. MONITOR OUT
- 12. MAIN SPEAKERS
- 13. REMOTE SPEAKERS
- 14. CENTER SPEAKER
- 15. REAR SPEAKERS
- 16. AC POWER CORD
- 17. AC OUTLETS
- 18. NAD-LINK IN/OUT

MICROPROCESSOR DESCRIPTIONS



Terminal Description

Pin No.	Function	I/O	Description												
1	VCTLA	O	Video signal control A output terminal.												
2	VCTLD	O	Video signal control D output terminal.												
3	VCTLB	O	Video signal control B output terminal.												
4	VCTLC	O	Video signal control C output terminal.												
5	BAND 0	I	Initializing input terminal for FM/AM band region.												
6	BAND 1	I													
7	FLDATA	O	Connect to the terminal SDATA of Fluorescent tube driver M66004FP. (Q702)												
8	FLSCCK	O	Connect to the terminal SCK of Fluorescent tube driver M66004FP.												
9	FLCS	O	Connect to the terminal CS of Fluorescent tube driver M66004FP.												
10	FLRESET	O	Connect to the terminal RESET of Fluorescent tube driver M66004FP.												
11	PLAYER		Not used.												
12	CMUT	O	Muting output terminal for the center amplifier.												
13	FMUT	O	Muting output terminal for the front amplifier.												
14	RMUT	O	Muting output terminal for the rear amplifier.												
15	TUMUT	O	Muting output terminal for the tuner.												
16	REQ	O	Connect to the terminal REQ of Digital delay M65830P.(Q651)												
17	VSS	-	Ground terminal												
18	LAT	O	Connect to the terminal LAT of Output extended IC μ PD6345C.(Q971)												
19	EN	O	Connect to the terminal EN of Output extended IC μ PD6345C.												
20	S.TONE	O	Selective tone control output terminal.												
21	PLL	O	Connect to the terminal CE of PLL IC LM7001.(Q107)												
22	DATA	O	Connect to the terminal DI of Analog switches LC7821N,LC7822N, and LC7823N, the terminal DATA of PLL IC LM7001, the terminal DATA of Electro volume TC9213P, the terminal DATA of Digital delay M65830P, and the terminal SIN of Output extended IC μ PD6345C.												
23	CL	O	Connect to the terminal CL of Analog switches LC7821N,LC7822N, and LC7823N, the terminal CL of PLL IC LM7001, the terminal CK of Electro volume TC9213P, the terminal SCK of Digital delay M65830P, and the terminal SCK of Output extended IC μ PD6345C.												
24	FUNC	O	Connect to the terminal CE of Analog switches LC7821N,LC7822N, and LC7823N. (Q309,Q310,Q692,Q308 and Q691)												
25	STB	O	Connect to the terminal STB of Electro volume TC9213P. (Q671)												
26	UP	O	Volume UP/DOWN control output. (Q499)												
27	DOWN	O													
				<table border="1"> <thead> <tr> <th>Operation</th> <th>#27</th> <th>#26</th> </tr> </thead> <tbody> <tr> <td>Stop</td> <td>H</td> <td>H</td> </tr> <tr> <td>Volume up</td> <td>L</td> <td>H</td> </tr> <tr> <td>Volume down</td> <td>H</td> <td>L</td> </tr> </tbody> </table>	Operation	#27	#26	Stop	H	H	Volume up	L	H	Volume down	H
Operation	#27	#26													
Stop	H	H													
Volume up	L	H													
Volume down	H	L													
28	SYSOUT	O	System code output terminal.												

VIDEO SIGNAL CONTROL OUTPUT

Input Selector		
#1	#3	SOURCE
L	L	VIDEO-3
H	L	VIDEO-2
L	H	
H	H	VIDEO-1

Recording Selector

#4	#2	SOURCE
L	L	VIDEO-3
H	L	VIDEO-2
L	H	
H	H	VIDEO-1
Same as #1	Same as #3	Other position
Same as #1	Same as #3	Multi mode

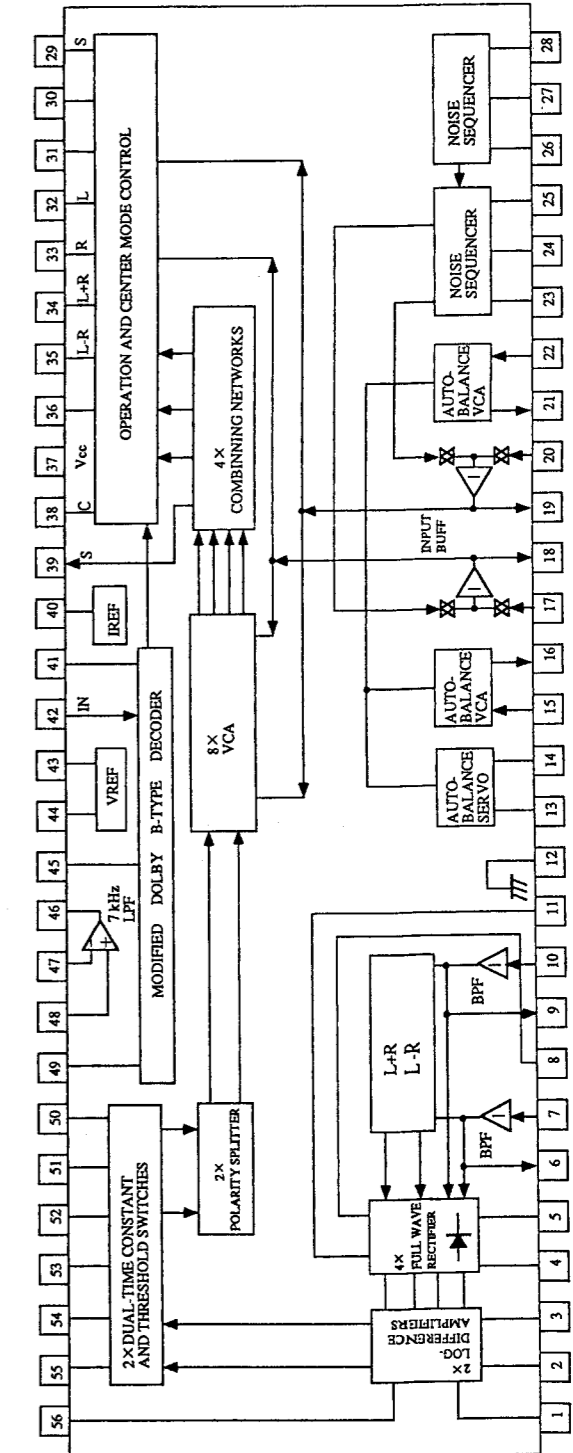
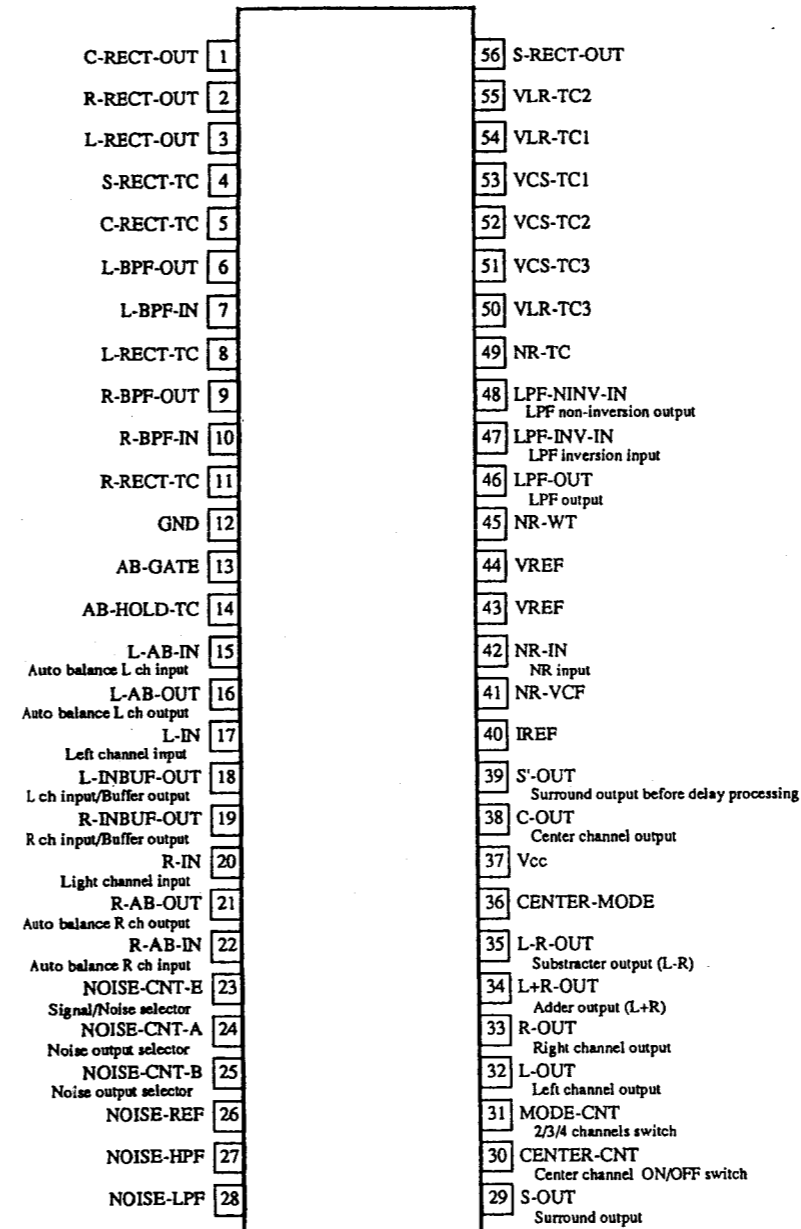
IC BLOCK DIAGRAMS AND DESCRIPTION

Q602 NJM2177L / M69032P (Dolby Pro Logic)

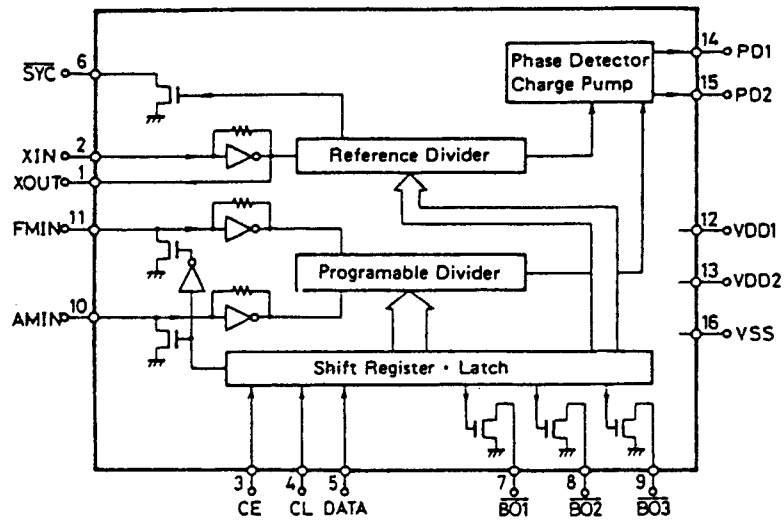
Pin No.	Function	I/O	Description
29	MR	O	MULTI ROOM indicator control output.
30	STBY/RECV	O	STAND-BY/RECEIVED indicator control output.
31	POWER	O	Power switch relay control output.
32	VSS	-	Ground terminal.
33			Not used.
34			Not used.
35			Not used.
36			Not used.
37			Not used.
38			Not used.
39			Not used.
40	ST	I	Stereo detection input terminal.
41	SD	I	Broadcast detection input terminal.
42	PROTECT	I	Protection circuit operation detection input terminal.
43	RESET	I	System reset input terminal.
44	REMIN	I	Remote control signal input terminal.
45	SYSIN	I	System code input terminal.
46	POFF	I	Detection input terminal for the stoppage of electric current.
47			Not used.
48	VDD		Power supply terminal.(+5V)
49	X2		Ceramic resonator connection terminal for the main system clock .
50	X1		Connect the ceramic resonator 8.38 MHz.
51	IC		Connect to the ground terminal.
52			Not used.
53	REC/AMP		Connect to the ground terminal.
54	AVSS		Ground terminal of A/D converter.
55	K0	I	Operation key connection terminals.
56	K1	I	
57	K2	I	
58	K3	I	
59	K4	I	
60	K5	I	
61			Not used.
62	MODE	I	Connect to the ground terminal.
63	SV/RDS		Analogue power supply terminal of A/D converter. (+5V)
64	AVREF		Reference voltage input terminal of A/D converter.

Initialing Input

#5,#6					
BAND 1	BAND 0	Regin	Band	Frequency Range	Channel Space
0	0	U.S.A.	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	10kHz
0	1	European	FM	87.50~108.00MHz	50kHz
			AM	522~1611kHz	9kHz

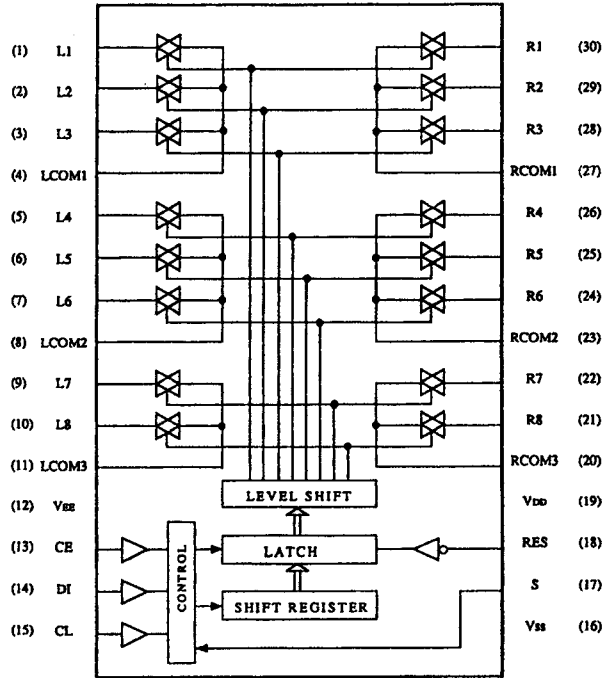


Q107
LM7001 (PLL Synthesizer and Controller)



Pin No.	Terminal	Description
1	XOUT	Connect to the 7.2 MHz crystal oscillator.
2	XIN	
3	CE	Chip enable terminal. Connect to the PLL terminal of microprocessor.
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of microprocessor.
5	DATA	Serial data input terminal. Connect to the DATA terminal of microprocessor.
6	SYN	Not used.
7	AUTO/MONO	AUTO/MONO selection output terminal. "L" when AUTO.
8	FM	FM band control output terminal. "L" when FM.
9	AM	AM band control output terminal. "L" when AM.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator terminal.
12	VDD 1	Power supply terminal for back-up.
13	VDD 2	Power supply terminal.
14	PD1	Charge pump output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency. In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator through the low pass filters.
15	PD2	
16	Vss	Ground terminal.

Q310, Q692
LC7822N (Analogue switch)



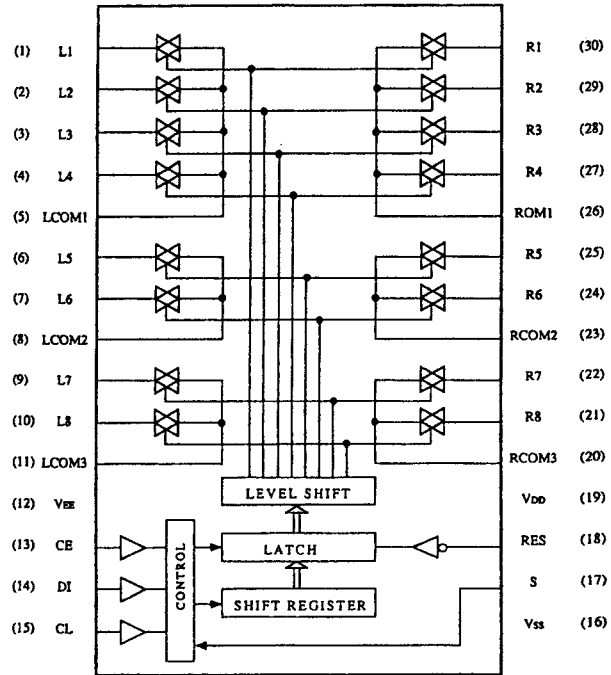
Q310

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	VIDEO-3' REC	Input/output terminals of multi source of left channel. Control the analogue switch at the serial data.	16	VEE	Ground terminal
2	VIDEO-2'		17	S	Selector terminal
3	VIDEO-2' REC		18	RES	Reset terminal. When power is turned on, the condition of the analogue switch is not determined, but when this terminal is "L", all analogue switches are off.
4	LCOM1		19	VDD	Power supply terminal (+15V)
5	VIDEO-2 MON	Input/output terminals of audio signal of left channel. Control the analogue switch at the serial data.	20	RCOM3	Input/output terminals of VIDEO-3 signal of right channel.
6	VIDEO-2		21	VIDEO-3	Control the analogue switch at the serial data.
7	VIDEO-3 MON		22	VIDEO-3'	
8	LCOM2	23	RCOM2	Input/output terminals of audio signal of right channel.	
9	VIDEO-3'	Input/output terminals of VIDEO-3 signal of left channel. Control the analogue switch at the serial data.	24	VIDEO-3 MON	Control the analogue switch at the serial data.
10	VIDEO-3		25	VIDEO-2	
11	LCOM3		26	VIDEO-2 MON	
12	Vss	Negative power supply terminal (-15V)	27	RCOM1	Input/output terminals of multi source of right channel.
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	28	VIDEO-2' REC	Control the analogue switch at the serial data.
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	29	VIDEO-2'	
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	30	VIDEO-3' REC	

Q692

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	SURROUND	Input/output terminals of audio source of left channel. Control the analogue switch at the serial data.	16	VEE	Ground terminal
2	NC		17	S	Selector terminal
3	MULTI		18	RES	Reset terminal. When power is turned on, the condition of the analogue switch is not determined, but when this terminal is "L", all analogue switches are off.
4	LCOM1		19	VDD	Power supply terminal (+15V)
5	MULTI		20	RCOM3	Input/output terminals of audio signal of right channel. Control the analogue switch at the serial data.
6	HALL		21	DOLBY	
7	DOLBY		22	DOLBY	
8	LCOM2		23	RCOM2	
9	DOLBY		24	DOLBY	
10	DOLBY		25	HALL	
11	LCOM3		26	MULTI	
12	Vss	Negative power supply terminal (-15V)	27	RCOM1	
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	28	MULTI	
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	29	NC	
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	30	SURROUND	

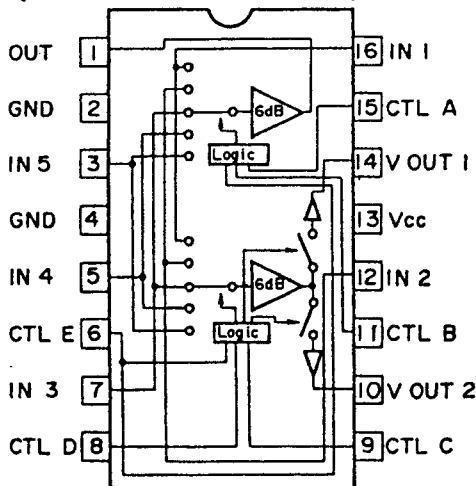
Q309
LC7821N (Analogue switch)



Q309

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	VIDEO-1'	Input/output terminals of multi source of left channel. Control the analogue switch at the serial data.	16	VEE	Ground terminal
2	TUNER'		17	S	Selector terminal
3	TAPE-1'		18	RES	Reset terminal. When power is turned on, the condition of the analogue switch is not determined, but when this terminal is "L", all analogue switches are off.
4	TAPE-1' REC		19	VDD	Power supply terminal (+15V)
5	LCOM1		20	RCOM3	Input/output terminals of audio signal of right channel.
6	TAPE-1 MON	Input/output terminals of TAPE-1 signal of left channel. Control the analogue switch at the serial data.	21	VIDEO-1	Control the analogue switch at the serial data.
7	TAPE-1		22	TUNER	
8	LCOM2	Input/output terminals of audio signal of left channel. Control the analogue switch at the serial data.	23	RCOM2	Input/output terminals of TAPE-1 signal of right channel. Control the analogue switch at the serial data.
9	TUNER		24	TAPE-1	
10	VIDEO-1		25	TAPE-1 MON	
11	LCOM3	Negative power supply terminal (-15V)	26	RCOM1	Input/output terminals of multi source of right channel. Control the analogue switch at the serial data.
12	VSS		27	TAPE-1' REC	
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	28	TAPE-1'	Control the analogue switch at the serial data.
14	DI		29	TUNER'	
15	CL	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	30	VIDEO-1'	Control the analogue switch at the serial data.

Q251
BA7625 (Video Selector Switch)



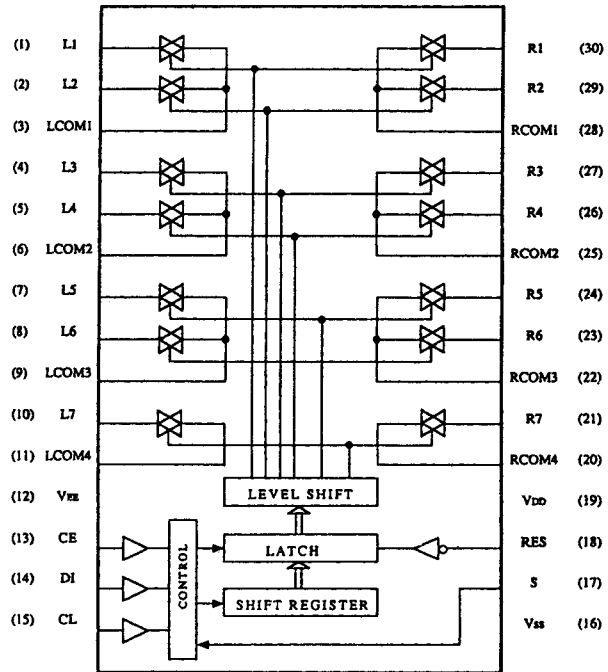
#15	#11	#6	#1
A	B	E	MONITOR OUT
L	L	X	IN1
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

#9	#8	#6	#14
C	D	E	VOUT 1
L	L	X	
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

X: Don't care

#15	#11	#6	#10
A	B	E	VOUT 2
L	L	X	IN1
H	L	X	
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

Q308, Q691
LC7823N (Analogue switch)



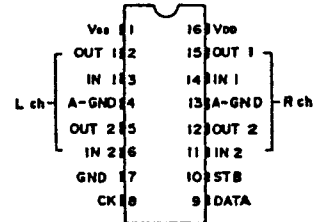
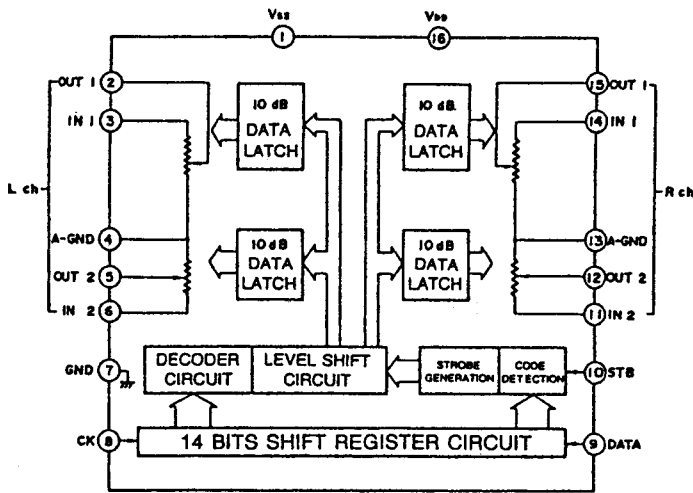
Q308

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	PHONO'	Input/output terminals of multi source of left channel. Control the analogue switch at the serial data.	16	V _{EE}	Ground terminal
2	CD'		17	S	Selector terminal
3	LCOM1		18	RES	Reset terminal. When power is turned on, the condition of the analogue switch is not determined, but when this terminal is "L", all analogue switches are off.
4	CD	Input/output terminals of audio signal of left channel. Control the analogue switch at the serial data.	19	V _{DD}	Power supply terminal (+15V)
5	PHONO		20	RCOM4	Input/output terminals of multi source of right channel. Control the analogue switch at the serial data.
6	LCOM2		21	TAPE-2'	
7	SOURCE		22	RCOM3	Input/output terminals of audio signal of right channel. Control the analogue switch at the serial data.
8	TAPE-2		23	TAPE-2	
9	LCOM3	24	SOURCE		
10	TAPE-2'	Input/output terminals of multi source of left channel. Control the analogue switch at the serial data.	25	RCOM2	Input/output terminals of multi source of right channel. Control the analogue switch at the serial data.
11	LCOM4		26	PHONO	
12	V _{SS}	Negative power supply terminal (-15V)	27	CD	Input/output terminals of multi source of right channel. Control the analogue switch at the serial data.
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	28	RCOM1	
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	29	CD'	
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	30	PHONO'	

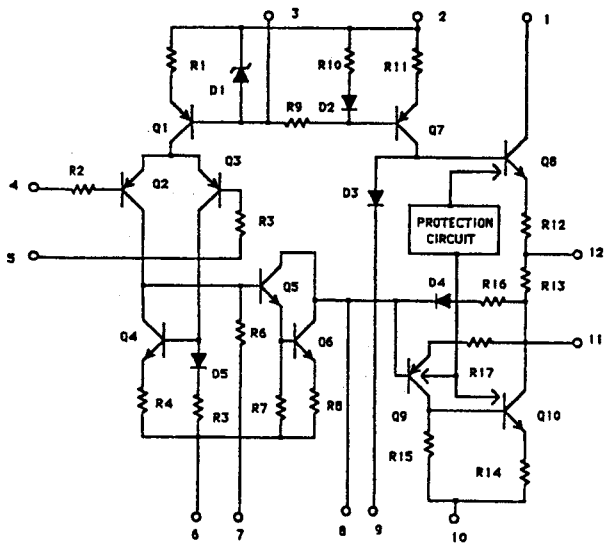
Q691

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	DOLBY	Input/output terminals of digital delay signal when surround mode. Control the analogue switch at the serial data.	16	V _{EE}	Ground terminal
2	HALL		17	S	Selector terminal
3	LCOM1		18	RES	Reset terminal. When power is turned on, the condition of the analogue switch is not determined, but when this terminal is "L", all analogue switches are off.
4	NORMAL	Mode select terminal when Dolby Pro Logic. Control the analogue switch at the serial data.	19	V _{DD}	Power supply terminal (+15V)
5	WIDE		20	NC	Not used.
6	LCOM2		21	NC	
7	TEST B		22	NC	
8	TEST A		23	NC	
9	LCOM3	24	NC		
10	TEST	25	NC		
11	LCOM4	26	NC		
12	V _{SS}	Negative power supply terminal (-15V)	27	NC	
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	28	NC	
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	29	NC	
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	30	NC	

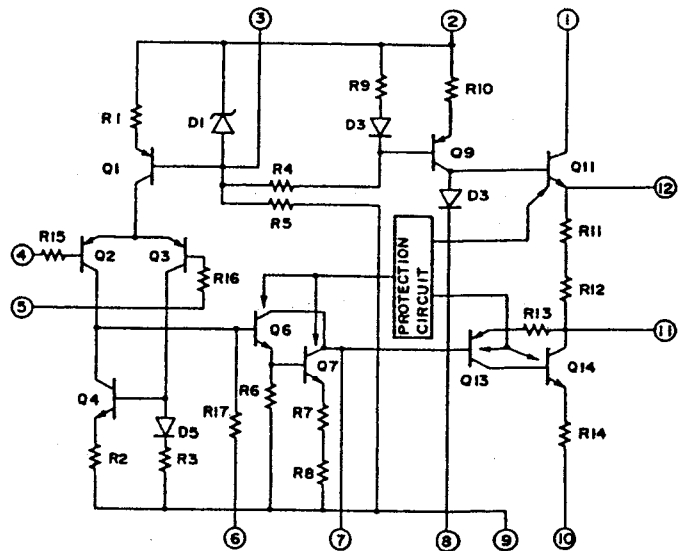
Q671
TC9213P (Electro Volume)



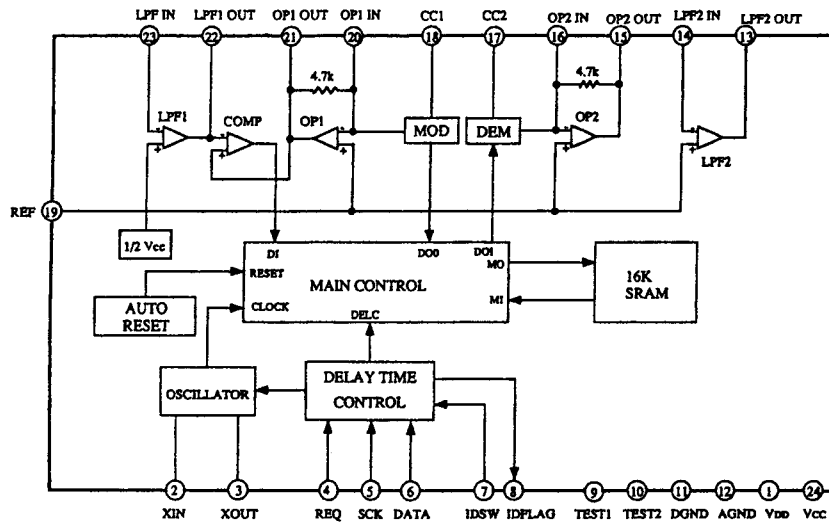
Q501, Q502, Q541
μ PC1298V (Power Amplifier Driver)



Q571, Q572
μ PC1225H (Power Amplifier Driver)



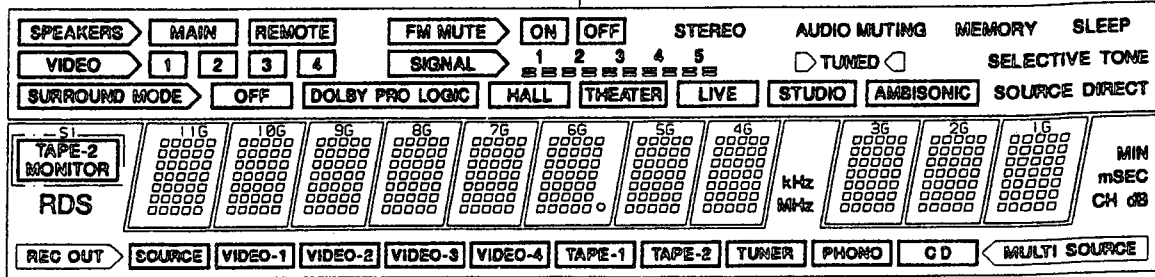
Q651
M65830P (Digital Delay)



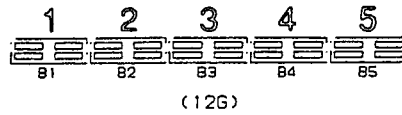
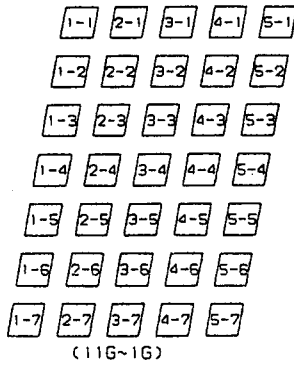
Pin No.	Mark	Function	I/O	Description
1	VDD	Digital power supply	-	
2	XIN	Resonator input	I	Connect the 2MHz ceramic resonator
3	XOUT	Resonator output	O	
4	REQ	Request	I	Data request input
5	SCK	Shift lock	I	Serial data shift clock input
6	DATA	Data	I	Serial data input
7	IDSW	ID switch	I	External input 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	-	

Q703
13-BT-131GK (Fluorescent Indicator Tube)

126



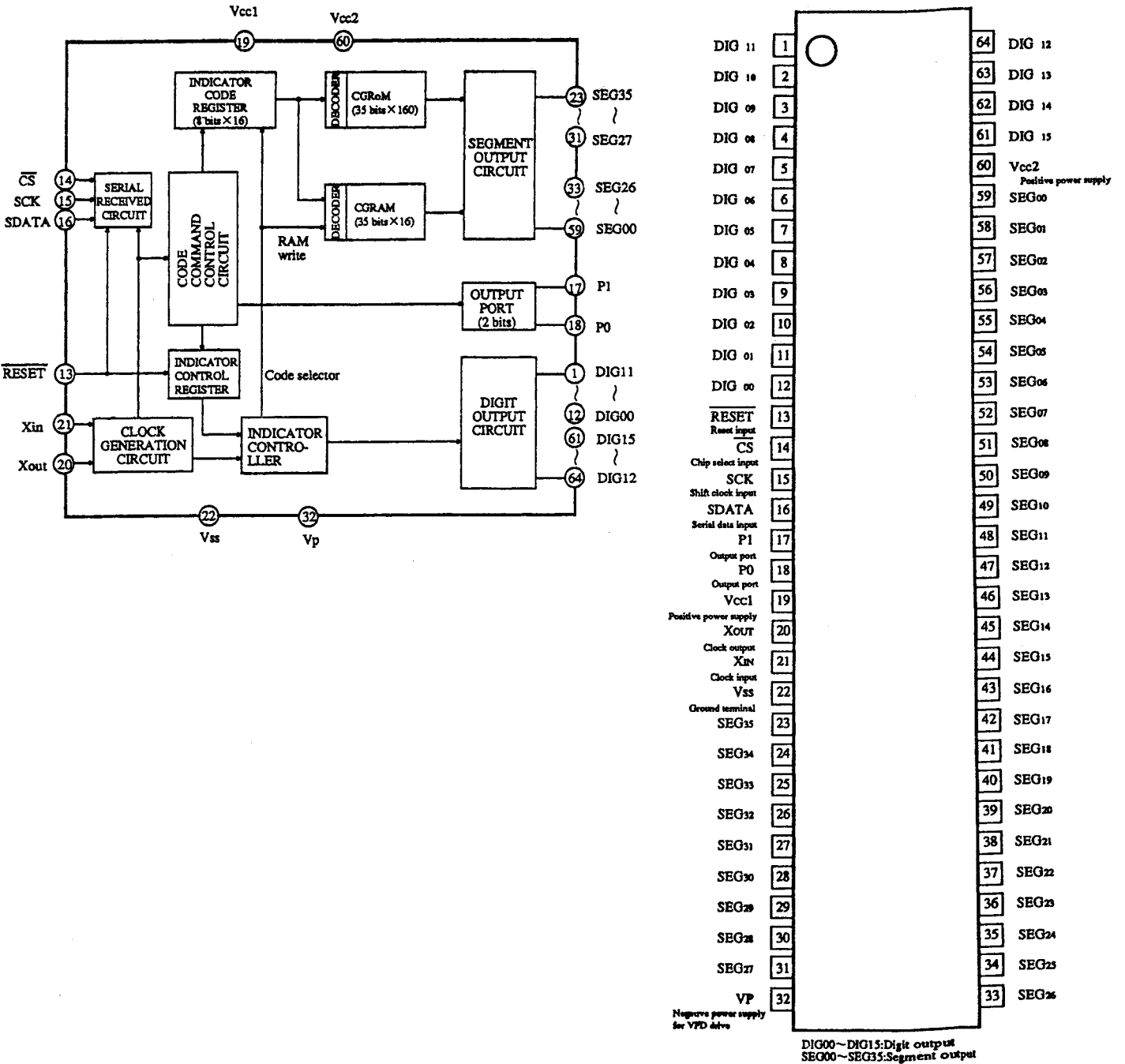
13G



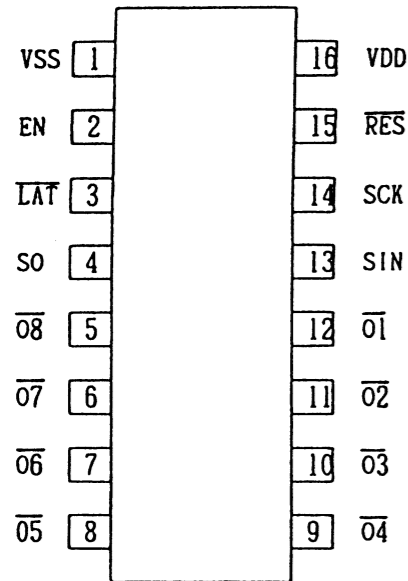
	13G	12G	11G~7G	6G	5G~1G
P1	MIN	SLEEP	1-1	1-1	1-1
P2	mSEC	MEMORY	2-1	2-1	2-1
P3	dB	AUDIO MUTING	3-1	3-1	3-1
P4	CH	SELECTIVE TONE	4-1	4-1	4-1
P5	MULTI SOURCE	SOURCE DIRECT	5-1	5-1	5-1
P6	REC OUT	TUNED	1-2	1-2	1-2
P7	SOURCE	▷ ◁	2-2	2-2	2-2
P8	(SOURCE)	STEREO	3-2	3-2	3-2
P9	VIDEO-1	OFF (Center)	4-2	4-2	4-2
P10	(VIDEO-1)	ON	5-2	5-2	5-2
P11	VIDEO-2	FM MUTE	1-3	1-3	1-3
P12	(VIDEO-2)	AMBISONIC	2-3	2-3	2-3
P13	VIDEO-3	STUDIO	3-3	3-3	3-3
P14	(VIDEO-3)	LIVE	4-3	4-3	4-3
P15	VIDEO-4	THEATER	5-3	5-3	5-3
P16	(VIDEO-4)	HALL	1-4	1-4	1-4
P17	TAPE-1	DOLBY PRO LOGIC	2-4	2-4	2-4
P18	(TAPE-1)	OFF (LEFT)	3-4	3-4	3-4
P19	TAPE-2	SURROUND MODE	4-4	4-4	4-4
P20	(TAPE-2)	1 2 3 4 5	5-4	5-4	5-4
P21	TUNER	B5	1-5	1-5	1-5
P22	(TUNER)	B4	2-5	2-5	2-5
P23	PHONO	B3	3-5	3-5	3-5
P24	(PHONO)	B2	4-5	4-5	4-5
P25	CD	B1	5-5	5-5	5-5
P26	(CD)	SIGNAL	1-6	1-6	1-6
P27	MHz	REMOTE	2-6	2-6	2-6
P28	MHz	MAIN	3-6	3-6	3-6
P29	SI	SPEAKERS	4-6	4-6	4-6
P30	RDS	4	5-6	5-6	5-6
P31		3	1-7	1-7	1-7
P32		2	2-7	2-7	2-7
P33		1	3-7	3-7	3-7
P34		VIDEO	4-7	4-7	4-7
P35			5-7	5-7	5-7
P36				○	

PIN NO.	64	63	62	61	60	59	58	57
CONNECTION	F2	F2	NP	NP	P36	P35	P34	P33
PIN NO.	56	55	54	53	52	51	50	49
CONNECTION	P32	P31	P30	P29	P28	P27	P26	P25
PIN NO.	48	47	46	45	44	43	42	41
CONNECTION	P24	P23	P22	P21	P20	P19	P18	P17
PIN NO.	40	39	38	37	36	35	34	33
CONNECTION	P16	P15	P14	P13	P12	P11	P10	P9
PIN NO.	32	31	30	29	28	27	26	25
CONNECTION	P8	P7	P6	P5	P4	P3	P2	P1
PIN NO.	24	23	22	21	20	19	18	17
CONNECTION	NC	NC	NC	NC	NC	NC	NC	13G
PIN NO.	16	15	14	13	12	11	10	9
CONNECTION	12G	11G	10G	9G	8G	7G	6G	5G
PIN NO.	8	7	6	5	4	3	2	1
CONNECTION	4G	3G	2G	1G	NP	NP	F1	F1

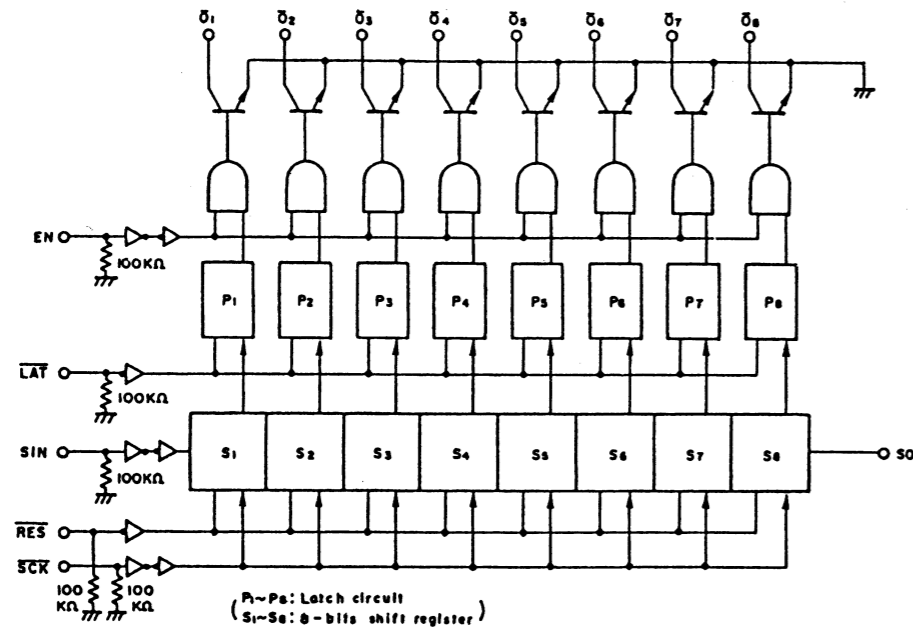
Q702
M66004FP (FL Tube Driver)



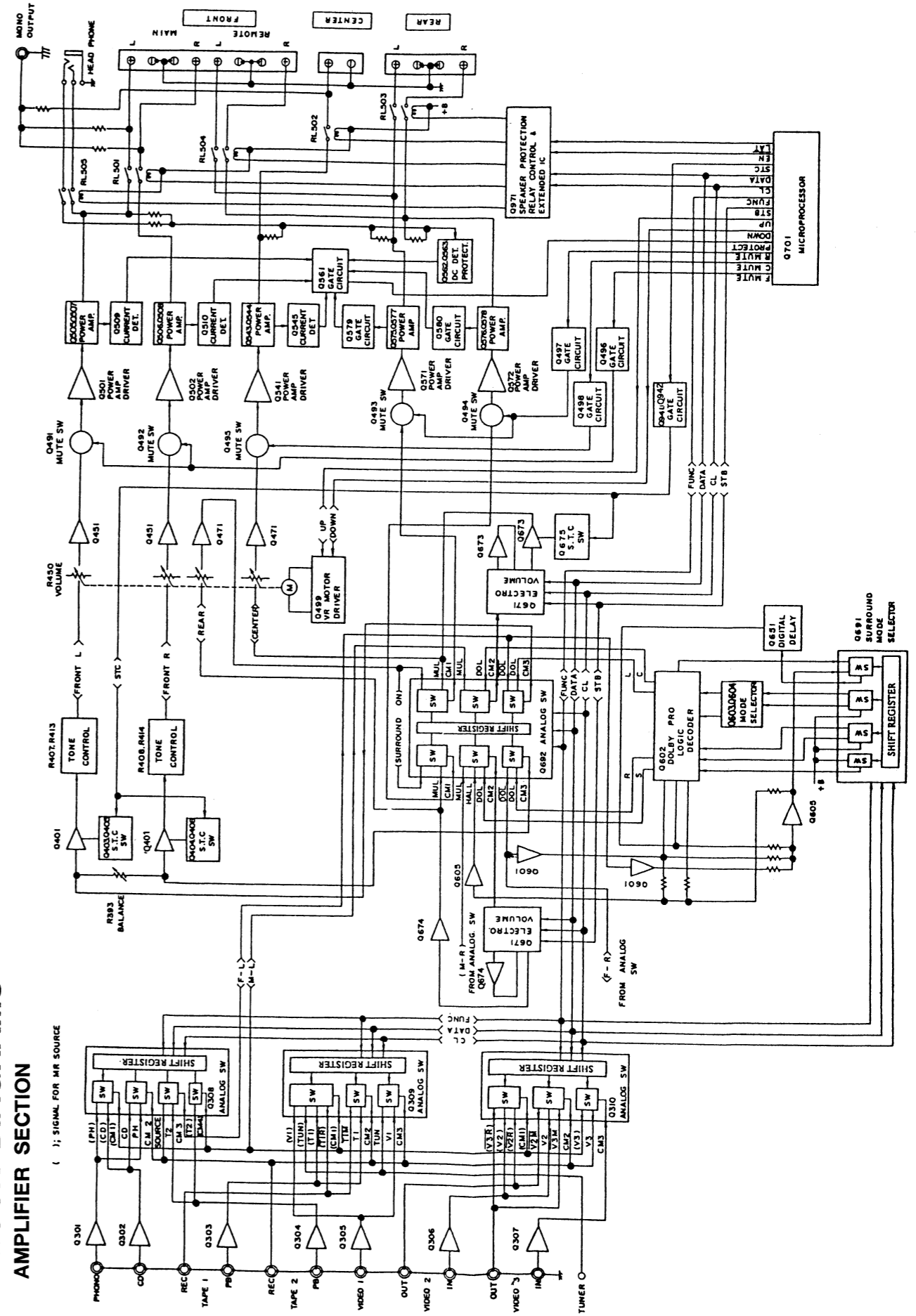
Q971
 μ PD6345C (Extended IC)



Pin No.	Symbol	Description
1	VSS	Ground terminal
2	EN	Chip enable input terminal. Connect to the terminal EN of the microprocessor.
3	LAT	Latch input terminal. Connect to the terminal LAT of the microprocessor.
4	SO	Serial data output terminal. Not used.
5	O8	Not used.
6	O7	Not used.
7	O6	Front speaker relay control output terminal
8	O5	Center speaker relay control output terminal
9	O4	Rear speaker relay control terminal
10	O3	Remote speaker relay control terminal
11	O2	Headphone relay control output terminal
12	O1	Power supply voltage switch relay control output terminal
13	SIN	Serial data input terminal. Connect to the terminal DATA of the microprocessor.
14	SCK	Serial clock input terminal. Connect to the terminal CLOCK of the microprocessor.
15	RESET	Reset input terminal
16	VDD	Power supply terminal

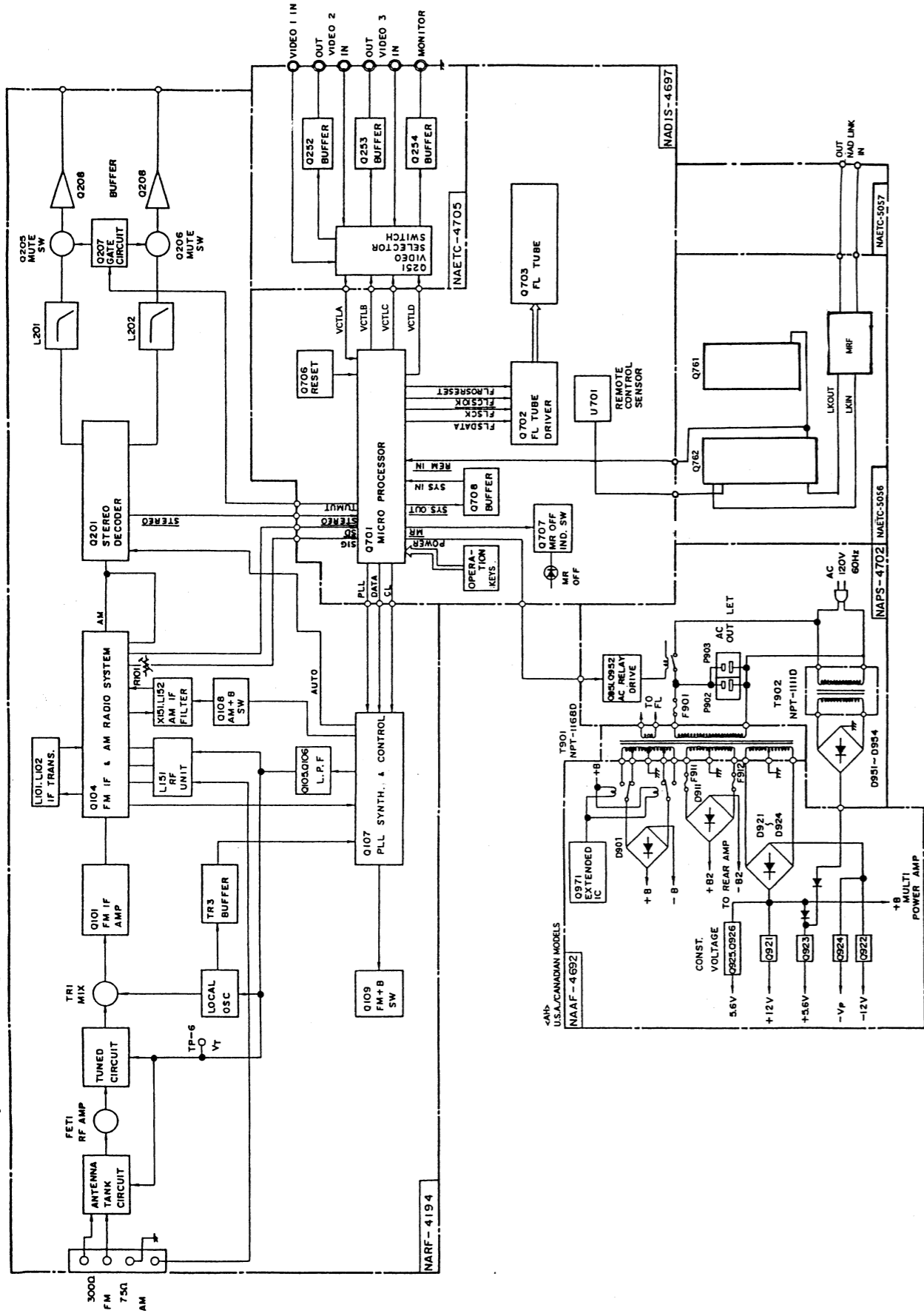


BLOCK DIAGRAMS
 AMPLIFIER SECTION

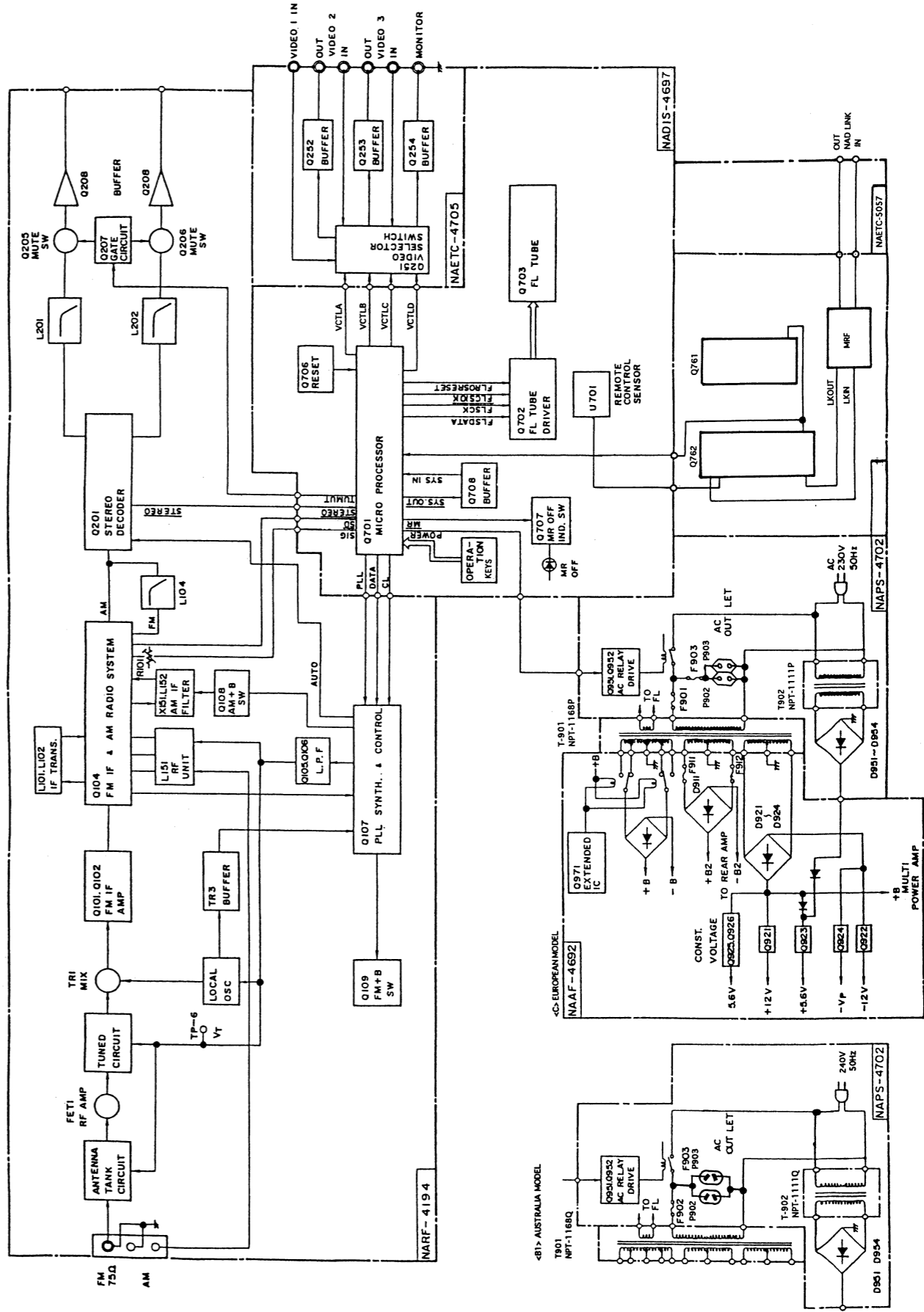


BLOCK DIAGRAMS

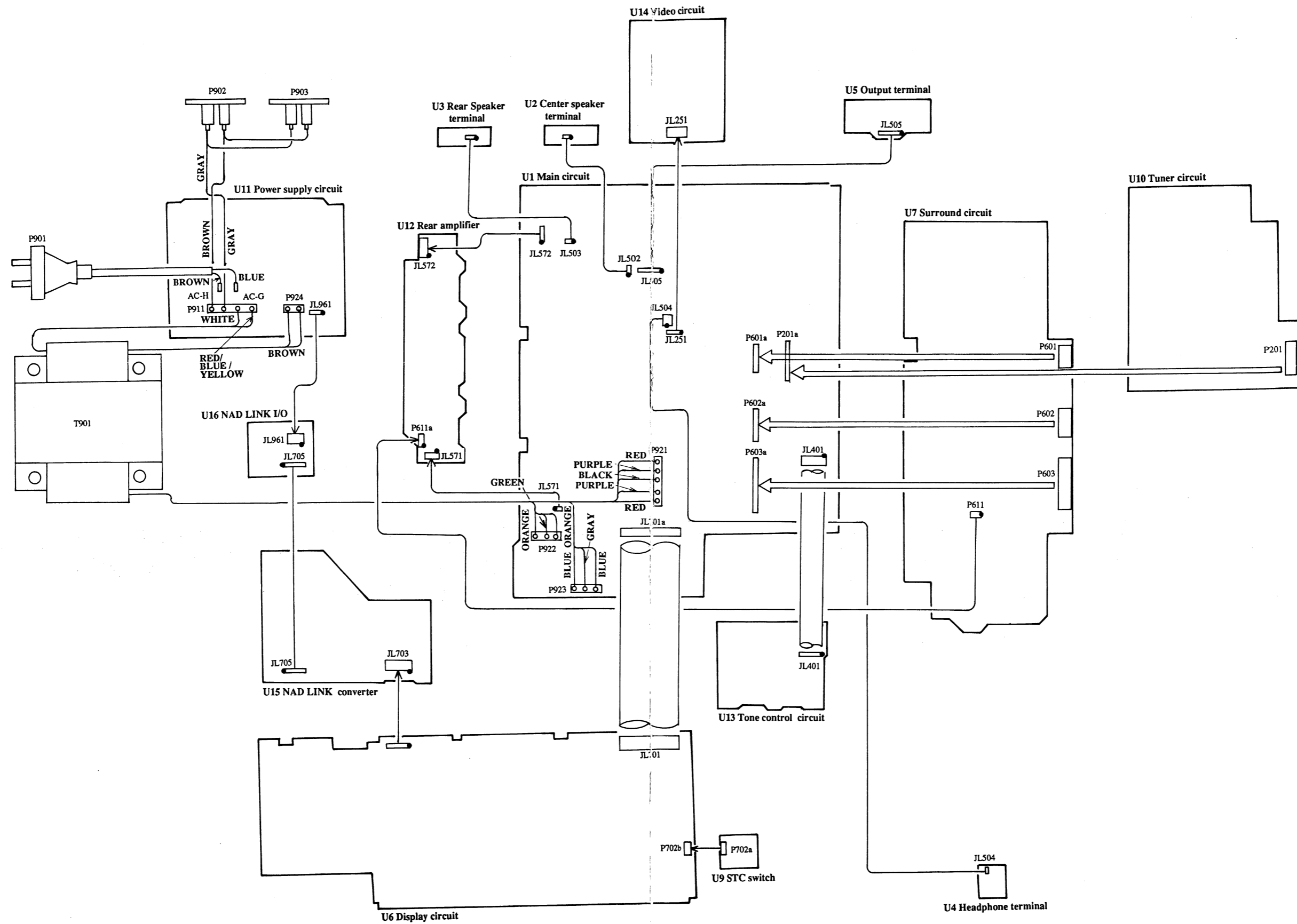
TUNER SECTION (120V model)



<B1> <C>

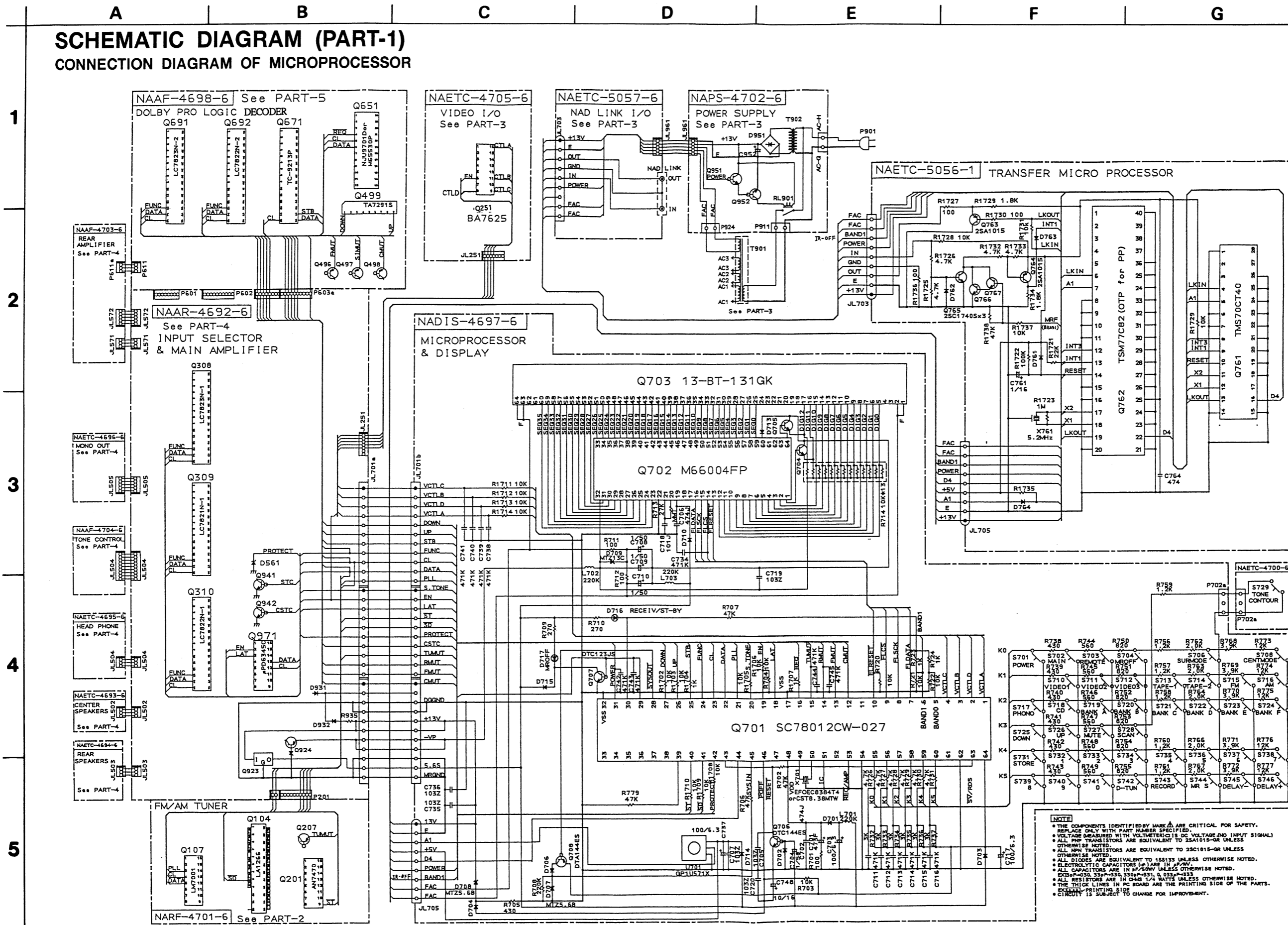


WIRING DIAGRAM



SCHEMATIC DIAGRAM (PART-1)

CONNECTION DIAGRAM OF MICROPROCESSOR

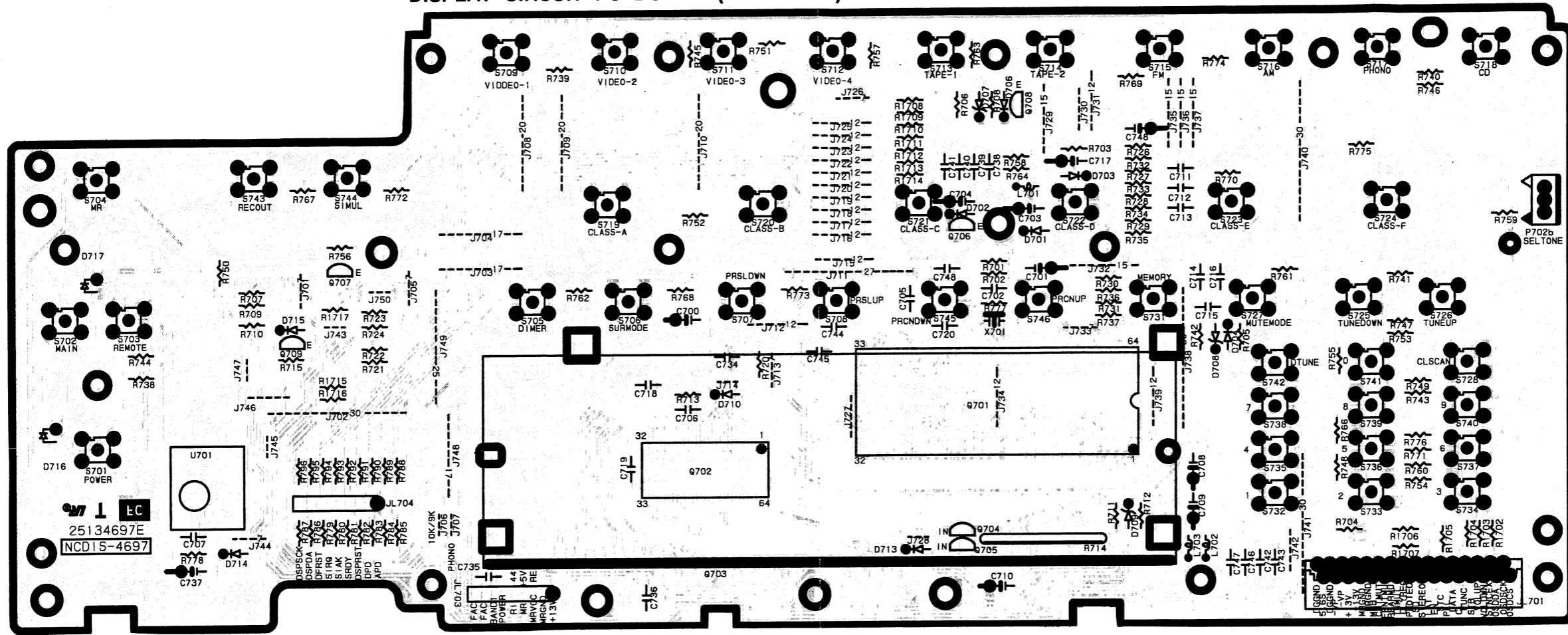


NOTE

- THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE MEASURED WITH VOLTMETER IS DC VOLTAGE AND INPUT SIGNAL.
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-OR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-OR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (E) ARE IN μ FV.
- ALL CAPACITORS ARE IN pF UNLESS OTHERWISE NOTED.
- EXCEPT 030L 33P-33S 33G-33I, C 033P-33S.
- ALL RESISTORS ARE IN OHMS 1/4 WATT UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

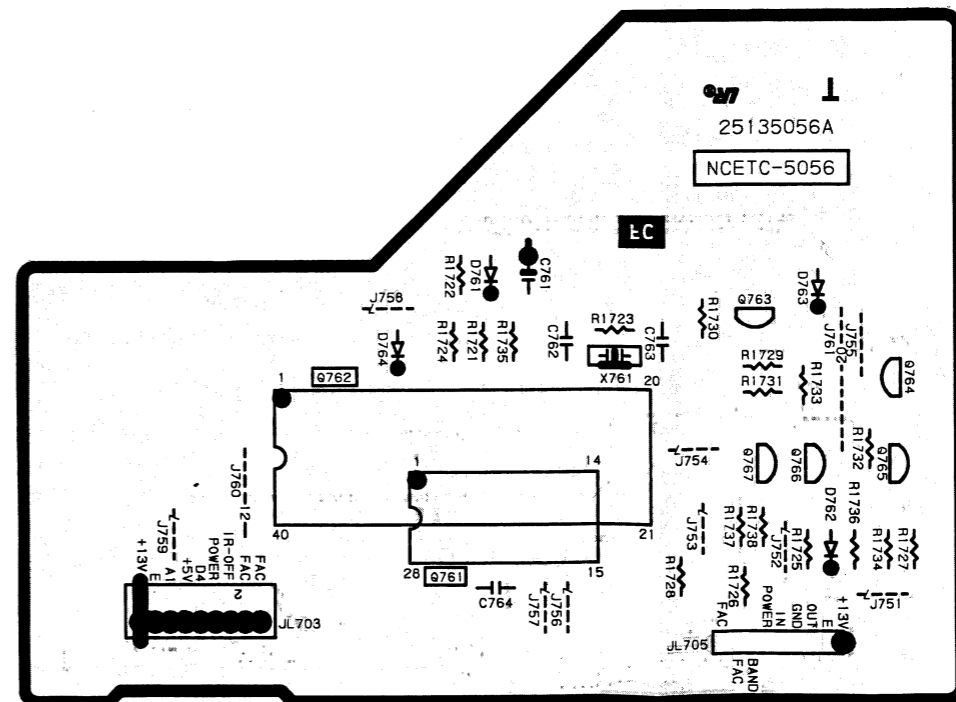
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

DISPLAY CIRCUIT PC BOARD (NADIS-4697)



25134700
NCSW-4700
SELTONE
P7023

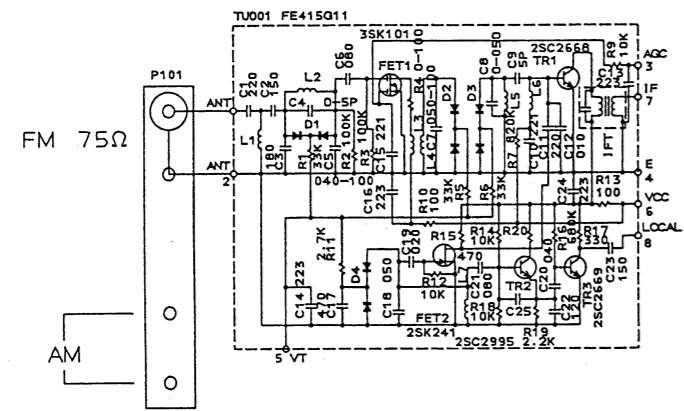
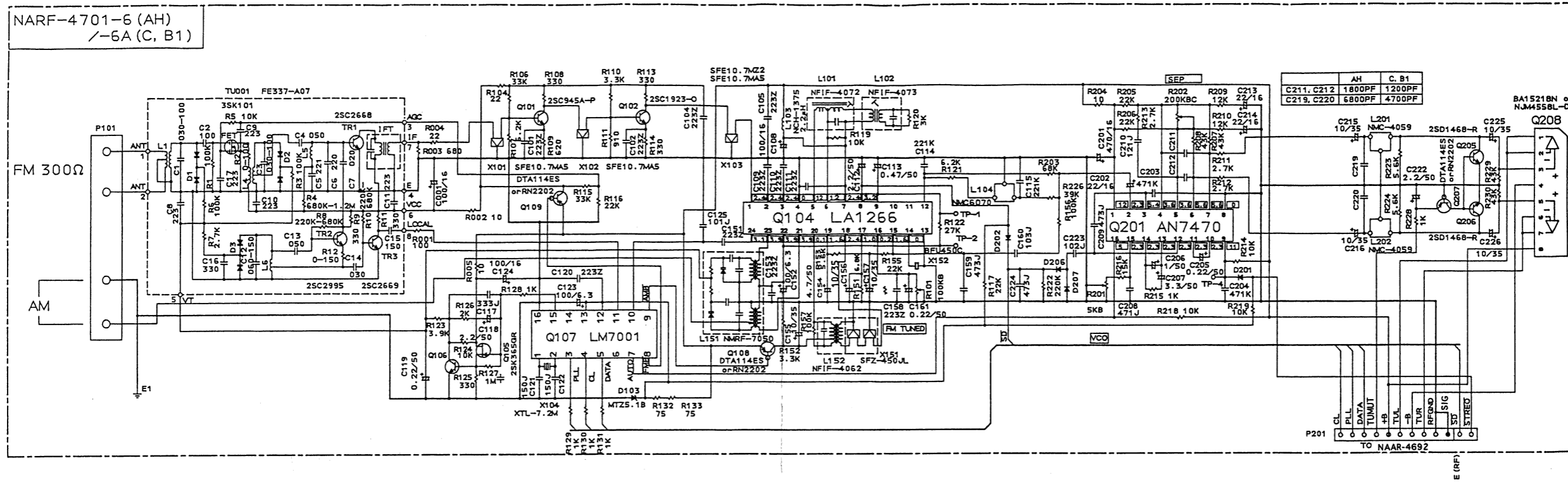
**STC SWITCH PC BOARD
(NASW-4700)**



25135056A
NCETC-5056

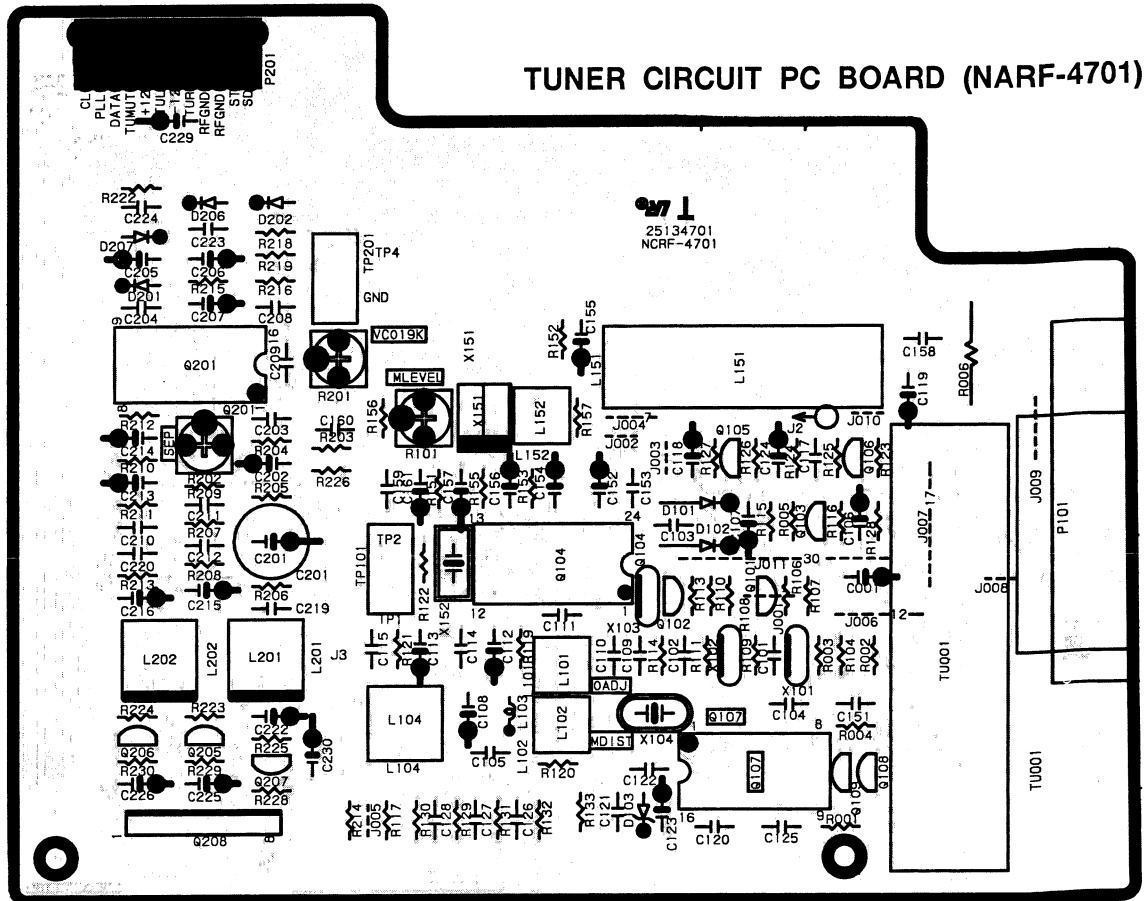
NAD LINK CONVERTER PC BOARD (NAETC-5056)

SCHEMATIC DIAGRAM (PART-2)
TUNER SECTION

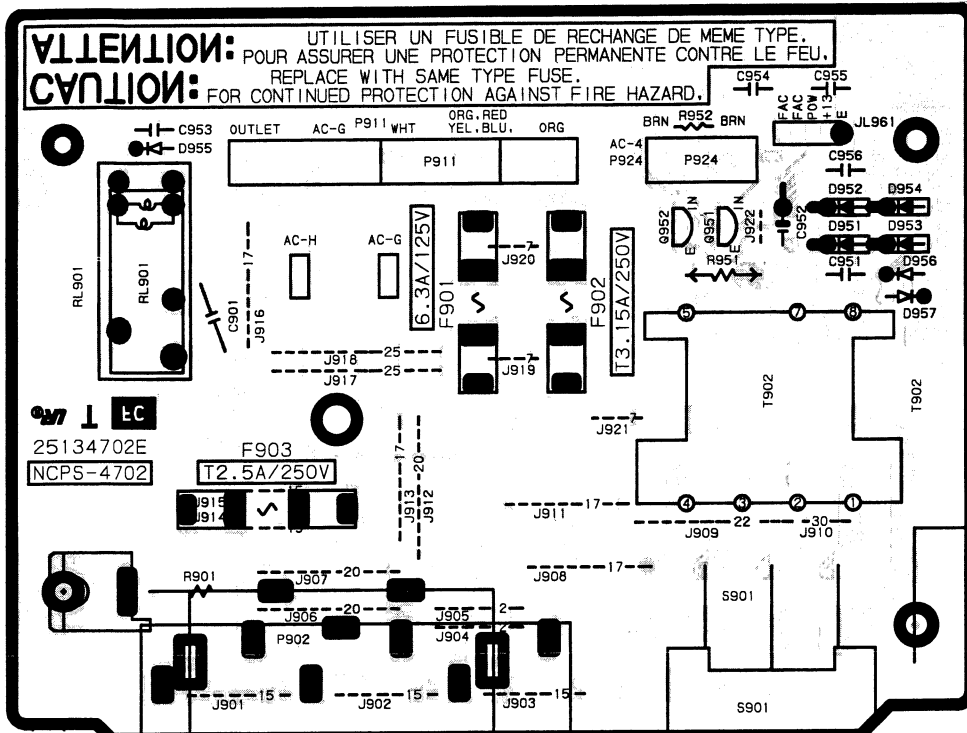


Part	AH	C. B1
Q101		
X102		
L104		
R106-109	No parts	○
R121		
R226		
C101		
C115		
R203	○	No parts
R111	910Ω	560Ω
TU001	FE337-A07	FE415-Q11
X103	SFE10.7MA	SFE10.7M22

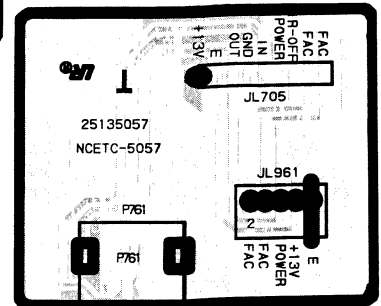
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



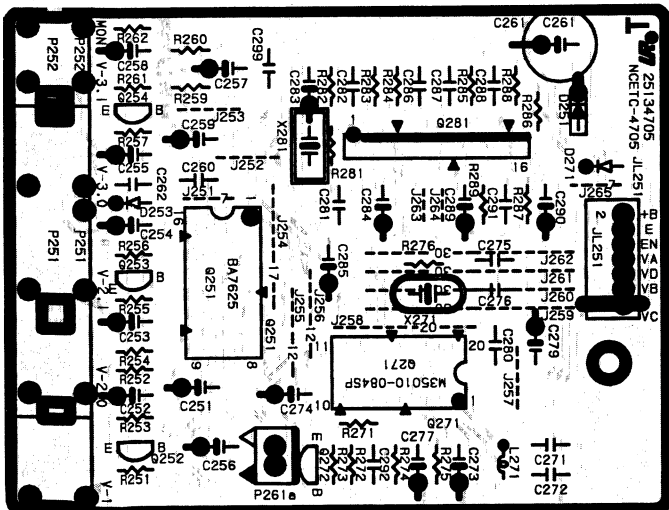
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



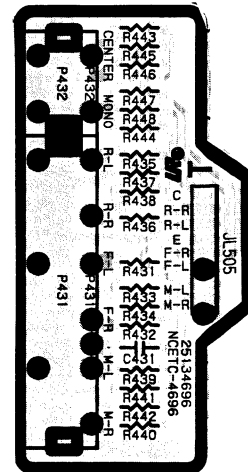
POWER SUPPLY CIRCUIT PC BOARD (NAPS-4702)



NAD LINK I/O PC BOARD (NAETC-5057)



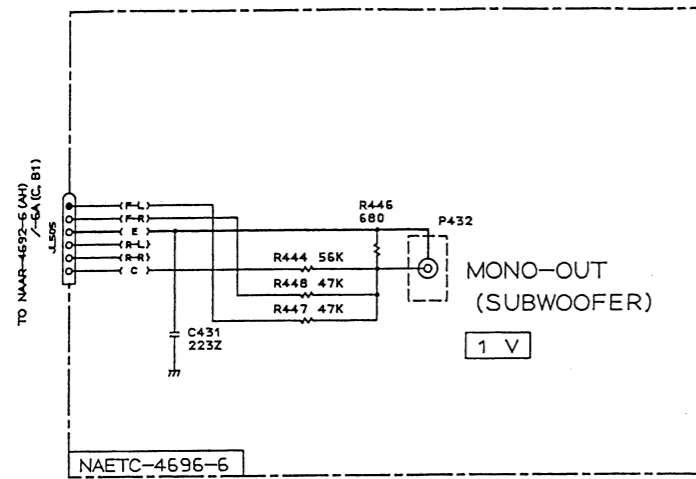
VIDEO CIRCUIT PC BOARD (NAETC-4705)



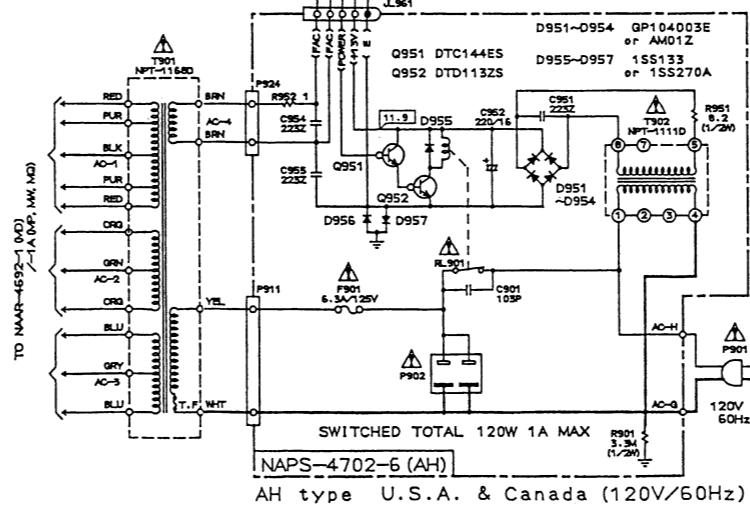
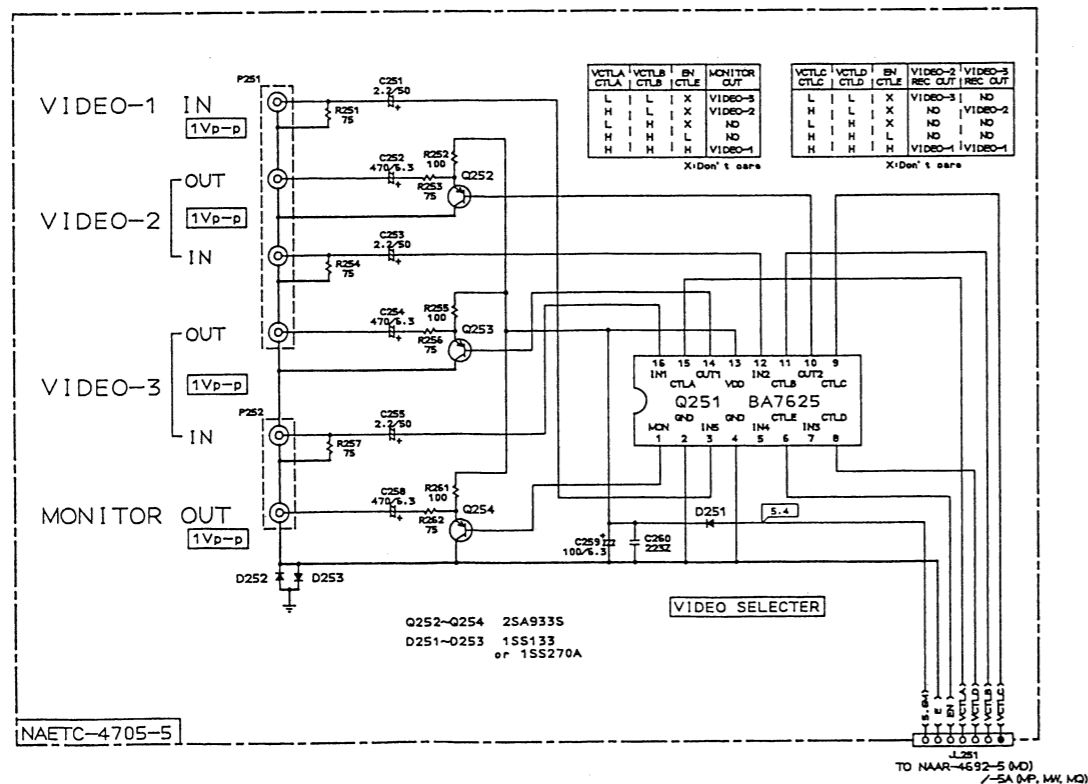
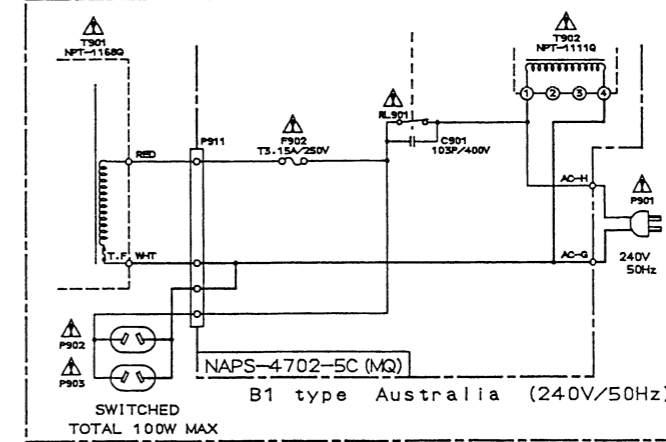
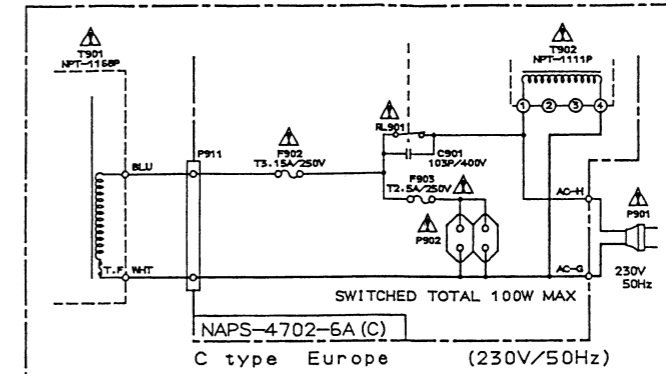
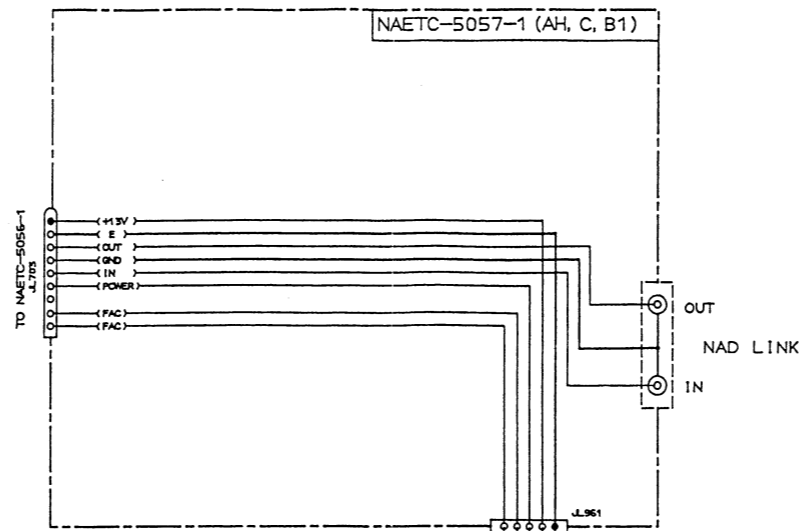
OUTPUT TERMINAL PC BOARD (NAETC-4696)

SCHEMATIC DIAGRAM (PART-3)

POWER SUPPLY AND VIDEO SECTION

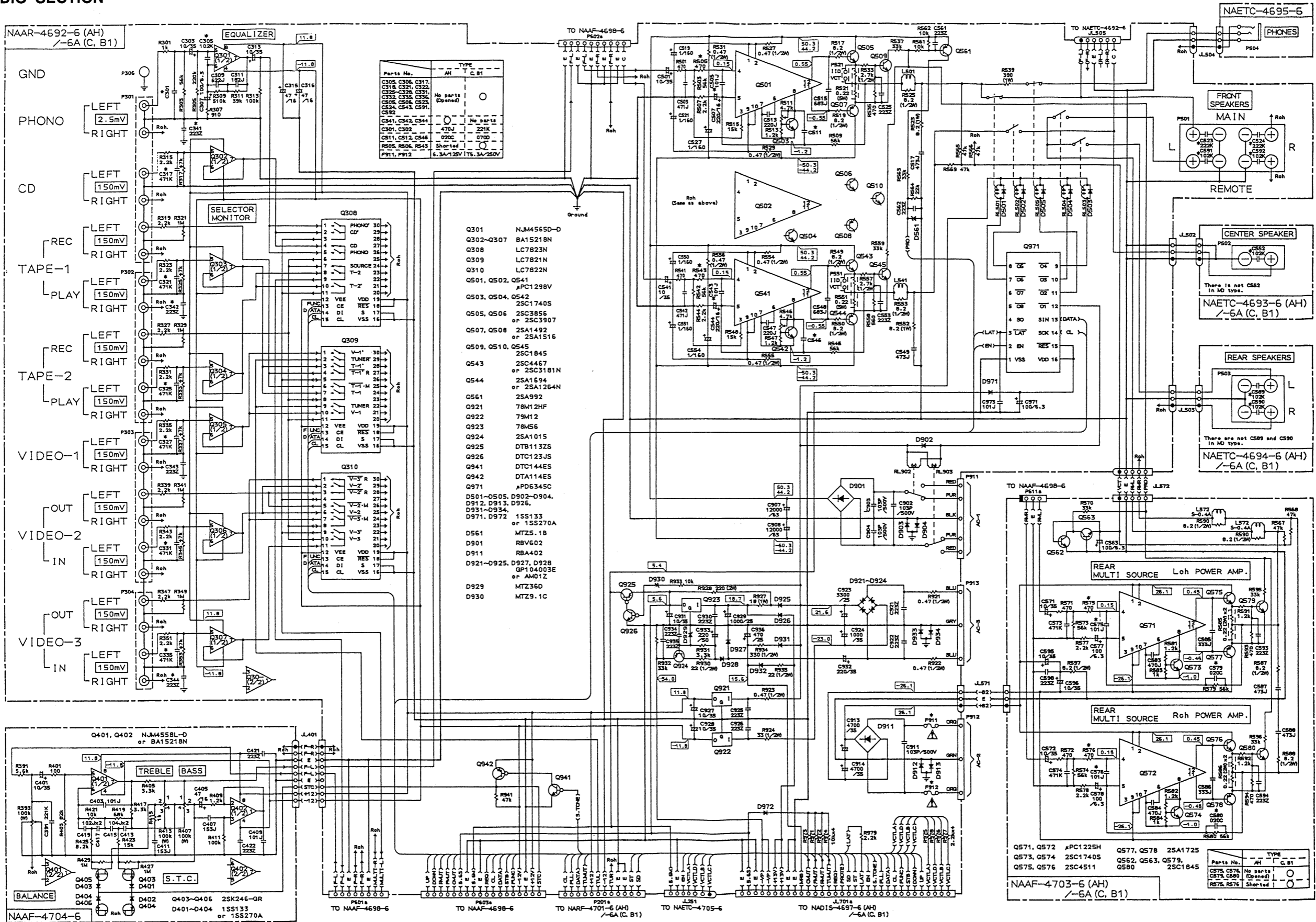


AH type : 120V/60Hz Area
 C type : 230V/50Hz Area
 B1 type : 240V/50Hz Area

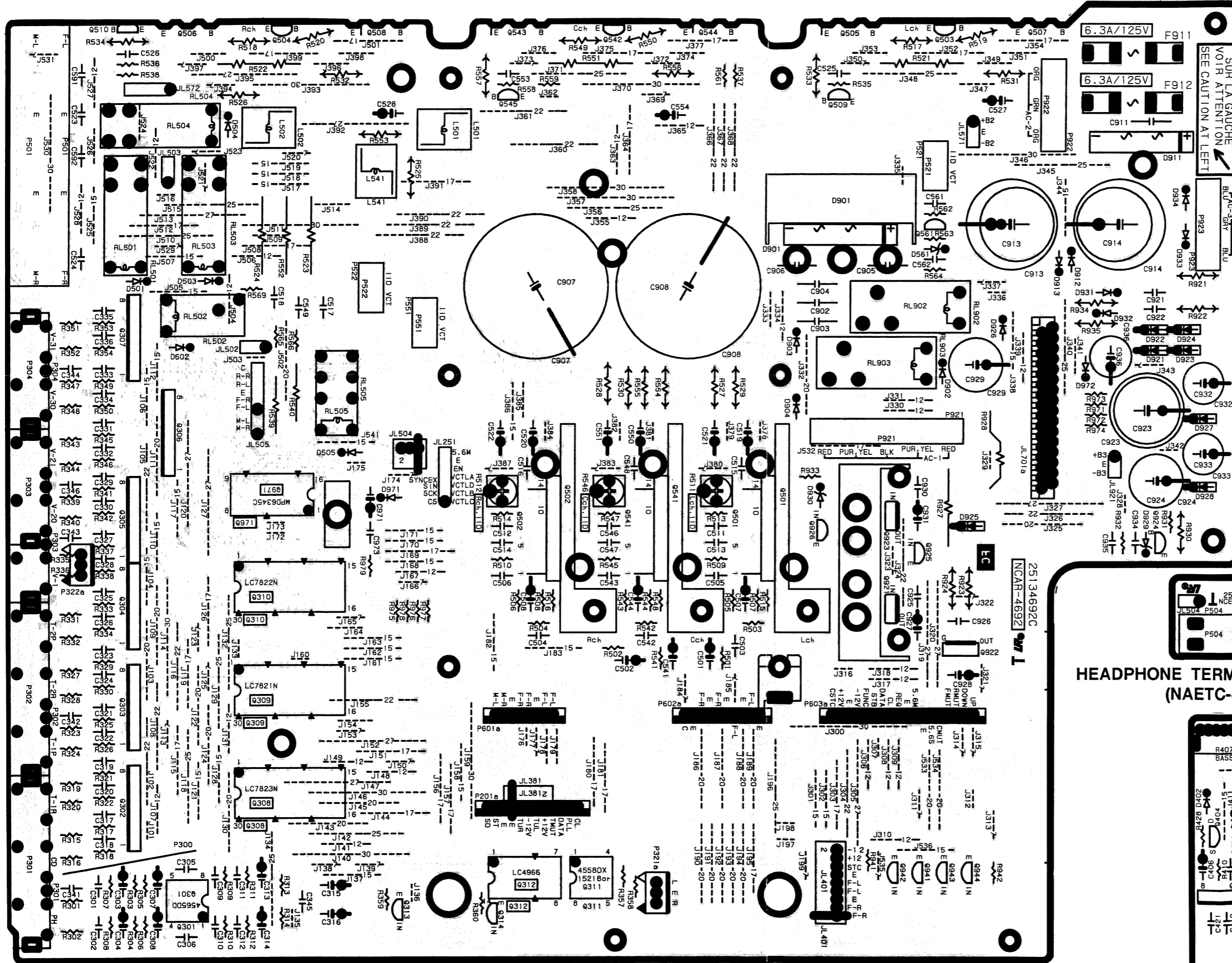


SCHEMATIC DIAGRAM (PART-4)

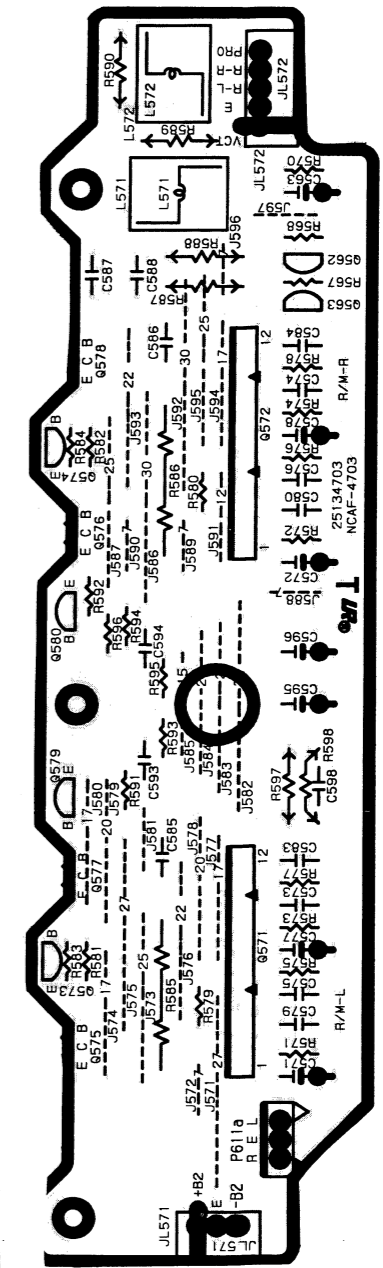
AUDIO SECTION



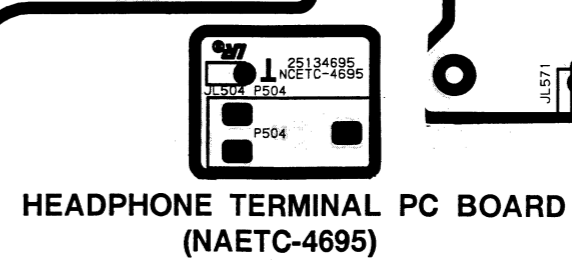
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



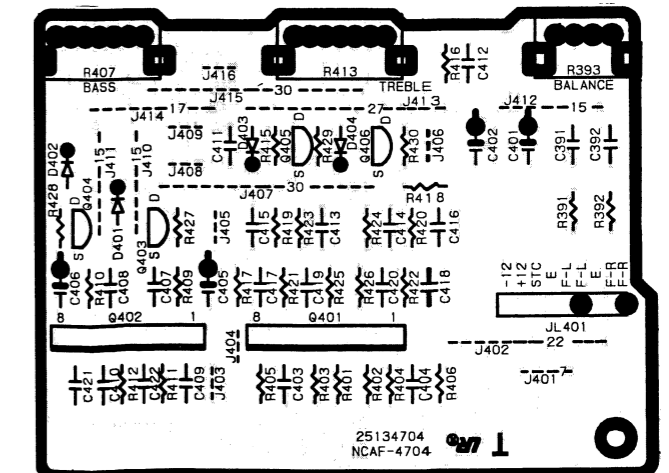
MAIN CIRCUIT PC BOARD (NAAR-4692)



REAR AMPLIFIER PC BOARD (NAAF-4703)



HEADPHONE TERMINAL PC BOARD (NAETC-4695)

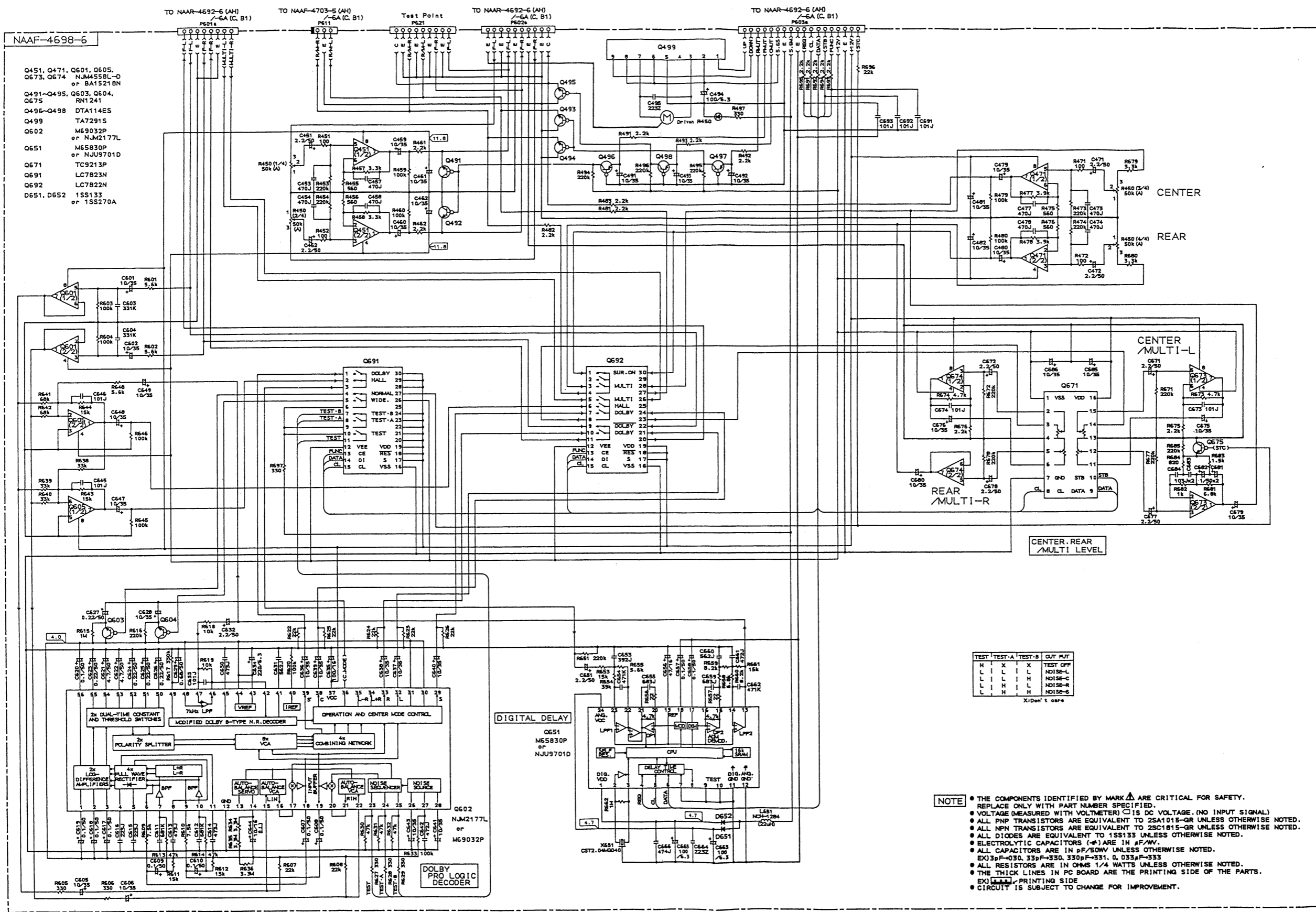


TONE CONTROL CIRCUIT PC BOARD (NAAF-4704)

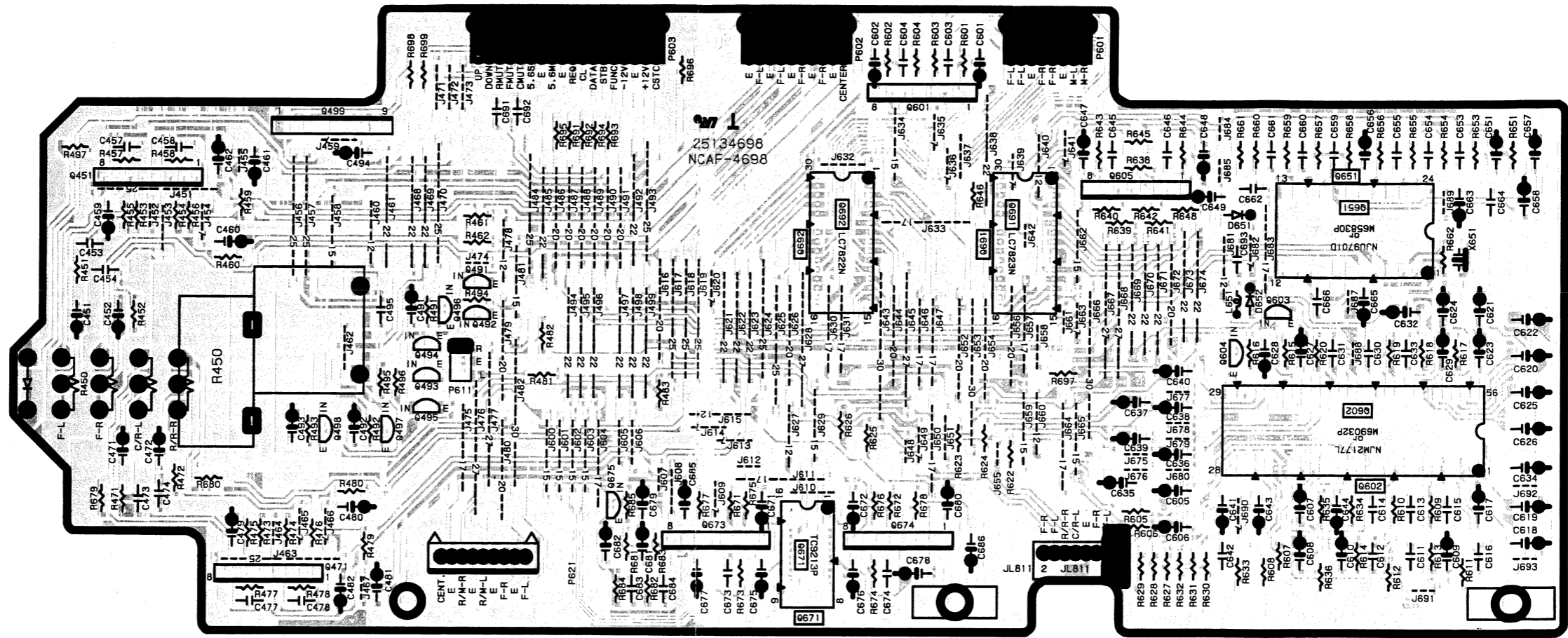
SCHEMATIC DIAGRAM (PART-5)

SURROUND SECTION

1
2
3
4
5



PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



SURROUND CIRCUIT PC BOARD (NAAF-4698)

ADJUSTMENT PROCEDURES

●Preparation

1. Input

FM mono : 1 kHz, 75kHz devi., 60dB/μV

FM stereo : 1 kHz, 67.5kHz devi., 60dB/μV
Pilot signal 19kHz 7.5kHz devi.

A.M : 400Hz 30% mod.

2. Outputs

Connect the non-inductive type resistors of 8 ohms to the main speaker, remote speaker, and rear speaker terminals unless otherwise noted.

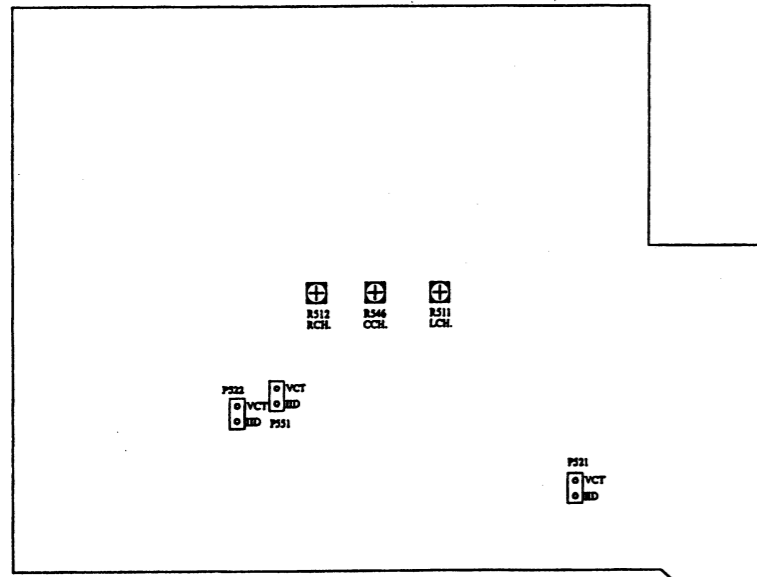
4. Standard Knob Positions

Tape-2 Monitor Off
Master Volume..... Maximum
Rear Volume Center
Center Volume Center
Multi Source Volume Center
Bass Control Center
Treble Control Center
Balance Control Center

3. Initializing of unit

1. Set POWER switch to ON.
2. Press and hold down the CD button, then press the POWER button.
3. "Test-" is displayed on the display for approximately 5 seconds.
4. While "Test-" is displayed, unplug the power cord from its AC outlet, then "Test-" will disappear.
5. Preset memory and parameters stored in memory, such as surround are initialized and will return to the factory settings.

Muting Off
Rec Out Source
Input Selector CD
Speakers Main, Remote On
Selective Tone Off
Surround Mode Off
Center Mode Wide Band
Delay Time 20 ms
MR Off On
FM Mute On



MAIN CIRCUIT PC BOARD

Amplifier section

Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, P522, and P551 (VCT and IID) on the main circuit pc board.

Adjust the trim resistors R511, R512 and R546 so that the indicator of voltmeter becomes $5 \pm 0.5mV$.

NOTE: Adjust after switching on for 5 minutes.

FM ADJUSTMENT

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.1MHz, (99.0MHz) 1kHz 75kHz devi. 65dBf(60dBμ)	—	99.1MHz	DC voltmeter	L101	$0 \pm 20mV$	IF BAND switch: WIDE. FM MUTE/MODE switch: ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	AC voltmeter					IFT on the front end	Maximum		
	Distortion analyzer					L102	Minimum		
VCO		Fig.2	99.1MHz (99.0MHz), 1kHz 75kHz devi. 65dBf(60dBμ)	—	99.1MHz	Frequency counter	R201	$19,000 \pm 10Hz$	
Stereo Distortion		Fig.3	99.1MHz (99.0MHz) Ext. mod. 65dBf(60dBμ)	Channel L or R 1kHz	99.1MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than $\pm 180^\circ$
Stereo Separation	1	Fig.3	99.1MHz (99.0MHz) Ext. mod. 65dBf(60dBμ)	Channel L 1kHz	99.1MHz	Channel R AC voltmeter	R202	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.3	99.1MHz (99.0MHz), 17.2dBf(12dB) <19.2dBf(14dB)>	—	99.1MHz	Oscilloscope	R101	Signal output	

AM ADJUSTMENT

<A>

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment Point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	$1.4 \pm 0.2V$
2	600kHz 400Hz 30% mod. -60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. -60dB/m	990kHz	AC voltmeter	L152	Maximum

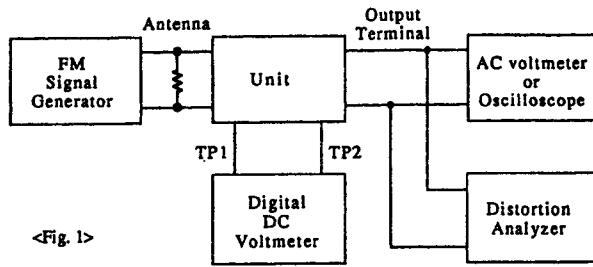
Reference Specification

FM tuned voltage : 87.9MHz ~ 107.9MHz
More than 1.3V ~ Less than 10V
AM tuned voltage : 530kHz ~ 1710kHz
 $1.4 \pm 0.2V$ ~ Less than 9.0V

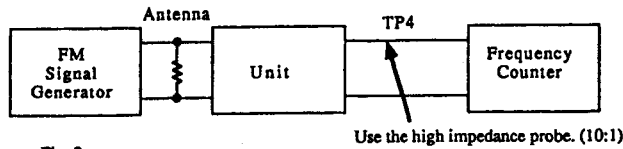
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment Point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L151	$1.3 \pm 0.2V$
2	603kHz 400Hz 30% mod. -60dB/m	603kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	999kHz 400Hz 30% mod. -60dB/m	999kHz	AC voltmeter	L152	Maximum

Reference Specification

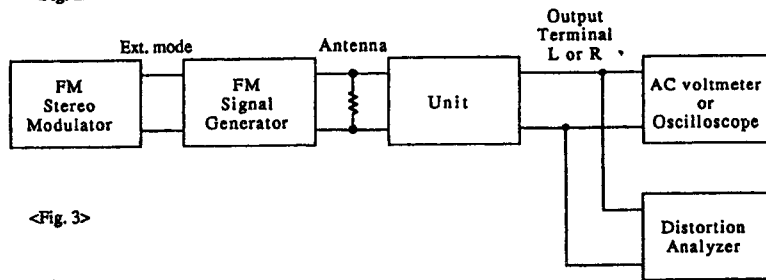
FM tuned voltage : 87.5MHz ~ 108.0MHz
More than 1.3V ~ Less than 10V
AM tuned voltage : 522kHz ~ 1611kHz
 $1.3 \pm 0.2V$ ~ Less than 9.0V



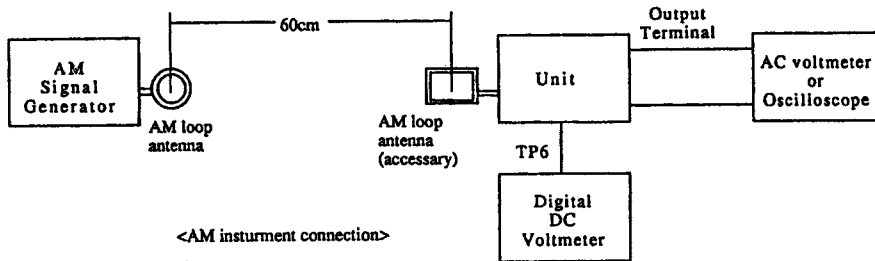
<Fig. 1>



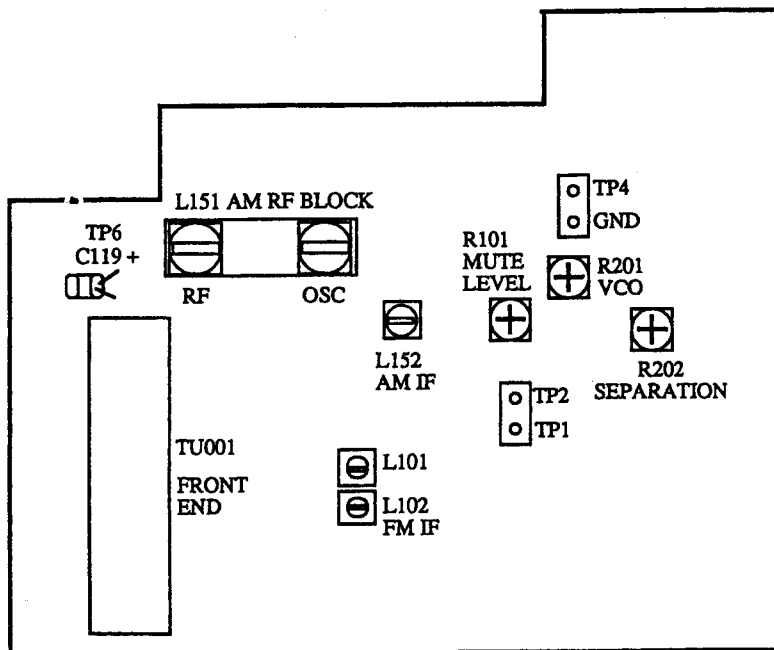
<Fig. 2>



<Fig. 3>



<AM instrument connection>



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

PRINTED CIRCUIT BOARD PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-4692)
CIRCUIT NO. PART NO. DESCRIPTION

ICs		
Q301	22240191	NJM4565D-D
Q302-Q307	22240247	BA15218N
Q308	22240339	LC7823N
Q309	22240280	LC7821N
Q310	22240270	LC7822N
Q501,Q502	22240311	MPC1298V
Q541	22240311	MPC1298V
Q921	222780125NEC	78M12HF
Q922	222790125	79M12
Q923	222780565JRC	78M56
Q971	22240211	MPD6345C

Transistors		
Q503	2213284	2SC1740S-R
Q504	2213284	2SC1740S-R
Q505,Q506	2201653 or 2201654 or 2201655 or 2202272 or 2202273	* 2SC3856-O or * 2SC3856-Y or * 2SC3856-P or * 2SC3907-R or * 2SC3907-O
Q507,Q508	2201663 or 2201664 or 2201665 or 2202262 or 2202263	* 2SA1492-O or * 2SA1492-Y or * 2SA1492-P or * 2SA1516-R or * 2SA1516-O
Q509,Q510	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q542	2213284	2SC1740S-R
Q543	2202253 or 2202254 or 2202256 or 2202502 or 2202503	* 2SC4467-O or * 2SC4467-Y or * 2SC4467-P or * 2SC3181N-R or * 2SC3181N-O
Q544	2202243 or 2202244 or 2202246 or 2202492 or 2202493	* 2SA1694-O or * 2SA1694-Y or * 2SA1694-P or * 2SA1264N-R or * 2SA1264N-O
Q545	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q561	2211792 or 2211793	2SA992-F or 2SA992-E
Q924	2211455	2SA1015-GR
Q925	2213830	DTB113ZS
Q926	2213640	DTC123JS
Q941	221282	DTC144ES
Q942	2213510	DTA114ES

Diodes		
D501-D505	223205 or 223163	1SS270A or 1SS133
D561	224450512	MTZ5.1B
D901	22380038	RBV602
D902	223205 or 223163	1SS270A or 1SS133
D903,D904	223205 223163	1SS270A 1SS133
D911	22380048	RBA402
D912,D913	223205 or 223163	1SS270A or 1SS133
D921-D925	22380046 22380035	AM01Z GP104003E
D926	223205 or 223163	1SS270A or 1SS133
D927,D928	22380046 22380035	AM01Z GP104003E

CIRCUIT NO.	PART NO.	DESCRIPTION
D929	224453604	MTZ36D
D930	224450913	MTZ9.1C
D931-D934	223205 or 223163	1SS270A or 1SS133
D971,D972	223205 or 223163	1SS270A or 1SS133

Coils		
L501,L502	231209s	S-0.4A
L541	231209s	S-0.4A

Capacitors		
C303,C304	354761009	10 μ F, 35V, Elect.
C307,C308	354721019	100 μ F, 6.3V, Elect.
C309,C310	374726224	6200pF \pm 5%, 50V, Plastic
C311,C312	374721824	1800pF \pm 5%, 50V, Plastic
C313,C314	354761009	10 μ F, 35V, Elect.
C315,C316	354744709	47 μ F, 16V, Elect.
C501,C502	354761009	10 μ F, 35V, Elect.
C503,C504	374724714	470pF \pm 5%, 50V, Plastic
C507,C508	354742219	220 μ F, 16V, Elect.
C515,C516	374726834	0.068 μ F \pm 5%, 50V, Plastic
C517,C518	374724734	0.047 μ F \pm 5%, 50V, Plastic
C519-C522	354700109	1 μ F, 160V, Elect.
C527,C528	354700109	1 μ F, 160V, Elect.
C541	354761009	10 μ F, 35V, Elect.
C542	374724714	470pF \pm 5%, 50V, Plastic
C544	354742219	220 μ F, 16V, Elect.
C548	374726834	0.068 μ F \pm 5%, 50V, Plastic
C549	374724734	0.047 μ F \pm 5%, 50V, Plastic
C550,C551	354700109	1 μ F, 160V, Elect.
C554	354700109	1 μ F, 160V, Elect.
C907,C908	3504258	12000 μ F, 63V, Elect.
C913,C914	3504213	4700 μ F, 35V, Elect.
C923	354753329	3300 μ F, 25V, Elect.
C924	354761029	1000 μ F, 35V, Elect.
C927,C928	354761009	10 μ F, 35V, Elect.
C929	354751029	1000 μ F, 25V, Elect.
C931	354761009	10 μ F, 35V, Elect.
C932,C933	354762219	220 μ F, 35V, Elect.
C936	354754719	470 μ F, 25V, Elect.
C971	354721019	100 μ F, 6.3V, Elect.

Resistors		
R511,R512	5210261	N06HR 5KBC, Trim
R517-R520	452530824	8.2 ohm, 1/2W, Metal
R521,R522	4000132	0.22ohm x2.5.5W, Metal Plate
R523-R526	451630824	8.2 ohm, 1W, Metal
R527-R532	452534794	0.47 ohm, 1/2W, Metal
R533,R534	442522724	2.7kohm, 1/2W, Metal Oxide
R539,R540	441623914	390 ohm, 1W, Metal Oxide
R546	5210261	N06HR 5kBC, trim
R549,R550	452530824	8.2 ohm, 1/2W, Metal
R551	4000132	0.22ohm x2.5.5W, Metal Plate
R552	451630824	8.2 ohm, 1W, Metal
R553	452530824	8.2 ohm, 1/2W, Metal
R554-R556	452534794	0.47 ohm, 1/2W, Metal
R557	442522724	2.7kohm, 1/2W, Metal Oxide
R921-R923	452534794	0.47 ohm, 1/2W, Metal
R924	442523304	33 ohm, 1/2W, Metal Oxide
	452530824	8.2 ohm, 1/2W, Metal
		<B1><C>
R927	441621804	18 ohm, 1W, Metal Oxide
R928	441722214	220 ohm, 2W, Metal Oxide
R930	442522204	22 ohm, 1/2W, Metal Oxide
R934	442523314	330 ohm, 1/2W, Metal Oxide
R935	442522204	22 ohm, 1/2W, Metal Oxide

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Relays			ICs	
RL501	25065339	NRL-2P5A-DC24-046	Q701	22240824	MPD78012BCW-139
RL502	25065379	NRL-1P5A-DC24-058	Q702	22240685R9	M66004FP
RL503,RL504	25065339	NRL-2P5A-DC24-046		FL tube	
RL505	25065470	NRL-2P1.25A-DC24-079	Q703	212120	13-BT-131GK
RL902,RL903	25065435	NRL-1P10A-DC24-072		Transistors	
F911	Fuses 252166Y	△ 6.3A-UL/T-237, Secondary Fuse <AH>	Q704, Q705	2213284	2SC1740S-R
	252079	△ 6.3A-SE-EAK,Secondary Fuse <B1><C>	Q706	221282	DTC144ES
F912	252166Y	△ 6.3A-UL/T-237, Fuse <AH>	Q707	2213640	DTC123JS
	252079	△ 6.3A-SE-EAK,Fuse <B1><C>	Q708	2213510	DTA114ES
P301-P303	Jacks			Diodes	
P304	25045300	NPJ-6PDBL159	D701-D706	223205 or 223163	1SS270A or 1SS133
	25045303	NPJ-4PDBL162	D707,D708	224450562	MTZ5.6B
			D709	224451303	MTZ13C
P501	Terminal		D710-D715	223205 or 223163	1SS270A or 1SS133
	25060125	NTM-8PDMN058	D716,D717	225142	LED,SEL2913K
P201a	Plugs			Coils	
P601a	25055500	NPLG-12P475	L701-L703	233411K220	NCH-1387 220K
P602a	25055498	NPLG-8P473		Resonator	
P603a	25055499	NPLG-10P474	X701	3010205	CST8.38MTW, Ceramic
	25055503	NPLG-18P478		Capacitors	
JL401	Sockets		C701	3000074T	0.047F, 5.5V, Super
JL701a	25050531	NSCT-9P354	C702	375524744	0.47 μ F ± 5%,50V,Plastic
	25050612 or 25050705	NSCT-32P423 or NSCT-32P509	C703	353721019 or 354721019	100 μ F,6.3V, Elect.
F911a,F912a	Fuse holders		C704	353780109 or 354780109	1 μ F,50V, Elect.
	25050065	YSH403T	C706	375524744	0.47 μ F ± 5%,50V,Plastic
	Heatsinks		C708-C710	353780109 or 354780109	1 μ F,50V, Elect.
	27160262	Q501,502	C717,C737	353721019 or 354721019	100 μ F,6.3V, Elect.
	27160209	RAD-67, Q921,923	C748	353741009 or 354741009	10 μ F,16V, Elect.
	27160271	RAD-083, D901		Resistor	
CENTER SPEAKER TERMINAL PC BOARD (NAETC-4693)			R714	49163103413	10kohm x 13, 1/10W, Array
CIRCUIT NO.	PART NO.	DESCRIPTION		Switches	
P502	Terminal		S701-S704	25035548	NPS-111-S510
	25060114	NTM-2PDML048	S706	25035548	NPS-111-S510
REAR SPEAKER TERMINAL PC BOARD (NAETC-4694)			S708	25035548	NPS-111-S510
CIRCUIT NO.	PART NO.	DESCRIPTION	S710-S728	25035548	NPS-111-S510
P503	Terminal		S731-S746	25035548	NPS-111-S510
	25060161	NTM-4PDML087		Socket	
HEADPHONE TERMINAL PC BOARD (NAETC-4695)			JL701b	25050578 or 25050726	NSCT-32P389 or NSCT-32P530
CIRCUIT NO.	PART NO.	DESCRIPTION		Plug	
P504	Jack		P702a	25055510	NPLG-3P485
	25045255	YKB26-5009		Bracket	
OUTPUT TERMINAL PC BOARD (NAETC-4696)			U701a	27141575Y	
CIRCUIT NO.	PART NO.	DESCRIPTION		Holders	
P432	Jack		Q703a	27190913	
	25045302	NPJ-1PDBL161	D712a,D716a	27190843	RS-412326
DISPLAY CIRCUIT PC BOARD (NADIS-4697)					
CIRCUIT NO.	PART NO.	DESCRIPTION			
U701	Remote control sensor				
	24130007	GP1U571X			

SURROUND CIRCUIT PC BOARD (NAAF-4698)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q451,Q471	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q499	22240239	TA7291S
Q601	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q602	22240683 or	NJM2177L or
	22240692	M69032P
Q605	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q651	22240686 or	M65830P or
	22240687	NJU9701D
Q671	22240266	TC9213P
Q673,Q674	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q691	22240339	LC7823N
Q692	22240270	LC7822N
	Transistors	
Q491-Q495	2213631T or	RN1241-A or
	2213632T	RN1241-B
Q496-Q498	2213510	DTA114ES
Q603,Q604	2213631T or	RN1241-A or
	2213632T	RN1241-B
Q675	2213631T or	RN1241-A or
	2213632T	RN1241-B
	Diodes	
D651,D652	223205 or	1SS270A or
	223163	1SS133
	Resonator	
X651	3010217Y	CST2.04MG040
	Coil	
L651	233411K220	NCH-1387
	Capacitors	
C451,C452	354780229	2.2 μ F,50V, Elect.
C459-C462	354761009	10 μ F,35V, Elect.
C471,C472	354780229	2.2 μ F,50V, Elect.
C479	354761009	10 μ F,35V, Elect.
C480-C482	354761009	10 μ F,35V, Elect.
C491-C493	354761009	10 μ F,35V, Elect.
C494	354721019	100 μ F,6.3V,Elect.
C601,C602	354761009	10 μ F,35V,Elect.
C605,C606	354761009	10 μ F,35V,Elect.
C607-C610	353781099 or	0.1 μ F,50V, Elect.
	354781099	
C613,C614	374724734	473pF \pm 5%, 50V, Plastic
C615,C616	374722234	223pF \pm 5%, 50V, Plastic
C617-C620	353781099 or	0.1 μ F,50V,Elect.
	354781099	
C621,C622	354780479	4.7 μ F,50V, Elect.
C623-C627	353782299 or	0.22 μ F,50V,Elect.
	354782299	
C628	354761009	10 μ F,35V, 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
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	354761009	10 μ F,35V,Elect.
C642	374724724	4700pF \pm 5%, 50V, Plastic
C643	354761009	10 μ F,35V,Elect.
C644	392841007	10 μ F,16V,Elect.
C647-C649	354761009	10 μ F,35V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
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	353781099 or	0.1 μ F,50V, Elect.
	354781099	
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	354761009	10 μ F,35V,Elect.
C677,C678	354780229	2.2 μ F,50V,Elect.
C679,C680	354761009	10 μ F,35V, Elect.
C681,C682	354780109	1 μ F,50V,Elect.
C683,C684	374721034	0.01 μ F \pm 5%, 50V, Plastic
C685,C686	354761009	10 μ F,35V,Elect.
	Resistor	
R450	5144018	N16RQL50KA25F, Variable, Volume
	Socket	
P601	25050445	NSCT-8P269
P602	25050446	NSCT-10P270
P603	25050450	NSCT-18P274
P611	2000802AUL	NSAS-6P758
	Plug	
P621	25055411	NPLG-9P393

STC SWITCH PC BOARD (NASW-4700)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S729	25035548	NPS-111-S510
	Socket	
P702b	25050454	NSCT-3P278

TUNER CIRCUIT PC BOARD (NARF-4701)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
TU001	240088	FE337-A07 <AH>
	240089	FE415-G11 <B1><C>
	ICs	
Q104	22240039	LA1266
Q107	22240090	LM7001
Q201	22240242	AN7470
Q208	22240247 or	BA15218N or
	22240293	NJM4558L-D
	Transistors	
Q101	2210746	2SC945A-P <B1><C>
Q102	2211723	2SC1923-O
Q105	2212445	2SK365-GR
Q106	2213284	2SC1740S-R
Q108,Q109	2213510	DTA114ES
Q205,Q206	2212794	2SD1468-R
Q207	2213510	DTA114ES
	Diodes	
D103	224450512	MTZ5.1B
D201,D202	223205 or	1SS270A or
	223163	1SS133
D206,D207	223205 or	1SS270A or
	223163	1SS133

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
L101	Transformers 233401	NFIF-4072	TU101a	Shield plate 27150346	<B1><C>
L102	233402	NFIF-4073	POWER SUPPLY CIRCUIT PC BOARD (NAPS-4702)		
L152	232139	NMIF-4062	CIRCUIT NO.	PART NO.	DESCRIPTION
L103	Coils 233411M022	NCH-1375 022M	Q951	Transistors 221282	DTC144ES
L104	233383	NMC-6070 <B1><C>	Q952	2213650	DTD113ZS
L151	232148	NMRF-7050	D951-D954	Diodes 22380046 or 22380035	AM01Z or GP104003E
L201,L202	233355A	NMC-4059	D955-D957	223205 or 223163	1SS270A or 1SS133
X101	Ceramic filters 3010071	SFE10.7MA5	T902	Transformer 2300670A 2300671A	△ NPT-1111D, Sub Power <AH> △ NPT-1111P, Sub Power <C>
X102	3010071	SFE10.7MA5 <B1><C>		2300673A	△ NPT-1111Q, Sub Power<B1>
X103	3010071	SFE10.7MA5 <AH>	C901	Capacitors 3500191	△ DE7150FZ103MAC400V/125V
X151	3010130	SFE10.7MZ2A <B1><C>	C952	354742219	220 μ F,16V, Elect.
X152	3010123	SFZ-450JL	R901	Resistors 431523355	△ 3.3Mohm, 1/2W, Solid
X152	3010076	BFU-450C	R951	452530824F	△ 8.2ohm, 1/2W, Metal
X104	Resonator 3010158 or 3010141	XTL-7.2M,Crystal	F901	Fuses 252166Y	△ 6.3A-UL/T-237, Primary Fuse <AH>
C001,C108	Capacitors 354741019	100 μ F, 16V, Elect.	F902	252076 or 252076CCY	△ 3.15A-SE-EAK, Primary Fuse <B1><C>
C112	354780229	2.2 μ F, 50V, Elect.	F903	252075 or 252075CCY	△ 2.5A-SE-EAK, AC outlet Fuse <C>
C113	354784799	0.47 μ F, 50V, Elect.	P902	AC outlet 25050409	△ NSCT-4P234 <AH> △ NSCT-4P451 <C>
C117	374723334	0.033 μ F±5%, 50V, Plastic	RL901	Relay 25065248	△ NRL-1P15A-DC12-29
C118	354780229	2.2 μ F, 50V, Elect.	F901a	Fuse holders 25050065	△ YSH403T <AH>
C119	353782299	0.22 μ F,50V, Elect.	F902a	25050065	△ YSH403T <B1><C>
C123	354721019	100 μ F, 6.3V, Elect.	F903a	25050065	△ YSH403T <C>
C124	354741019	100 μ F, 16V, Elect.		Terminal 25060092	NTM-1S33
C152	354721019	100 μ F, 6.3V, Elect.	REAR AMPLIFIER PC BOARD (NAAF-4703)		
C154	354780479	4.7 μ F, 50V, Elect.	CIRCUIT NO.	PART NO.	DESCRIPTION
C155-C157	354761009	10 μ F,35V,Elect.	Q571,Q572	ICs 22240108	μ PC1225H
C159	374724734	0.047 μ F±5%, 50V, Plastic	Q562,Q563	Transistors 2211732 or 2211733	2SC1845-F or 2SC1845-E
C160	374721034	0.01 μ F±5%, 50V, Plastic	Q573,Q574	2213284	2SC1740S-R
C161	353782299	0.22 μ F, 50V, Elect.	Q575,Q576	2202063 or 2202064 or 2202066	* 2SC4511-O or * 2SC4511-Y or * 2SC4511-P
C201	354744719	470 μ F, 16V,Elect.	Q577,Q578	2202053 or 2202054 or 2202056	* 2SA1725-O or * 2SA1725-Y or * 2SA1725-P
C202	354742209	22 μ F, 16V, Elect.			
C205	353782299	0.22 μ F, 50V,Elect.			
C206	354780109	1 μ F, 50V, Elect.			
C207	354780339	3.3 μ F,50V, Elect.			
C208	370134714	470pF±5%, 50V, Plastic			
C209	374724734	0.047 μ F±5%, 50V, Plastic			
C211,C212	374721824	1800pF±5%, 50V, Plastic			
	374721224	1200pF±5%,50V, Plastic			
C213,C214	354742209	22 μ F, 16V,Elect.			
C215,C216	354761009	10 μ F, 35V, Elect.			
C219,C220	374726824	6800pF±5%, 50V, Plastic			
	374724724	4700pF±5%,50V, Plastic			
C222	354780229	2.2 μ F, 50V,Elect.			
C223	374721024	1000pF±5%, 50V, Plastic			
C224	374724734	0.047 μ F±5%, 50V, Plastic			
C225,C226	354761009	10 μ F, 35V,Elect.			
R101	Trim resistors 5210266	N06HR100KBC			
R201	5210261	N06HR5KBC			
R202	5210267	N06HR200KBC			
P101	Terminal 25060160 25060117	NTM-4PDMN086 <AH> NTM-2PDMN051 <B1><C>			
P201	Socket 25050447	NSCT-12P271			

CIRCUIT NO.	PART NO.	DESCRIPTION
Q579,Q580	2211732 or 2211733	2SC1845-F or 2SC1845-E
L571,L572	Coils 231209s	S-0.4A
C563	Capacitors 354721019	100 μ F, 6.3V, Elect.
C571,C572	354761009	10 μ F, 35V, Elect.
C577,C578	354721019	100 μ F, 6.3V, Elect.
C585,C586	374723334	0.033 μ F \pm 5%, 50V, Plastic
C587,C588	374724734	0.047 μ F \pm 5%, 50V, Plastic
C595,C596	354761009	10 μ F, 35V, Elect.
R585,R586	Resistors 4000131	0.22 ohm x2, 2W, Metal plate
R587-R590	452530824	8.2 ohm, 1/2W, Metal
R597	452530824	8.2 ohm, 1/2W, Metal
P611a	Plug 25055234	NPLG-3P218
JL571	Sockets 25050280	NSCT-3P108
JL572	25050282	NSCT-5P110

TONE CONTROL CIRCUIT PC BOARD (NAAF-4704)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q401,Q402	ICs 22240247 or 22240293	BA15218N or NJM4558L-D
Q403-Q406	Transistors 2211945	2SK246-GR
D401-D404	Diodes 223205 or 223163	1SS270A or 1SS133
C401,C402	Capacitors 354761009	10 μ F, 35V, Elect.
C405,C406	354744709	47 μ F, 16V, Elect.
C407,C408	374721534	0.015 μ F \pm 5%, 50V, Plastic
C411,C412	374721534	0.015 μ F \pm 5%, 50V, Plastic
C413-C416	374721044	0.01 μ F \pm 5%, 50V, Plastic
C417-C420	374721024	1000pF \pm 5%, 50V, Plastic
R393	Resistors 5104225	N11RGLC 250KWT22Z, Balance
R407,R413	5104230	N14RLC 100KWT22Z, Bass, Treble

VIDEO CIRCUIT PC BOARD (NAETC-4705)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q251	IC 22240373	BA7625
Q252-Q254	Transistors 2213354	2SA933S-R
D251	Diodes 22380046 or 22380035	AM01Z or GP104003E

CIRCUIT NO.	PART NO.	DESCRIPTION
C251	Capacitors 354780229	2.2 μ F, 50V, Elect.
C252	354724719	470 μ F, 6.3V, Elect.
C253	354780229	2.2 μ F, 50V,Elect.
C254	354724719	470 μ F, 6.3V,Elect.
C255	354780229	2.2 μ F, 50V,Elect.
C258	354724719	470 μ F, 6.3V,Elect.
C259	354721019	100 μ F, 6.3V,Elect.
P251	Terminals 25045339	NPJ-4PDYE190
P252	25045395	NPJ-2PDYE221
JL251	Socket 25050529	NSCT-7P352

NAD LINK CONVERTER CIRCUIT PC BOARD (NAETC-5056)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q761	ICs 22240808	TMS70CT40
Q762	22240809	TMS77C82
Q763,Q764	Transistors 2211455 or 2211455	2SA1015-GR
Q765-Q767	2213284	2SC1740S-R
D761-D764	Diodes 223205 or 223163	1SS270A or 1SS133
X761	Resonator 3010234Y	CST5.2MGW
C761	Capacitors 354780109	1 μ F, 50V, Elect.
C764	375524744	0.047 μ F \pm 5%, 50V, Plastic
JL703	Socket 25050531	NSCT-9P354

NAD LINK I/O CIRCUIT PC BOARD (NAETC-5057)

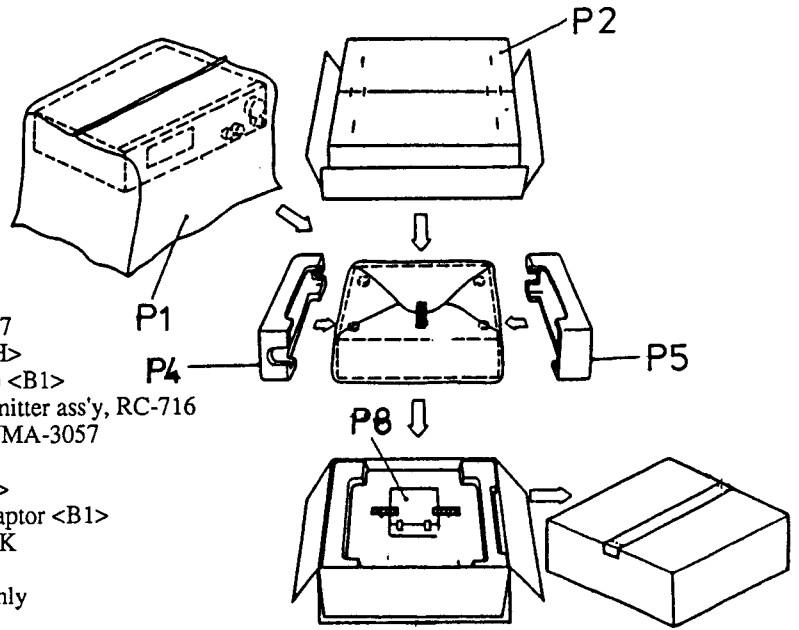
CIRCUIT NO.	PART NO.	DESCRIPTION
JL961	Socket 25050527	NSCT-5P350
P761	Jack 25045395	NPJ-2PDYE221

NOTE: <AH>: U.S.A., Canadian model only
: U.K. model only
<B1>: Australian model only
<C>: European model only

PACKING VIEW

REF.NO.	PART NO.	DESCRIPTION
P1	29100034AY	Styren Bag 850x650
P2	29052790Y	Carton Box
P4	29091615BY	Pad (R)
P5	29091614BY	Pad (L)
P8	Accessory bag ass'y	
P8-1	29341983Y	Instruction manual, U7
P8-2	29355226Y	Instruction Sheet <AH>
P8-3	29365043Y	Warranty card (NAD) <B1>
P8-4	24140274	Remote control transmitter ass'y, RC-716
P8-5	232140	AM Loop antenna , NMA-3057
P8-6	292111Y	FM antenna
P8-7	292112	FM antenna <B1><C>
P8-8	25065462	YAE21-0237, FM adaptor <B1>
P8-9	2010317Y	Cord ass'y, NAD LINK

NOTE: <AH>: U.S.A., Canadian model only
 : U.K. model only
 <B1>: Australian model only
 <C>: European model only



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