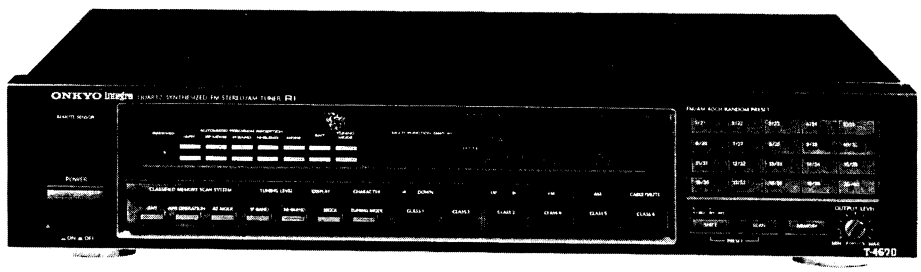
T-4670

SERIAL No. 3349V

ONKYO SERVICE MANUAL

SYNTHESIZED
FM STEREO/AM TUNER
MODEL T-4670



Silver and Black models

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 PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

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

TABLE OF CONTENTS

ONKYO AUDIO COMPONENTS

SPECIFICATIONS

FM:

Tuning Range:	87.50 – 108.00 MHz (50/25kHz steps) and/or 88.00 – 108.00MHz
Usable Sensitivity:	Mono: 10.3dBf, 0.9μV, IHF 0.8μV DIN (75 ohms) Stereo: 17.2dBf, 2.0μV, IHF 20μV DIN (75 ohms)
50dB Quieting Sensitivity:	Mono: 16.1dBf, 1.7μV (75 ohms) Stereo: 36.1dBf, 17μV (75 ohms)
Capture Ratio:	1.3dB (Wide)
Image Rejection Ratio:	100dB
IF Rejection Ratio:	100dB
Signal-to-Noise Ratio:	Mono: 85dB, IHF Stereo: 77dB, IHF
Selectivity:	60dB DIN (Narrow)
AM Suppression Ratio:	55dB
Total Harmonic Distortion:	Mono: 0.03% (Wide) Stereo: 0.07% (Wide)
Frequency Response:	30 – 15,000Hz+0.5 – 1.0dB
Stereo Separation:	45dB at 1kHz (Wide) 33dB at 70 – 10,000Hz (Wide)
Output Voltage:	0 – 1 V
Muting Level:	17.2dBf, 2.0μV (75ohms)

AM:

Tuning Range:	522 – 1611kHz (9kHz steps)
Usable Sensitivity:	25μV
Image Rejection Ratio:	40dB
IF Rejection Ratio:	40dB
Signal-to-Noise Ratio:	40dB
Total Harmonic Distortion:	0.7%
Output Voltage:	0~300mV

General

Dimensions (W×H×D):	435×92×366mm 17-1/8"×3-5/8"×14-7/16"
Weight:	4.2kg 9.3lbs.
Supplied accessories:	• AM loop antenna×1 • FM T-shaped antenna×1 • Connecting cable×1 • **RI** remote control cable×1 • Remote control transmitter

Specifications and features are subejct to change without notice.

SERVICE PROCEDURES

1. Safety-check out

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 chassis.

Specifications: more than 10MΩ.

2. Memory preservation

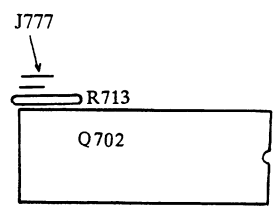
This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to change the back-up system. Note 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.

3. Changing the AM band step

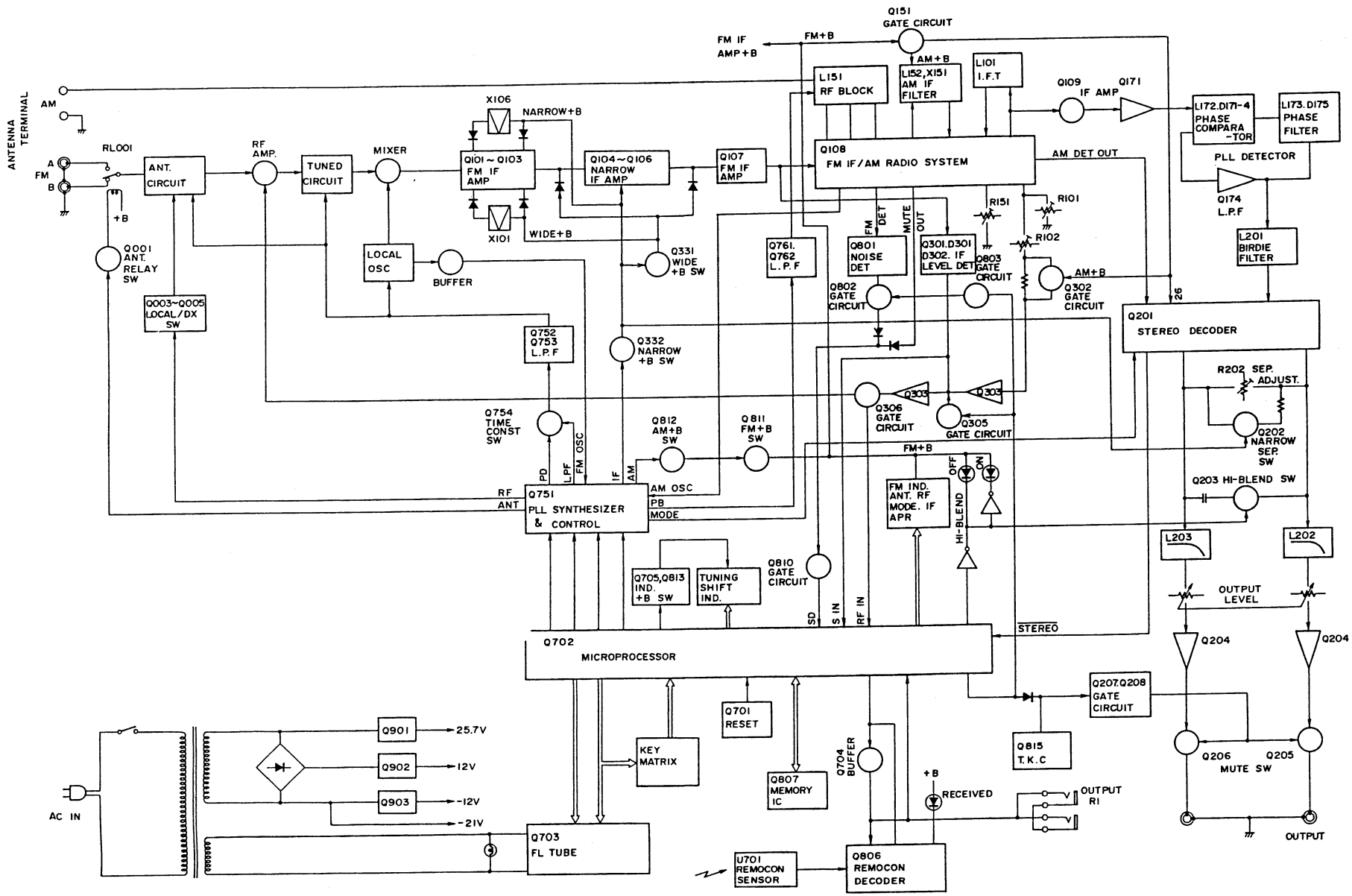
When change the band step, refer the table as shown below.

MODEL	BAND STEP	J777
UD	10kHz→ 9kHz	Additional
UG/UQ	9kHz→10kHz	Eliminated

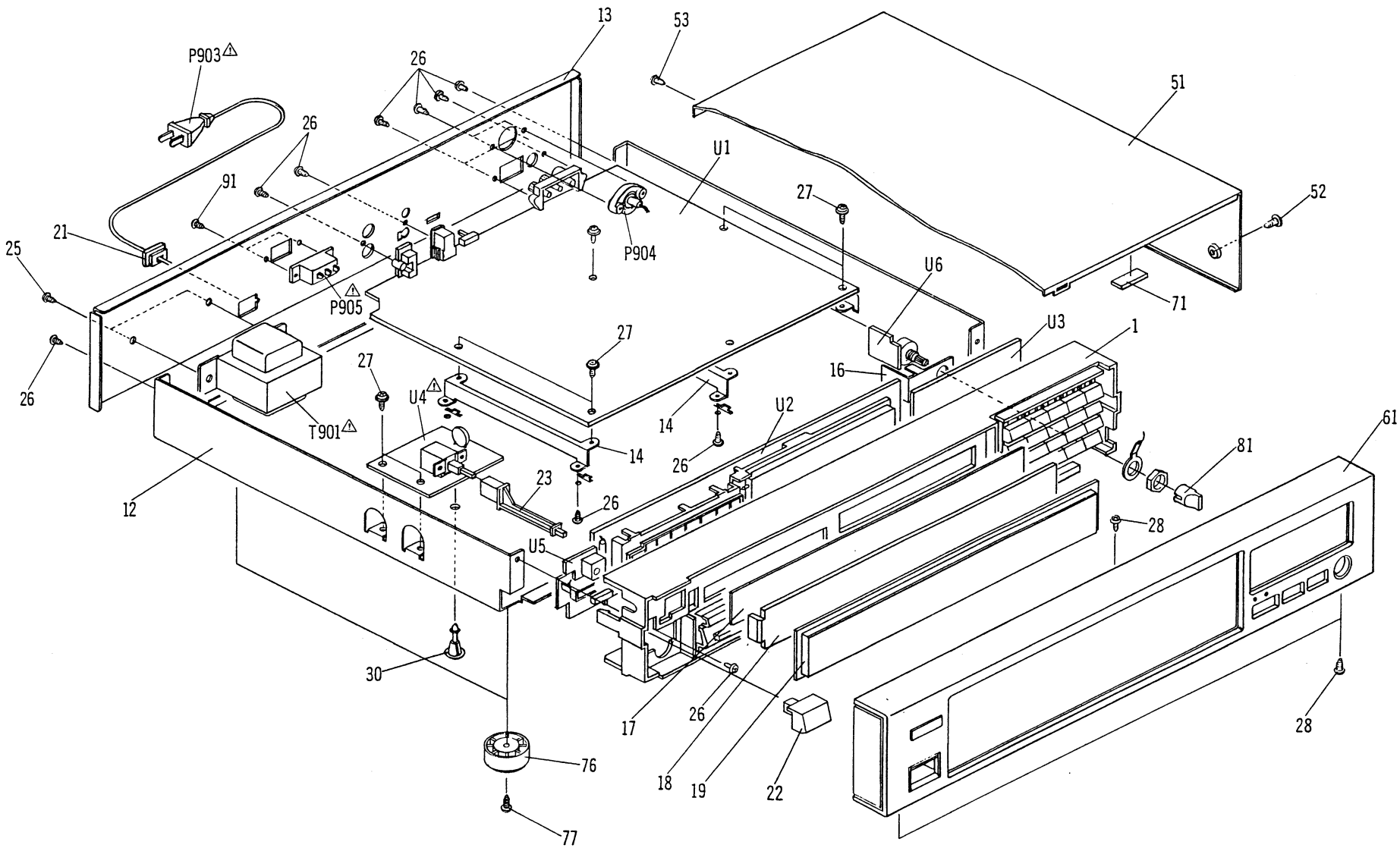


DISPLAY PC BOARD

BLOCK DIAGRAM



EXPLODED VIEW



PARTS LIST

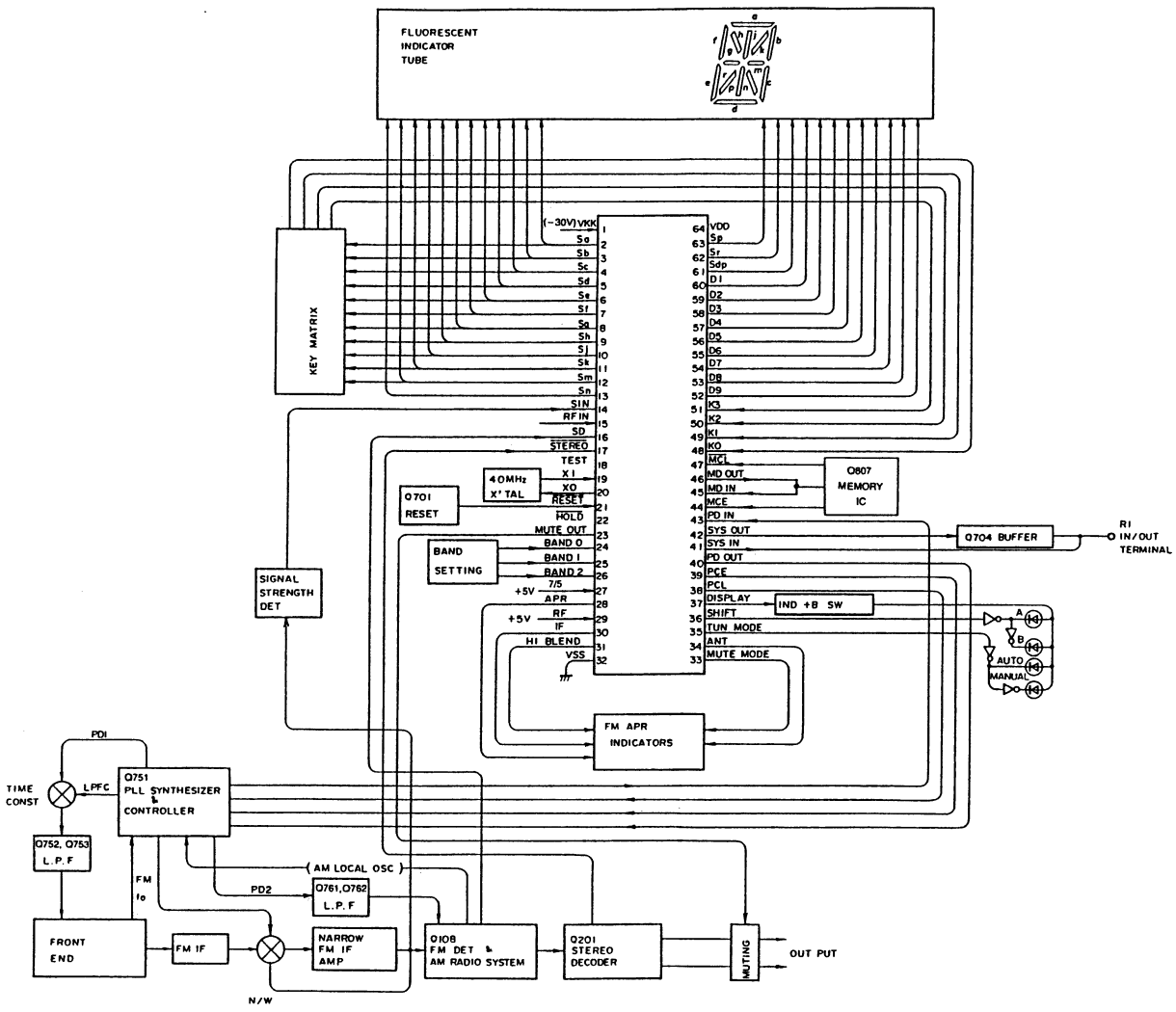
REF.NO.	PART NO.	DESCRIPTION
1	27110525A	Front bracket ass'y <B>
	27110526A	Front bracket ass'y <S>
12	27100191A	Chassis
13	27121299-3	Back pane
14	27141358	Bracket, pcb
16	27150283	Shield plate
17	28133223-1	Back plate
18	28130257-1	Dial plate
19	28191510A	Clear plate
21	27300750	⚠ Bushing, code(Strainrelief)
22	28323175	Knob, power <B>
	28323380	Knob, power <S>
23	27273069A	Joint, power
25	838440089	4TTB+8C(BC), Self-tapping screw
26	834430088	3TTS+8B(BC), Self-tapping screw
27	831130088	3TTW+8B, Self-tapping screw
28	833430080	3TTP+8P(BC), Self-tapping screw
30	27190524	KGLS-14R, Holder
51	28184437	Top cover <B>
	28184438	Top cover <S>
52	838440089	4TTB+8C(BC), Self-tapping screw
53	834430088	3TTS+8B(BC), Self-tapping screw
61	1A196121	Front panel ass'y <B>
	1A197121	Front panel ass'y <S>
71	28140250	Cushion
76	27175219-1	Leg
77	834430088	3TTS+8B(BC), Self-tapping screw
81	28323818	Knob, level <B>
	28323821	Knob, level <S>
P903	253149	⚠ AS-CEE, Power supply cord
P904	25045156	KE31-0006, Socket, antenna
T901	2300498A	⚠ NPT-1050G, Power transformer

REF.NO.	PART NO.	DESCRIPTION
U1	1A194595-1A	NARF-3695-1A, Main circuit pc board ass'y
U2	1A194580-1A	NADIS-3780-1A, Display circuit pc board ass'y
U3	1A194581-1	NASW-3781-1, Station switch pc board ass'y
U4	1A194582-1A	NAPS-3782-1A, Power switch pc board ass'y
U5	1A194583-1	NAETC-3783-1, Remote control sensor pc board ass'y
U6	1A194596-1	NAETC-3696-1, Output volume pc board ass'y

NOTE: <B>: Only Black Model
<S>: Only Silver Model

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

MICROPROCESSOR DESCRIPTION



CONNECTION OF MICROPROCESSOR

Key matrix

Input / Output	KO (48)	K1 (49)	K2 (50)	K3 (51)
Sa (2)	P1/21	P2/22	P3/23	P4/24
Sb (3)	P5/25	P6/26	P7/27	P8/28
Se (4)	P9/29	P10/30	P11/31	P12/32
Sd (5)	P13/33	P14/34	P15/35	P16/36
Se (6)	P17/37	P18/38	P19/39	P20/40
Sf (7)	TUN.LEVEL	DISPLAY	CHARACTER	CABLE
Sg (8)	DOWN/LAST	UP/NEXT	FM	AM
Sh (9)	APR OPE	RF MDOE	IF BAND	HI BLEND
Sj (10)	MUTE MODE	ANTENNA	TUN.MODE	MEMORY
Sk (11)	C1	C2	C3	C4
Sm (12)	C5	C6	SHIFT	PRESENT SCAN

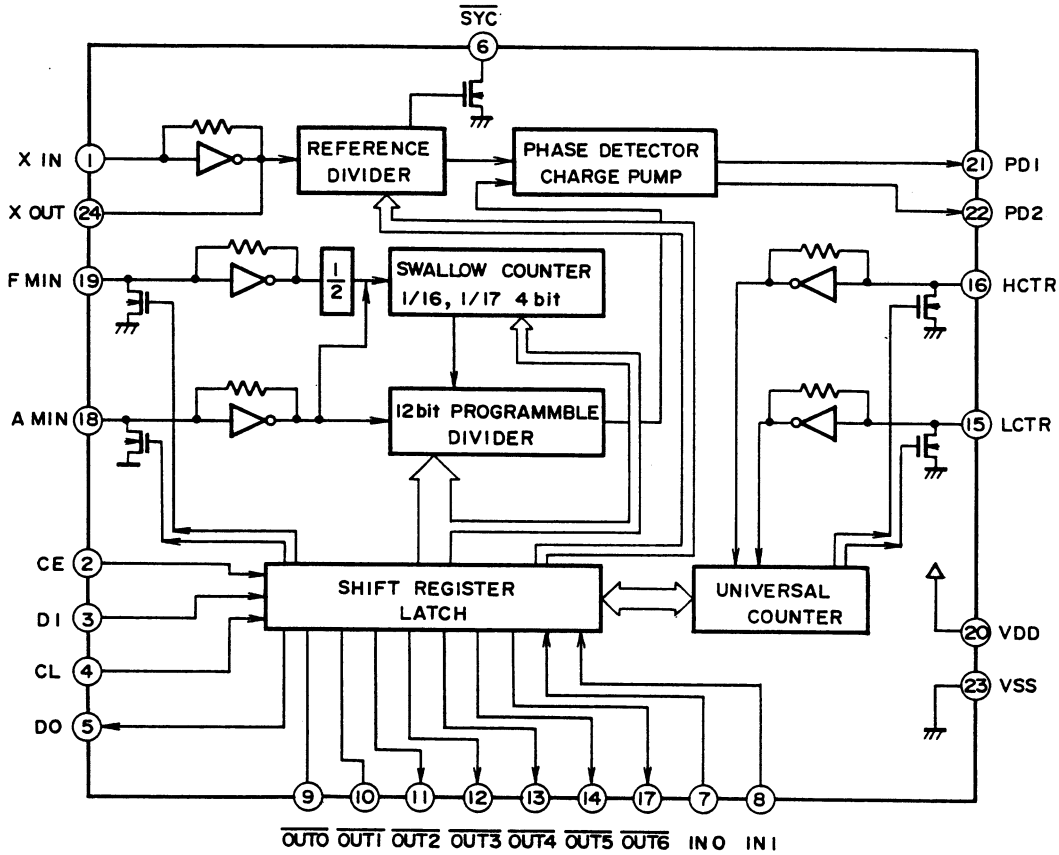
TMP47C870 Terminal Description

Pin No.	Symbol	Description
1	VKK	This is the power supply terminal for fluorescent indicator tube drive. Connect to −30V.
2 3 4 5 6 7 8 9 10 11 12 13	Sa Sb Sc Sd Se Sf Sg Sh Sj Sk Sm Sn	These are the digit output terminals for fluorescent indicator "H" when active.
14	S IN	This is the signal strength input terminal. (A/D converter input)
15	RF IN	This is RF input terminal. DX at the high level.
16	SD	This is the auto stop control input terminal. Auto tuning stops when this terminal becomes the high level.
17	$\overline{\text{STEREO}}$	This is the input terminal for detection of stereo broadcast. "L" when stereo broadcast.
18	TEST	This is the test terminal for LSI. Connect to the ground terminal.
19 20	XI XO	Connect to the 4.00MHz ceramic oscillator.
21	$\overline{\text{RESET}}$	This is the reset terminal. Reset at the low level when the power is turned on.
22	$\overline{\text{HOLD}}$	This is the hold input terminal. "L" when active.
23	MUTE OUT	This is the muting output terminal. "H" when active.
24 25 26	BAND 0 BAND 1 BAND 2	These are the band setting connection terminal.
27	7/5	This is the connection terminal for function setting.
28	APR	This is the output terminal for indication APR. ON at the high level. OFF at the low level.
29	RF	This is the output terminal for indication RX. DX at the high level. LOCAL at the low level.
30	IF	This is the output terminal for indication IF BAND. WIDE at the high level. NARROW at the low level.
31	HI BLEND	This is the output terminal for indication HI-BLEND. OFF at the high level. ON at the low level.
32	V_{SS}	Connect to the ground terminal.

Pin No.	Symbol	Description
33	MUTE MODE	This is the output terminal for indication MUTING MODE. AUTO at the high level. MONO at the low level.
34	ANT	This is the output terminal for indication ANT. A at the high level. B at the low level.
35	TUN MODE	This is the output terminal for indication TUNING MODE. AUTO at the high level. MANUAL at the low level.
36	SHIFT	This is the output terminal for indication SHIFT. 1-20 at the high level. 21-40 at the low level.
37	$\overline{\text{DISPLAY}}$	This is the display control output terminal. "L" during FL tube lights on.
38	$\overline{\text{PCL}}$	This is the clock output terminal to PLL IC (LC7218).
39	PCE	This is the chip selector output terminal to PLL IC. "H" when active.
40	PD OUT	This is the data output terminal to PLL IC.
41	SYS IN	This is the system code input terminal. "H" when active.
42	$\overline{\text{SYS OUT}}$	This is the system code output terminal. "L" when active.
43	PDIN	This is the data input terminal from PLL IC (LC7218).
44	MCE	This is the chip selector output terminal to memory IC.
45	MD IN	This is the data input terminal from memory IC.
46	MD OUT	This is the data output terminal to memory IC.
47	MCL	This is the clock output terminal to memory IC.
48 49 50 51	K0 K1 K2 K3	These are the key scan input terminals. "H" when active.
52 53 54 55 56 57 58 59 60	D9 D8 D7 D6 D5 D4 D3 D2 D1	These are the output terminals for segment and key return signal. "H" when active
61 62 63	DP Sr Sp	These are the segment output terminal for fluorescent indicator tube. "H" when active.
64	V_{DD}	This is the device power source terminal. At the time of operation, the supply is 5V. The internal data memory is maintained by means of super capacitor.

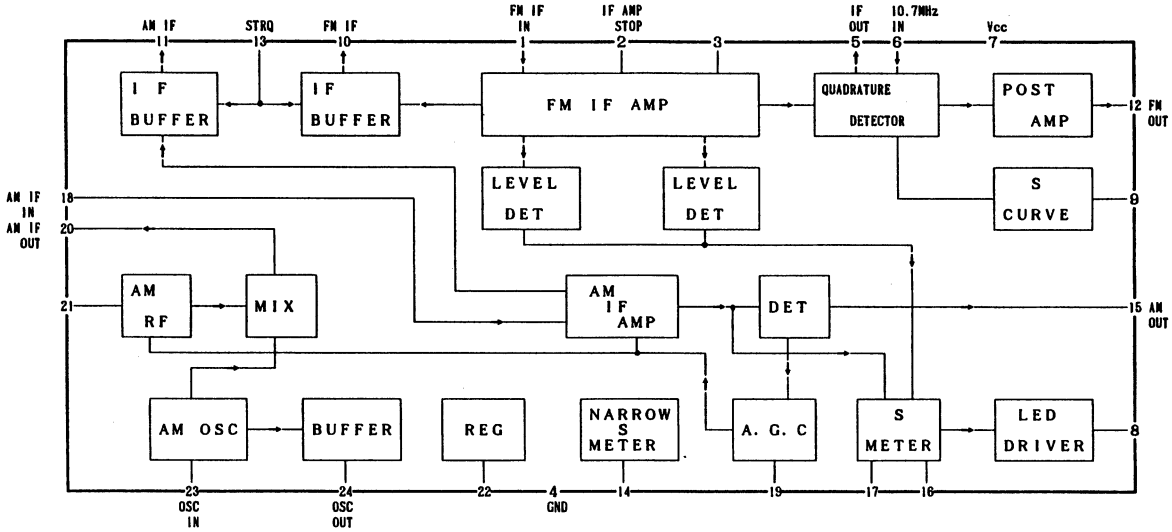
BLOCK DIAGRAMS OF IC

LC7218 (PLL synthesizer and controller)

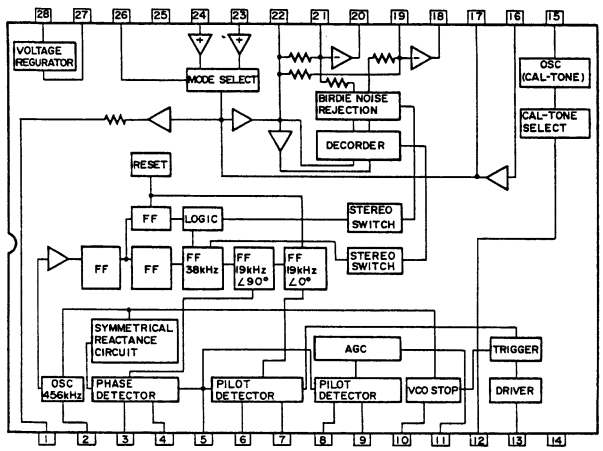


Pin No.	Symbol	Terminal	Description
1 24	XIN XOUT	XIN XOUT	Connect to the 7.2MHz crystal oscillation.
2	CE	PCE	Chip enable input terminal.
3	DI	DI	Serial data input terminal.
4	CL	CL	Serial clock input terminal.
5	DO	DO	Serial data output terminal.
6	SYC		No connection
7	IN0		Connect to the ground.
8	IN1		Connect to the ground.
9	OUT0	ANT	Output terminal for antenna switching drive signal. Position A at the high level.
10	OUT1	BAND	Output terminal for FM/AM switching drive signal. FM at the low level.
11	OUT2	HI BL	Output terminal for Hi-blend switching drive signal. OFF at the low level.
12	OUT3	RF	Output terminal for RF LOCAL/DX switching drive signal. DX at the low level.
13	OUT4	IF	Output terminal for IF band switching drive signal. WIDE at the high level.
14	OUT5	MU/MO	Output terminal for AUTO/MONO switching drive signal. AUTO at the low level.
15	LCTR		Connect to the ground.
16	HCTR		Connect to the ground.
17	OUT6	LPFC	Output terminal for time constant switching drive signal of LPF of PLL. H when active.
18	AMIN	AMIN	AM local oscillation input terminal.
19	FMIN	FMIN	FM local oscillation input terminal.
20	V_{DD}	V_{DD}	Power supply terminal. Connect to +5V.
21	PD1	LPF	Phase comparator output terminal. Connect to LPF for FM.
22	PD2	LPF	Phase comparator output terminal. Connect to LPF for AM.
23	V_{SS}	V_{SS}	Connect to the ground.

LA1266A (FM IF & AM radio system)



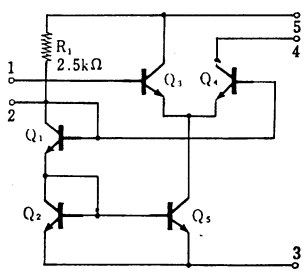
LA3450 (FM Stereo Decoder)



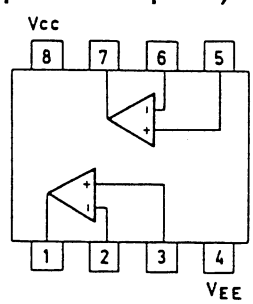
Terminal No. Description

1	Composite amp. output
2	OSC 2Vp-p 456kHz
3, 4	Loop filter
5	PLL input
6, 7	Pilot sync. detector filter
8, 9	Pilot sync. detector filter for pilot cancel
10	VCO stop
11	Pilot cancel
12	Cal-tone control
13	Stereo indicator
14	Ground terminal
15	Cal-tone OSC output
16	Cal-tone input
17	Pilot cancel input
18	Post amp. output for left channel
19	Post amp. input for left channel
20	Post amp. output for right channel
21	Post amp. input for right channel
22	Separation adjustment
23	AM input
24	FM input
25	Signal ground
26	AM/FM switch
27	Reference voltage
28	Power supply

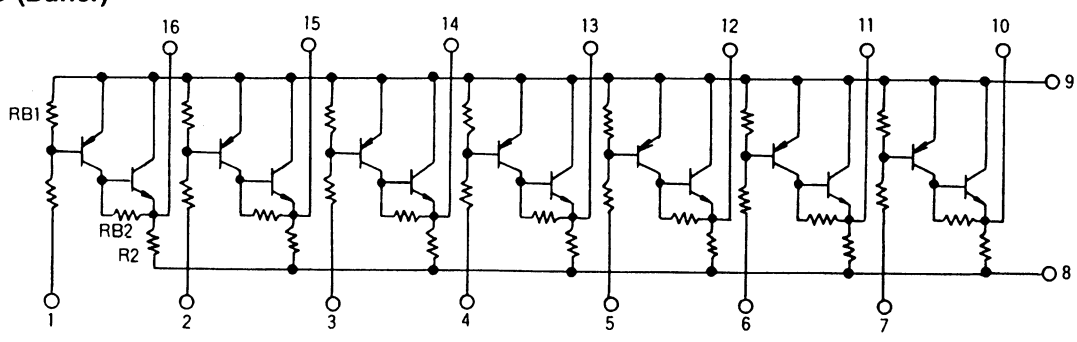
TA7060AP (FM IF amp)



NJM4558DX/NJM4560D (Operation amplifier)

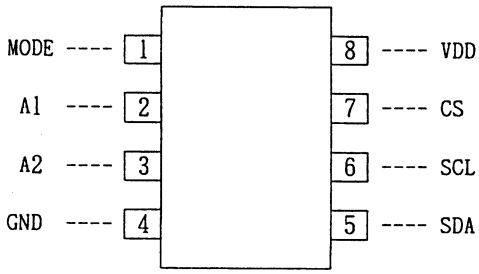


μPA81C (Buffer)



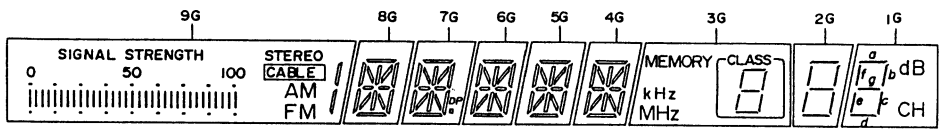
RB1 : 20KΩ R1 : 20KΩ RB2 : 2KΩ R2 : 100KΩ

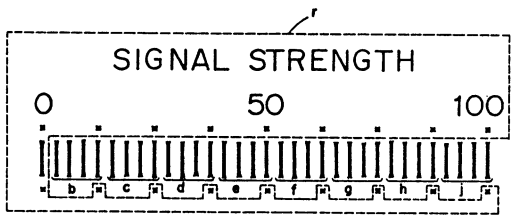
μPD6252C (2048 bits EEPROM)
(EEPROM: Electrically Erasable Programmable Read Ony Memory)

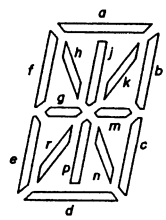


Pin No.	Symbol	Description
1	MODE	Input terminal to select the interface method to external IC.
2	A1	Not used. Connect to the ground terminal.
3	A2	
4	GND	Ground terminal.
5	SDA	Data input/output terminal. Connect to the terminals MDIN/MDOUT of the microprocessor IC and the terminal DI of PLL IC.
6	SCL	Clock input terminal. Connect to the terminal MCL of microprocessor IC.
7	CS	Chip selector terminal. Connect to the terminal MCE of microporcessor IC.
8	V_{DD}	Power supply terminal. Connect to 5V.

9-BT-61GK (Fluorescent indicator tube)







PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	-
CONNECTION	F 1	F 1	NP	NP	NP	NP	s	1 G	2 G	3 G	4 G	5 G	6 G	7 G	8 G	9 G	NP	NP	NP	NP	NP	p	r	a	-
PIN NO.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
CONNECTION	b	c	d	e	f	g	h	j	k	m	n	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	F 2	F 2

ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	/	a	a	a	a	a	a	a	a
b	||||	b	b	b	b	b	b	b	b
c	||||	c	c	c	c	c	c	c	c
d	||||	d	d	d	d	d	d	d	d
e	||||	e	e	e	e	e	e	e	e
f	||||	f	f	f	f	f	f	f	f
g	||||	g	g	g	g	g	g	g	g
h	||||	h	h	h	h	h	-	-	-
j	||||	j	j	j	j	j	-	-	-
k	STEREO	k	k	k	k	k	-	-	-
m	CABLE	m	m	m	m	m	MEMORY	-	-
n	AM	n	n	n	n	n	kHz	-	dB
p	FM	p	p	p	p	p	MHz	-	CH
r	SIGNAL STRENGTH 0 50 100	r	r	r	r	r	CLASS	-	-
s	-	-	DP	-	-	-	-	-	-

ADJUSTMENT PROCEDURES

- Preparation
  FM mono: 1kHz, 75kHz devi. 60dBμ (65dBf)
  FM stereo: 1kHz, L+R 67.5kHz devi.,
  Pilot signal 19khz 7.5kHz devi.
  AM: 400Hz, 30% mod.

- Set the operation keies as shown below.
  ANTENNA: A HI-BLEND: OFF
  RF MODE: DX MODE: AUTO
  IF BAND: WIDE CABLE/MUTE: CABLE

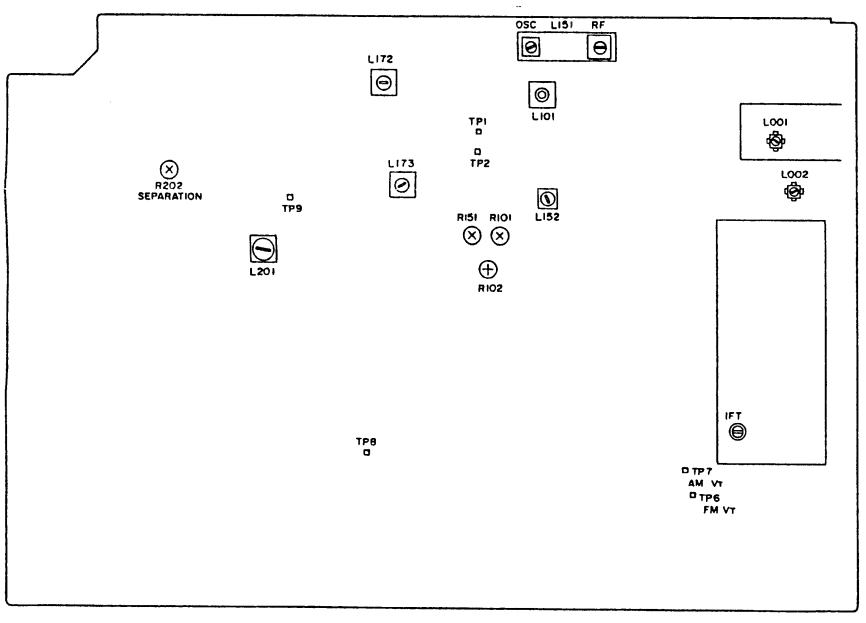
FM section

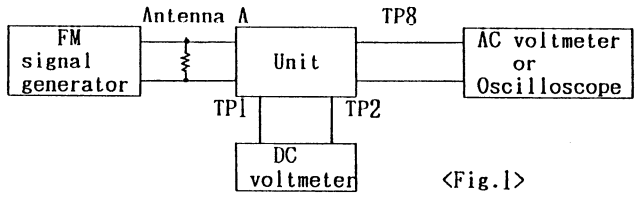
Item	Step	Connection of instrument	FM SC output	Stereo modulaotr output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM RF/IF	1	Fig. 1	98.1MHz, 1kHz 75kHz devi. 60dB (65dBf)	—	98.1MHz	DC voltmeter	L101	0±20mV	
	2		25dB (30dBf)			AC voltmeter	IFT core on front end	Maximum	RF MODE:LOCAL
	3					AC voltmeter	L001, L002	Maximum	
FM DET		Fig. 2	98.1MHz, No mod. 60dB (65dBf)	—	98.1MHz	DC voltmeter	L173	0±0.1V	RF MODE:DX
STEREO DISTROTION		Fig. 3	98.1MHz, Ext. mod. 60dB (65dBf)	L+R 67.5kHz devi. Pilot signal 7.5kHz devi.	98.1MHz	Distortion analyzer	IFT core on front end	Minimum	Don't turn more than 180°
STEREO SEPARATION		Fig. 3	98.1MHz, Ext. mod. 60dB (65dBf)	Channel L	98.1MHz	AC voltmeter of righ channel	R202 L172 (Don't turn more than 180°) L201	Minimum	Maximum and same separation.
				Channel R		AC voltmeter of left channel		Minimum	
MUTING LEVEL		Fig. 2	98.1MHz, 1kHz, 75kHz devi. 14dB (19.2dBf)	—	98.1MHz	Oscilloscope	R101	Output: ON	CABLE/MUTE SW: OFF CABLE indicator is turned off.
			13dB (18.2dB)					Output:OFF	
DX/LOCAL LEVEL		Fig. 2	60dB (65dBf)	—		LO CAL indicator	R102	Light on	RF MODEL: LOCAL When press the APR OPERATION switch, adjust R102 so that the LOCAL indicator lights on.

AM section

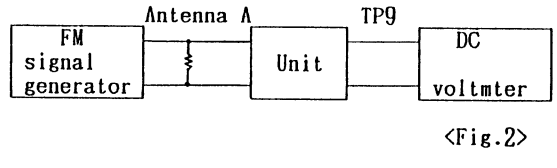
Step	AM SG output	Tuned frequency	Output indicator	Adjustment point	Adjustment for
1		522kHz	DC voltmeter	OSC coil on L151	1.3±0.1V
2	603kHz 400Hz,30% mod.	603kHz	AC voltmeter	RF coil on L151	Maximum
3	990kHz 60dB/m	990kHz	AC voltmeter	L152	Maximum
4	990kHz 55dB/m	990kHz	4th signal indicator	R151	Light on

Reference specifications
Tuned voltage AM: 1.2±0.4V~7.0±0.4V(522kHz~1611kHz)
FM:5±0.4V~25±0.4V(87.50MHz~108.00MHz)
Auto stop level AM:Less than 67dB/m
FM:High level Less than 35dB/m
Low level Less than 22dB/m

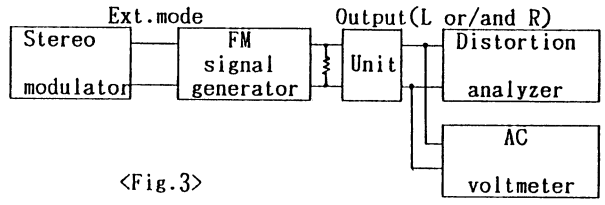




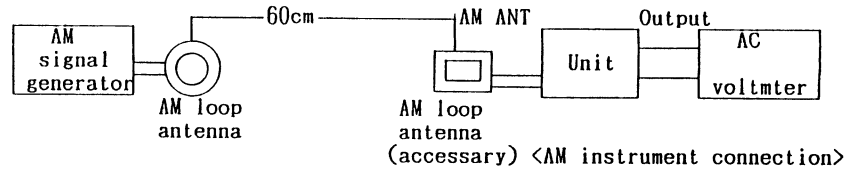
<Fig.1>



<Fig.2>

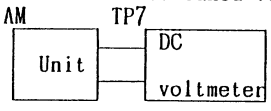


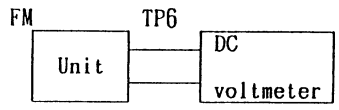
<Fig.3>



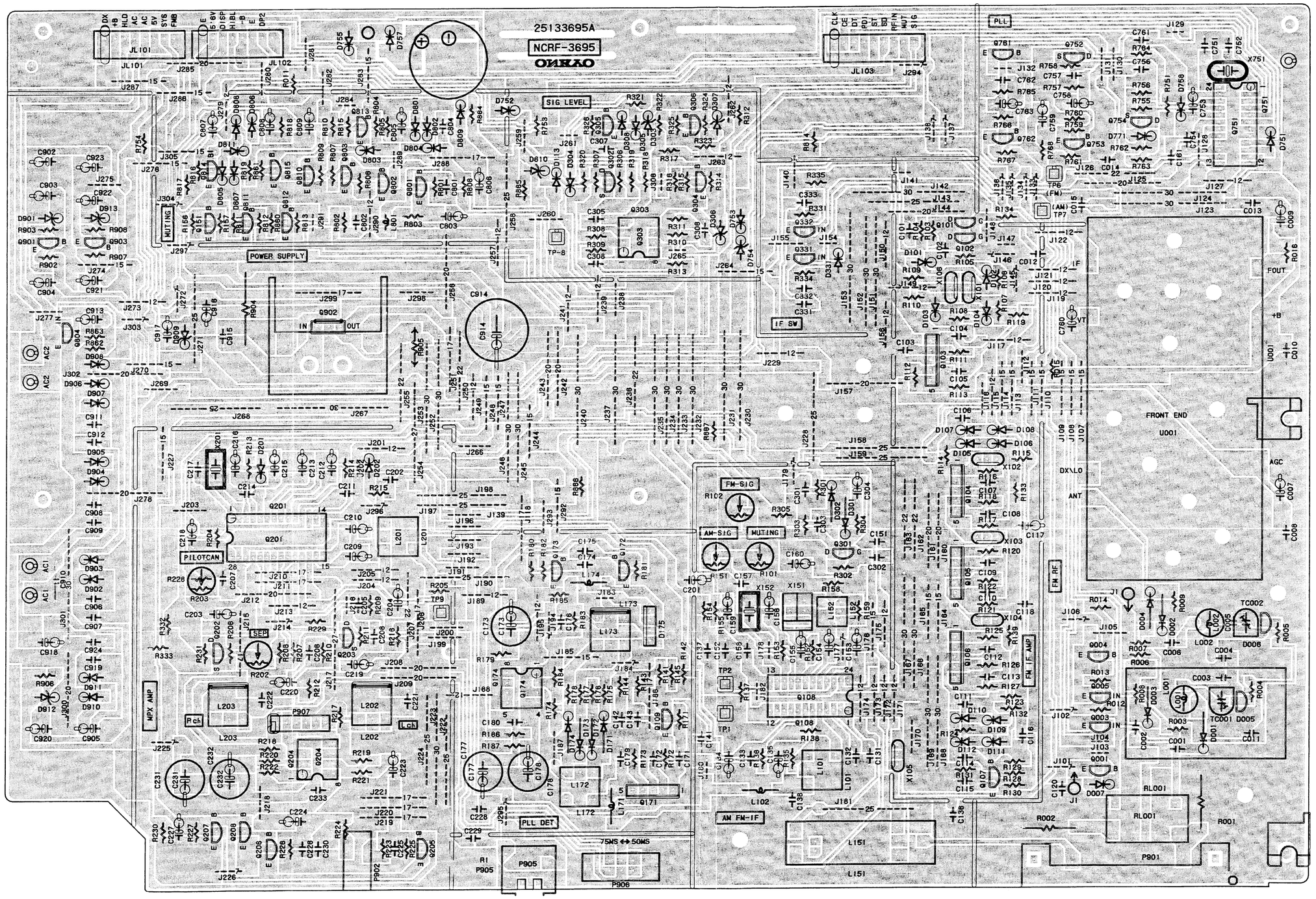
<AM instrument connection>

Confirmation of tuned voltage

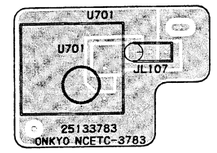




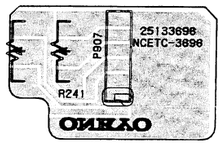
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



MAIN CIRUCIT PC BOARD

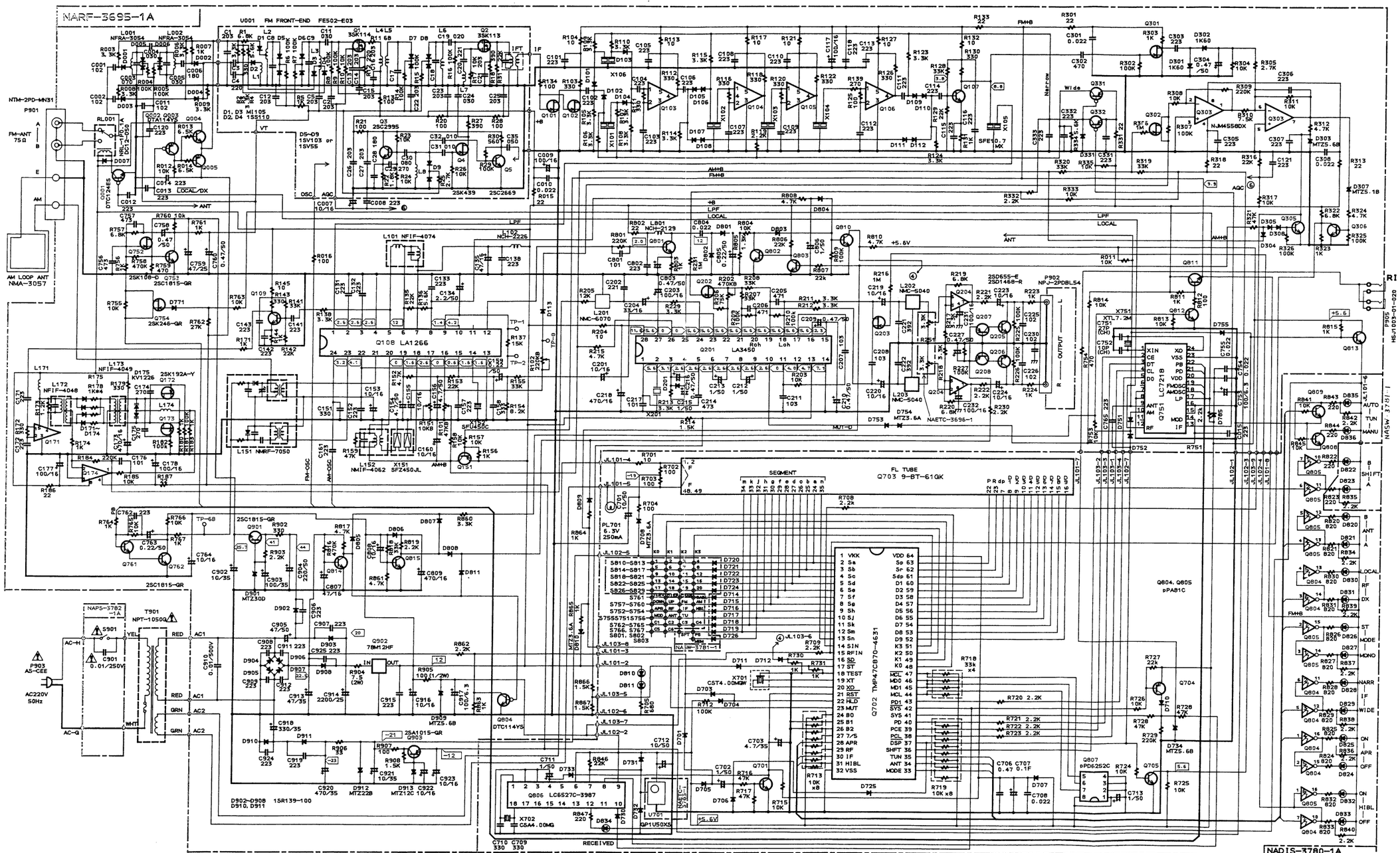


REMOTE CONTROL SENSOR PC BOARD



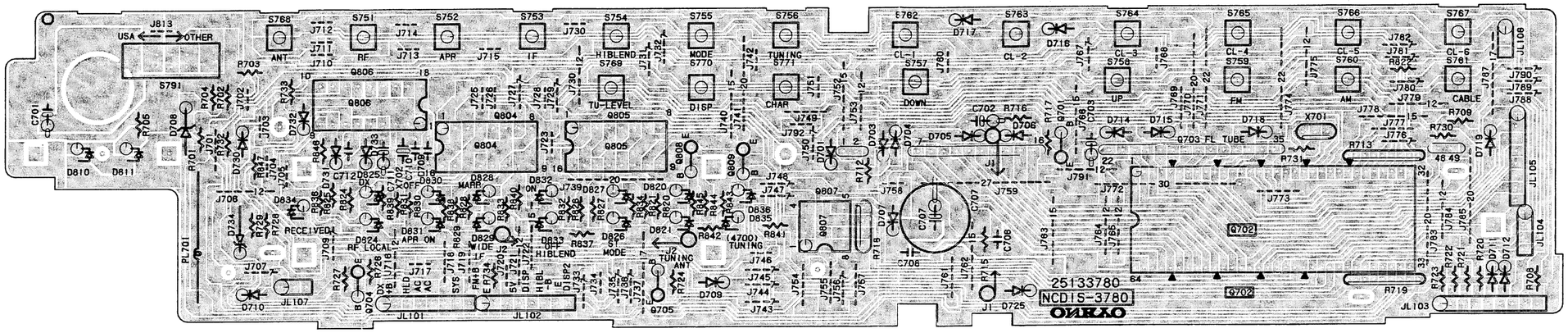
OUTPUT VOLUME PC BOARD

SCHEMATIC DIAGRAM

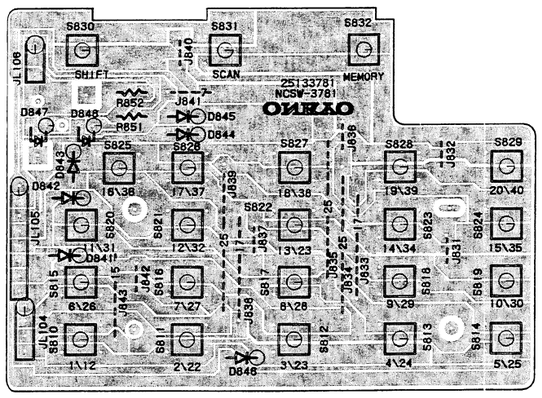


ONKYO CORPORATION

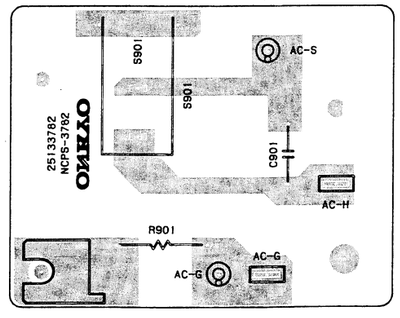
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



DISPLAY CIRCUIT PC BOARD



STATION SWITCH PC BOARD



POWR SWITCH PC BOARD

MAIN CIRCUIT PC BOARD (NARF-3695-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
U001	240087	FE502
	ICs	
Q103-Q106	222407	TA7060AP
Q108	22240214	LA1266A
Q171	222407	TA7060P
Q174	222579	NJM4560D
Q201	22240285	LA3450
Q204	222579	NJM4560D
Q303	222502	NJM4558DX
Q751	22240253	LC7218
Q902	222780125NEC	78M12HF
	Transistors	
Q001	221281	DTC114YS
Q003	2212600	DTA124ES
Q004, Q305	2211183 or	2SC1740-R or
Q306	2211255	2SC1815-GR
Q005, Q151	2213074 or	2SA933-R or
Q207, Q208	2211455	2SA1015-GR
Q101, Q102	2212194	2SK241-Y
Q107, Q109	2210746	2SC945A-P
Q172, Q173	2212274	2SK192A-Y
Q202, Q203	2211945	2SK246-GR
Q205, Q206	2212794 or	2SD1468-R or
	2211705	2SD655-E
Q301	2212274	2SK192A-Y
Q302, Q754	2211945	2SK246-GR
Q331, Q332	2212600	DTA124ES
Q752	2212294	2SK108-D
Q753, Q901	2211255	2SC1815-GR
Q761, Q762	2211183 or	2SC1740-R or
Q801-Q803	2211255	2SC1815-GR
Q804	221281	DTC114YS
Q810-Q815	2211183 or	2SC1740-R or
	2211255	2SC1815-GR
Q903	2211455	2SA1015-GR
	Diodes	
D001-D004	223165	BA282
D005, D006	223154	1SV103, Variable capacitor
D007, D201	223163	1SS133
D101-D113	223163	1SS133
D171-D174	223170	SD187-4
D175	223136	KV1226, Variable capacitor

CIRCUIT NO.	PART NO.	DESCRIPTION
D301, D302	223132	1K60, Germanium
D303	224450562	MTZ5.6B, Zener
D304, D305	223163	1SS133
D307	224450512	MTZ5.1B, Zener
D308, D331	223163	1SS133
D751-D753	223163	1SS133
D754	224450361	MTZ3.6A, Zener
D755, D758	223163	1SS133
D771, D811	223163	1SS133
D801-D809	223163	1SS133
D810	224450361	MTZ3.6A, Zener
D901	224453004	MTZ30D, Zener
D902-D908	22380032	1SR139-100
D909	224450562	MTZ5.6B, Zener
D910, D911	22380032	1SR139-100
D912	224452202	MTZ22B, Zener
D913	224451203	MTZ12C, Zener
	Coils	
L001, L002	233404	NFRF-3054
L101	233403	NFIF-4074
L102, L171	233400M022	NCH-2226
L151	232148	NMRF-7050
L152	232139	NMIF-4062
L172	233296	NFIF-4048
L173	233297	NFIF-4049
L174	233400K220	NCH-2238
L201	233383	NMC-6070
L202, L203	233294	NMC-5040
L801	231081	NCH-2129
	Ceramic filters	
X101, X105	3010041	SFE10.7MX
X102, X104	3010130	SFE10.7MZ2K-A
X103, X106	3010132	SFE10.7MJK-A
X151	3010123	SFZ450JL
X152	3010076	SFU450C
X201	3010152	CSB456F11
	Crystal oscillator	
X751	3010151	XTL7.2M
	Capacitors	
C007	354741009	10μF, 16V, Elect.
C009, C117	391241017	100μF, 16V, Elect.(MUSE)
C134	354780229	2.2μF, 50V, Elect.
C135	354744709	47μF, 16V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C153, C155	354741009	10μF, 16V, Elect.
C154, C156	354780479	4.7μF, 50V, Elect.
C158	371123334	0.033μF ±5%, 50V, Mylar
C159	354782299	0.22μF, 50V, Elect.
C160	354741009	10μF, 16V.Elect.
C173	391244717	470μF, 16V, Elect.(MUSE)
C177, C178	391241017	100μF, 16V, Elect.(MUSE)
C201	354741009	10μF, 16V, Elect.
C203	354741019	100μF, 16V, Elect.
C204	354763309	33μF, 35V, Elect.
C205, C206	370134714	470pF ±5%, 100V, Plastic film(APS)
C207, C208	371121034	0.01μF ±5%, 50V, Mylar
C209, C210	354784799	0.47μF, 50V, Elect.
C211	371121034	0.01μF ±5%, 50V, Mylar
C212, C213	354780109	1μF, 50V, Elect.
C214	371124734	0.047μF ±5%, 50V, Mylar
C215	354780109	1μF, 50V, Elect.
C216	354784799	0.47μF, 50V.Elect.
C218	391244717	470μF, 16V, Elect.(MUSE)
C219, C220	354741009	10μF, 16V, Elect.
C221, C222	371123924	3900pF±5%, 50V, Mylar
C223, C224	354741009	10μF, 16V, Elect.
C227	354784799	0.47μF, 50V, Elect.
C231, C232	391241017	100μF, 16V, Elect.(MUSE)
C304	354784799	0.47μF, 50V, Elect.
C753	354721019	100μF, 6.3V, Elect.
C756, C757	371124734	0.047μF ±5%, 50V, Mylar
C758, C760	354784799	0.47μF, 50V, Elect.
C759	354764709	47μF, 35V.Elect.
C763, C805	354782299	0.22μF, 50V, Elect.
C803	354784799	0.47μF, 50V, Elect.
C806	354780109	1μF, 50V, Elect.
C807	354744709	47μF, 16V, Elect.
C808	354741009	10μF, 16V, Elect.
C809	354744719	470μF, 16V, Elect.
C902	354761009	10μF, 35V, Elect.
C903	354761019	100μF, 35V, Elect.
C904	354782219	220μF, 50V, Elect.
C905	354784709	47μF, 50V, Elect.
C913	354764709	47μF, 35V, Elect.
C914	354752229	2200μF, 25V, Elect.
C916	354741009	10μF, 16V, Elect.
C917	354721019	100μF, 6.3V, Elect.
C918	354763319	330μF, 35V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C920	354764719	470 μF, 35V, Elect.
C921	354761009	10μF, 35V, Elect.
C922, C923	354741009	10μF, 16V, Elect.
	Resistors	
R101	5210070	N06HR100KBD, Semi-fixed
R102	5210072	N06HR220KBD, Semi-fixed
R151	5210064	N06HR10KBD, Semi-fixed
R202	5210074	N06HR470KBD, Semi-fixed
R904	441720474	4.7ohm, 2W, Metal oxide film
R905	442521014	100ohm, 1/2W, Metal oxide film
	Relay	
RL001	25065356	NRL-1P0.1A-DC12-050
	Terminals	
P901	25060087	NTM-2PDMN31, Antenna
P902	25045211	NPJ-2PDBL91, Output
P905	25045172	HSJ-1003-01-020, RI
	Radiator	
	27160146	RAD-52
	Sockets	
JL101, JL102	25050272	NSCT-8P-100
JL103	25050273	NSCT-9P-101
	2009990025	NSAS-12P0049
	Holder	
	27190432	UAMS-07-0, Clamp
	Cable	
	2010102	Antenna
	Shield plate	
	27150181	

DISPLAY CIRCUIT PC BOARD(NADIS-3780-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Lamp	
PL701	210064B	PL6.3V, 250mA
	ICs	
Q702	22240251	TMP47C870-4631
Q804, Q805	222807	μPA81C
Q806	22240243	LC6527C-3987
Q807	22240291	μPD6252C
	Transistors	
Q701	2213284	2SC1740S-R
Q704	2213074 or	2SA933-R or
	2211455	2SA1015-GR
Q705, Q808	2211183 or	2SC1740-R or
Q809	2211255	2SC1815-GR
	FL tube	
Q703	212077	9-BT-61GK
	Diodes	
D701, D703	223163	1SS133
D704, D706	223163	1SS133
D707	223163	1SS133
D708	224450361	MTZ3.6A, Zener
D710-D712	223163	1SS133
D714-D719	223163	1SS133
D725	223163	1SS133
D730-D733	223163	1SS133
D734	224450562	MTZ5.6B, Zener
	L.E.Ds	
D810, D811	225142	SEL2913K
D820, D821	225137CG,	SEL2413E-CG,
D824, D826	225137DG or	SEL2413E-DG or
D829, D831	225137DY	SEL2413E-DY
D833, D835	225137CG,	SEL2413E-CG,
	225137DG or	SEL2413E-DG or
	225137DY	SEL2413E-DY
D825, D827	225142	SEL2913K
D828, D830	225142	SEL2913K
D832, D836	225142	SEL2913K
D834	225141	SEL2213C
	Ceramic oscillators	
X701	3010150	CST4.000MGW
X702	3010099	CSA4.00MG
	Capacitors	
C701	353781009	10μF, 50V, Elect.
C702	353780109	1 μF, 50V, Elect.
C703	395160477	4.7 μF, 35V, Tantal
C706	375524744	0.47μF ±5%, 50V, Plastic(MMT)
C707	3000057	0.1F, 5.5V, Super
C711, C713	353780109	1 μF, 50V, Elect.
C712	353781009	10μF, 50V, Elect.
	Resistors	
R713	49163103408	10k ×8, 1/10W, Network
R718	49121333403	33k ×3, 1/8W, Network
R719	49163103408	10k ×8, 1/10W, Network
	Switches	
S751-S771	25035548	NPS-122-S510
	Holders	
	27190710	Lamp
	27190712	L.E.D.

STATION SWITCH PC BOARD(NASW-3781-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D841-D846	223163	1SS133
	L.E.Ds	
D847, D848	225137CG,	SEL2413E-CG,
	225137DG or	SEL2413E-DG or
	225137DY	SEL2413E-DY
	Switches	
S810-S832	25035548	NPS-122-S510
	Holder	
	27190711	

POWER SWITCH PC BOARD(NAPS-3782-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
C901	3500065A	⚠ DE7150FZ103PAC400V/125V, Capacitor IS
S901	25035558	⚠ NPS-111-L520P, Power switch

REMOTE CONTROL SENSOR PC BOARD (NAETC-3783-1)

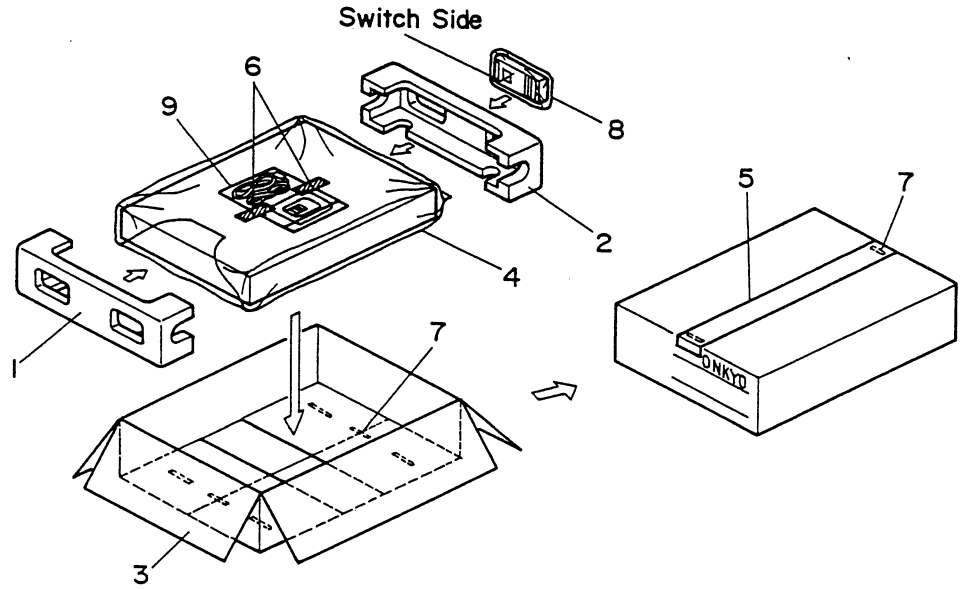
CIRCUIT NO.	PART NO.	DESCRIPTION
U701	24130003	GP1U50XS, Remote control sensor

OUTPUT VOLUME PC BOARD(NAETC-3696-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
R241	5142003A	N16RGM3KB15, Variable resistor

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

PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
1	29091329B	Pad L
2	29091330B	Pad R
3	29051988	Master carton box <Black model>
	29051987	Master carton box <Silver model>
4	29100036A	Poly-vinyl bag
	29095012-1	Protection sheet
5	29110071-1	50×700 mm, Damplon tape
6	29110032	30×300 mm, Adhesive tape
7	282301	Sealing hook
8	24140165	RC-165T, Remote control transmitter
9	Accessary bag ass'y	
	29341471	Instruction manual
	292092	FM antenna
	232140	NMA-3057, AM loop antenna
	2010098A	Connection cord
	2010200	Connection cord for remote control
	3010054	UM-3, Two batteries
	29100006A	Poly-vinyl bag
	29365020A	Warranty card
	29100094A	Bag for warranty card

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