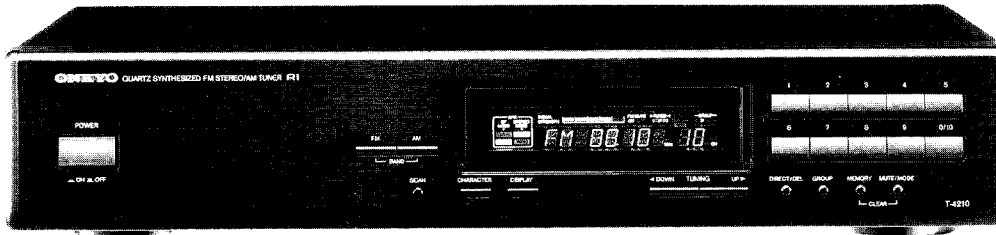


ONKYO SERVICE MANUAL

SYNTHESIZED FM STEREO/AM TUNER MODEL T-4210



Black model

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

SAFETY-RELATED COMPONENT WARNING!!

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

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

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ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

FM

Tuning range:	87.50 – 108.00 MHz (50 kHz steps)
Usable sensitivity	
Mono:	11.2 dBf, 1.0 μ V, 75 Ohms, IHF 0.9 μ V, 75 Ohms, DIN
Stereo:	17.2 dBf, 2.0 μ V, 75 Ohms, IHF 20 μ V, 75 Ohms, DIN
U.S.A. & Canadian models	
Mono:	11.2 dBf, 2.0 μ V, 300 Ohms, IHF
Stereo:	17.2 dBf, 4.0 μ V, 300 Ohms, IHF
50 dB quieting sensitivity	
Mono:	16.1 dBf, 1.7 μ V, 75 Ohms
Stereo:	36.1 dBf, 17 μ V, 75 Ohms
U.S.A. & Canadian models	
Mono:	16.1 dBf, 3.5 μ V, 300 Ohms, IHF
Stereo:	36.1 dBf, 35 μ V, 300 Ohms, IHF
Capture ratio:	1.5 dB
Image rejection ratio:	80 dB
U.S.A. & Canadian models:	40 dB
IF rejection ratio:	90 dB
Signal-to-noise ratio	
Mono:	73 dB, IHF
Stereo:	66 dB, IHF
Alternate channel attenuation:	50 dB, IHF
Selectivity:	55 dB, DIN (\pm 300 kHz, 40 kHz dev)
U.S.A. & Canadian models:	50 dB, IHF (\pm 400 kHz)
AM suppression ratio:	50 dB
Total Harmonic Distortion	
Mono:	0.1%
Stereo:	0.2%

Frequency response:	30 – 15,000 Hz (\pm 1.5 dB)
Stereo separation:	40 dB at 1 kHz 30 dB at 70 – 10,000 Hz
Output voltage:	0.75 V
U.S.A. & Canadian models:	0.45 V
Muting level:	17.2 dBf, 2.0 μ V, 75 Ohms

AM

Tuning range	
European models:	522 – 1611 kHz (9 kHz steps)
U.S.A. & Canadian models:	530 – 1710 kHz (10 kHz steps)
Worldwide models:	531 – 1602 kHz (9 kHz steps) 530 – 1710 kHz (10 kHz steps)
Usable sensitivity:	25 μ V
Image rejection ratio:	40 dB
IF rejection ratio:	40 dB
Signal-to-noise ratio:	40 dB
Total Harmonic Distortion:	0.8%
Output voltage:	150 mV

General

Power supply	
European & Australian models:	AC 230 V, 50 Hz
U.S.A. & Canadian models:	AC 120 V, 60 Hz
Worldwide models:	AC 120 V and 220 V switchable, 50 Hz/60 Hz
Dimensions (W \times H \times D):	455 \times 90 \times 307 mm 17-15/16" \times 3-9/16" \times 12-1/16"
Weight:	3.7 kg, 8.2 lbs.

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. 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 chassis.

Specifications: 3.3Mohm \pm 10% at 500V.

2. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On 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. Voltage Selector (Back Panel)

W models are equipped with a voltage selector to conform with local power supplies. 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 a screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

4. Tuning Step Frequency Switch (Bottom board)

W models are equipped with a switch for the AM (9kHz/10kHz) band. The switch should be set to the proper steps for the radio broadcast frequencies in your area.

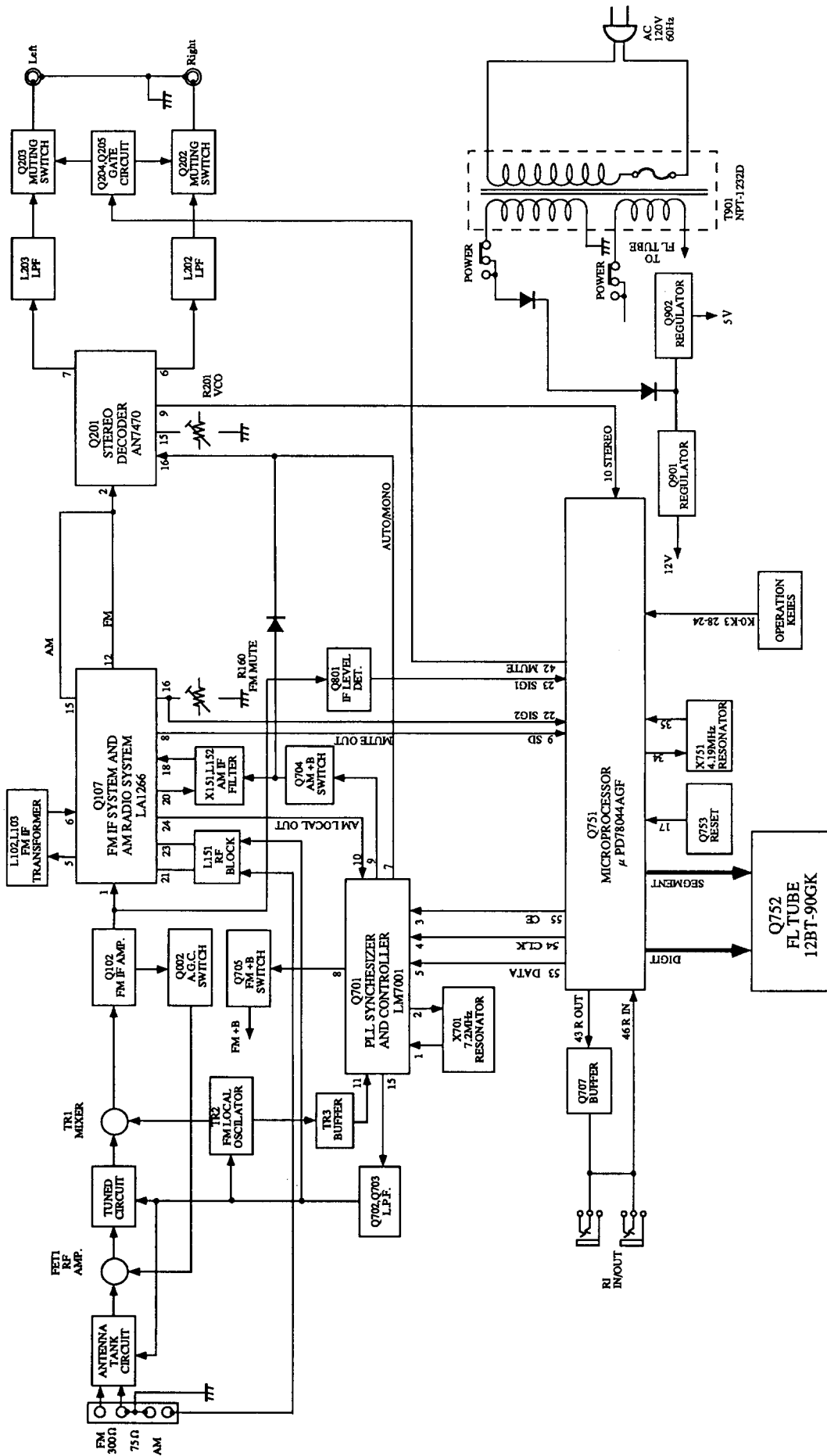
5. Changing the band step

With the exception of the models below, a BAND STEP selector switch is not provided.

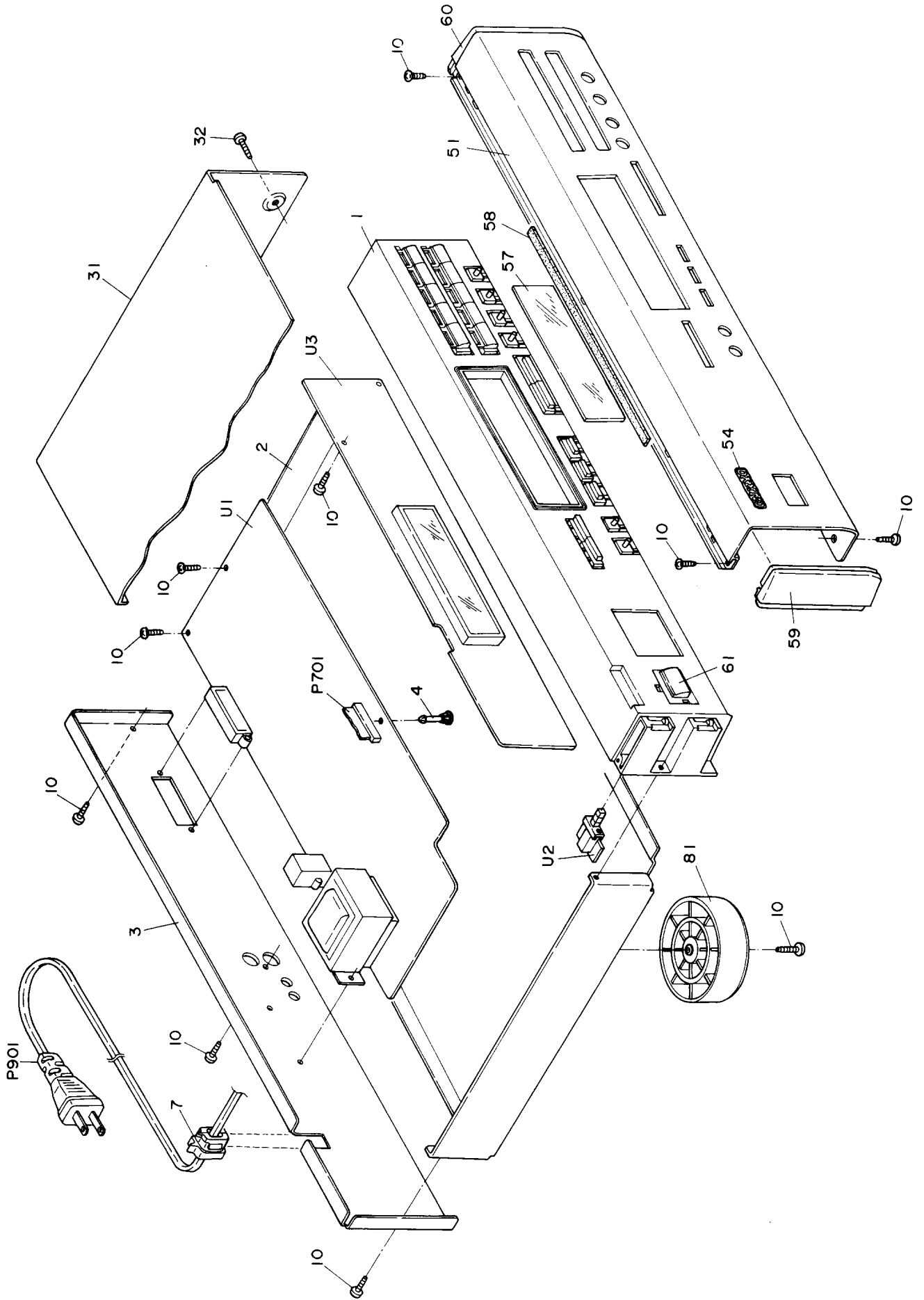
AM

MODEL	BAND STEP	J767
120V	10kHz \rightarrow 9kHz	Short
Others	9kHz \rightarrow 10kHz	Open

BLOCK DIAGRAM 120V model



EXPLODED VIEW



PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	27110840Y	Front bracket	P701	2041253512Y	NCFC1-253512, Flat cable
2	27100230BY	Chassis	△ P901	253191HITY	AS-UC-7#18 SPT-1, Power supply cord <D>
3	27122010AY	Rear panel <D>	△	253195MARY	AS-CEE, Power supply cord <WT/T>
	27122012AY	Rear panel <WT>	△	253197HIT	AS-SAA, Power supply cord <A>
	27122048AY	Rear panel <T/A>	△	253213WSE	AS-KS, Power supply cord <K>
	27122100Y	Rear panel <K>	U1	1A572577-1Y	NARF-5177-1, Main circuit pc board ass'y <D>
4	27190511	KGLS-16RF, Holder		1A572577-1AY	NARF-5177-1A, Main circuit pc board ass'y <WT>
7	27300750	#2271, Bushing, cord		1A572577-1CY	NARF-5177-1C, Main circuit pc board ass'y <T/A/K>
10	838130088	3TTB+8B, Self-tapping screw	U2	1A572578-1Y	NASW-5178-1, Power switch pc board ass'y
31	28184488	Top cover	U3	1A572579-1Y	NADIS-5179-1, Display circuit pc board ass'y <D>
32	838430088	3TTB+8B(BC), Self-tapping screw		1A572579-1AY	NADIS-5179-1A, Display circuit pc board ass'y <WT>
51	1A572121Y	Front panel ass'y		1A572579-1BY	NADIS-5179-1B, Display circuit pc board ass'y <T/A/K>
54	28135199	Badge			
	8910301	CS-3(SUS), CS ring for badge			
57	28191700Y	Clear plate			
58	28140837	t0.9×240×10, Cushion			
59	28125257-6Y	End cap (L)			
60	28125258-6Y	End cap (R)			
61	28324140Y	Knob, power			
81	27175292	Leg			

NOTE: <D>:120V model only

<WT>:Asian model only

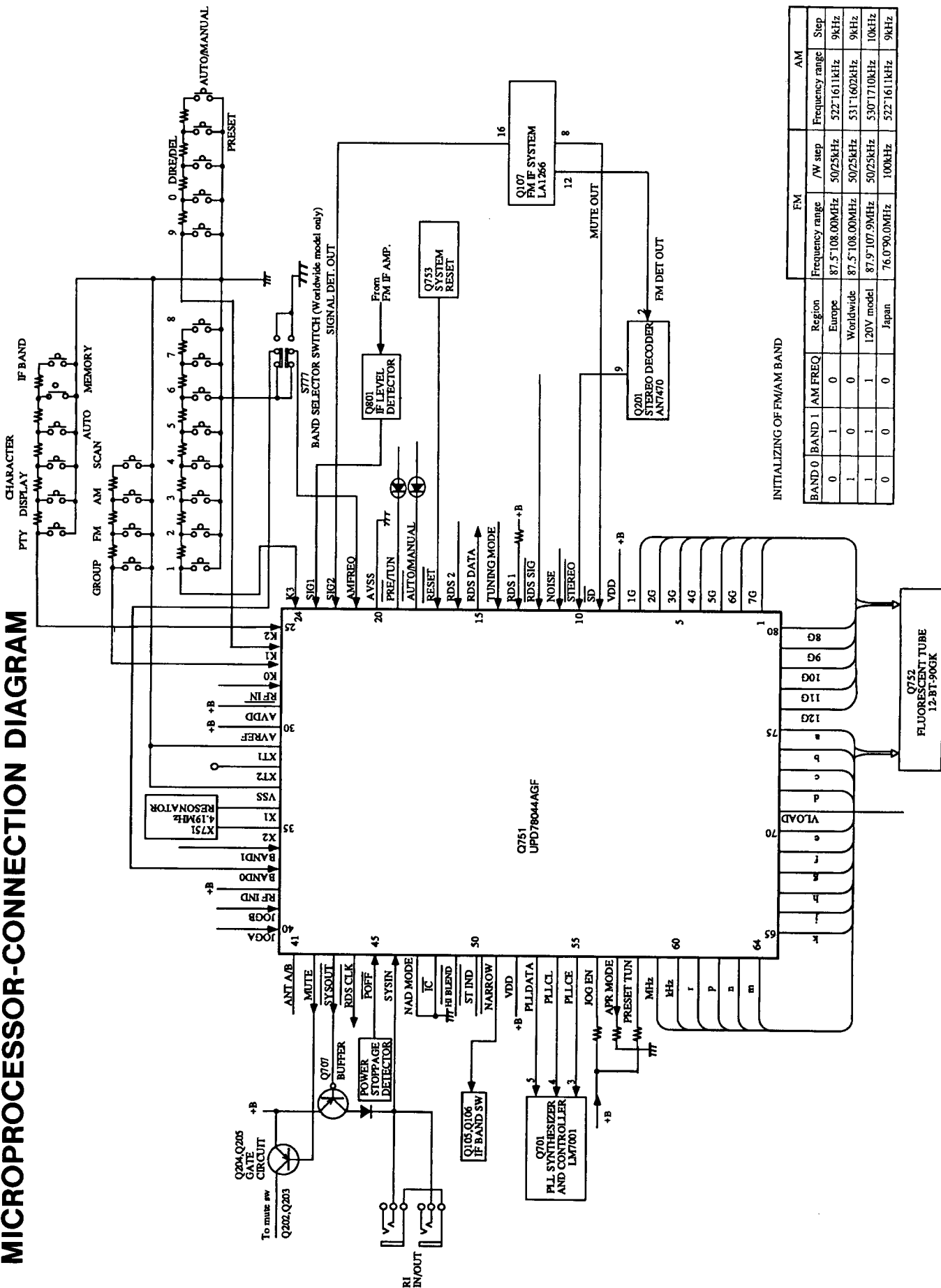
<T>:Taiwanese model only

<A>:Australian model only

<K>:Korean 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



INITIALIZING OF FM/AM BAND

BAND 0	BAND 1	AM FREQ	Region	FM		AM
				Frequency range	/W step	
0	1	0	Europe	87.5~108.00MHz	50/25kHz	522~1611kHz
1	0	0	Worldwide	87.5~108.00MHz	50/25kHz	531~1602kHz
1	1	1	120V imodel	87.9~107.9MHz	50/25kHz	530~1710kHz
0	0	0	Japan	76.0~90.0MHz	100kHz	522~1611kHz

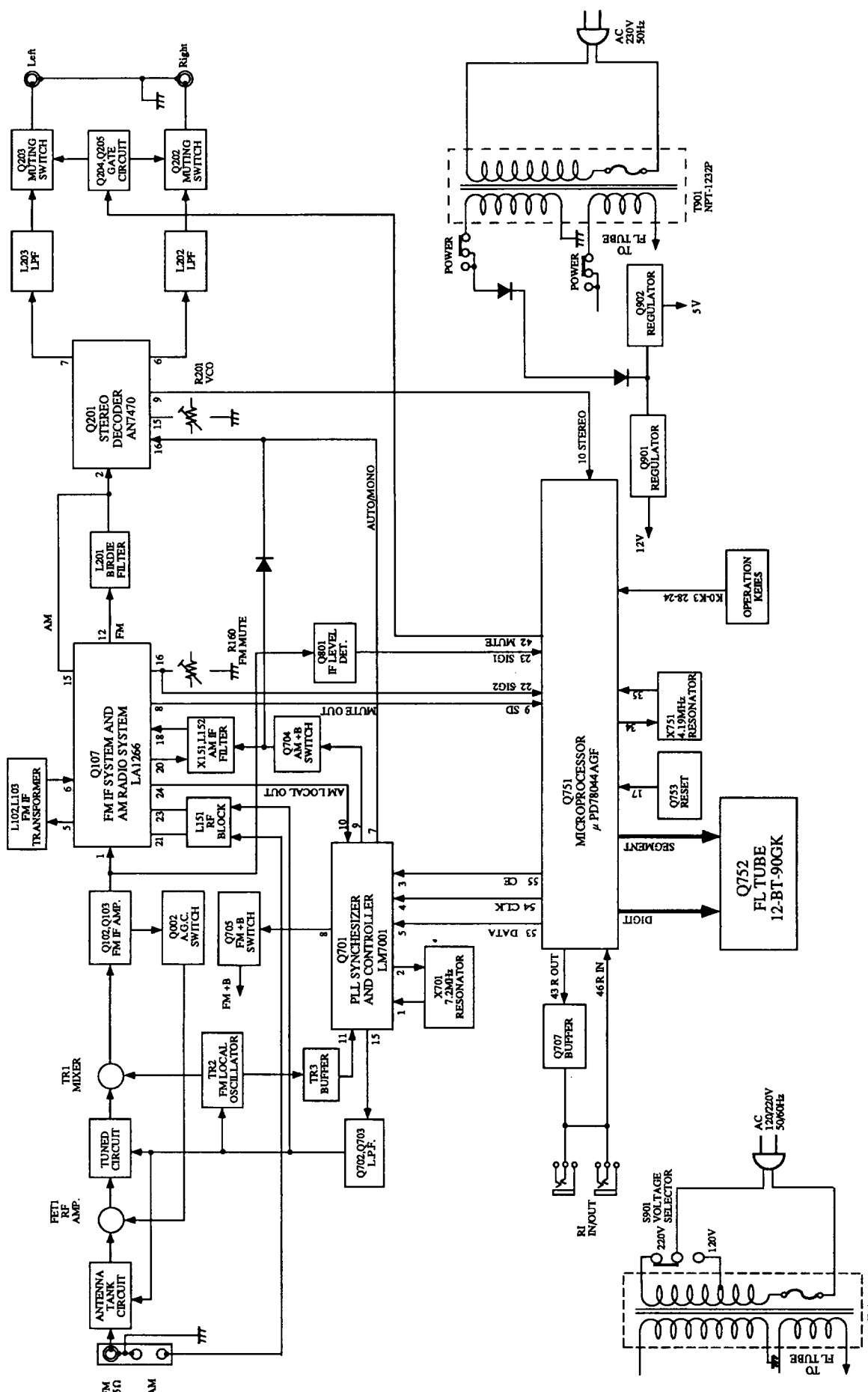
TERMINAL DESCRIPTION

Pin No.	Function	I/O	Description
1-7	7G-1G	O	Grid output terminals for fluorescent tube.
8	VDD	-	Power supply terminal.
9	SD	I	Broadcast detection input more than the muting level.
10	STEREO	I	Stereo broadcast detection input
11	NOISE	I	Noise detection input
12	RDSSIG	I	RDS broadcast detection input
13	RDS1	I	Initializing input for RDS operation
14	TUNING MODE	I	Initializing input for tuning mode
15	RDSDATA	I	Connect to the terminal DATA of RDS data decoder IC, μ PC1346CS
16	RDS2	I	Initializing input for RDS operation
17	RESET	I	System reset terminal
18	AUTO/MANU	O	Tuning indicator output
19	PRE/TUN	O	PRESET indicator output
20	AVSS		Ground terminal of A/D converter
21	AMFREQ	I	Initializing input for AM band step.
22	SIG2	I	Signal strength level input
23	SIG1	I	Signal strength level input
24-27	K3-K0	I	Operation key connection terminals
28	RFIN	I	RF mode detect terminal
29	AVDD		Analog power supply terminal of A/D converter
30	AVREF	I	Reference voltage input of A/D converter
31	XT1	I	Resonator terminals for sub system
32	XT2		Resonator terminals for sub system . Not used.
33	VSS		Ground terminal
34	X1	I	Resonator terminals for main system
35	X2		Connect the 4.19MHz ceramic resonator.
36	BAND1	I	Initializing input for FM band step.

Pin No.	Function	I/O	Description
37	BAND0	I	
38	RFIN	I	RF mode LED output. Not used.
39	JOGB	I	Jog dial signal B
40	JOGA	I	Jog dial signal A
41	ANT A/B	O	Ant A/B selector output. Not used.
42	MUTE	O	Muting control output
43	SYSOUT	O	System code output
44	RDSCLK	I	Connect to the terminal CLK of RDS data decoder.
45	POFF	I	Power stoppage detection input
46	SYSIN	I	System code input
47	NAD MODE	I	Initializing input for memory system
48	IC		Connect to the ground terminal
49	HI BLEND	O	Hi-blend control output. Not used.
50	ST_INDD	O	Stereo LED indicator output
51	NARROW	O	NARROW indicator output
52	VDD		Power supply terminal
53	PLLDATA	O	Connect to the terminal DATA of PLL IC LM7001.
54	PLLCL	O	Connect to the terminal CL of PLL IC.
55	PLLCE	O	Connect to the terminal CE of PLL IC.
56	JOG EN	I	Initializing input for Jog operation.
57	APR MODE	I	Initializing input for APR mode.
58	PRESET TUN	I	Initializing input for PRESET tuning.
59-70	P16-P5	O	Segment output terminals for fluorescent tube.
71	VLOAD		Pull-down resistor connection terminal of FL controller and driver.
72-75	P4-P1	O	Segment output terminals for fluorescent tube.
76-80	12G-8G	O	Grid output terminals for fluorescent tube

BLOCK DIAGRAM

other models



ADJUSTMENT PROCEDURES

Preparation

• Input

FM mono: 1kHz, 75kHz devi., 60dB/μV (65dBf)

FM stereo: 1kHz, L+R 67.5kHz devi.: Pilot signal 19kHz
7.5kHz devi.

AM: 400Hz, 30% mod.,

1.FM ADJUSTMENT

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.1MHz, (99.0MHz) 1kHz 75kHz devi. 65dBf(60dB μ)	—	99.1MHz (99.0MHz)	DC voltmeter	L102	0±20mV	FM MUTE/MODE switch:OFF/MONO Repeat the steps 1 and 3 until no further adjustment is necessary.
	AC voltmeter					IFT on the front end	Maximum		
	Distortion analyzer					L103	Minimum		
Muting Level	1	Fig.1	99.1MHz 1kHz (99.0MHz) 22.5kHz devi. 19.2dBf(14dB)	—	99.1MHz (99.0MHz)	Oscilloscope	R160	Signal output	FM MUTE/MODE switch:ON/STEREO
	2							No signal	
VCO	1	Fig.2	99.1MHz (99.0MHz), 1kHz 75kHz devi, 65dBf(60dB μ)		99.1MHz (99.0MHz)	Frequency counter	R201	19,000±10Hz	FM MUTE/MODE switch:ON/STEREO
Stereo Distortion		Fig.3	99.1MHz (99.0MHz) Ext. mod.65dBf(60dB)	Channel L or R 1kHz	99.1MHz (99.0MHz)	Distortion analyzer	IFT on the front end	Minimum	FM MUTE/MODE switch:ON/STEREO Don't turn more than ±90°
Stereo Separation (Except "D" type)	1	Fig. 3	99.1MHz (99.0MHz) Ext. mod.65dBf(60dB)	Channel L 1kHz	99.1MHz (99.0MHz)	Channel R AC voltmeter	R202	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	

NOTE: ():230V/Worldwide models

2.AM ADJUSTMENT

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	1.3±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

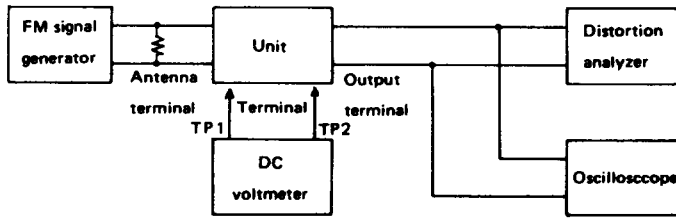
FM tuned voltage:87.5MHz~108.0MHz
1.6±0.5V ~8.0±0.5V
AM tuned voltage:530kHz~1710kHz
1.3±0.5V~7.4±0.5V

230V and Worldwide models

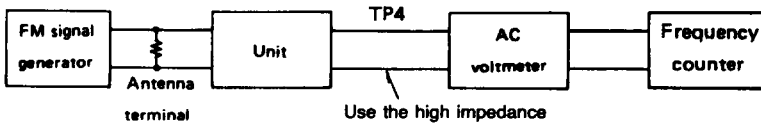
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L151	1.2±0.2V
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L152	Maximum

Reference Specification

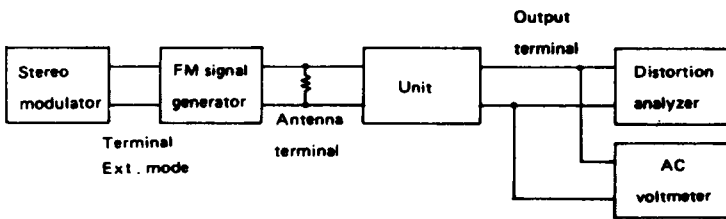
FM tuned voltage:87.5MHz~108.0MHz
1.6±0.5V ~8.0±0.5V
AM tuned voltage:522kHz~1611kHz
1.2±0.5V~6.7±0.5V (230V model)
AM tuned voltage:531kHz~1602kHz
1.2±0.5V~6.7±0.5V (Worldwide model)



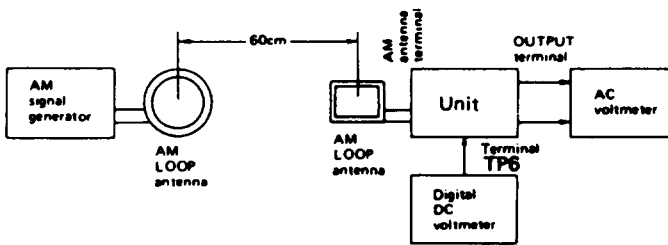
(fig. 1)



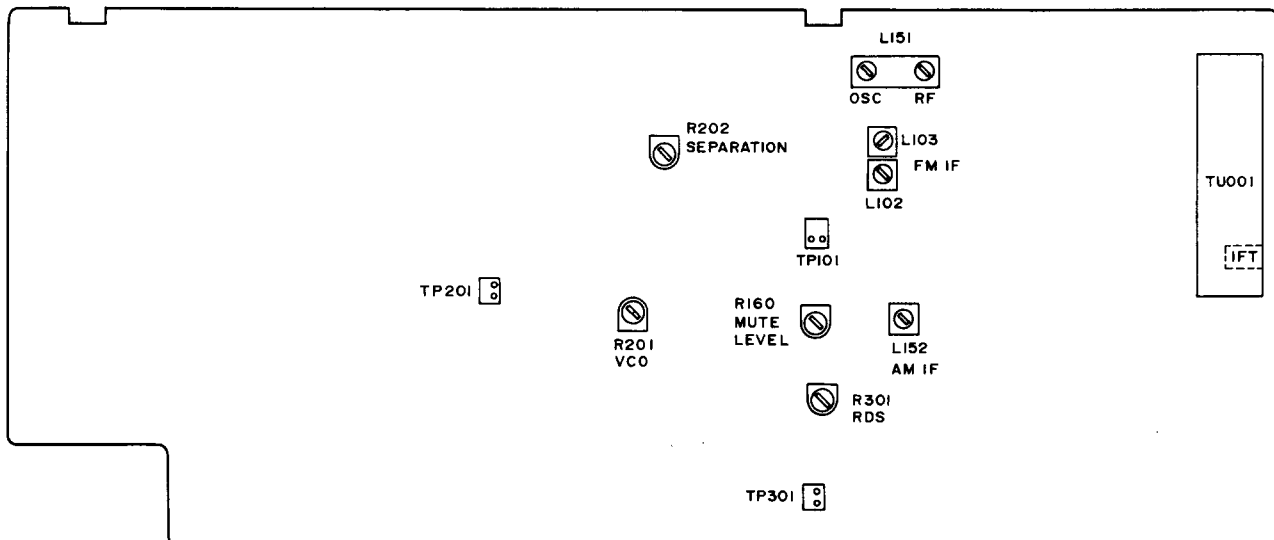
(fig. 2)



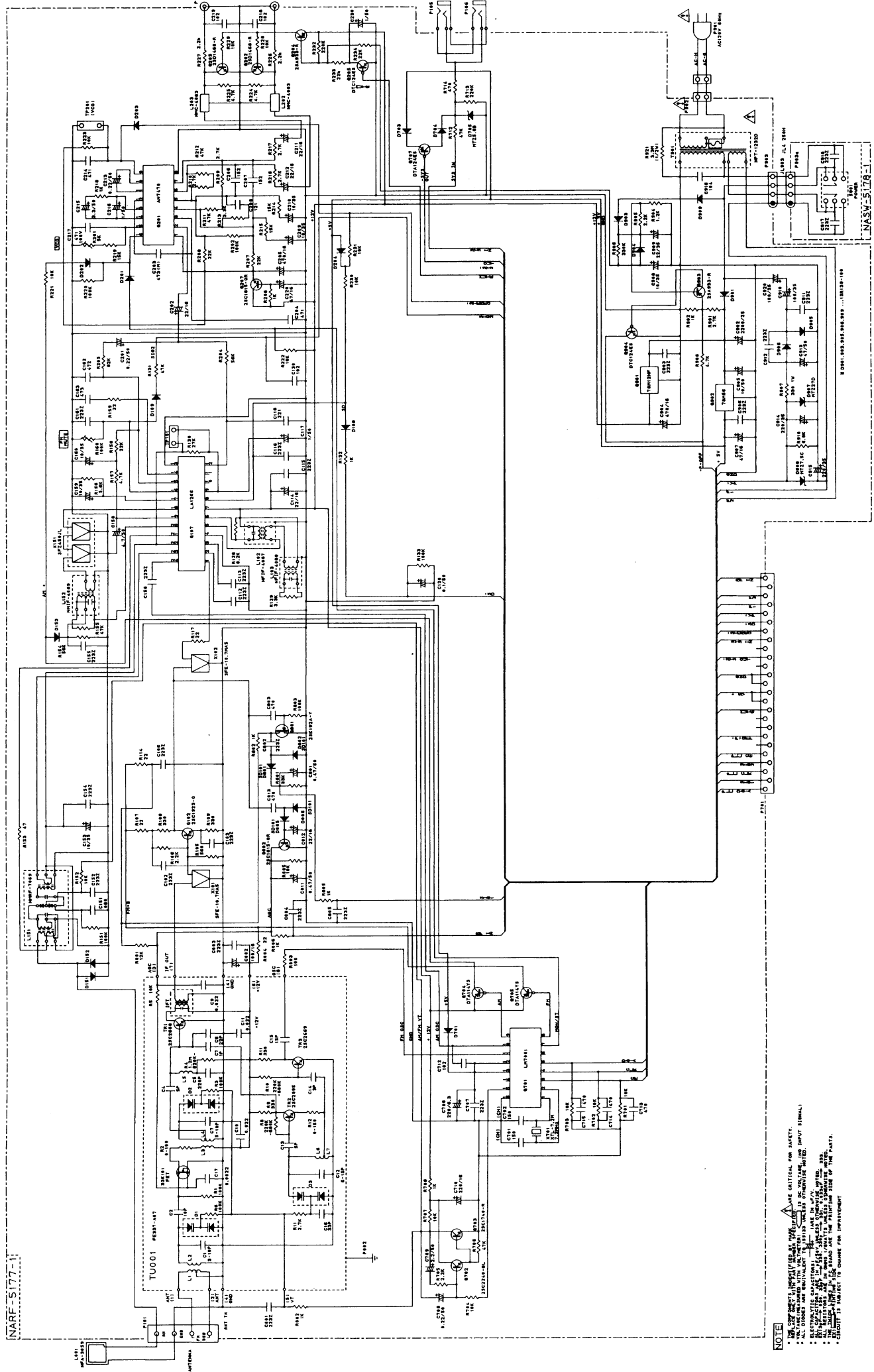
(fig. 3)



(AM)



SCHEMATIC DIAGRAM - 120V model -



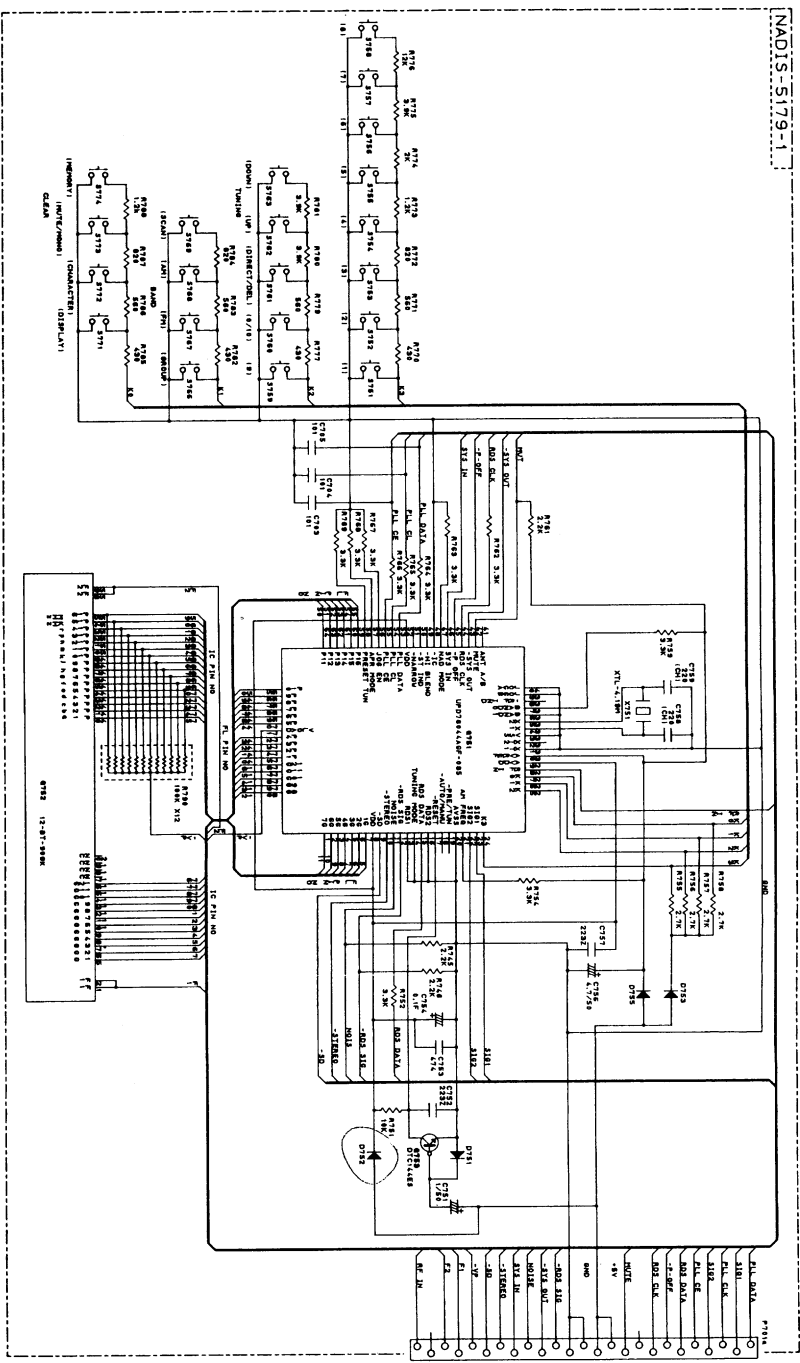
NOTE

- 1. THE USER SHOULD BE ADVISED THAT THE SCHEMATIC DIAGRAM IS FOR INFORMATION ONLY AND IS NOT TO BE USED AS A BASIS FOR REPAIR OR MODIFICATION.
- 2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- 3. ELECTRICAL CONNECTIONS SHOULD BE MADE TO THE POINTS INDICATED BY THE DOTTED LINES.
- 4. ALL ELECTRICAL CONNECTIONS SHOULD BE MADE TO THE POINTS INDICATED BY THE DOTTED LINES.
- 5. THE SCHEMATIC DIAGRAM IS THE PROPERTY OF THE MANUFACTURER AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.
- 6. THE USER SHOULD BE ADVISED THAT THE SCHEMATIC DIAGRAM IS NOT TO BE USED AS A BASIS FOR REPAIR OR MODIFICATION.

NASW-5178-1

SCHEMATIC DIAGRAM

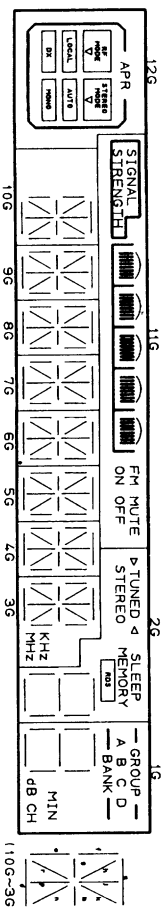
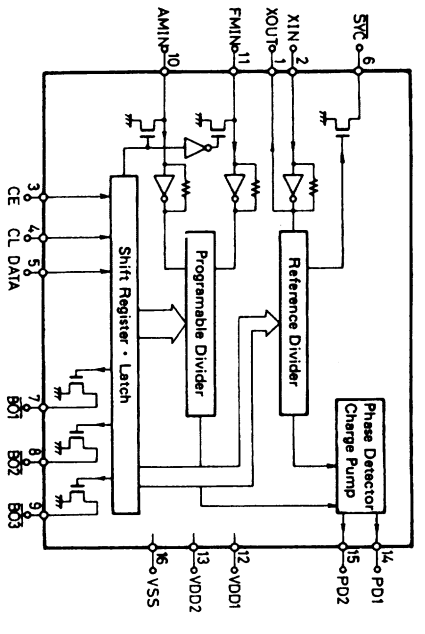
NADIS-5179-1



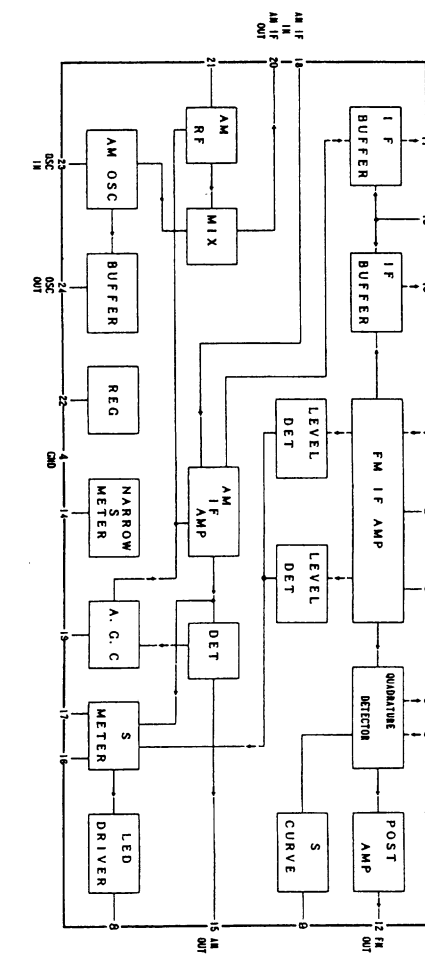
NOTE

1. AM CRITICAL, FM SAFETY.
2. THE COMPONENTS IDENTIFIED BY A TRIANGLE ARE NOT AVAILABLE IN THE STANDARD PARTS LIST.
3. THE COMPONENTS IDENTIFIED BY A SQUARE ARE AVAILABLE IN THE STANDARD PARTS LIST.
4. THE COMPONENTS IDENTIFIED BY A CIRCLE ARE AVAILABLE IN THE STANDARD PARTS LIST.
5. THE COMPONENTS IDENTIFIED BY A DIAMOND ARE AVAILABLE IN THE STANDARD PARTS LIST.
6. THE COMPONENTS IDENTIFIED BY A STAR ARE AVAILABLE IN THE STANDARD PARTS LIST.
7. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A DOT ARE AVAILABLE IN THE STANDARD PARTS LIST.
8. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A HORIZONTAL LINE ARE AVAILABLE IN THE STANDARD PARTS LIST.
9. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A VERTICAL LINE ARE AVAILABLE IN THE STANDARD PARTS LIST.
10. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A DIAGONAL LINE ARE AVAILABLE IN THE STANDARD PARTS LIST.
11. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A WAVE LINE ARE AVAILABLE IN THE STANDARD PARTS LIST.
12. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A WAVE LINE AND A DOT ARE AVAILABLE IN THE STANDARD PARTS LIST.
13. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A WAVE LINE AND A HORIZONTAL LINE ARE AVAILABLE IN THE STANDARD PARTS LIST.
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19. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A WAVE LINE AND A WAVE LINE AND A DIAGONAL LINE ARE AVAILABLE IN THE STANDARD PARTS LIST.
20. THE COMPONENTS IDENTIFIED BY A TRIANGLE WITH A WAVE LINE AND A WAVE LINE AND A WAVE LINE AND A DOT ARE AVAILABLE IN THE STANDARD PARTS LIST.

LM7001 (PLL frequency synthesizer)



LA1266 (FM IF/AM radio system)



FM Q002	0.00	4.68	0.00	Q205	0.00	0.00	4.93	Q706	5.68	5.59	4.96	
AM	0.00	0.00	0.00	AM	0.00	14.87	0.00	FM	5.30	1.95	5.68	
FM	Q102	1.34	2.09	Q207	0.00	11.92	11.87	Q707	5.31	0.00	4.94	
AM	0.00	0.00	0.00	AM	11.51	11.92	11.87	FM	5.31	0.00	4.95	
FM	Q103	1.42	8.88	2.07	Q702	0.60	11.35	1.09	Q802	2.57	11.91	3.18
AM	0.00	0.00	0.00	AM	0.00	0.00	0.68	FM	2.54	11.92	3.14	
FM	Q202	0.00	0.00	0.68	Q703	0.00	3.80	0.60	Q903	5.25	0.00	6.52
AM	0.00	0.00	0.00	AM	0.00	5.80	0.60	FM	5.75	0.00	7.03	
FM	Q203	0.00	0.00	0.67	Q704	11.90	11.90	0.00	Q904	0.00	4.48	0.00
AM	0.00	0.00	0.00	AM	11.90	11.90	11.22	FM	5.16	0.00	0.00	
FM	Q204	11.92	11.90	11.22	Q705	11.90	10.61	11.22	Q801	0.00	0.00	0.00
AM	11.92	0.00	14.90	AM	11.90	0.00	11.85	FM	0.00	0.00	0.00	

Q753	0.00	0.00	1	Q901	20.20	22.00	20.20	22.00	FM	VP	28.40
E	0.00	4.93	2	0.00	0.00	0.00	0.00	0.00	AM	28.90	
C	4.93	4.93	2	0.00	0.00	0.00	0.00	0.00	FM	F1/F2	4.7
B	0.00	0.00	3	11.92	11.92	5.68	5.68		AM	F1/F2	4.7
									AC		4.7

A

B

C

D

E

F

G

SCHEMATIC DIAGRAM

— other models —

The schematic diagram illustrates the internal circuitry of a radio receiver, organized into sections A through G. Key components and stages include:

- Section A:** Tuning indicator circuit (TU001) and detector stage (DI001) with various capacitors (C101-C108) and inductors (L101-L108).
- Section B:** Detector and amplifier stage (DI002) featuring a transformer (T101) and various passive components.
- Section C:** Amplifier stage (DI003) with a transformer (T201) and a network of resistors and capacitors.
- Section D:** Amplifier stage (DI004) and detector stage (DI005) with a transformer (T301) and associated components.
- Section E:** Amplifier stage (DI006) and detector stage (DI007) with a transformer (T401) and various components.
- Section F:** Amplifier stage (DI008) and detector stage (DI009) with a transformer (T501) and various components.
- Section G:** Amplifier stage (DI010) and detector stage (DI011) with a transformer (T601) and various components.

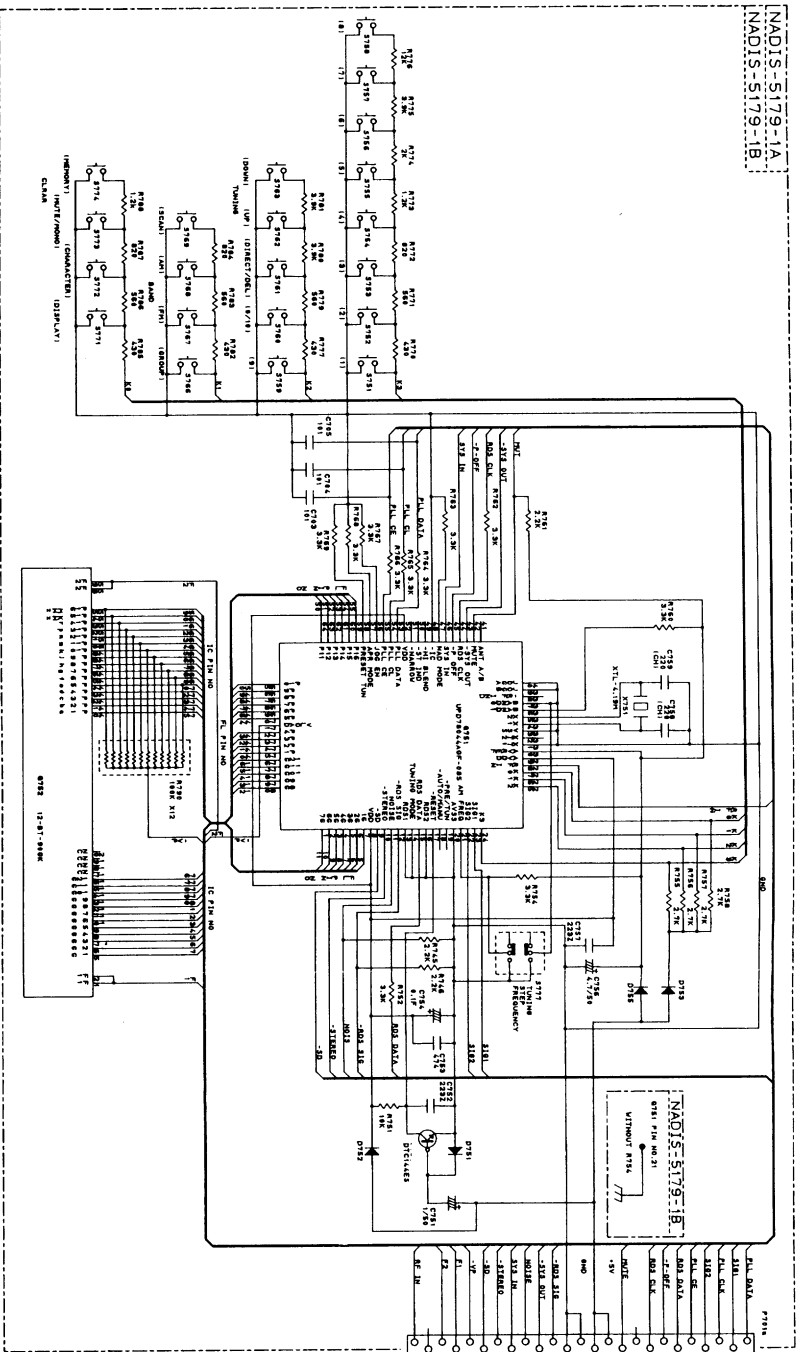
The diagram also shows a power supply section at the top right, including an AC input, transformer (T701), and filter network. A terminal strip at the bottom right provides connection points for various signals and power lines.

NOTE

- * THE COMPONENTS IDENTIFIED BY MARKING ARE CRITICAL FOR SAFETY.
- * THE USE OF THESE COMPONENTS IN ANY OTHER MANNER IS DISAPPROVED.
- * ELECTRIC SHOCK CAN BE FATAL—SEE WARNINGS IN THE USER MANUAL.
- * THE DESIGN OF THIS PRODUCT IS SUBJECT TO CHANGE WITHOUT NOTICE.
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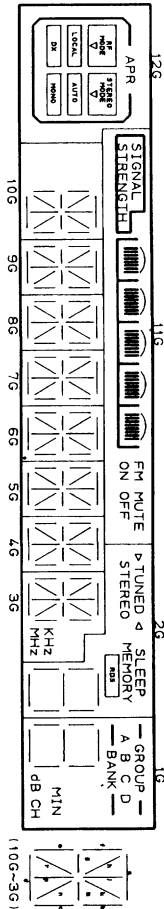
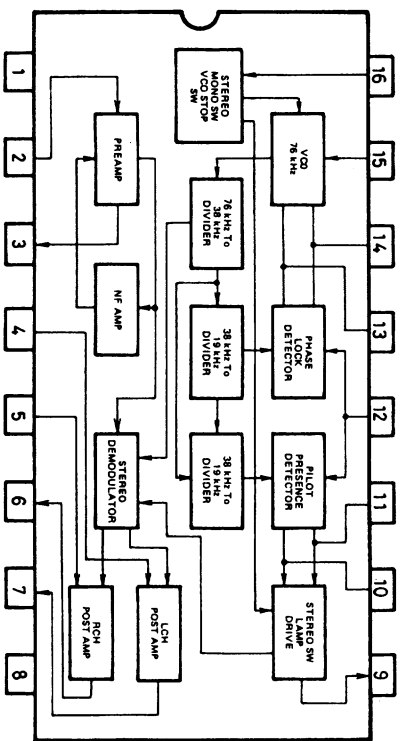
A | **B** | **C** | **D** | **E** | **F** | **G**

SCHEMATIC DIAGRAM



NOTE

- 1. THE SCHEMATIC DIAGRAM IS FOR INFORMATION ONLY. USE ORIGINAL FOR REPAIR.
- 2. ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES.
- 3. ALL DIMENSIONS ARE MEASURED TO THE CENTER OF THE COMPONENT UNLESS OTHERWISE SPECIFIED.
- 4. ELECTRICAL CONNECTIONS TO THE BOARD SHOULD BE MADE TO THE POINTS INDICATED BY THE DIMENSIONS.
- 5. ALL DIMENSIONS ARE MEASURED TO THE CENTER OF THE COMPONENT UNLESS OTHERWISE SPECIFIED.
- 6. ALL DIMENSIONS ARE MEASURED TO THE CENTER OF THE COMPONENT UNLESS OTHERWISE SPECIFIED.
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- 19. ALL DIMENSIONS ARE MEASURED TO THE CENTER OF THE COMPONENT UNLESS OTHERWISE SPECIFIED.
- 20. ALL DIMENSIONS ARE MEASURED TO THE CENTER OF THE COMPONENT UNLESS OTHERWISE SPECIFIED.



FM	Q002	0.00	4.68	0.00	Q205	0.00	0.00	4.93	Q706	5.68	5.59	4.96
AM	0.00	0.00	0.00	0.00	0.00	14.87	0.00	Q207	5.30	0.00	4.94	
FM	Q102	1.34	9.12	2.09	Q207	11.15	11.92	11.87	Q707	5.31	0.00	4.95
AM	0.00	0.00	0.00	0.00	Q702	0.60	11.51	1.09	Q802	2.37	11.91	3.18
FM	Q103	1.42	8.68	2.07	Q703	0.60	11.35	1.09	Q903	5.25	0.00	6.52
AM	0.00	0.00	0.00	0.00	Q704	0.00	5.80	0.60	Q904	0.00	4.48	0.00
FM	Q202	0.00	0.00	0.68	Q705	11.90	11.90	0.00	Q801	5.16	0.00	0.00
AM	0.00	0.00	0.67	0.00	Q706	11.90	11.90	11.85				
FM	Q203	0.00	0.00	0.00								
AM	0.00	0.00	0.00	0.00								
FM	Q204	11.92	0.00	14.90								
AM												

FM <th>Q107</th> <th>2.53</th> <th>2.53</th> <th>0.00</th> <th>11.90</th> <th>11.91</th> <th>11.91</th> <th>4.80</th> <th>4.11</th> <th>2.46</th> <th>2.80</th> <th>3.16</th>	Q107	2.53	2.53	0.00	11.90	11.91	11.91	4.80	4.11	2.46	2.80	3.16
AM	1.05	1.05	0.00	11.92	11.92	4.79	3.86	2.50	2.30	3.15		
FM	Q201	11.16	2.56	6.04	8.98	3.97	4.00	0.00	9.88	2.57	2.58	2.57
AM	11.16	2.56	6.05	8.99	8.99	3.97	4.00	0.00	11.15	2.58	2.58	2.58
FM	Q701	0.71	1.67	0.00	0.00	0.00	0.00	11.83	0.00	2.90	4.92	
AM	0.71	1.67	0.00	0.00	0.00	9.20	11.85	0.00	1.81	0.00	4.94	
FM	Q107	0.00	1.54	1.56	0.49	0.00	2.53	1.56	0.00	4.00	4.00	3.20
AM	0.00	1.51	1.65	0.00	0.38	1.06	1.63	11.33	3.69	3.69	2.41	
FM	Q201	2.57	2.58	0.40	0.74							
AM	2.58	2.57	0.00	8.65								
FM	Q701	4.92	1.05	1.09	0.00							
AM	4.94	1.05	1.08	0.00								

FM	-VP	-28.40
AM		-28.90
FM/E1/E2	4.7	AC
AM	4.7	AC

AN7470 (FM stereo decoder)

PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD (NARF-5177-1/1A/1C)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end			Ceramic filters	
TU001	240088	FE337-A07 <D>	X101,X102	3010071	SFE-10.7MA5 <D>
TU001	240089	FE415-G11 <W/P>	X101,X102	3010137	SFE-10.7MMK <W/P>
	ICs		X104	3010137	SFE-10.7MMK <W/P>
Q107	22240039	LA1266	X151	3010123	SFZ450JL
Q201	22240242	AN7470		X'tal	
Q701	22240090	LM7001	X701	3010158 or	XTL-7.2M
Q901	222780125NEC	78M12HF		3010141	
Q902	222780565JRC	78M56		Capacitors	
	Transistors		C002	354741019	100 μ F,16V,Elect.
Q002,Q207	2211255 or	2SC1815-GR or	C011	354784799	0.47 μ F,50V,Elect.
	2214915	2PC1815-GR	C012,C114	354742209	22 μ F,16V,Elect.
Q102	2211723	2SC1923-O	C117	354780109	1 μ F,50V,Elect.
Q103	2211723	2SC1923-O <W/P>	C120	354781099	0.1 μ F,50V,Elect.
Q202,Q203	2212794	2SD1468-R	C153	354761009	10 μ F,35V,Elect.
Q204	2213074	2SA933-R	C158	354780479	4.7 μ F,50V,Elect.
Q205	2213160	DTC124ES	C159,C160	354761009	10 μ F,35V,Elect.
Q702	2211406	2SC2240-BL	C162	374724724	4700pF \pm 5%,50V,Plastic
Q703	2211183	2SC1740-R	C163	374724734	0.047 μ F \pm 5%,50V,Plastic
Q704,Q705	2213090	DTA114YS	C201,C213	354782299	0.22 μ F,50V,Elect.
Q707	2212600	DTA124ES	C202	354742209	22 μ F,16V,Elect.
Q801	2212274	2SK192A-Y	C203	374724734	0.047 μ F \pm 5%,50V,Plastic
Q903	2213074	2SA933-R	C205	354744719	470 μ F,16V,Elect.
Q904	2213160	DTC124ES	C206,C207	374721024	1000pF \pm 5%,50V,Plastic
	Diodes		C206,C207	374721224	1200pF \pm 5%,50V,Plastic
D005,D006	223191	SD101	C206,C207	374721524	1500pF \pm 5%,50V,Plastic
D108,D109	223163 or	1SS133 or	C209,C210	354761009	10 μ F,35V,Elect.
D151-D153	223205	1SS270A	C211,C212	354742209	22 μ F,16V,Elect.
D201-D204	223163 or	1SS133 or	C215	354780339	3.3 μ F,50V,Elect.
D701-D704	223205	1SS270A	C216,C230	354780109	1 μ F,50V,Elect.
D705	224450562	MTZ5.6B	C217	370134714	470pF \pm 5%,100V,Plastic
D801,D802	223191	SD101	C220	354744709	47 μ F,16V,Elect.
D901,D903	22380032	1SR139-100	C706	354722219	220 μ F,6.3V,Elect.
D904	223163 or	1SS133 or	C708	354782299	0.22 μ F,50V,Elect.
	223205	1SS270A	C709	354780229	2.2 μ F,50V,Elect.
D905,D906	22380032	1SR139-100	C710	354742219	220 μ F,16V,Elect.
D907	224452704	MTZ27D	C801	354784799	0.47 μ F,50V,Elect.
D908	224450753	MTZ7.5C	C902	354752229	2200 μ F,25V,Elect.
D909	22380032	1SR139-100	C904	354744719	470 μ F,16V,Elect.
	Coils & Transformers		C905	354781009	10 μ F,50V,Elect.
L102	233469Y	NFIF-4087	C907	354744709	47 μ F,16V,Elect.
L103	233470Y	NFIF-4088	C908	354761009	10 μ F,35V,Elect.
L151	231226Y	NMRF-7069	C909	354762209	22 μ F,35V,Elect.
L152	232166Y	NMIF-4089	C910,C920	354761019	100 μ F,35V,Elect.
L201	232164Y	NMC-4082 <W/P>	C913	354784709	47 μ F,50V,Elect.
L202,L203	232165Y	NMC-4083	C914,C915	354762219	220 μ F,35V,Elect.
△ T901	2301075Y	NPT-1232D, Power transformer <D>	C916	374721044	0.1 μ F \pm 5%,50V,Plastic
△ T901	2301077Y	NPT-1232DG, Power transformer <W>			
△ T901	2301076Y	NPT-1232P, Power transformer <P>			

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors			Resistor	
R160	5210266	N06HR 100KBC, Semi-fixed	R790	49163104412	100K ohm x12, 1/10W, Network resistor
R201	5210261	N06HR 5KBC, Semi-fixed		Switches	
R202	5210267	N06HR 200KBC, Semi-fixed <P/W>	S751-S763	25035664Y	NPS-111-S616, Push switches
R907	443623314	330ohm $\pm 5\%$, 1W, Metal oxide film	S766-S769	25035664Y	NPS-111-S616, Push switches
R921	431523355	RC1/2GFK 3.3M ohm, Solid	S771-S774	25035664Y	NPS-111-S616, Push switches
	Terminals		S777	25065497	NSS-22170P, Slide switch <W>
P101	25060214	NTM-4PDML136 <D>		Wire holder	
P101	25060117	NTM-2PDML051 <W/P>	P701a	25050889	NSCT-25P684
P103	25045333	NPJ-2PDBL185		Holder	
P105,P106	25045439Y	NPJ-1PDBL263		27190953Y	FL tube
P701	25050965	NSCT-25P752		NOTE: <D>:120V model only	
P903	25051108	NSCT-4P895		<P>:230V model only	
	Plugs			<W>:Worldwide model only	
△ P902	25055675	NPLG-2P-631			
TP101,TP201	25055038	NPLG-2P29			
	Switch				
△ S902	25030378	Rotary <W>			

POWER SWITCH PC BOARD (NASW-5178-1)

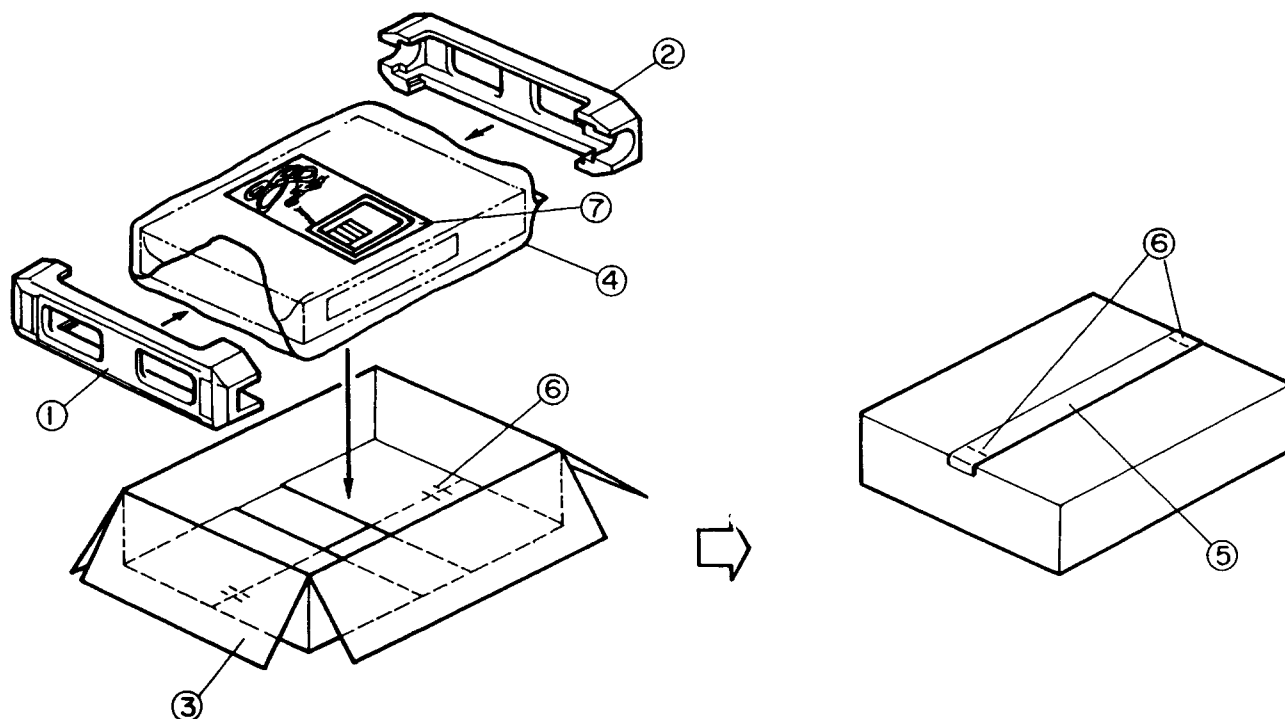
CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
△ S901	25035663Y	NPS-122-L615, Power switch
	Holder	
P903a	25051108	NSCT-4P895, Wire traps

DISPLAY CIRCUIT PC BOARD (NADIS-5179-1/1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q751	22240842	μ PD78044AGF-085
	FL tube	
Q752	212140A or 212140	12-BT-90GK, FL TUBE
	Transistor	
Q753	221282	DTC144ES
	Diodes	
D751-D753	223163 or 223205	1SS133 or 1SS270A
D755	223163 or 223205	1SS133 or 1SS270A
	X'tal	
X751	3010224	XTL-4.19M
	Capacitors	
C751	354780109	1 μ F, 50V, Elect.
C753	375524744	0.47 μ F $\pm 5\%$, 50V, Plastic
C754	<u>3000076</u>	0.1F, 5.5V, Super
C756	354780479	4.7 μ F, 50V, Elect.

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	29091647Y	Pad (L)
2	29091648AY	Pad (R)
3	29052837Y	Carton box
3-a	29361783Y	Label (UPC) <N>
4	29100037-1Y	650×500mm, Styren bag
5	29110071	PP tape
6	282301	Staple
7	<Accessory bag ass'y>	
	29342076Y	Instruction manual E
	29342087Y	Instruction manual U3 <C/T/WT>
	29342111Y	Instruction manual T <WT>
	232140	NMA-3057,AM loop antenna
	292111	FM antenna <D/C>
	292112	FM antenna <WT/T/A/K>
	2010244Y	Connection cord
	2010200	Remote control cord
	29365019B	Waranty card <D/N>
	29358002K	SS LIST <D/N>
	25065462	YAE21-0237, Two FM adaptor <WT/T/A/K>
	25055018	CV-K-1, Conversionplug <W/T>
	29100097-1Y	350×250mm, Styren bag

NOTE: <D>:120V model only
 <N>:U.S.A. model only
 <C>:Canadian model only
 <WT>:Wolrdwide model only
 <T>:Taiwanese model only
 <A>:Australian model only
 <K>:Korean model only