Ref. No. 3457

ONKYO SERVICE MANUAL

QUARTZ SYNTHESIZED TUNER AMPLIFIER

MODEL TX-SV717PRO

Black model

BHUD, BHUDN, BHUDC	120V AC, 60 Hz
BHUW, BHUWX	120/220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTSWHOSE PARTS 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.

ONKYO®
AUDIO COMPONENTS

TABLE OF CONTENTS

SPECIFICATIONS

AMPLIFIER SECTION

Power Output:

Stereo mode
Front L/R channels
110 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.

Surround mode and Multi source mode
Front L/R and center channels
85 watts per channel min. RMS at 8 ohms, with no more than 0.2% total harmonic distortion at 1,000 Hz
Rear or Remote channels
30 watts per channel min. RMS at 8 ohms with no more than 0.8% total harmonic distortion at 1,000 Hz

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
CD/Tape Play:	150 mV/50 kohms
Tape Rec:	150 mV/2.2 kohms
Pre out (FRONT):	1V 2.2 kohms
(REAR/CENTER/MULTI SOURCE) :	1V 2.2 kohms
Mono out (SUBWOOFER):	1V 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

Signal to Noise Ratio:

PHONO:	80 dB (IHF A, 5 mV input)
CD/TAPE:	100 dB (IHF A)

Muting: – ∞ dB

VIDEO SECTION

Signal sensitivity and impedance: VDP/VCR input, output: 1 Vp-p, 75 ohms

TUNER SECTION

FM:

Tuning Range: 87.5 — 108.0 MHz (50 kHz steps)
Usable Sensitivity:

Mono:	11.2 dBf, 1.0 µV (75 ohms)
Stereo:	17.2 dBf, 2.0 µV (75 ohms)

50dB Quieting Sensitivity:

Mono:	17.2 dBf, 2.0 µV (75 ohms)
Stereo:	37.2 dBf, 20 µV (75 ohms)

Capture Ratio: 1.5 dB
Image Rejection Ratio: 40 dB
IF Rejection Ratio: 90 dB
Signal-to-Noise Ratio:

Mono:	73 dB
Stereo:	67 dB

Alternate Channel Attenuation: 55 dB
AM Suppression Ratio: 50 dB
Total Harmonic Distortion:

Mono:	0.15%
Stereo:	0.25%

Frequency Response: 30 — 15,000 Hz +/–1.5 dB
Stereo Separation: 45 dB at 1 kHz/30 dB
at 100 — 10,000 Hz

TUNER SECTION

AM:

Tuning Range: USA & Canadian models
530 — 1710 kHz (10 kHz steps)
Worldwide models
531 — 1602 kHz (9 kHz steps)
Usable Sensitivity: 30 µV
Image Rejection Ratio: 40 dB
IF Rejection Ratio: 40 dB
Signal-to-Noise Ratio: 40 dB
Total Harmonic Distortion: 0.7%

REMOTE CONTROL RC-253M

Transmitter: Infrared
Signal range: Approx. 5 meters (16ft.4")
Power supply: Two AA batteries (1.5V × 2)

GENERAL

Power Supply: USA & Canadian models
AC120 V, 60 Hz
Worldwide models
120 and 220 V switchable, 50/60 Hz
Dimensions (W × H × D): 455 × 170 × 388 mm
17-15/16" × 6-11/16" × 15-5/16"
Weight: 13.9 kg (30.6 lbs)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses

For continued protection against fire hazard, replace only with same type and same rating fuse.

Circuit no.	Part no.	Description
F901	252153	⚠6.3A-TSC,Primary fuse
F902	252076	⚠3.15A-SE-EAK,Primary fuse <W>
F911,F912	252153	⚠6.3A-TSC,Secondary fuse <D>
	252079	⚠6.3A-SE-EAK,Secondary fuse <W>

NOTE: <D> :Only 120V model
<W> :Only Worldwide model

2. Change of FM/AM band step.

With the exception of the Worldwide model, a BAND STEP selector switch is not provided.

(AM)

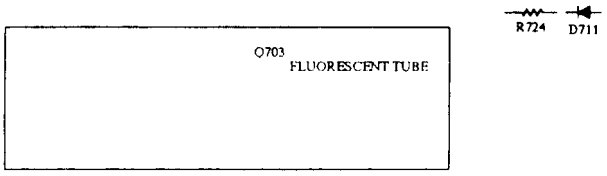
BAND STEP	R724	D711
10kHz→9kHz	Addition	Addition
9kHz→10kHz	Eliminated	Eliminated

In R724 Carbon resistor 1 kΩ
(Part No.417341024) is used.
In D711 Diode 1SS270A
(Part No.223205) is used.

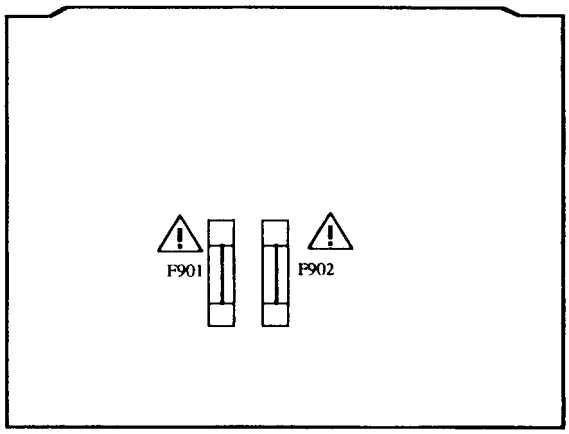
−Worldwide model−

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9kHz (AM) at the factory, but may have to be reset to 10kHz depending on the area where the unit is used.

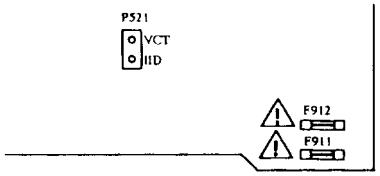
	AM step
Europe:	9kHz
U.S.A:	10kHz



DISPLAY CIRCUIT PC BOARD



POWER SUPPLY CIRCUIT PC BOARD



MAIN CIRCUIT PC BOARD

3. 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 the 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.

4. 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.

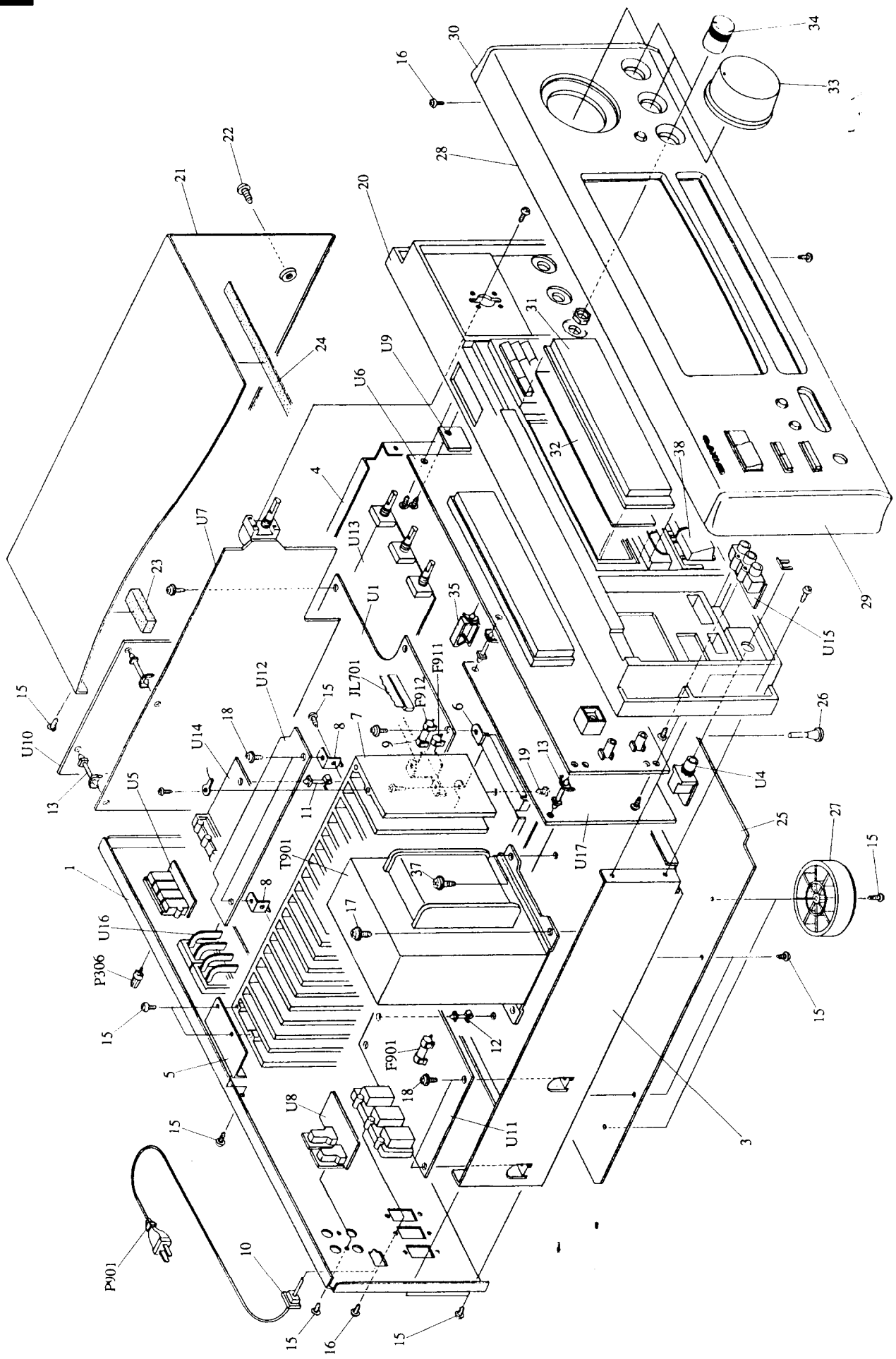
Connect the insulating-resistance tester between the plug of power supply cord and terminal GND on the back panel.
Specifications: 3.3 Mohm ±10% at 500V.

5. Change of voltage

Worldwide models are equipped 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 screw-driver 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.

EXPLODED VIEW



PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
1	27121766	Rear panel <D>
	27121767	Rear panel <W>
2	27270212	Spacer <W>
3	27130717AY	Bracket,power transformer
4	27115255Y	Side bracket
5	27141607AY	Retainer H
6	27130718AY	Bracket H
7	27160324A	Radiator
8	27141530A	Retainer HS-2
9	27141532	Retainer PD-1
10	27300750	⚠ Cord,bushing
11	27190369	KGLS-22S,Holder
12	27190480	KGLS-8S,Holder
13	27190062	KGLS-12S,Holder
14	801433	3SMS8W.SW+14B(BC),Sems screw
15	834430088	3TTS+8B(BC),Self-tapping screw
16	833430080	3TTP+8P(BC),Self-tapping screw
17	830440089	4TTC+8C(BC),Self-tapping screw
18	831130088	3TTW+8B,Self-tapping screw
19	834430108	3TTS+10B(BC),Self-tapping screw
20	27110775AY	Front bracket ass'y
21	28184540Y	Top cover
22	838440089	4TTB+8C(BC),Self-tapping screw
23	28141279	6 t× 60 ×20,Cushion
24	28140024-1	0.5 t× 390 ×10,Cushion
25	27170300AY	Bottom panel
26	27190926	KGLS-18RF,Holder
27	27175251-1	Leg
28	1A443121	Front panel ass'y
28A	27267822Y	Guide VOL
28B	27267824Y	Guide POW
29	28125251AY	End cap L
30	28125252AY	End cap R
31	28191661	Clear plate
32	28133299Y	Back plate
33	28324775	Knob VOLUME
34	28324376A	Knob TONE
35	260220	WS-3NS,Clamp
36	27300833	WS-2NS,Clamp
37	838440109	4TTB+10C(BC),Self-tapping screw
38	28324844B	Knob SEL
F901	252153	⚠ 6.3A-TSC,Primary fuse
F902	252076	⚠ 3.15A-SE-EAK,Primary fuse <W>
F911,F912	252153	⚠ 6.3A-TSC,Secondary fuse <D>
	252079	⚠ 6.3A-SE-EAK,Secondary fuse <W>
JL701	2041322010	NCFC1-322010,Flexible flat cable
P306	25060044	Terminal,ground

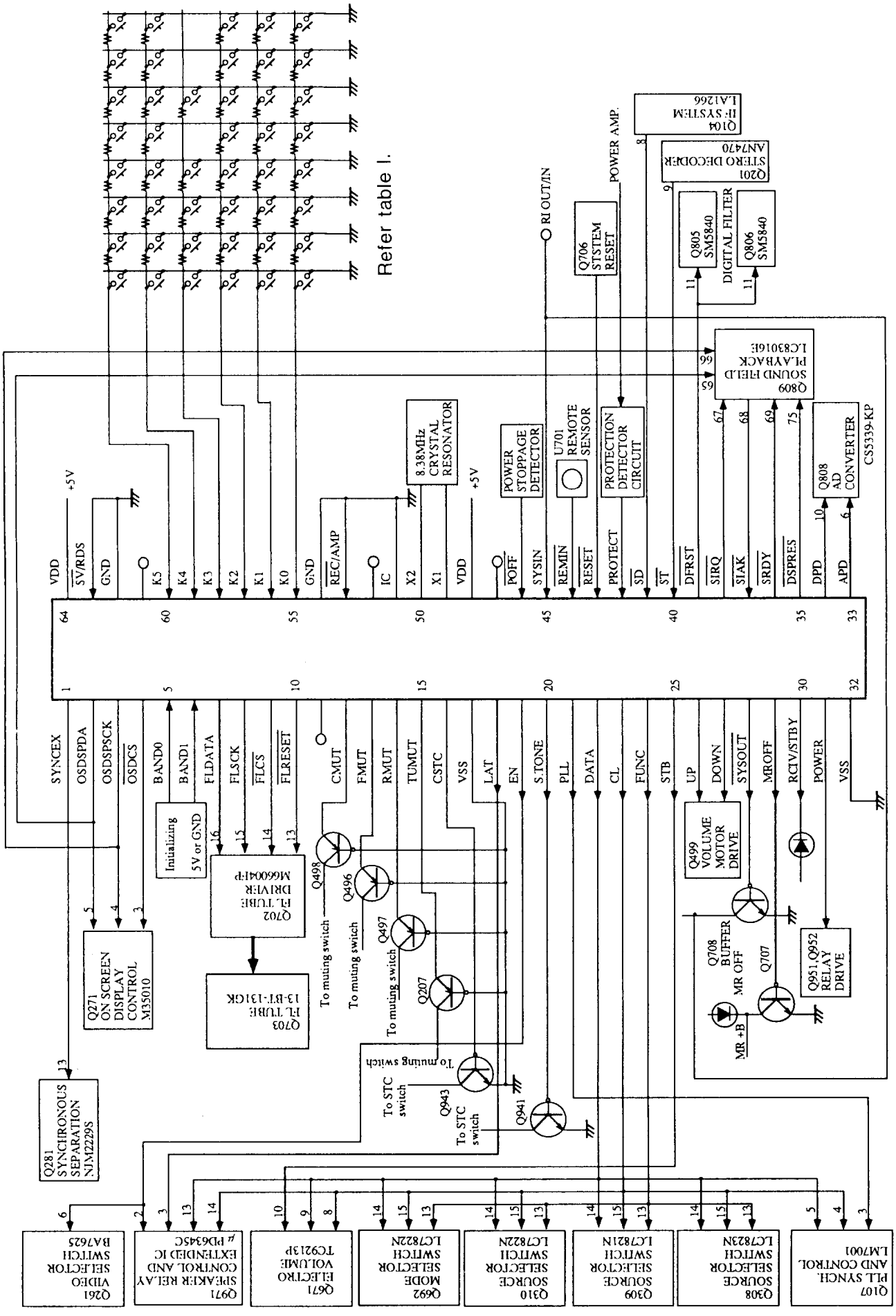
REF.NO.	PART NO.	DESCRIPTION
P901	253163Y or	⚠ AS-UC-6 #18,
	253174Y	⚠ Power supply cord <D>
	253172 or	⚠ AS-CEE-2,
	253092-1A	⚠ Power supply cord <W>
Q505,Q506	2201803,	☆ 2SC3857-O,
	2201804 or	☆ 2SC3857-Y or
	2201806	☆ 2SC3857-P,Power transistors
Q507,Q508	2201793,	☆ 2SA1493-O,
	2201794 or	☆ 2SA1493-Y or
	2201796	☆ 2SA1493-P,Power trnaistors
Q543	2202523,	☆ 2SC4468-O,
	2202524,	☆ 2SC4468-Y,
	2202526,	☆ 2SC4468-P,
	2202292 or	☆ 2SC3182N-R or
	2202293	☆ 2SC3182N-O,Power transistor
Q544	2202513,	☆ 2SA1695-O,
	2202514,	☆ 2SA1695-Y,
	2202516,	☆ 2SA1695-P,
	2202282 or	☆ 2SA1265N-R or
	2202283	☆ 2SA1265N-O,Power transistor
Q575,Q576	2202063,	☆ 2SC4511-O,
	2202064 or	☆ 2SC4511-Y or
	2202066	☆ 2SC4511-P,Power transistors
Q577,Q578	2202053,	☆ 2SA1725-O,
	2202054 or	☆ 2SA1725-Y or
	2202056	☆ 2SA1725-P,Power transistors
T901	2300931	⚠ NPT-1180D,Power transformer <D>
	2300933	⚠ NPT-1180DG,Power transformer <W>
U1	1A443592-2	NAAR-4692-2,Main circuit pc board ass'y <D>
	1A443592-2B	NAAR-4692-2B,Main circuit pc board ass'y <W>
U4	1A443595-2	NAETC-4695-2,Headphone terminal pc board ass'y
U5	1A443596-2	NAETC-4696-2,Output terminal pc board ass'y
U6	1A443597-2	NADIS-4697-2,Display circuit pc board ass'y <D>
	1A443597-2B	NADIS-4697-2B,Display circuit pc board ass'y <W>
U7	1A443598-2	NAAF-4698-2,Surround circuit pc board ass'y

REF.NO.	PART NO.	DESCRIPTION
U8	1A443599-2	NAETC-4699-2,RI/MR terminal pc board ass'y <D>
	1A443599-2B	NAETC-4699-2B,RI/MR terminal pc board ass'y <W>
U9	1A443500-2	NASW-4700-2,STC switch pc board ass'y
U10	1A443501-2	NARF-4701-2,Tuner circuit pc board ass'y <D>
	1A443501-2B	NARF-4701-2B,Tuner circuit pc board ass'y <W>
U11	1A443502-2	NAPS-4702-2,Power supply circuit pc board ass'y <D>
	1A443502-2B	NAPS-4702-2B,Power supply circuit pc board ass'y <W>
U12	1A443503-2	NAAF-4703-2,Rear amplifier pc board ass'y
U13	1A443504-2	NAAF-4704-2,Tone control circuit pc board ass'y
U14	1A443505-2	NAETC-4705-2,Video circuit pc board ass'y
U15	1A443506-2	NAETC-4706-2,Video-4 input terminal pc board ass'y
U16	1A443565-2	NAETC-4865-2,Speaker terminal pc board ass'y
U17	1A443508-1	NADG-4708-1,Digital circuit pc board ass'y

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

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

MICROPROCESSOR CONNECTION DIAGRAM



MICROPROCESSOR TERMINAL DESCRIPTIONS

Pin No.	Function	I/O	Description
1	SYNCEX	I	Connect to the pin #13 of synchronous separation IC.
2	OSDSPDA	O	Serial data output for sound field playback and on screen display control ICs.
3	OSDSPSCK	O	Serial clock output for sound field playback and on screen display control ICs.
4	$\overline{\text{OSDCS}}$	O	Chip select output for on screen display control IC.
5	BAND0	I	Initializing input terminals for FM/AM band region.
6	BAND1	I	
7	FLDATA	O	Connect to the terminal SDATA of Fluorescent tube driver M66004FP Q702.
8	FLSCK	O	Connect to the terminal SCK of Fluorescent tube driver M66004FP.
9	$\overline{\text{FLCS}}$	O	Connect to the terminal CS of Fluorescent tube driver M66004FP.
10	$\overline{\text{FLRESET}}$	O	Connect to the terminal RESET of Fluorescent tube driver M66004FP.
11	———	O	Turntable control output terminal. Not used.
12	CMUT	O	Muting output terminal for the center amplifier.
13	FMUT	O	Muting output terminal for the Main amplifier.
14	RMUT	O	Muting output terminal for the Rear amplifier.
15	TUMUT	O	Muting output terminal for the tuner section.
16	CSTC	O	STC switch control output for the center channel.
17	VSS	-	Ground terminal.
18	$\overline{\text{LAT}}$	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, 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 CL of Electro volume TC9213P, and the terminal CL of Output extended IC μ PD6345C.
24	FUNC	O	Connect to the terminal CE of analog switches LC7821N,LC7822N, and LC7823N.
25	STB	O	Connect to the pin 10 of electro volume.
26	UP	O	Volume UP/DOWN control output to Q871 TA7291S.
27	DOWN	O	
28	$\overline{\text{SYSOUT}}$	O	System code output terminal.

Operation	#27	#26
Stop	H	H
Volume up	L	H
Volume down	H	L

K5	8	9	0	D-TUN	REC-OUT	SIMUL	PRCNDOWN	PRCNUP
K4	MEMORY	1	2	3	4	5	6	7
K3	DOWN	UP	MUTE	SCAN		S-TONE		
K2	PHONO	CD	CLASS A	CLASS B	CLASS C	CLASS D	CLASS E	CLASS F
K1	VIDEO-1	VIDEO-2	VIDEO-3	VIDEO-4	TAPE-1	TAPE-2	FM	AM
K0	POWER	MAIN	REMOTE	MROFF	DIMMER	SUR MODE	PRSLDOWN	PRSLUP

Table 1

Pin No.	Function	I/O	Description
29	MROFF	O	MULTI ROOM indicator and power supply control output terminal.
30	STBY/REC	O	STAND-BY/RECEIVED indicator control output terminal.
31	POWER	O	Power switch relay control output terminal.
32	VSS	-	Ground terminal.
33	APD	O	Input selector output for AD converter CS5339K-P. High when analog.
34	DPD	O	Input selector output for AD converter CS5339K-P. High when digital.
35	$\overline{\text{DSPRES}}$	O	Reset output for sound field playback IC LC83016E.
36	$\overline{\text{SRDY}}$	O	Ready signal output to sound field playback IC.
37	$\overline{\text{SIAK}}$	I	Input terminal shown during processing of serial input.
38	$\overline{\text{SIRQ}}$	O	Output terminal of serial input request signal for the sound field playback IC.
39	$\overline{\text{DFRST}}$	I	Reset output for the digital filter IC SM5840.
40	$\overline{\text{STEREO}}$	I	Stereo broadcast detection input terminal.
41	$\overline{\text{SD}}$	I	Broadcast detection input terminal.
42	PROTECT	I	Protection circuit operation detection input terminal.
43	$\overline{\text{RESET}}$	I	System reset input terminal.
44	$\overline{\text{REMIN}}$	I	Remote control signal input terminal.
45	SYSIN	I	System code input terminal.
46	$\overline{\text{POFF}}$	I	Detection input terminal for the stoppage of electric current.
47	———	I	
48	VDD	-	Power supply terminal (+5V).
49	X1	-	Ceramic resonator connection terminal for the main system clock.
50	X2	-	Connect the ceramic resonator 8.38MHz.
51	IC	-	Connect to the ground terminal.
52	———	-	
53	$\overline{\text{REC}}$/AMP	I	Initializing input terminal for Receiver or Amplifier.
54	AVSS	-	Ground terminal
55	K0	I	Operation key connection terminal.
56	K1	I	
57	K2	I	
58	K3	I	
59	K4	I	
60	K5	I	
61	———	I	Signal level input terminal. Not used.
62	GND		Ground terminal
63	$\overline{\text{SV}}$/RDS	I	Initializing input terminal.
64	VDD		Power supply terminal (+5V).

Initializing Input

#7,#6

BAND1	BAND0	Regin	Band	Frequency Range	Channel Space
0	0	U.S.A.	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	10kHz
0	1	Europe	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	9kHz
1	0	Worldwide	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	9kHz
1	1	Japan	FM	87.50~108.00MHz	100kHz
			AM	530~1710kHz	9kHz

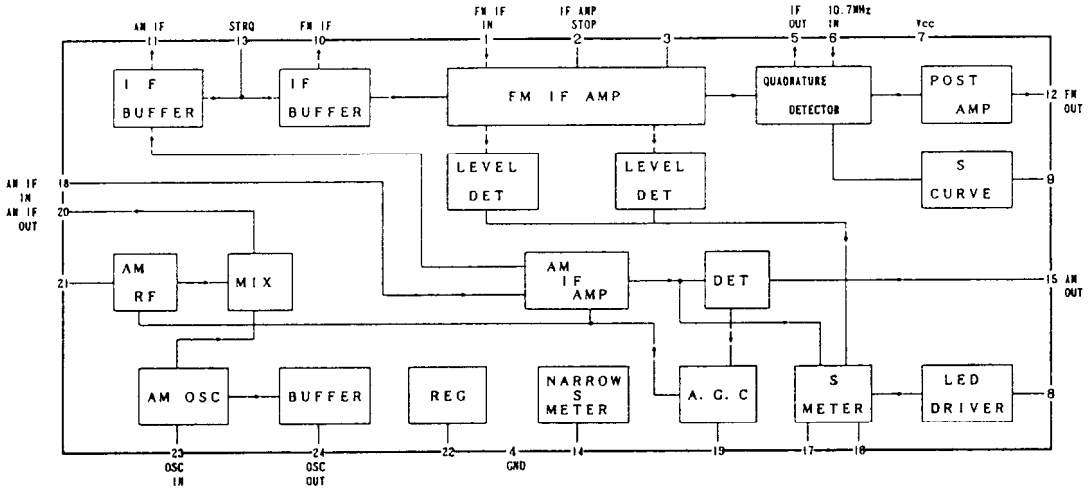
#62

MODE	OPERATION
0	Receiver
1	Amplifier

IC BLOCK DIAGRAMS AND DESCRIPTIONS

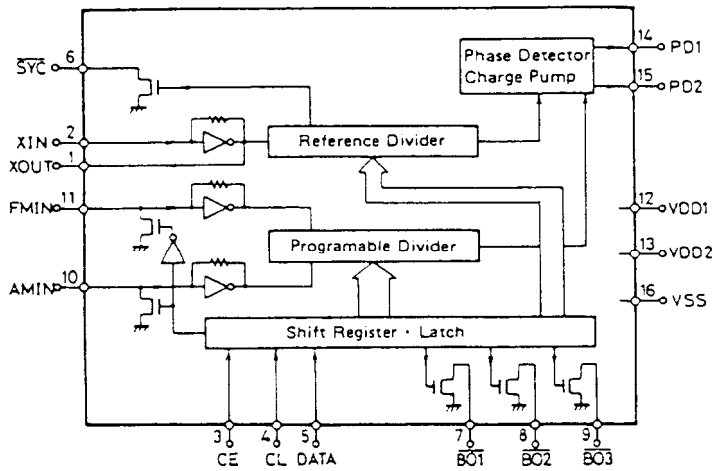
Q104

LA1226 (FM IF and AM Radio System)



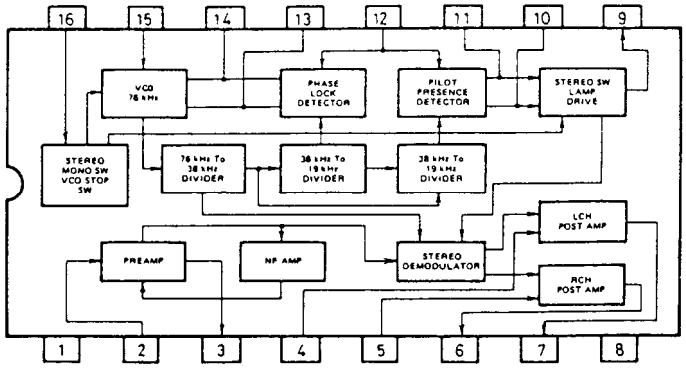
Q107

LM7001 (PLL Synthesizer and Controller)



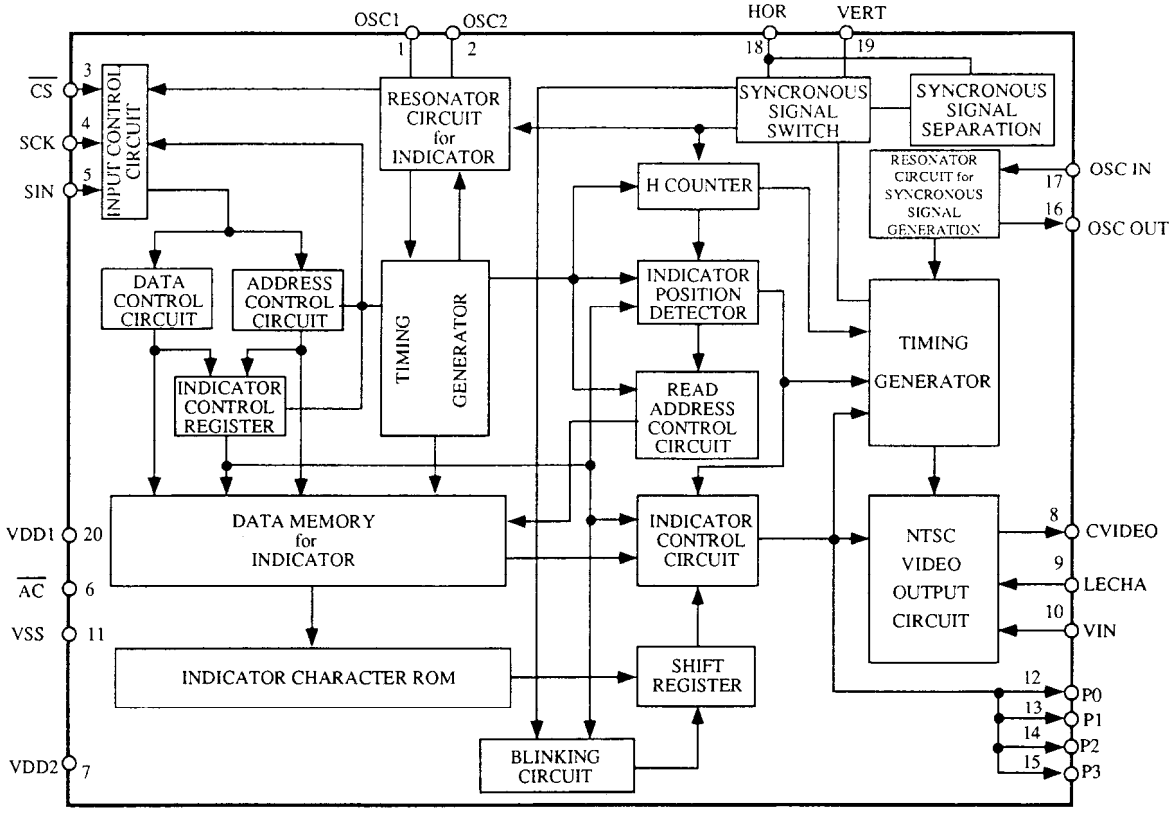
Pin No.	Terminal	Description
1	XOUT	Connect to the 7.2 MHz crystal oscillator.
2	XIN	
3	CE	Chip enable terminal. Connect to the PLL terminal of microprocessor.
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of microprocessor.
5	DATA	Serial data input terminal. Connect to the DATA terminal of microprocessor.
6	$\overline{SYN}$	Not used.
7	$\overline{AUTO/MONO}$	AUTO/MONO selection output terminal. "L" when AUTO.
8	$\overline{FM}$	FM band control output terminal. "L" when FM.
9	$\overline{AM}$	AM band control output terminal. "L" when AM.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator terminal.
12	$V_{DD}1$	Power supply terminal for back-up.
13	$V_{DD}2$	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.

Q201
AN7470 (Stereo Decoder)

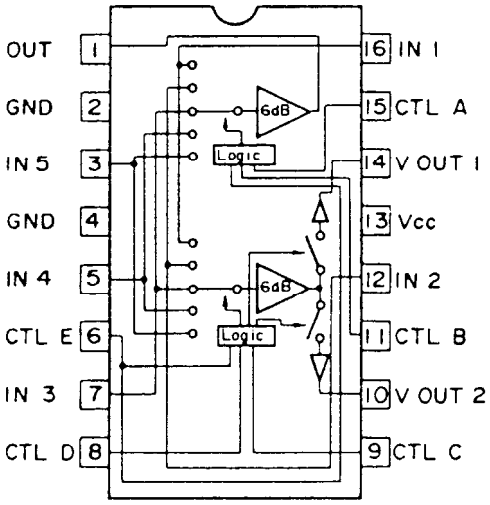


Q271
M35019-084SP (TV Letter/Pattern Indicator)

Resonator input	OSC1	1	20	V_{DD1}	Power supply
Resonator output	OSC2	2	19	VERT	Vertical synchonizing signal input
Chip select input	CS	3	18	HOR	Horizontal synchonizing signal input
Serial clock input	SCK	4	17	OSCIN	Resonator input
Serial data input	SIN	5	16	OSCOUT	Resonator output
Auto clear input	AC	6	15	P3	Port 3 output
Power supply	V_{DD2}	7	14	P2	Port 2 output
Composite video signal output	CVIDEO	8	13	P1	Port 1 output
Character level input	LECHA	9	12	P0	Port 0 output
Video input	CVIN	10	11	Vss	Ground



Q251
BA7625 (Video Selector)



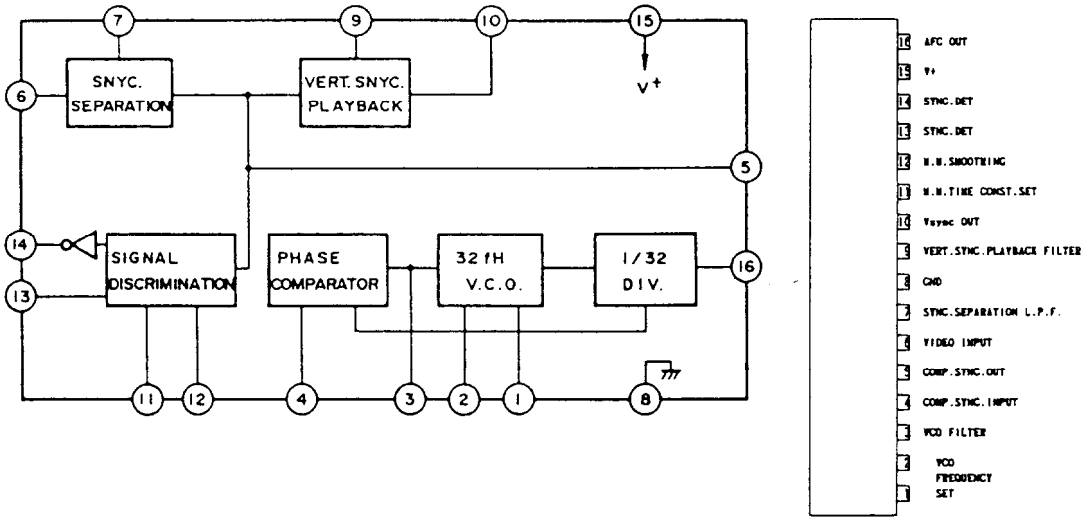
#15	#11	#6	#1
A	B	E	MONITOR OUT
L	L	X	IN1
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

X:Don't care

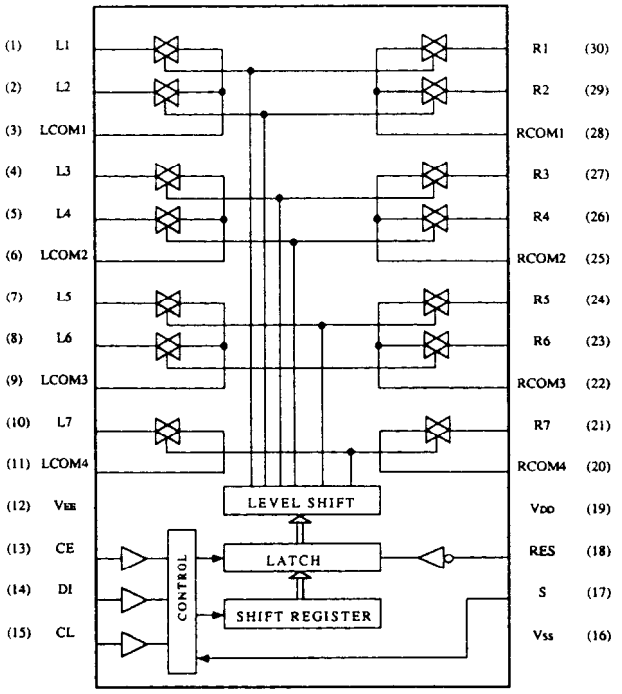
#9	#8	#6	#14
C	D	E	VOUT 1
L	L	X	
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

#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

Q281
NJM2229S (ON Screen Display)



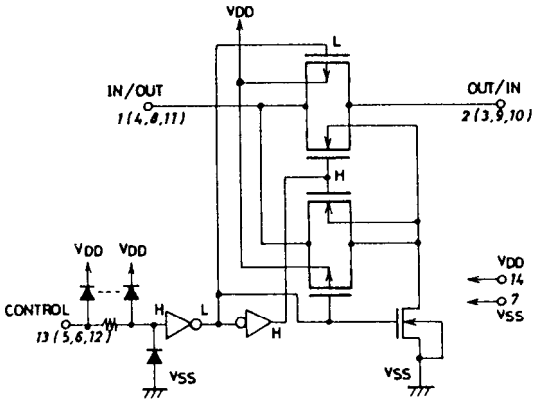
Q308
LC7823N (Analog Switch)

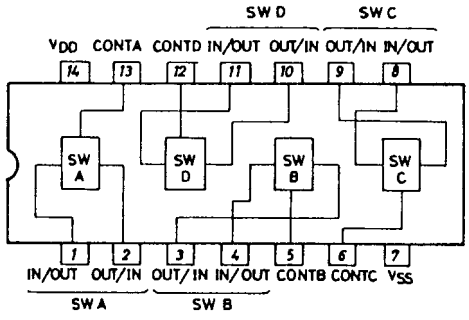


Q308

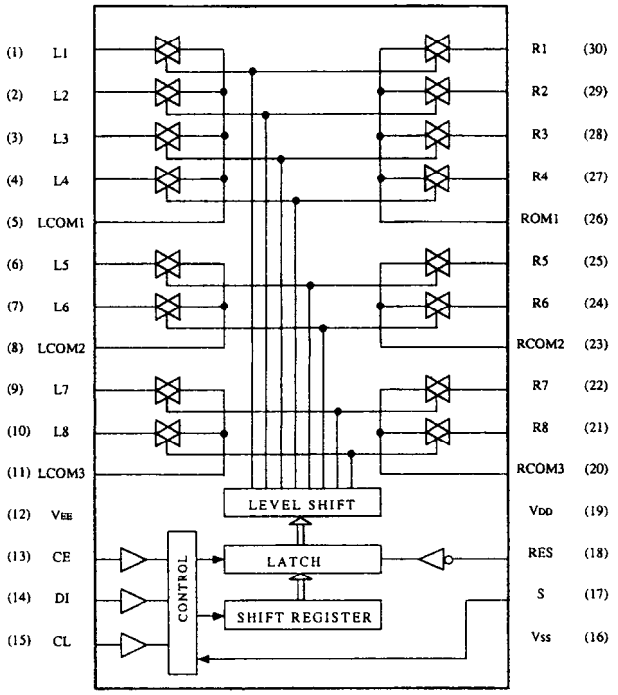
Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	PHONO'	Input/output terminals of multi source of left channel.	16	VEE	Ground terminal
2	CD'	Control the analogue switch at the serial data.	17	S	Selector terminal
3	LCOM1		18	$\overline{RES}$	Reset terminal. When power is turned on, the condition 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.			
5	PHONO				
6	LCOM2				
7	SOURCE				
8	TAPE-2		19	VDD	Power supply terminal (+15V)
9	LCOM3		20	RCOM4	Input/output terminals of multi source of right channel.
10	TAPE-2'	Input/output terminals of multi source of left channel.	21	TAPE-2'	Control the analogue switch at the serial data.
11	LCOM4	Control the analogue switch at the serial data.	22	RCOM3	Input/output terminals of audio signal of right channel. Control the analogue switch at the serial data.
12	VSS	Negative power supply terminal (-15V)	23	TAPE-2	
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	24	SOURCE	
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	25	RCOM2	
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	26	PHONO	
			27	CD	
			28	RCOM1	Input/output terminals of multi source of right channel. Control the analogue switch at the serial data.
			29	CD'	
			30	PHONO'	

Q312
LC4966 (Analog Switch)





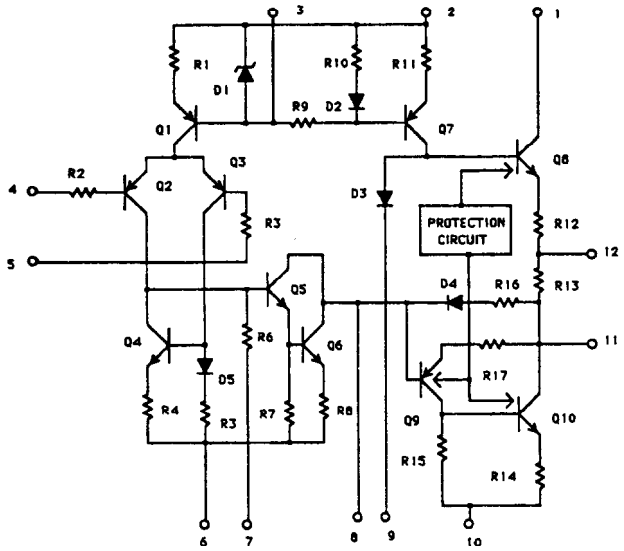
Q309
LC7821N (Analog Switch)



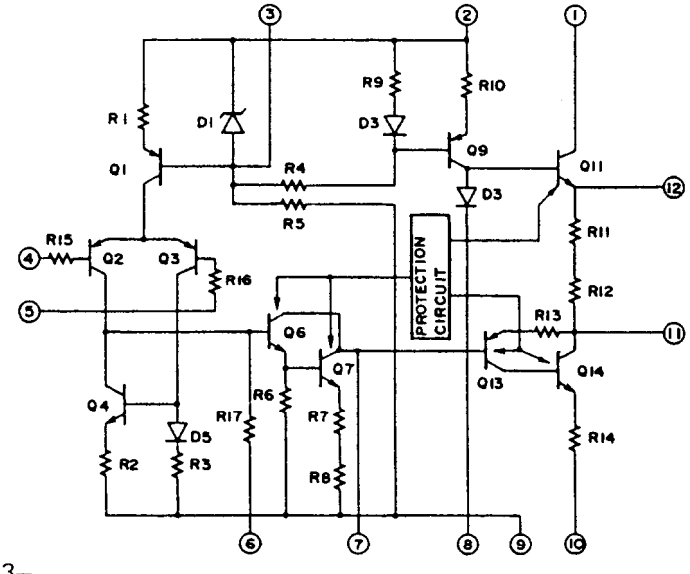
Q309

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	VIDEO-1'		16	VEE	Ground terminal
2	TUNER'	Input/output terminals of multi source of left channel.	17	S	Selector terminal
3	TAPE-1'	Control the analogue switch at the serial data.	18	$\overline{RES}$	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	$\overline{TAPE\text{-}1'\ REC}$				
5	LCOM1				
6	$\overline{TAPE\text{-}1\ MON}$	Input/output terminals of TAPE-1 signal			
7	TAPE-1	of left channel.			
8	LCOM2	Control the analogue switch at the serial data.	19	VDD	Power supply terminal (+15V)
9	TUNER	Input/output terminals of audio signal	20	RCOM3	Input/output terminals of audio signal of right channel.
10	VIDEO-1	of left channel.	21	VIDEO-1	Control the analogue switch at the serial data.
11	LCOM3	Control the analogue switch at the serial data.	22	TUNER	
12	Vss	Negative power supply terminal (-15V)	23	RCOM2	Input/output terminals of TAPE-1 signal
			24	TAPE-1	of right channel.
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	25	$\overline{TAPE\text{-}1\ MON}$	Control the analogue switch at the serial data.
			26	RCOM1	
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	27	$\overline{TAPE\text{-}1'\ REC}$	Input/output terminals of multi source
			28	TAPE-1'	of right channel.
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	29	TUNER'	Control the analogue switch at the serial data.
			30	VIDEO-1'	

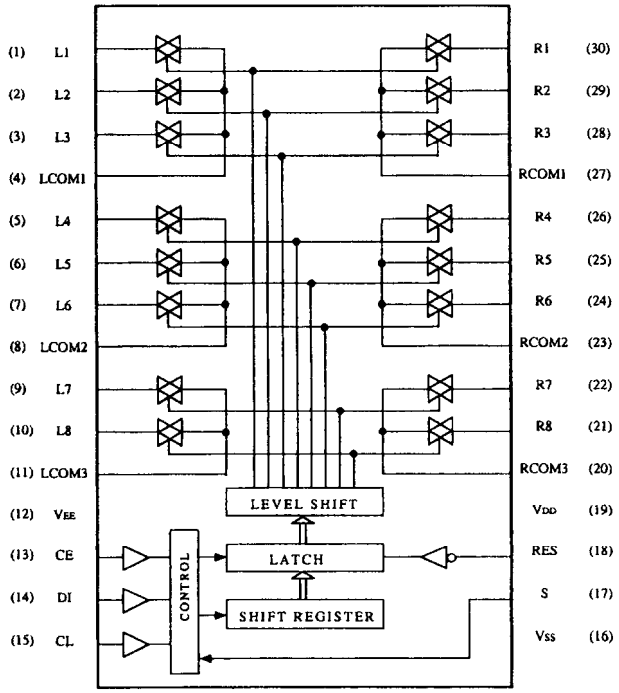
Q501, Q502, Q541
μPC1342V (Power Amplifier Driver)



Q571, Q572
μPC1225H (Power Amplifier Driver)



Q310, Q692
LC7822N (Analog Switch)



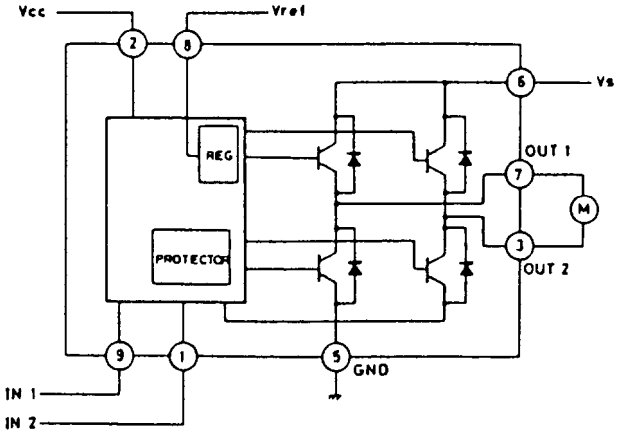
Q310

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	$\overline{\text{VIDEO-3' REC}}$		16	VEE	Ground terminal
2	VIDEO-2'	Input/output terminals of multi source of left channel.	17	S	Selector terminal
3	$\overline{\text{VIDEO-2' REC}}$	Control the analogue switch at the serial data.	18	$\overline{\text{RES}}$	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				
5	$\overline{\text{VIDEO-2 MON}}$	Input/output terminals of audio signal			
6	VIDEO-2	of left channel.			
7	$\overline{\text{VIDEO-3 MON}}$	Control the analogue switch at the serial data.			
8	LCOM2		19	VDD	Power supply terminal (+15V)
9	VIDEO-3'	Input/output terminals of VIDEO-3 signal	20	RCOM3	Input/output terminals of VIDEO-3 signal
10	VIDEO-3	of left channel.	21	VIDEO-3	of right channel.
11	LCOM3	Control the analogue switch at the serial data.	22	VIDEO-3'	Control the analogue switch at the serial data.
12	Vss	Negative power supply terminal (-15V)	23	RCOM2	Input/output terminals of audio signal
			24	$\overline{\text{VIDEO-3 MON}}$	of right channel.
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	25	VIDEO-2	Control the analogue switch at the serial data.
			26	$\overline{\text{VIDEO-2 MON}}$	
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	27	RCOM1	Input/output terminals of multi source
			28	$\overline{\text{VIDEO-2' REC}}$	of right channel.
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	29	VIDEO-2'	Control the analogue switch at the serial data.
			30	$\overline{\text{VIDEO-3' REC}}$	

Q692

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	SURROUND ON		16	VEE	Ground terminal
2	——		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				
5	MULTI	Input/output terminals of audio source of left channel.			
6	——	Control the analogue switch at the serial data.			
7	SURROUND ON				
8	LCOM2		19	VDD	Power supply terminal (+15V)
9	SURROUND OFF		20	RCOM3	
10	SURROUND ON		21	SURROUND ON	
11	LCOM3		22	SURROUND OFF	
12	Vss	Negative power supply terminal (-15V)	23	RCOM2	
			24	SURROUND ON	Input/output terminals of audio signal
13	CE	Chip enable terminal. Connect to the terminal FUNC of the microprocessor.	25	——	of right channel.
			26	MULTI	Control the analogue switch at the serial data.
14	DI	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	27	RCOM1	
			28	MULTI	
15	CL	Serial clock input terminal. Connect to the terminal CL of the microprocessor.	29	——	
			30	SURROUND ON	

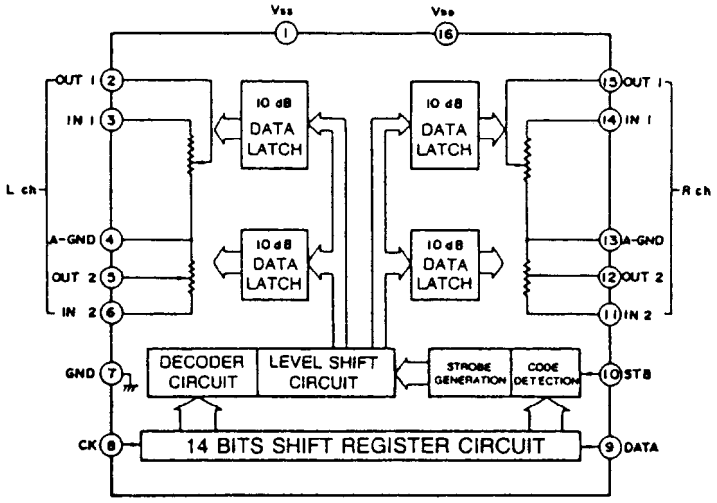
Q499
TA7291S (Electro Volume)

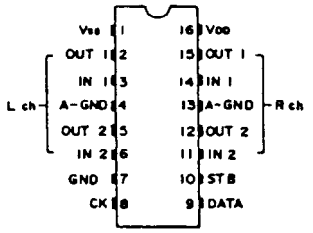


INPUT		OUTPUT		MODE
IN 1	IN 2	OUT 1	OUT 2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

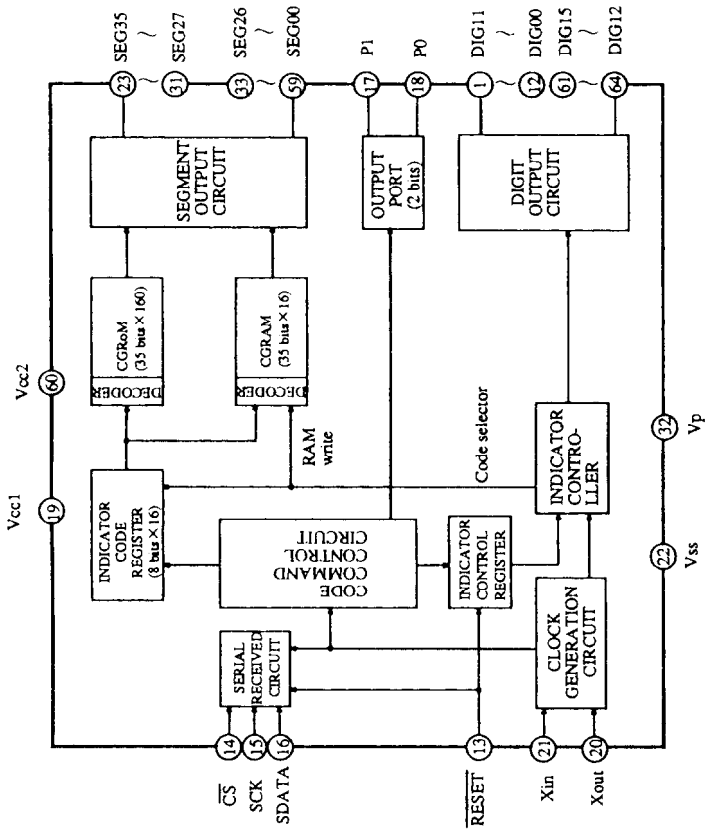
CCW: Counter clockwise direction
CW: Clockwise direction

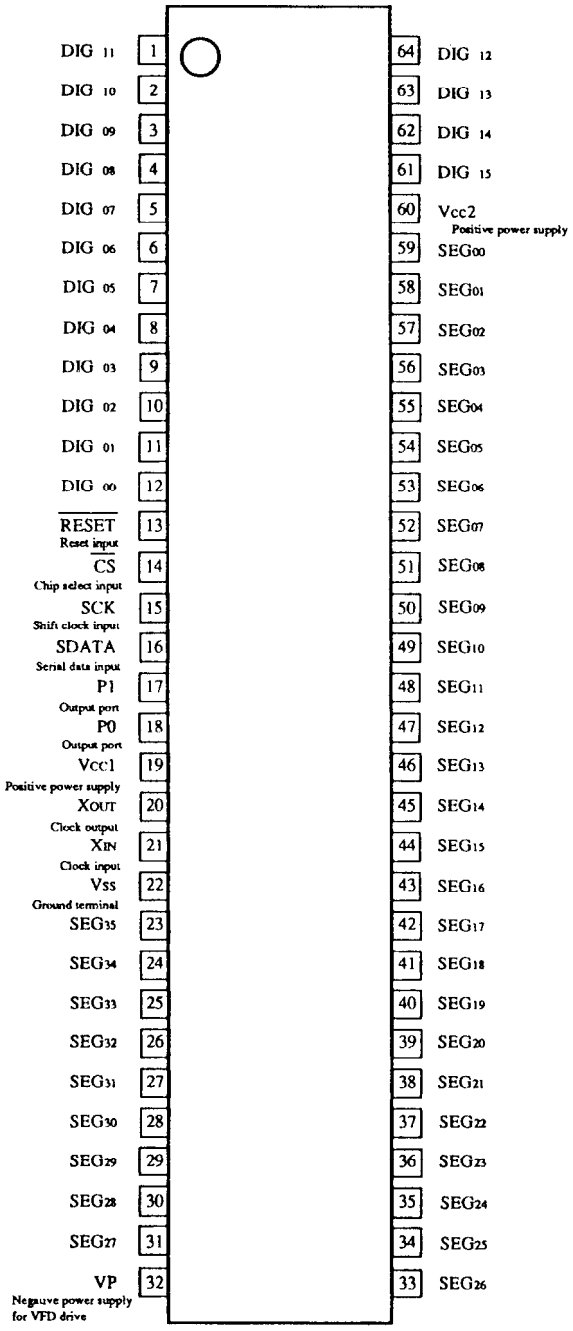
Q671
TC9213P (Electro Volume)





Q702
M66004FP (FL Tube Driver)

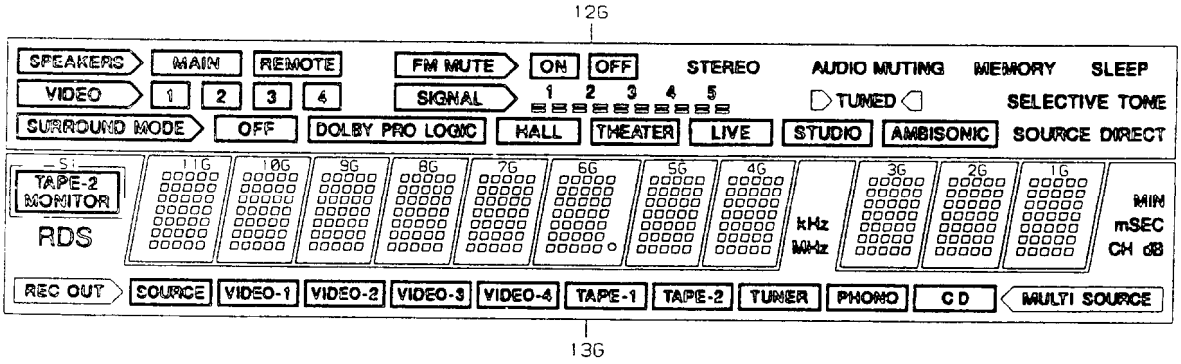


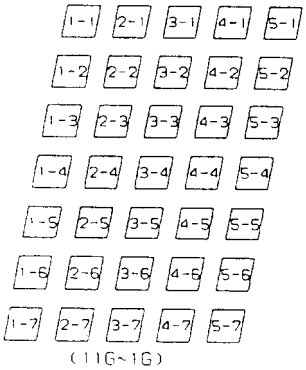


DIG00~DIG15:Digit output
SEG00~SEG35:Segment output

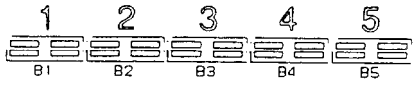
Q703

13-BT-131GK (FL Tube)





(11G~1G)

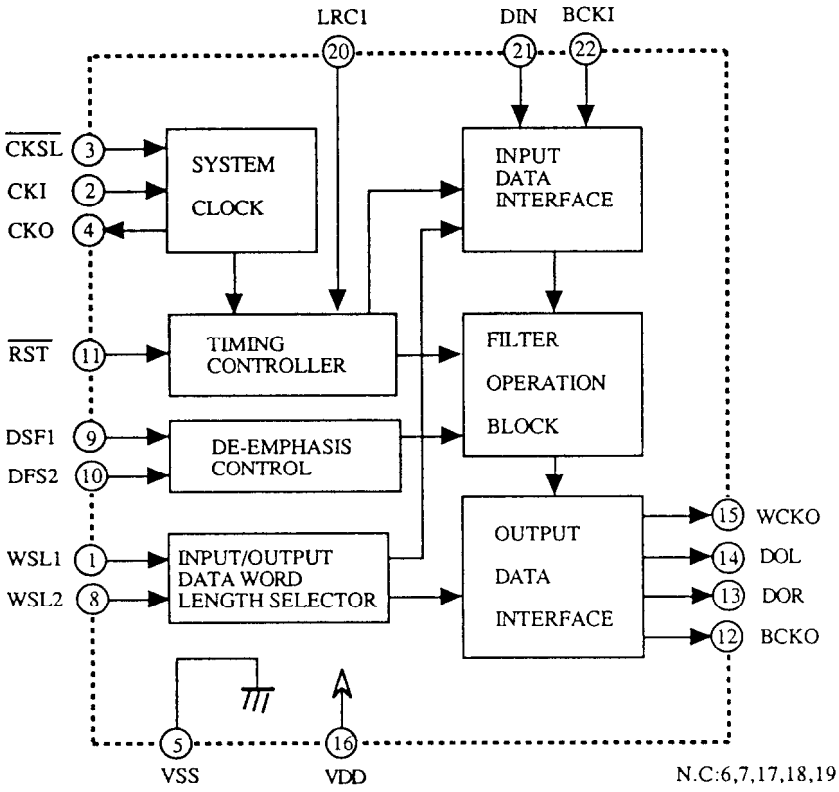


(12G)

	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	kHz	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				O	

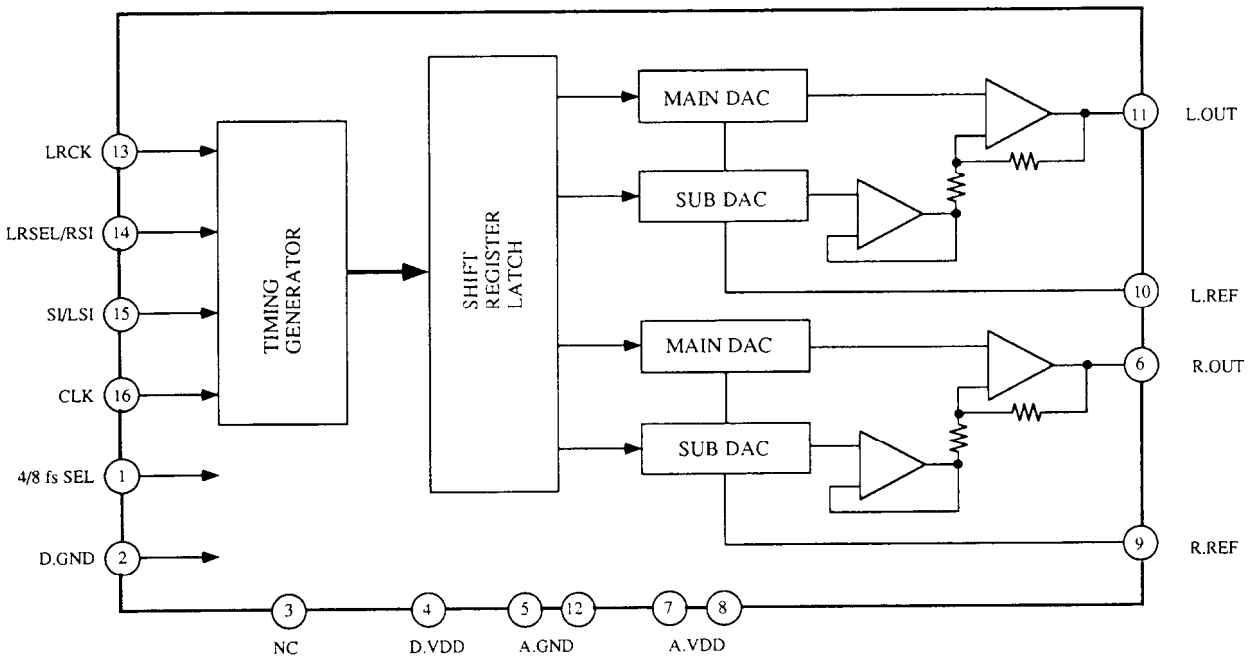
PIN NO.	64	63	62	61	60	59	58	57
CONNECTION	F2	F2	NP	NP	P36	P35	P34	P33
PIN NO.	56	55	54	53	52	51	50	49
CONNECTION	P32	P31	P30	P29	P28	P27	P26	P25
PIN NO.	48	47	46	45	44	43	42	41
CONNECTION	P24	P23	P22	P21	P20	P19	P18	P17
PIN NO.	40	39	38	37	36	35	34	33
CONNECTION	P16	P15	P14	P13	P12	P11	P10	P9
PIN NO.	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

Q801, Q802
SM5840ES (Digital Filter)



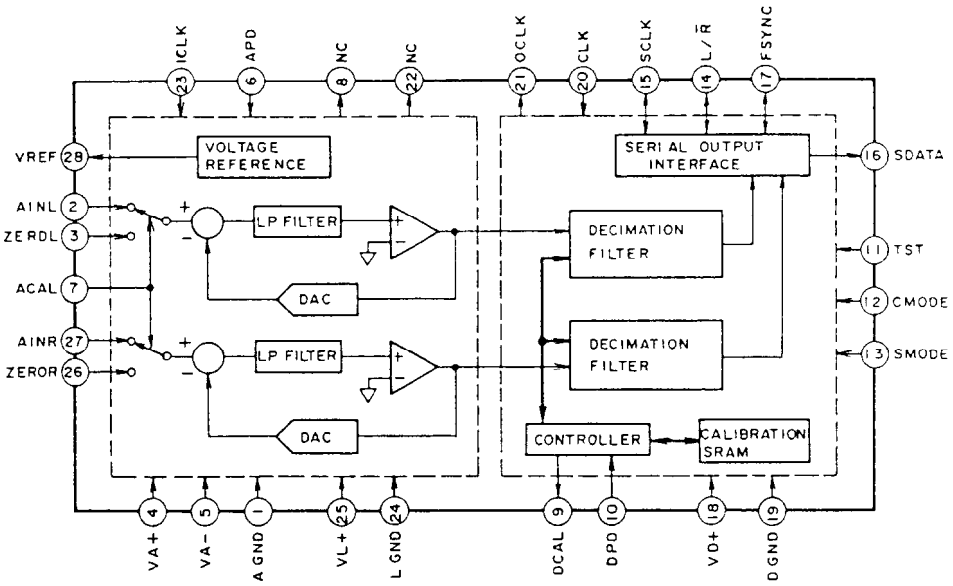
No.	Terminal	I/O	Function					
				Setting		Noise	Input/output data word length	
1	WSL1	I	Input/output data	WSL1	WSL2	shaper	input bit	Output bit
			word length selector	H	H	OFF	18 bits	20 bits
8	WSL2	I	terminals	H	L	ON	18 bits	18 bits
				L	H	ON	16 bits	18 bits
				L	L	ON	16 bits	16 bits
2	CKI	I	System clock input terminal					
3	CKSL	I	System clock selector terminal.384fs at the high level. 256fs at the low level.					
4	CKO	O	System clock output terminal					
5	VSS		Ground terminal					
				Setting		De-emphasis		
9	DSF1	I	De-emphasis selector	DSF1	DSF2	ON/OFF	fs	
				L	L	ON	44.1kHz	
10	DSF2	I	terminals	L	H	ON	48.0kHz	
				H	H	ON	32.0kHz	
				H	L	OFF	—	
11	RST	I	System reset.Reset and initializing at the low level.					
12	BCKO	O	Output bit clock					
13	DOR	O	Right channel 8fs data output					
14	DOL	O	Left channel 8fs data output					
15	WCKO	O	Output word clock					
16	VDD		Power supply terminal(Typical 5V)					
20	LRCI	I	Sample rate clock of input data					
21	BCKI	I	Input bit clock					
22	DIN	I	Input data					

Q803, Q804
μPD6376GS (16 Bits D/A Converter)



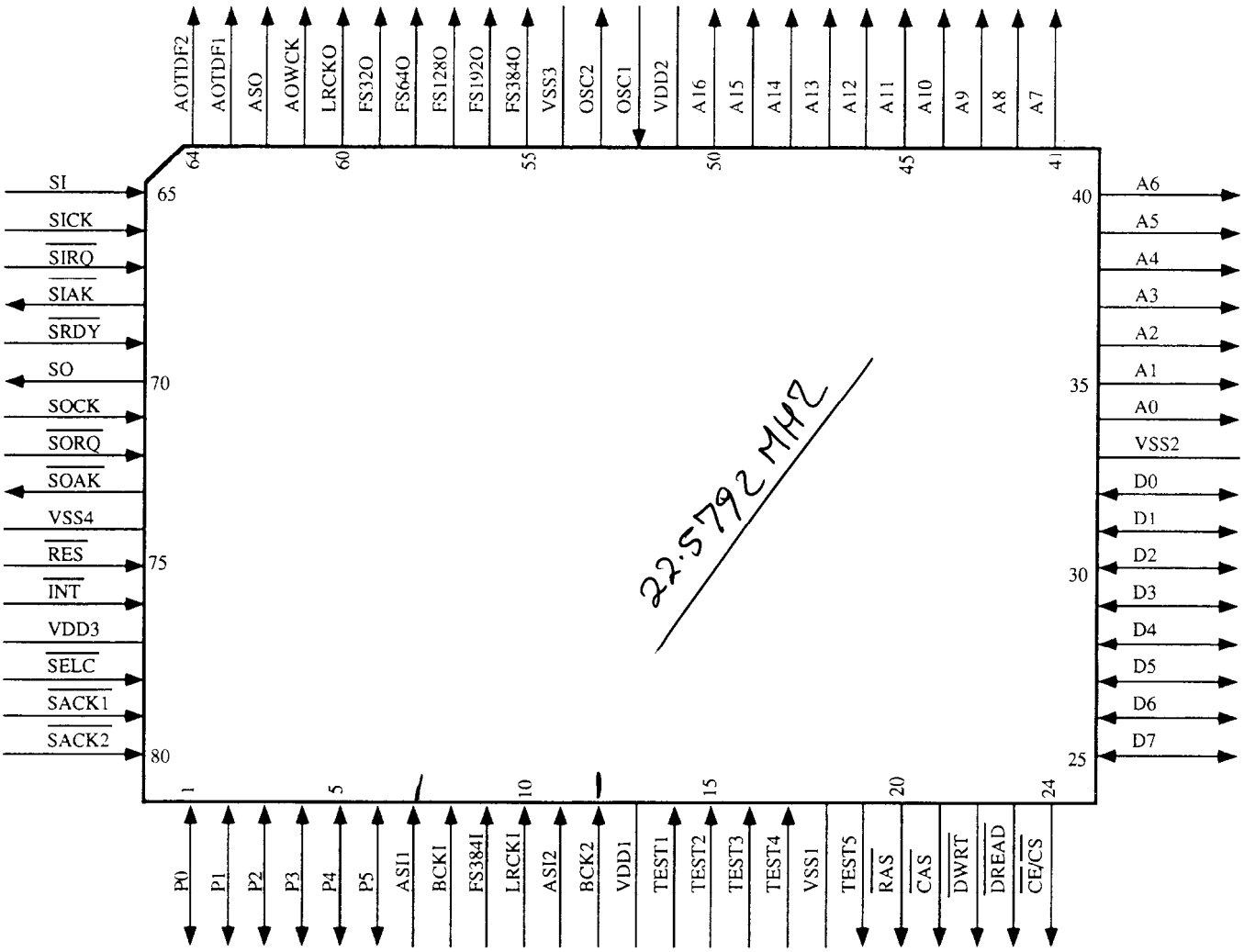
No.	Terminal	I/O	Description
1	4/8fs SEL	I	The data of left and right channels is input at the time sharing from pin 15 when this terminal is the low level. When this terminal is the high level, the left channel data is input from pin 15 and the right channel data is input from pin 14.
2	D.GND		Ground terminal for logic section
3	NC		
4	D.VDD		Power supply terminal for logic section
5	A.GND		Ground terminal for analog section
6	R.OUT	O	Output terminal of analog signal of right channel
7	A.VDD		Power supply terminal for analog section
8	A.VDD		Power supply terminal for analog section
9	R.REF		Reference voltage terminal for right channel
10	L.REF		Reference voltage terminal for left channel
11	L.OUT	O	Output terminal of analog signal of left channel
12	A.GND		Ground terminal for analog section
13	LRCK/WDCK	I	Input terminal for L/R discrimination signal of input data when the pin 1 is low level. Input terminal for word discrimination signal of input data when the pin 1 is high level.
14	LRSEL/RSI	I	Left and right selection terminal when pin 1 is the low level. Serial data input terminal of right channel when pin 1 is the high level.
15	SI/LSI	I	Left and right serial data input terminal when pin 1is the low level. Serial data input terminal of left channel when pin 1 is the high level.
16	CLK	I	Read clock input terminal of serial input data

Q808
CS5339KP (A/D Converter)

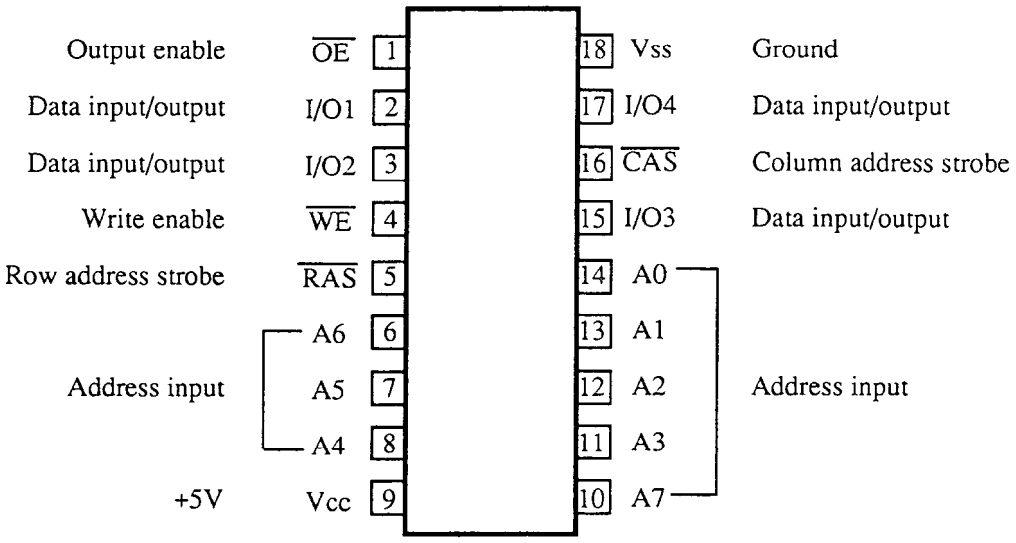


Pin No.	Mark	I/O	Function	Pin No.	Mark	I/O	Function
1	AGND		Analogue ground.	14	L/R	I/O	Input channel select.
2	AINL	I	Analogue input for the left channel.	15	SCLK	I/O	Serial data clock pin.
3	ZEROL	I	Zero level input for the left channel.	16	SDATA	O	Serial data output pin.
4	VA+		Analogue positive power supply(+5V)	17	FSYNC	I/O	Frame synchronization clock pin.
5	VA-		Analogue negative power supply(-5V)	18	VD+		Power supply for the digital section.(+5V)
6	APD	I	Power down pin for the analogue section.	19	DGND		Groun pin for the digital section.
			Power down mode when is low level.	20	CLK	I	Master clock input pin.
7	ACAL	I	Analogue calibration pin.Connect to DCAL.	21	OCLK	O	128fs clock output pin.
			H:Zero level input L:Analogue input	22	NC		
8	NC			23	ICLK	I	128fs clock input pin.
9	DCAL	O	Digital calibration pin.	24	LGND		Logic ground pin for the analogue section.
10	DPD	I	Power down pin for the digital section.	25	VL+		Logic power supply for the analogie section.(+5V)
11	TST	I	Test pin.	26	ZEROR	I	Zero level input pin for a right channel.
12	CMODE	I	Master clock select.L:CLK=256fs H:CLK=384fs	27	AINR	I	Analogue input pin for a right channel.
13	SMODE	I	Interface clock select.	28	VREF	O	Reference voltage output pin.(-3.68V)

Q809
LC83016E (Digital Signal Processor)



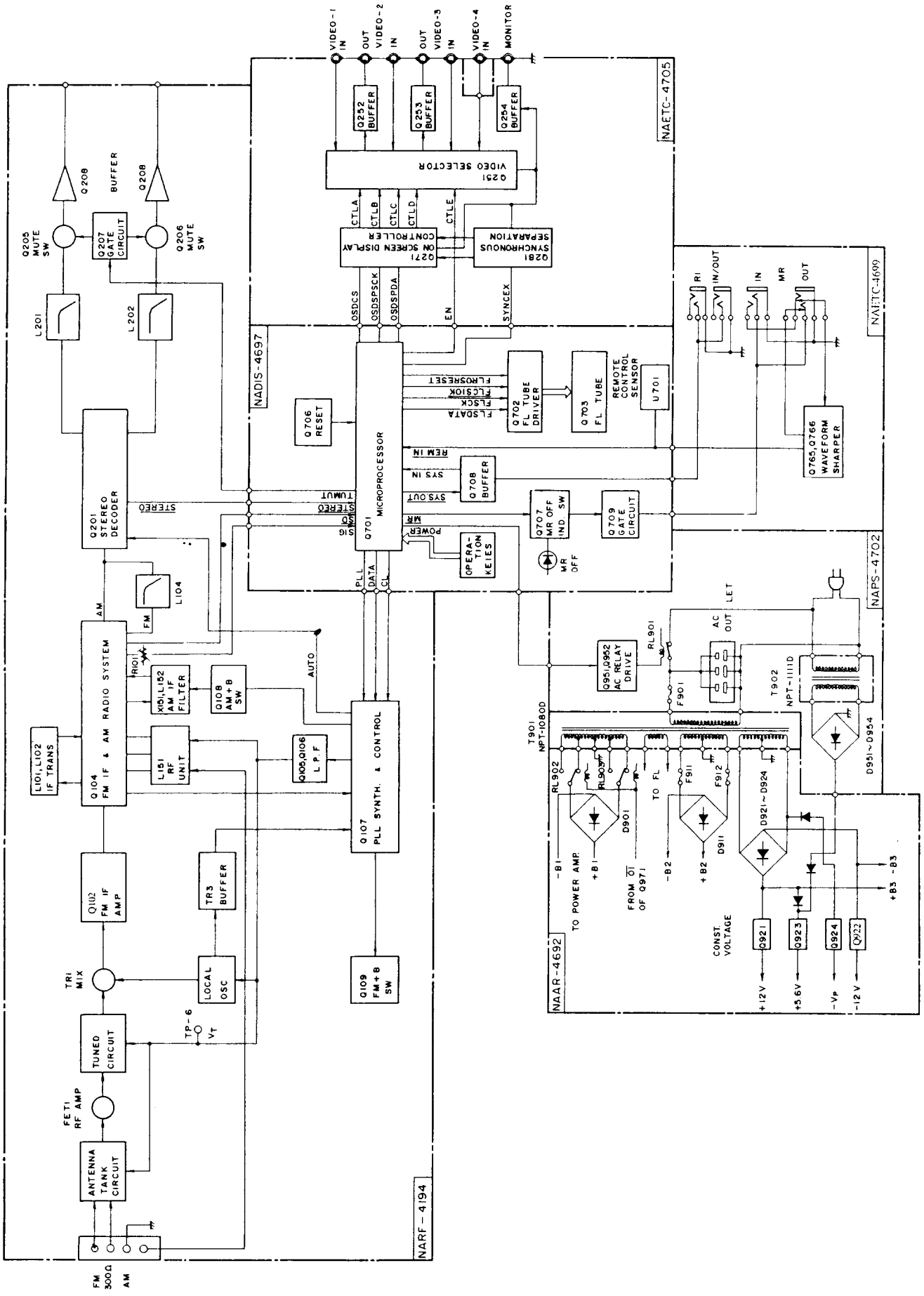
Q810
HM50464P-12/LH2464-10 (S-RAM)



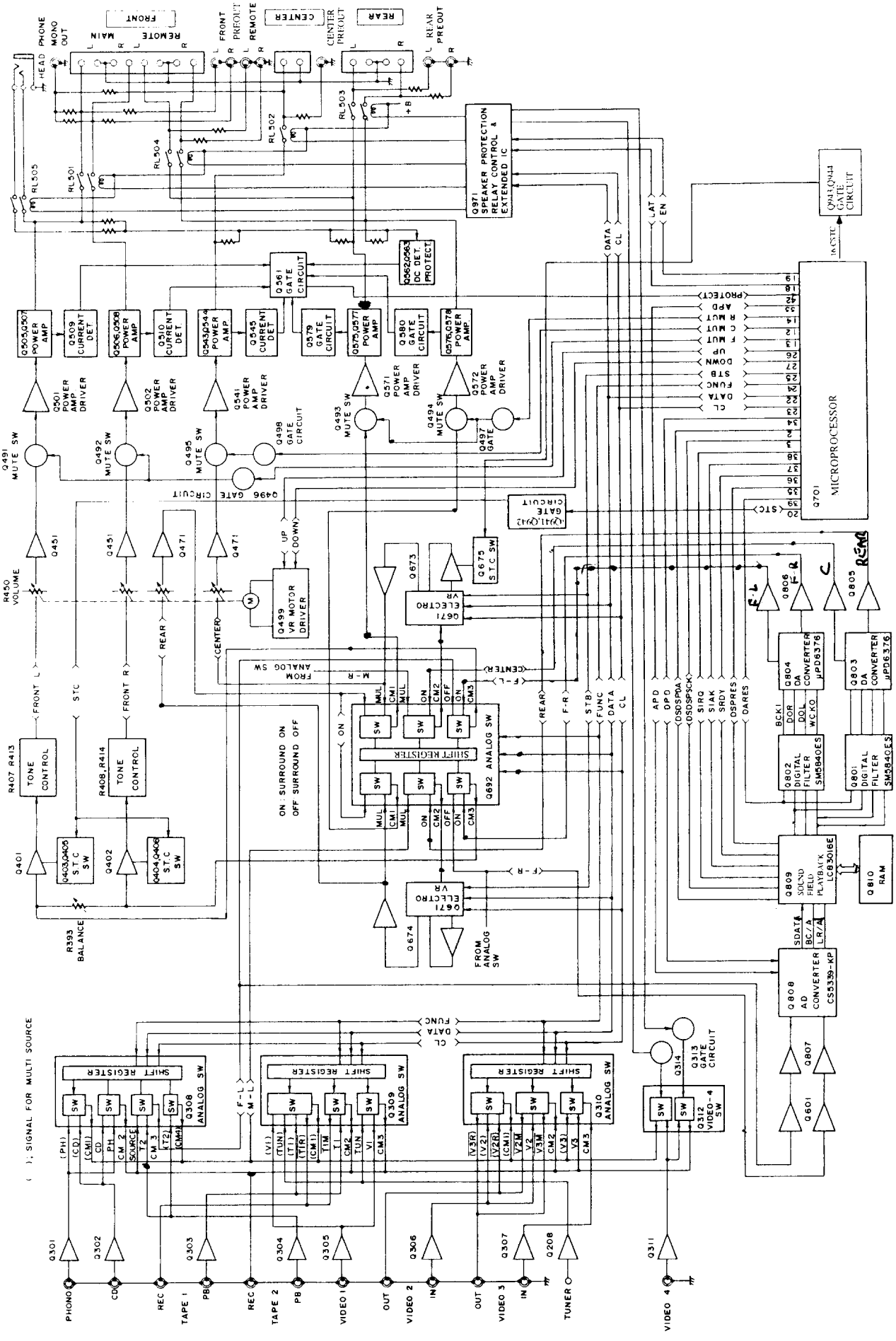
Pin No.	Terminal	I/O	Function
1~6	P0~P5	I/O	Input/output port of general purpose
7	ASI	I	Audio data serial input terminal 1
8	BCKI	I	Bit clock input terminal for input ASI1. Apply 32 fs or 64 fs.
9	FS384I	I	384 fs or 512 fs input terminal
10	LRCKI	I	Discrimination signal input terminal of channels L/R
11	ASI2	I	Audio data serial input terminal 2
12	BCK2	I	Bit clock input terminal for input ASI2. Apply 32 fs or 64 fs.
13	VDD1		Power supply terminal. 5V
14~17	TEST1~TEST4	I	Test terminals. Connect the ground terminal.
18	VSS1		Ground terminal
19	TEST5	O	Test terminal.
20	$\overline{\text{RAS}}$	O	RAS signal output terminal when access DRAM.
21	$\overline{\text{CAS}}$	O	CAS signal output terminal when access DRAM.
22	$\overline{\text{DWRT}}$	O	Data write signal output terminal when memory access.
23	$\overline{\text{DREAD}}$	O	Data read signal output terminal when memory access.
24	$\overline{\text{CE}}$/$\overline{\text{CS}}$	O	Chip enable signal output terminal of SRAM
25~32	D7~D0	I/O	Data input/output terminals of SRAM
33	VSS2		Ground terminal
34~50	A0~A16	O	Address output terminal of SRAM
51	VDD2		Power supply terminal. 5V
52	OSC1	I	Crystal resonator connection terminal.
53	OSC2	O	Crystal resonator connection terminal
54	VSS3		Ground terminal
55	FS384O	O	384 fs or 512 fs output terminal
56	FS192O	O	192 fs or 256 fs output terminal
57	FS128O	O	128 fs output terminal
58	FS64O	O	64 fs or 32 fs output terminal
59	FS32O	O	32 fs or 16 fs output terminal
60	LRCKO	O	1 fs output tterminal
61	AOWCK	O	2 fs or 1 fs output terminal
62	ASO	O	Audio data serial output terminal 1
63	AOTDF1	O	Audio data serial output terminal 2
64	AOTDF2	O	Audio data serial output terminal 3
65	SI	I	Serial data input from microprocessor
66	SICK	I	Serial clock input terminal for SI
67	$\overline{\text{SIRQ}}$	I	Request signal input of serial input
68	$\overline{\text{SIAK}}$	O	Output terminal shown serial input process
69	$\overline{\text{SRDY}}$	I	Input terminal of ready shown end of serial data input from mcroprocessor
70	SO	O	Serial data input terminal to microprocessor
71	SOCK	I	Serial clock input terminal for SO
72	$\overline{\text{SORQ}}$	I	Request signal input terminal of serial output
73	$\overline{\text{SOAK}}$	O	Output terminal shown serial output process
74	VSS4		Ground terminal
75	$\overline{\text{RES}}$	I	Reset terminal
76	$\overline{\text{INT}}$	I	Interruption request input
77	VDD3		Power supply terminal. 5V
78	$\overline{\text{SELC}}$	I	Initializing terminal of system clock
79	$\overline{\text{SACK1}}$	I	Initializing input terminal of FS384O
80	$\overline{\text{SACK2}}$	I	Initializing input terminal of each FG output clock

BLOCK DIAGRAM

– TUNER SECTION –



– AMPLIFIER SECTION –



( ): SIGNAL FOR MULTI SOURCE

FM section

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 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	DC voltmeter	L101	0±20mV	FM MUTE/MODE switch:ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
VCO		Fig.2	99.1MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	Frequency counter	R201	19kHz± 10Hz	
Stereo Distortion		Fig.3	99.1MHz Ext. mod.65dBf(60dB)	Channel L or R 1kHz	99.1MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than ±180°
Stereo Separation	1	Fig.3	99.1MHz Ext. mod. 65dBf(60dB)	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 19.2dBf(14dB)	—	99.1MHz	Oscilloscope	R101	Signal output	

AM section

120V model

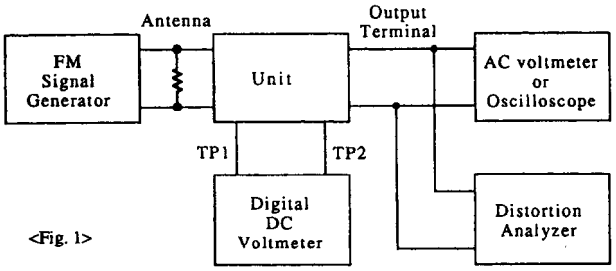
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	1.4±0.2V
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

Reference Specification
FM tuned voltage:87.9MHz-107.9MHz
More than1.3V-Less than 10V
AM tuned voltage:530kHz-1710kHz
1.4±0.2V-Less than 9.0V

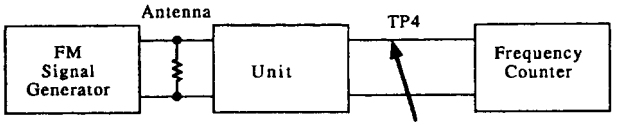
240V and Wolrdwide models

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±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

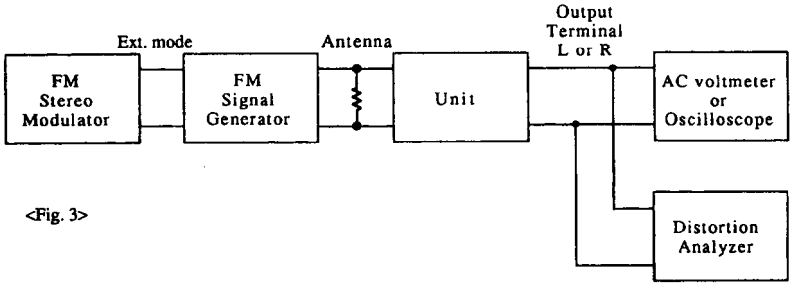
Reference Specification
FM tuned voltage:87.5MHz-108MHz
More than1.3V-Less than 10V
AM tuned voltage:522kHz-1611kHz
1.3±0.2V-Less than 9.0V
(230V model)
AM tuned voltage:531kHz-1602kHz
1.3±0.2V-Less than 9.0V
(Worldwide model)



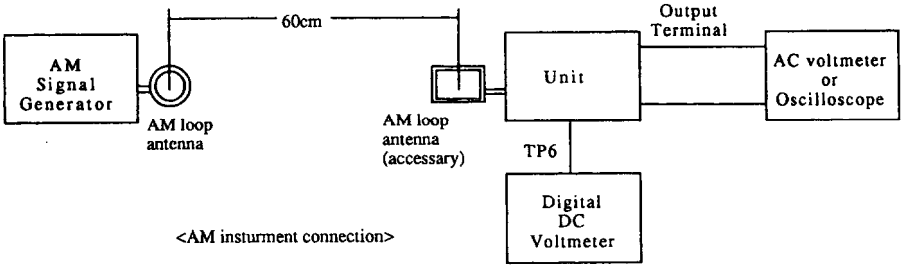
<Fig. 1>



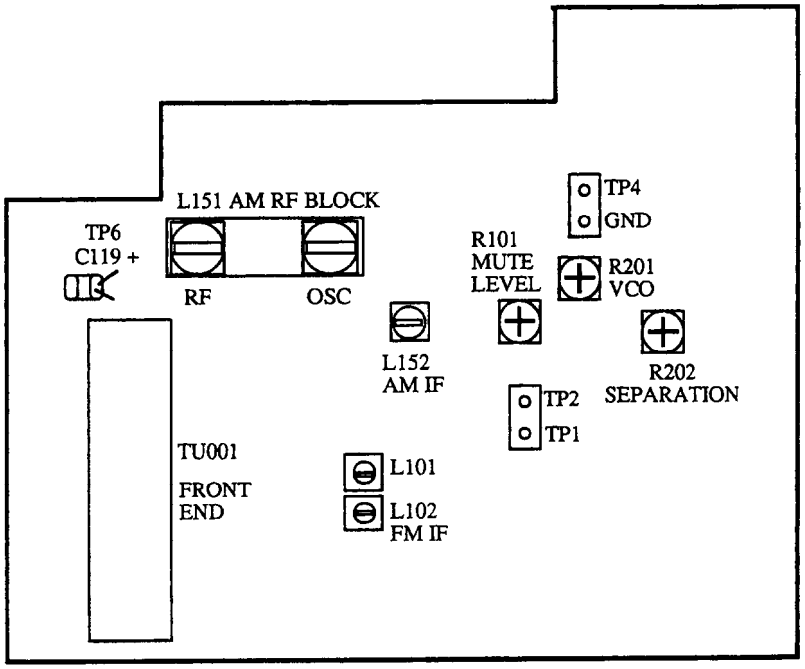
<Fig. 2>



<Fig. 3>

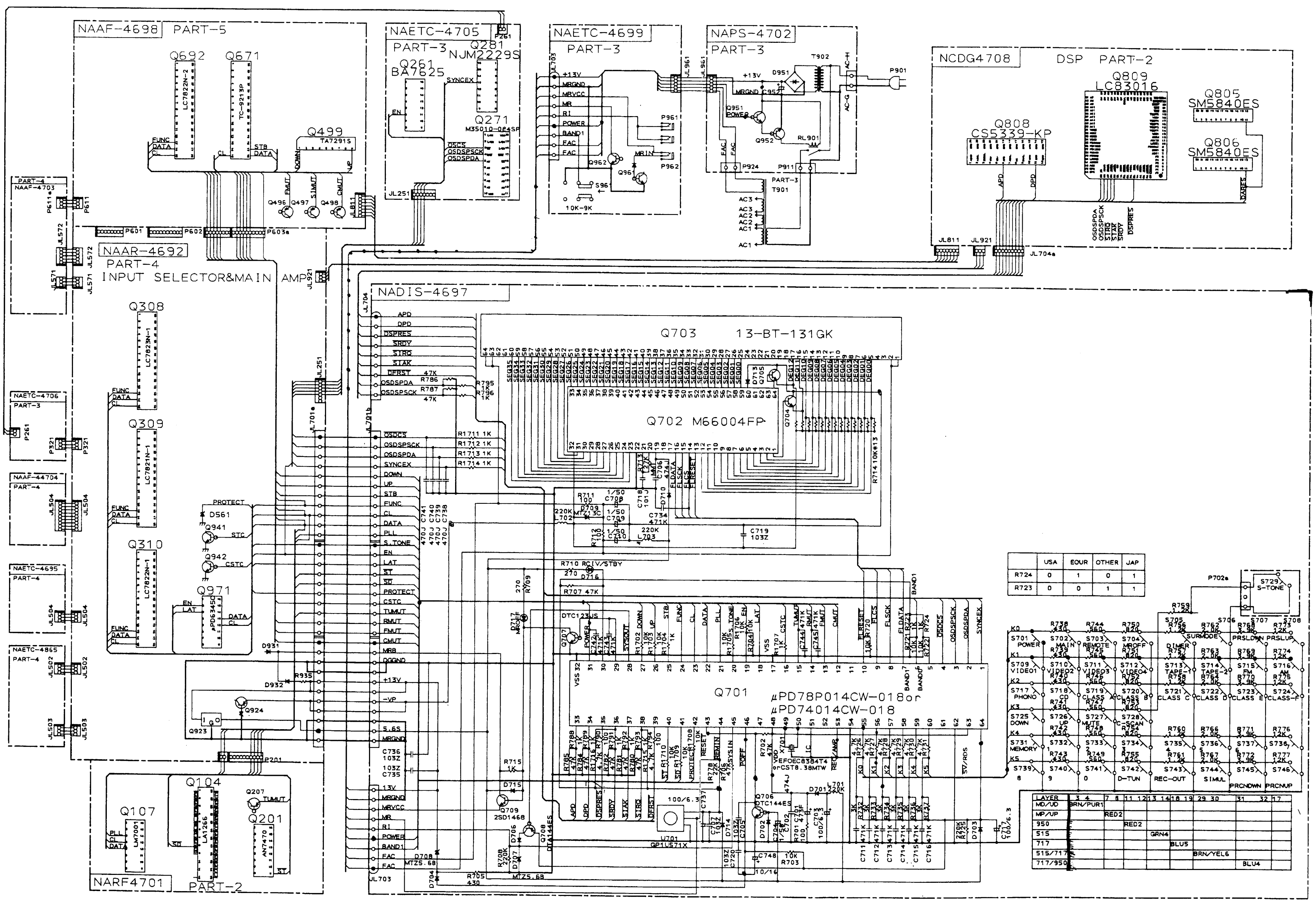


<AM insturment connection>



SCHEMATIC DIAGRAM PART 1

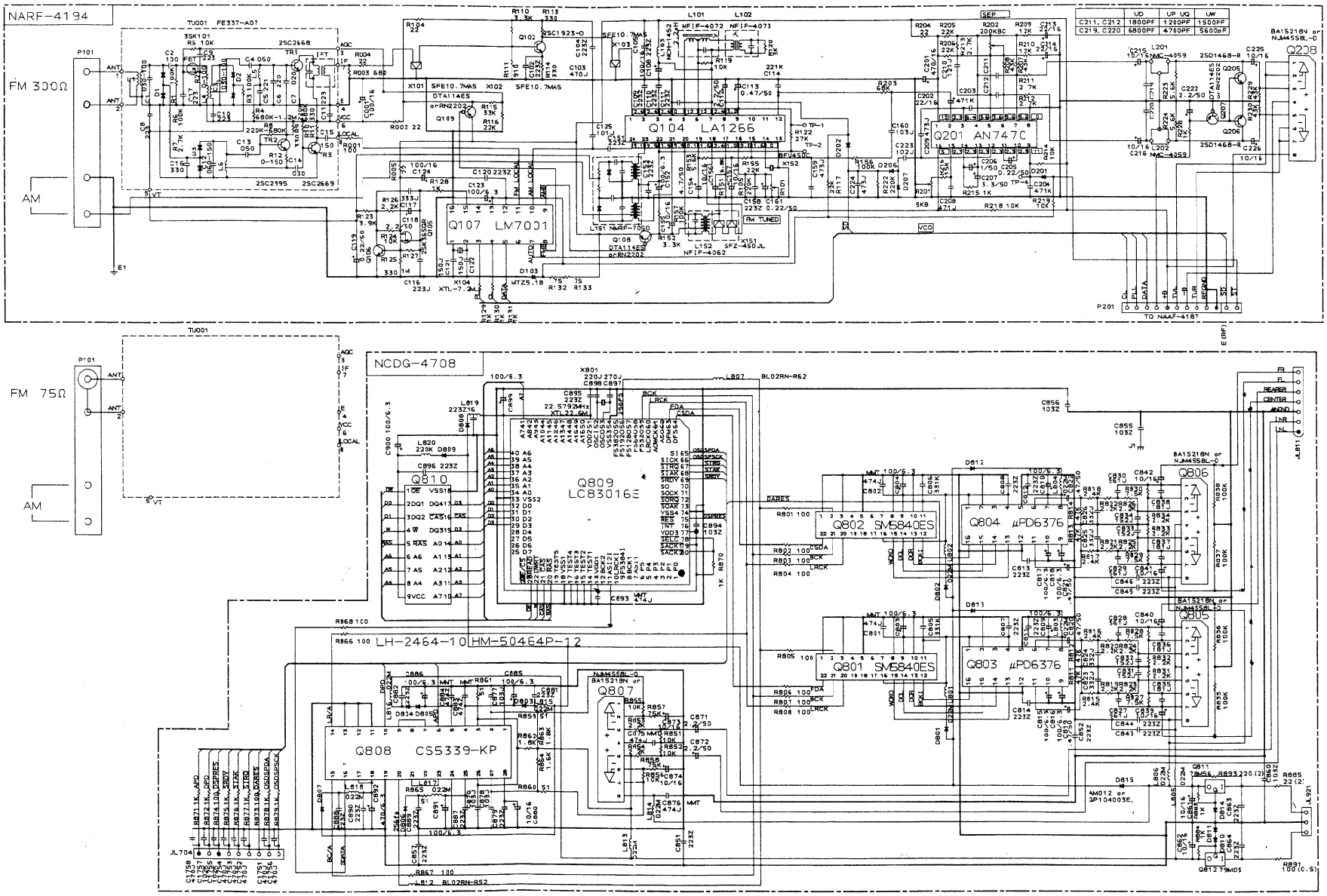
CONNECTION DIAGRAM OF MICROPROCESSOR



	USA	EOUR	OTHER	JAP
R724	0	1	0	1
R723	0	0	1	1

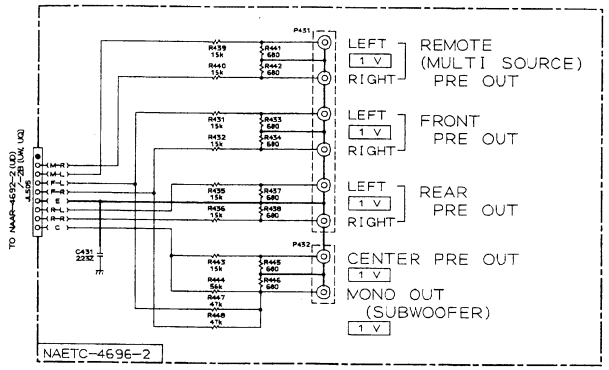
SCHEMATIC DIAGRAM PART 2

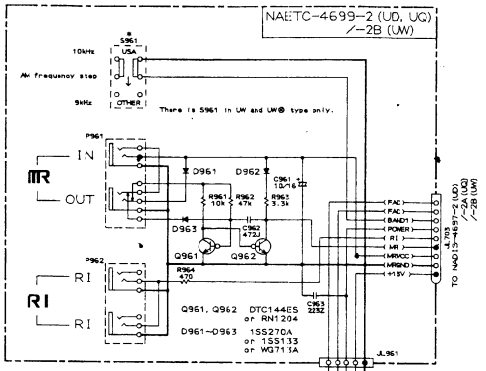
TUNER AND DSP SECTION



SCHEMATIC DIAGRAM PART 3

POWER SUPPLY AND VIDEO SECTION

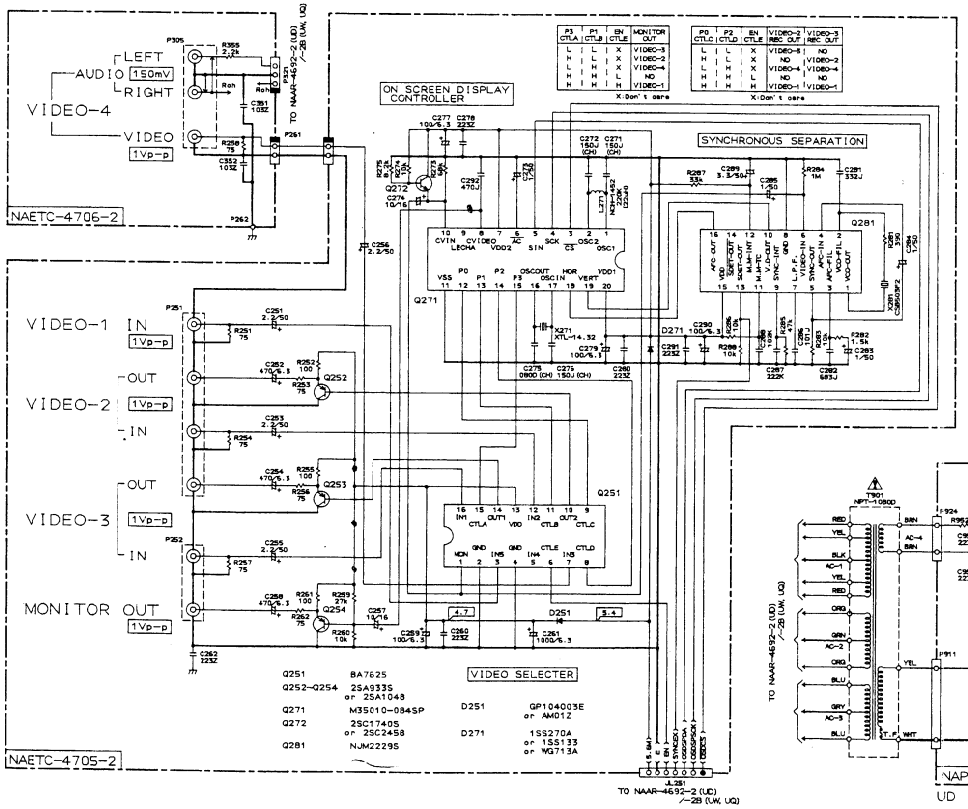


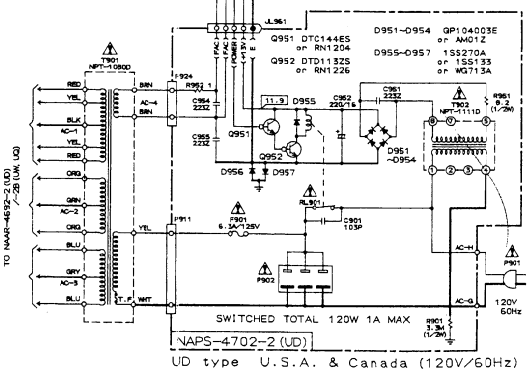


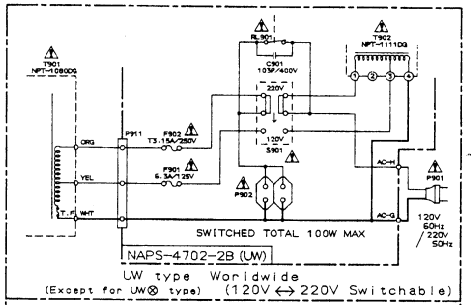
UD type : 120V/60Hz Area
UD⊗ type : U.S.A.
UD© type : Canada

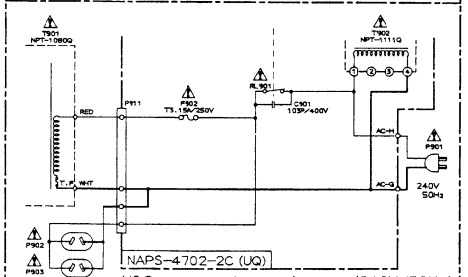
UW type : 120V or 220V Switchable
UW type : Worldwide
UW⊗ type : For PX

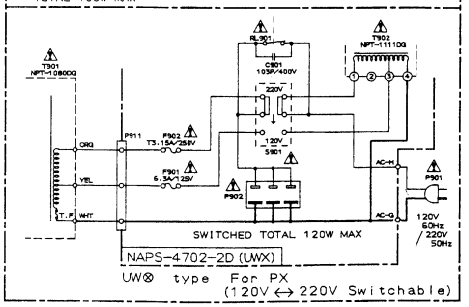
UQ type : 240V/50Hz Area
UQ⊗ type : Australia





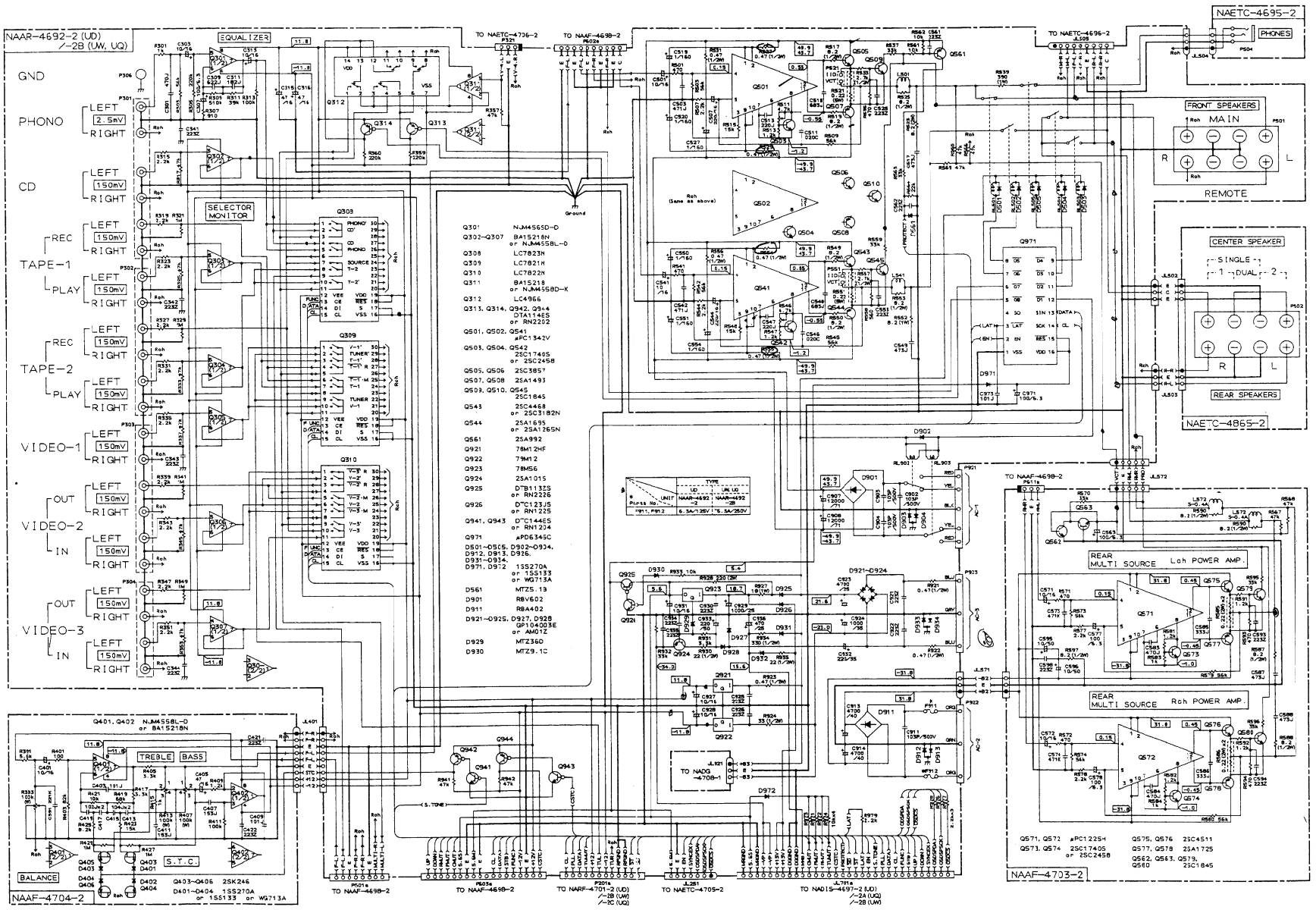






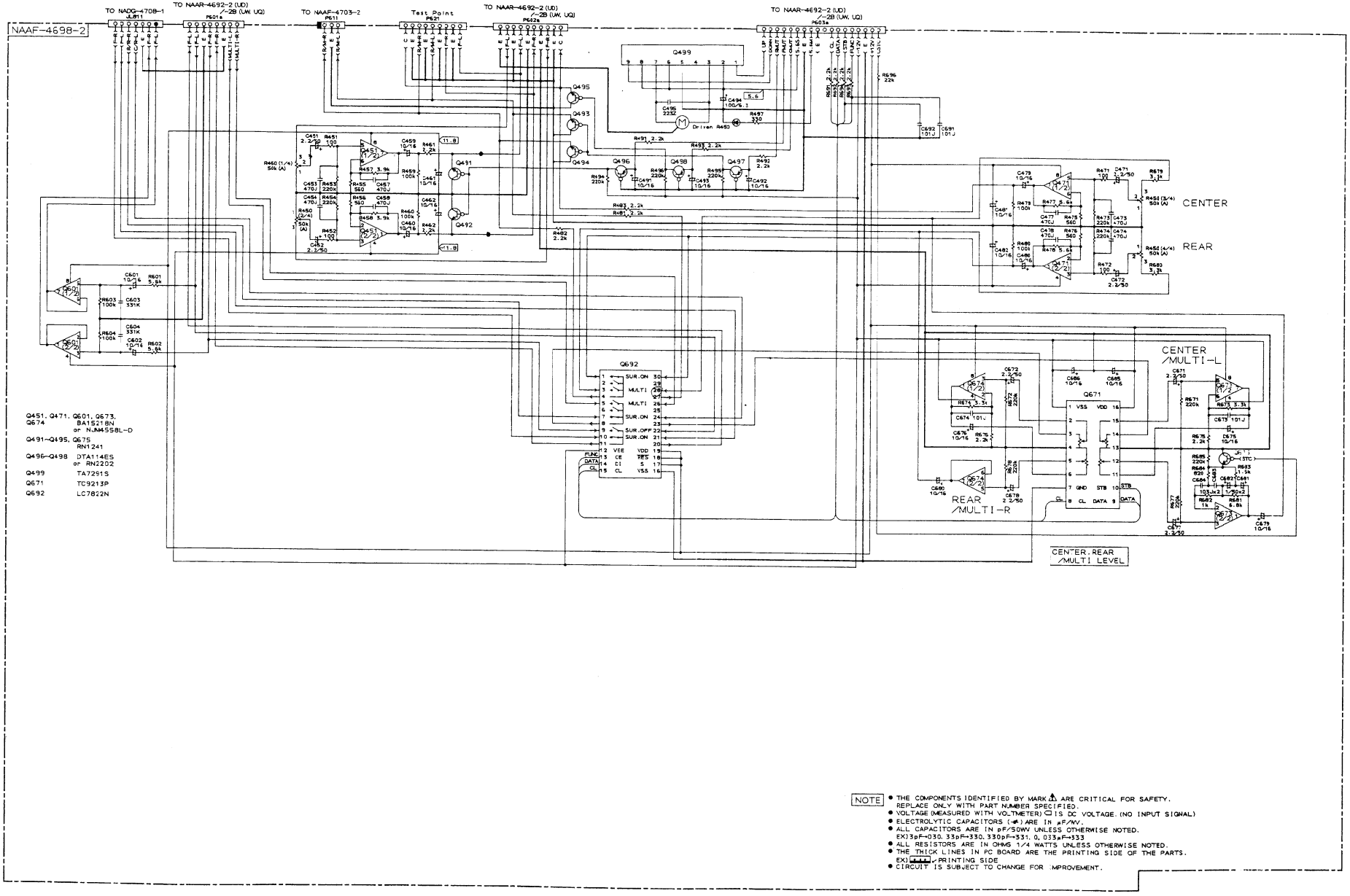
SCHEMATIC DIAGRAM PART 4

AUDIO SECTION



SCHEMATIC DIAGRAM PART 5

SURROUND SECTION



NOTE
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ☐ IS DC VOLTAGE. (NO INPUT SIGNAL)
- ELECTROLYTIC CAPACITORS (-#) ARE IN μF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 3pF→030, 33pF→330, 330pF→331, 0.033μF→333
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▬▬ : PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

PRINTED CIRCUIT BOARD – PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-4692-2/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q301	22240191	NJM4565D-D
Q302-Q307	22240247 or	BA15218N or
Q311	22240293	NJM4558L-D
Q308	22240339	LC7823N
Q309	22240280	LC7821N
Q310	22240270	LC7822N
Q312	22240025	LC4966
Q501,Q502	22240694	μPC1342V
Q541	22240694	μPC1342V
Q921	222780125NEC	78M12HF
Q922	222790125	79M12
Q923	222780565JRC	78M56
Q971	22240211	μPD6345C
	Transistors	
Q313,Q314	2213510 or	DTA114ES or
	2214350	RN2202
Q503,Q504	2213284 or	2SC1740S-R or
Q542	2212115	2SC2458-GR
Q505,Q506	2201803,	☆ 2SC3857-O,
	2201804 or	☆ 2SC3857-Y or
	2201806	☆ 2SC3857-P
Q507,Q508	2201793,	☆ 2SA1493-O,
	2201794 or	☆ 2SA1493-Y or
	2201796	☆ 2SA1493-P
Q509,Q510	2211633 or	2SC2229-O or
Q545	2211634	2SC2229-Y
Q543	2202523,	☆ 2SC4468-O,
	2202524,	☆ 2SC4468-Y,
	2202526,	☆ 2SC4468-P,
	2202292 or	☆ 2SC3182N-R or
	2202293	☆ 2SC3182N-O
Q544	2202513,	☆ 2SA1695-O,
	2202514,	☆ 2SA1695-Y,
	2202516,	☆ 2SA1695-P,
	2202282 or	☆ 2SA1265N-R or
	2202283	☆ 2SA1265N-O
Q561	2211792 or	2SA992-F or
	2211793	2SA992-E
Q924	2211455	2SA1015-GR
Q925	2213830 or	DTB113ZS or
	2214690	RN2226
Q926	2213640 or	DTC123JS or
	2214660	RN1205
Q941,Q943	221282 or	DTC144ES or
	2213560	RN1204
Q942,Q944	2213510 or	DTA114ES or
	2214350	RN2202

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D501-D505	223205 or	1SS270A or
D902-D904	223163	1SS133
D561	224450512	MTZ5.1B
D901	22380038	RBV602
D911	22380048	RBA402
D912,D913	223205 or	1SS270A or
D926	223163	1SS133
D921-D925	22380046 or	AM01Z or
D927,D928	22380035	GP104003E
D929	224453604	MTZ36D
D930	224450913	MTZ9.1C
D931-D934	223205 or	1SS270A or
D971,D972	223163	1SS133
	Coils	
L501,L502	231209S	S-0.4A
L541	231209S	S-0.4A
	Capacitors	
C303,C304	354741009	10μF,16V,Elect.
C307,C308	354721019	100μF,6.3V,Elect.
C309,C310	374726224	6200pF±5%,50V,Plastic
C311,C312	374721824	1800pF±5%,50V,Plastic
C313,C314	354741009	10μF,16V,Elect.
C315,C316	354744709	47μF,16V,Elect.
C501,C502	354741009	10μF,16V,Elect.
C503,C504	374724714	470pF±5%,50V,Plastic
C507,C508	354742219	220μF,16V,Elect.
C515,C516	374726834	0.068μF±5%,50V,Plastic
C517,C518	374724734	0.047μF±5%,50V,Plastic
C519-C522	354700109	1μF,160V,Elect.
C527,C528	354700109	1μF,160V,Elect.
C541	354741009	10μF,16V,Elect.
C542	374724714	470pF±5%,50V,Plastic
C544	354742219	220μF,16V,Elect.
C548	374726834	0.068μF±5%,50V,Plastic
C549	374724734	0.047μF±5%,50V,Plastic
C550,C551	354700109	1μF,160V,Elect.
C554	354700109	1μF,160V,Elect.
C907,C908	3504259	12000μF,71V,Elect.
C913,C914	3504260	4700μF,40V,Elect.
C923	354754729	4700μF,25V,Elect.
C924	354761029	1000μF,35V,Elect.
C927,C928	354741009	10μF,16V,Elect.
C929	354751029	1000μF,25V,Elect.
C931	354741009	10μF,16V,Elect.
C932	354762219	220μF,35V,Elect.
C933	354782219	220μF,50V,Elect.
C936	354754719	470μF,25V,Elect.
C971	354721019	100μF,6.3V,Elect.

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

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

CIRCUIT NO.	PART NO.		DESCRIPTION
	Resistors		
R511,R512	5210261		N06HR 5KBC,Trim
R517-R520	452530824		8.2 ohm,1/2W,Metal
R521,R522	4500031		0.22 ohm×2,5W+5W,Metal plate
R523,R524	451730824		8.2 ohm,2W,Metal
R525,R526	452530824		8.2 ohm,1/2W,Metal
R527-R532	452534794		0.47 ohm,1/2W,Metal
R533,R534	442522724		2.7 kohm,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	4500031		0.22 ohm×2,5W+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		2.7 kohm,1/2W,Metal oxide
R921-R923	452534794		0.47 ohm,1/2W,Metal
R924	442523304		33 ohm,1/2W,Metal oxide
R927	441621804		18 ohm,1W,Metal oxide
R928	441722214		220 ohm,2W,Metal oxide
R930,R935	442522204		22 ohm,1/2W,Metal oxide
R934	442523314		330 ohm,1/2W,Metal oxide
	Relaies		
RL501	25065339		NRL-2P5A-DC24-046
RL502	25065379		NRL-1P5A-DC24-058
RL503,RL504	25065339		NRL-2P5A-DC24-046
RL505	25065470		NRL-2P1A-DC24-079
RL902,RL903	25065435	⚠	NRL-1P10A-DC24-072
	Fuses		
F911,F912	252153	⚠	6.3A-TSC <D>
	252079	⚠	6.3A-SE-EAK <W>
	Fuseholders		
F911A,F912A	25050065	⚠	YSH403T
	Plugs		
P201A	25055500		NPLG-12P475
P321A	25055133		NPLG-3P117
P601A	25055498		NPLG-8P473
P602A	25055499		NPLG-10P474
P603A	25055503		NPLG-18P478
	Terminals		
P301-P303	25045300		NPJ-6PDBL-159
P304	25045303		NPJ-4PDBL-162
P501	25060125		NTM-8PDMN058
	Wire traps		
JL401	25050531		NSCT-9P354
JL504	25050525		NSCT-3P348
JL701A	25050612 or		NSCT-32P423 or
	25050705		NSCT-32P509

HEADPHONE TERMINAL PC BOARD (NAETC-4695-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P504	25045257	YKB26-5138,Headphone terminal

OUTPUT TERMINAL PC BOARD (NAETC-4696-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P431	25045300	NPJ-6PDBL159,Terminal
P432	25045298	NPJ-2PDBL157,Terminal

DISPLAY CIRCUIT PC BOARD (NADIS-4697-2/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Remote control sensor	
U701	24130007	GP1U571X
	FL tube	
Q703	212120	13-BT-131GK
	ICs	
Q701	22240716	μPD78014CW-018
Q702	22240685R9	M66004FP
	Transistors	
Q704,Q705	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q706	221282 or	DTC144ES or
	2213560	RN1204
Q707	2213640 or	DTC123JS or
	2214660	RN1205
Q708	2213510 or	DTA114ES or
	2214350	RN2202
Q709	2212794	2SD1468-R
	Diodes	
D701-D704	223205 or	1SS270A or
D706,D710	223163	1SS133
D707,D708	224450562	MTZ5.6B
D709	224451303	MTZ13C
D713-D715	223205 or	1SS270A or
	223163	1SS133
D716,D717	225142	SEL2913K,LED
	Resonator	
X701	3010220	EFOEC8384T4
	Coils	
L701-L703	233454K220	NCH-1452 220K
	Capacitors	
C701	3000074	0.047F,5.5V,Super
C702,C706	375524744	0.47μF±5%,50V,Plastic
C703	354721019	100μF,6.3V,Elect.
C704	354780109	1μF,50V,Elect.
C708-C710	354780109	1μF,50V,Elect.
C717,C737	354721019	100μF,6.3V,Elect.
C748	354741009	10μF,16V,Elect.
	Resistor	
R714	49163103413	10 kohm×13,1/10W,Array

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

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

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switches	
S701-S728	25035548	NPS-111-S510
S731-S746	25035548	NPS-111-S510
	Wire trap	
JL701B	25050578 or	NSCT-32P389 or
	25050726	NSCT-32P530
	Plug	
P702A	25055510	NPLG-3P485
	Holders	
D712A,D716A	27190843	
Q703A	27190913Y	

SURROUND CIRCUIT PC BOARD (NAAF-4698-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q451,Q471	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q499	22240239	TA7291S
Q601	22240247 or	BA15218N or
Q673,Q674	22240293	NJM4558L-D
Q671	22240266	TC9213P
Q692	22240270	LC7822N
	Transitors	
Q491-Q495	2213631 or	RN1241-A or
Q675	2213632	RN1241-B
Q496-Q498	2213510 or	DTA114ES or
	2214350	RN2202
	Capacitors	
C451,C452	354780229	2.2 μ F,50V,Elect.
C459-C462	354741009	10 μ F,16V,Elect.
C471,C472	354780229	2.2 μ F,50V,Elect.
C479-C482	354741009	10 μ F,16V,Elect.
C491-C493	354741009	10 μ F,16V,Elect.
C494	354721019	100 μ F,6.3V,Elect.
C601,C602	354741009	10 μ F,16V,Elect.
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,C680	354741009	10 μ F,16V,Elect.
C681,C682	354780109	1 μ F,50V,Elect.
C683,C684	374721034	0.01 μ F±5%,50V,Plastic
C685,C686	354741009	10 μ F,16V,Elect.
	Resistor	
R450	5144017Y	N16RQL50KA25F,Variable,Volume
	Sockets	
P601	25050445	NSCT-8P269
P602	25050446	NSCT-10P270
P603	25050450	NSCT-18P274
P611	2000802	NSAS-6P758
	Plug	
P621	25055411	NPLG-9P393

CIRCUIT NO.	PART NO.	DESCRIPTION
	Wire trap	
JL811	25050758	NSCT-7P557

RI/MR TERMINAL PC BOARD (NAETC-4699-2/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q961,Q962	221282 or	DTC144ES or
	2213560	RN1204
	Diodes	
D961-D963	223205 or	1SS270A or
	223163	1SS133
	Capacitors	
C961	354741009	10 μ F,16V,Elect.
C962	374724724	4700pF±5%,50V,Plastic
	Jacks	
P961	25045293	HSJ-1003-01-012
P962	25045172	HSJ-1003-01-020
	Switch	
S961	25065286	NSS-22112,AM band <W>
	Wire trap	
JL961	25050527	NSCT-5P350

STC SWITCH PC BOARD (NASW-4700-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
S729	25035548	NPS-111-S510,Switch
P702B	25050454	NSCT-3P278,Socket

TUNER CIRCUIT PC BOARD (NARF-4701-2/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
TU001	240088	FE337-A07
	ICs	
Q104	22240039	LA1266
Q107	22240090	LM7001
Q201	22240242	AN7470
Q208	22240247 or	BA15218N or
	22240293	NJM4558L-D
	Transistors	
Q102	2211723	2SC1923-O
Q105	2212445	2SK365-GR
Q106	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q108,Q109	2213510 or	DTA114ES or
Q207	2214350	RN2202
Q205,Q206	2212794	2SD1468-R
	Diodes	
D103	224450512	MTZ5.1B
D201,D202	223205 or	1SS270A or
D206,D207	223163	1SS133

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

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

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transformers	
L101	233401	NFIF-4072
L102	233402	NFIF-4073
L152	232139	NMIF-4062
	Coils	
L103	233454M022	NCH-1452 022M
L151	232148	NMRF-7050
L201,L202	233355A	NMC-4059
	Ceramic filters	
X101,X103	3010071	SFE10.7MA5
X151	3010123	SFZ-450JL
X152	3010076	BFU-450C
	Resonator	
X104	3010141	XTL-7.2M,Crystal
	Capacitors	
C001	354741019	100 μ F,16V,Elect.
C108,C124	354741019	100 μ F,16V,Elect.
C112,C118	354780229	2.2 μ F,50V,Elect.
C113	354784799	0.47 μ F,50V,Elect.
C117	374723334	0.033 μ F±5%,50V,Plastic
C119,C205	354782299	0.22 μ F,50V,Elect.
C123,C152	354721019	100 μ F,6.3V,Elect.
C154	354780479	4.7 μ F,50V,Elect.
C155-C157	354741009	10 μ F,16V,Elect.
C159	374724734	0.047 μ F±5%,50V,Plastic
C160	374721034	0.01 μ F±5%,50V,Plastic
C161	353782299	0.22 μ F,50V,Elect.
C201	354744719	470 μ F,16V,Elect.
C202	354742209	22 μ F,16V,Elect.
C206	353780109	1 μ F,50V,Elect.
C207	354780339	3.3 μ F,50V,Elect.
C208	370134714	470pF±5%,100V,Plastic
C209,C224	374724734	0.047 μ F±5%,50V,Plastic
C211,C212	374721824	1800pF±5%,50V,Plastic <D>
	374721524	1500pF±5%,50V,Plastic <W>
C213,C214	354742209	22 μ F,16V,Elect.
C215,C216	354741009	10 μ F,16V,Elect.
C219,C220	374726824	6800pF±5%,50V,Plastic <D>
	374725624	5600pF±5%,50V,Plastic <W>
C222	354780229	2.2 μ F,50V,Elect.
C223	374721024	1000pF±5%,50V,Plastic
C225,C226	354741009	10 μ F,16V,Elect.
	Trim resistors	
R101	5210266	N06HR100KBC
R201	5210261	N06HR5KBC
R202	5210267	N06HR200KBC
	Terminal	
P101	25060160	NTM-4PDMN086 <D>
	25060117	NTM-2PDMN051 <W>
	Socket	
P201	25050447	NSCT-12P271

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4702-2/2B/2D)

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistors		
Q951	221282 or		DTC144ES or
	2213560		RN1204
Q952	2213650 or		DTD113ZS or
	2214680		RN1226
	Diodes		
D951-D954	22380046 or		AM01Z or
	22380035		GP104003E
D955-D957	223205 or		1SS270A or
	223163		1SS133
	Power transformer		
T902	2300670	⚠	NPT-1111D <D>
	2300672	⚠	NPT-1111DG <W>
	Relay		
RL901	25065248	⚠	NRL-1P15A-DC12-29
	Capacitors		
C901	3500065A	⚠	DE7150FZ103PAC400/125V,IS
C952	354742219		220 μ F,16V,Elect.
	Resistors		
R901	431523355	⚠	3.3 Mohm,1/2W,Solid <D>
R951	452530824	⚠	8.2 ohm, 1/2W, Metal
	Fuse		
F901	252153	⚠	6.3A-TSC
F902	252076	⚠	3.15A-SE-EAK <W>
	Fuseholders		
F901A	25050065	⚠	YSH403T
F902A	25050065	⚠	YSH403T <W>
	AC outlet		
P902	25050388	⚠	NSCT-6P215 <D/PX>
	25050640	⚠	NSCT-4P451 <W>
	Switch		
S901	25065437	⚠	NSS-22157P <W>

REAR AMPLIFIER PC BOARD (NAAF-4703-2)

CIRCUIT NO.	PART NO.		DESCRIPTION
	ICs		
Q571,Q572	22240108		μ PC1225H
	Transistors		
Q562,Q563	2211732 or		2SC1845-F or
Q579,Q580	2211733		2SC1845-E
Q573,Q574	2213284 or		2SC1740S-R or
	2212115		2SC2458-GR
Q575,Q576	2202063,	☆	2SC4511-O,
	2202064 or	☆	2SC4511-Y or
	2202066	☆	2SC4511-P
Q577,Q578	2202053,	☆	2SA1725-O,
	2202054 or	☆	2SA1725-Y or
	2202056	☆	2SA1725-P

CIRCUIT NO.	PART NO.	DESCRIPTION
	Coils	
L571,L572	231209S	S-0.4A
	Capacitors	
C563	354721019	100 μ F,6.3V,Elect.
C571,C572	354741009	10 μ F,16V,Elect.
C577,C578	354721019	100 μ F,6.3V,Elect.
C585,C586	374723334	0.033 μ F±5%,50V,Plastic
C587,C588	374724734	0.047 μ F±5%,50V,Plastic
C595,C596	354781009	10 μ F,50V,Elect.
	Resistors	
R585,R586	4500027	0.22 ohm×2,2W+2W,Metal plate
R587-R590	452530824	8.2 ohm,1/2W,Metal
R597	452530824	8.2 ohm,1/2W,Metal
	Plug	
P611A	25055234	NPLG-3P218
	Wire traps	
JL571	25050280	NSCT-3P108
JL572	25050282	NSCT-5P110

TONE CONTROL CIRCUIT PC BOARD (NAAF-4704-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q401,Q402	22240247 or	BA15218N or
	22240293	NJM4558L-D
	Transistors	
Q403-Q406	2211945	2SK246-GR
	Diodes	
D401-D404	223205 or	1SS270A or
	223163	1SS133
	Capacitors	
C401,C402	354741009	10 μ F,16V,Elect.
C405,C406	354744709	47 μ F,16V,Elect.
C407,C408	374721534	0.015 μ F±5%,50V,Plastic
C411,C412	374721534	0.015 μ F±5%,50V,Plastic
C413-C416	374721044	0.1 μ F±5%,50V,Plastic
C417-C420	374721024	1000pF±5%,50V,Plastic
	Variable resistors	
R393	5104225	N11RGLC250KWT22Z,Balance
R407,R413	5104230	N14RLC100KWT22Z,Tone

VIDEO CIRCUIT PC BOARD (NAETC-4705-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q251	22240373	BA7625
Q271	22240719	M35010-084SP
Q281	22240374	NJM2229S
	Transistors	
Q252-Q254	2213354 or	2SA933S-R or
	2212125	2SA1048-GR
Q272	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D251	22380046 or	AM01Z or
	22380035	GP104003E
D271	223205 or	1SS270A or
	223163	1SS133
	Resonators	
X271	3010167	XTL-14.32M
X281	3010168	CSB503F2
	Coil	
L271	233454K220	NCH-1452 220K
	Capacitors	
C251,C253	354780229	2.2 μ F,50V,Elect.
C252,C254	354724719	470 μ F,6.3V,Elect.
C255,C256	354780229	2.2 μ F,50V,Elect.
C257,C274	354741009	10 μ F,16V,Elect.
C258	354724719	470 μ F,6.3V,Elect.
C259	354721019	100 μ F,6.3V,Elect.
C261	354721029	1000 μ F,6.3V,Elect.
C273	354780109	1 μ F,50V,Elect.
C277,C279	354721019	100 μ F,6.3V,Elect.
C281	374723324	3300pF±5%,50V,Plastic
C282	374726834	0.068 μ F±5%,50V,Plastic
C283-C285	354780109	1 μ F,50V,Elect.
C289	354780339	3.3 μ F,50V,Elect.
C290	354721019	100 μ F,6.3V,Elect.
	Terminals	
P251	25045339	NPJ-4PDYE-190
P252	25045395Y	NPJ-2PDYE-221
	Wire trap	
JL251	25050529	NSCT-7P352
	Plug	
P261	25055132	NPLG-2P116

VIDEO-4 INPUT TERMINAL PC BOARD (NAETC-4706-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P305	25045402	NPJ-3PDBL227,Terminal
P261	2009990281	NSAS-4P0409,Socket
P321	2000871	NSAS-6P827,Socket

DIGITAL CIRCUIT PC BOARD

DIGITAL CIRCUIT PC BOARD (NADG-4708-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q801,Q802	22240554R9	SM5840ES
Q803,Q804	22240555R9	μ PD6376GS
Q805-Q807	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q808	22240524	CS5339-KP
Q809	22240718R3	LC83016E
Q810	22240607 or	HM50464P-12 or
	22240720	LH2464-10
Q811	222780565JRC	78M56
Q812	222790055JRC	79M05FA
	Diodes	
D801-D814	223205 or	1SS270A or
	223163	1SS133
D815	22380035 or	GP1040003E or
	22380046	AM01Z
	Coils	
L801-L806	233454M022	NCH-1452 022M
L807,L812	230906	BL02RN2-R62
L813-L818	233454M022	NCH-1452 022M
L819	3030015	DSS-306-55F-223Z16
L820	233454M022	NCH-1452 022M
	Resonator	
X801	3010219	XTL-22.6M,Crystal
	Capacitors	
C801,C802	375524744	0.47 μ F±5%,50V,Plastic
C803,C804	354721019	100 μ F,6.3V,Elect.
C809,C810	354721019	100 μ F,6.3V,Elect.
C815-C818	354721019	100 μ F,6.3V,Elect.
C819-C822	354784799	0.47 μ F,50V,Elect.
C823-C826	374723324	3300pF±5%,50V,Plastic
C827-C830	374725614	560pF±5%,50V,Plastic
C831-C834	374721524	1500pF±5%,50V,Plastic
C835-C838	370131814	180pF±5%,100V,Plastic
C839-C842	354741009	10 μ F,16V,Elect.
C861,C862	354741009	10 μ F,16V,Elect.
C870	374721034	0.01 μ F±5%,50V,Plastic
C871,C872	354780229	2.2 μ F,50V,Elect.
C873,C874	354741009	10 μ F,16V,Elect.
C875,C876	375524744	0.47 μ F±5%,50V,Plastic
C877,C878	374721034	0.01 μ F±5%,50V,Plastic
C880	354741009	10 μ F,16V,Elect.
C883,C884	375524744	0.47 μ F±5%,50V,Plastic
C885,C886	354721019	100 μ F,6.3V,Elect.
C891	354721019	100 μ F,6.3V,Elect.
C892	354724719	470 μ F,6.3V,Elect.
C893	375524744	0.47 μ F±5%,50V,Plastic
C899,C890	354721019	100 μ F,6.3V,Elect.
	Resistors	
R885	441722204	22Ω,2W,Metal oxide
R891	442521014	100Ω,1/2W,Metal oxide
R893	441722214	220Ω,2W,Metal oxide
	Wire traps	
JL704	25050760	NSCT-9P555
JL921	25050754	NSCT-3P549

SPEAKER TERMINAL PC BOARD (NAETC-4865-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P502	25060125	NTM-8PDMN058
JL502	25050270	NSCT-6P98

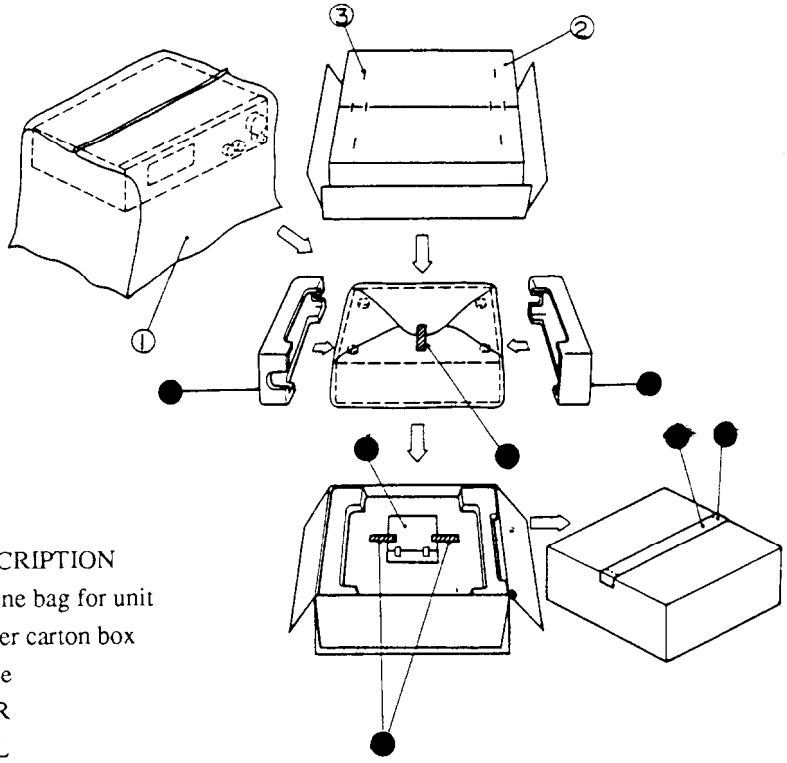
NOTE:

The TX-SV717PROUWXD and TX-SV717PROUWXG types are the same as the TX-SV717PROUW type with the exception of the following sections.

		UWXD/UWXG		UW		
PAGE	REF. NO.	PART NO.	SPECIFICATIONS	PART NO.	SPECIFICATIONS	DESCRIPTION
5	U11	1A443502-2D	NAPS-4702-2D	1A443502-2B	NAPS-4702-2B	Power supply circuit pc board ass'y
5 5	P901	253163Y or 253174Y	AS-UC-6 #18	253172 or 253092-1A	AS-CEE-2	Power supply cord
52		-		29341838		Instruction manual
52		25055251	CV-CP	25055018	CV-K-1	Conversion plug
5	1	27121769		27121767		Rear panel
52	2	29052569		29052568		Master carton box
52		28330072		-		Three caps
52		29365021		-		Warranty card
52		29358002J		-		Service station list

-:Not used

PACKING VIEW



REF.NO.	PART NO.	DESCRIPTION
1	29100034A	Styrene bag for unit
2	29052568	Master carton box
3	282301	Staple
4	29091615	Pad R
5	29091614	Pad L
6	261504	Adhesive tape
7	29110071	PP tape
8	Accessary bag ass'y	
	29341836	Instruction manual
	29341837	Instruction manual <C>
	29341838	Instruction manual <W>
	292111	FM antenna <D>
	292112	FM antenna <W>
	232140	AM loop antenna
	2010200	Connection cord, RI
	3010054	UM-3,Two batteries
	24140253	RC-253M,Remote control transmitter
	25055018	CV-K-1,Conversion plug <W>
	29365019A	Warranty card <N>
	29358002J	Service station list <N>
	29100097	Styrene bag for accessary
	25065462	YAE21-0237, FM antenna adaptor <W>

NOTE: <D>:120V model only
<W>:Worldwide model only
<N>:U.S.A. model only
<C>:Canadian model only

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