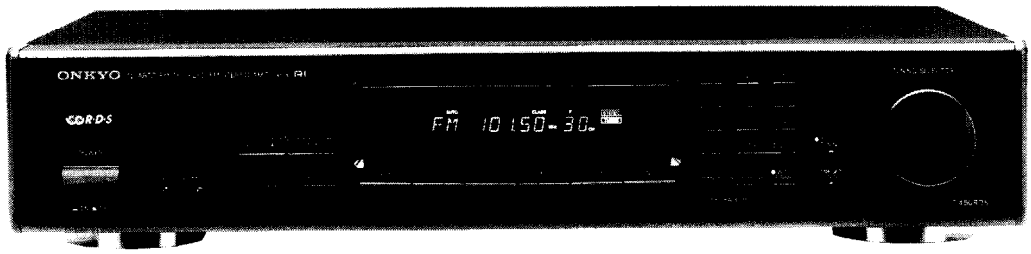
Ref. No. 346

ONKYO SERVICE MANUAL

SYNTHESIZED
FM STEREO/AM TUNER
MODEL T-450RDS



Black model

BUD, BUDN	120V AC, 60Hz
BUP	230V AC, 50Hz
BUW	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 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:	European & Worldwide models 87.50 – 108.00MHz (50kHz steps) U.S.A. & Canadian models 87.90 – 107.90MHz (200kHz steps)
Usable sensitivity:	Mono: 11.2dBf, 1.0μV, 75 Ohms IHF 0.9μV 75 Ohms DIN Stereo: 17.2dBf 2.0μV, 75 Ohms IHF 20μV 75 Ohms DIN
50dB quieting sensitivity:	Mono: 16.1dBf 1.7μV 75 Ohms Stereo: 36.1dBf 17μV 75 Ohms
Capture ratio:	1.5dB
Image rejection ratio:	80dB
IF rejection ratio:	90dB
Signal-to-noise ratio:	Mono: 76dB IHF Stereo: 66dB IHF
Alternate channel attenuation:	60 dB IHF
Selectivity:	60dB DIN (Narrow) (±300kHz, 40kHz dev)
AM suppression ratio:	50dB
Total Harmonic Distortion:	Mono: 0.1% (wide) Stereo: 0.2% (wide)
Frequency response:	30 – 15,000Hz (±1.5 dB)
Stereo separation:	40dB at 1kHz (wide) 30dB at 70 – 10,000Hz (wide)
Output voltage:	0.75V, 0.5V (U.S.A. models only)
Muting level:	17.2 dBf 2.0 μV, 75 Ohms

AM

Tuning range:	U.S.A. & Canadian models: 530–1710 kHz (10 kHz steps) European models: 522 –1611 kHz (9 kHz steps) Worldwide models: 531–1602 kHz (9 kHz steps) 530–1710 kHz (10 kHz steps)
Usable sensitivity:	25μV
Image rejection ratio:	40dB
IF rrejection ratio:	40dB
Signal-to-noise ratio:	40dB
Total Harmonic Distortion:	0.7%
Output voltage:	150mV

General

Power supply:	European models (except U.K.): AC 230V, 50Hz U.S.A. & Canadian models: AC 120V, 60Hz U.K. & Australian models: AC 240V, 50Hz Worldwide models: AC 120V and 220V switchable, 50/60Hz
Dimensions (W × H × D):	455 × 90 × 306 mm 17-15/16″ × 3-9/16″ × 12-1/16″
Weight:	3.6 kg, 7.4 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 suuply cord and chassis.

Specifications: More than 10MΩ at 500V

2. Memroy 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 (Rear 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 (Rear Panel)

W models are equipped with a switch for the AM (9kHz/10kHz) and FM (50kHz/100kHz) bands. The switch should be set to the proper steps for the radio broadcast frequencies in your area.

5. Changing the band step

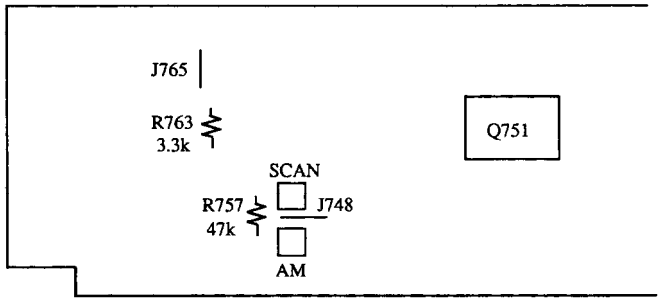
With the exception of the Worldwide models, a BAND STEP selector switch is not provided.

FM

MODEL	BAND STEP	J765	R763
UD	200kHz→50kHz	Short	Remove
UP	50kHz→200kHz	Open	Add

AM

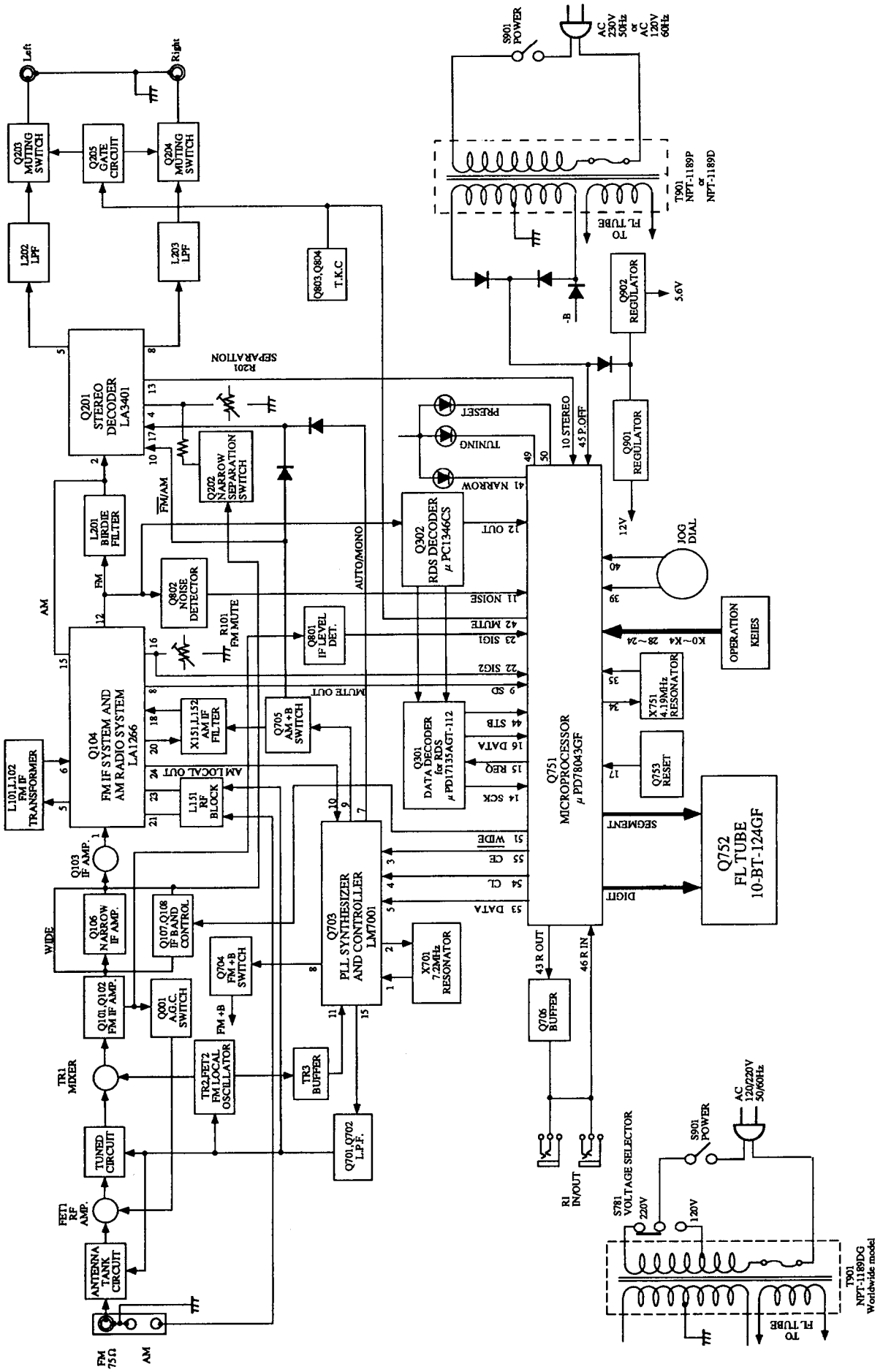
MODEL	BAND STEP	J748	R757
UD	10kHz→9kHz	Short	Remove
UP	9kHz→10kHz	Open	Add



DISPLAY CIRCUIT PC BOARD

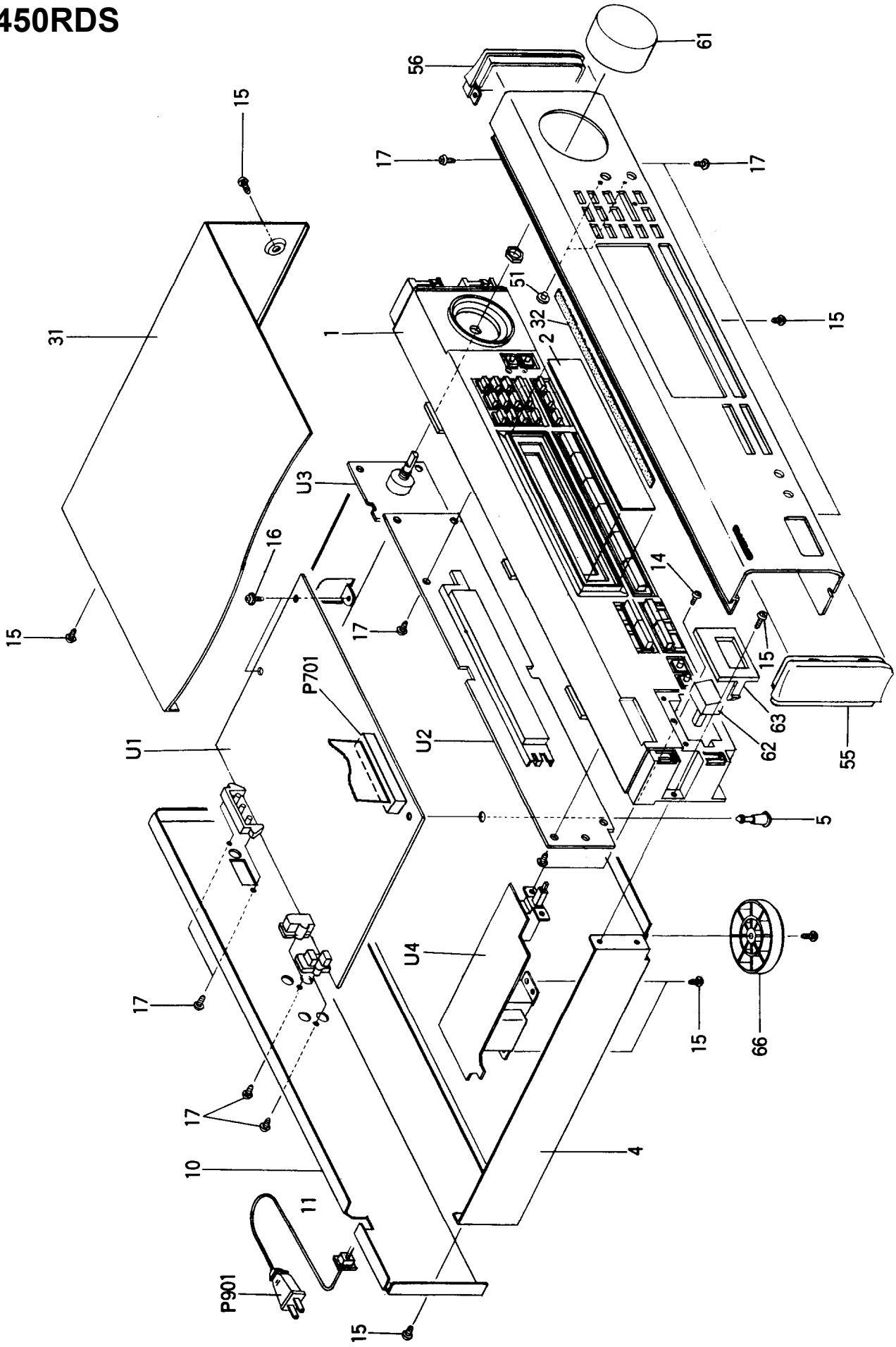
T-450RDS

BLOCK DIAGRAM



T-450RDS

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

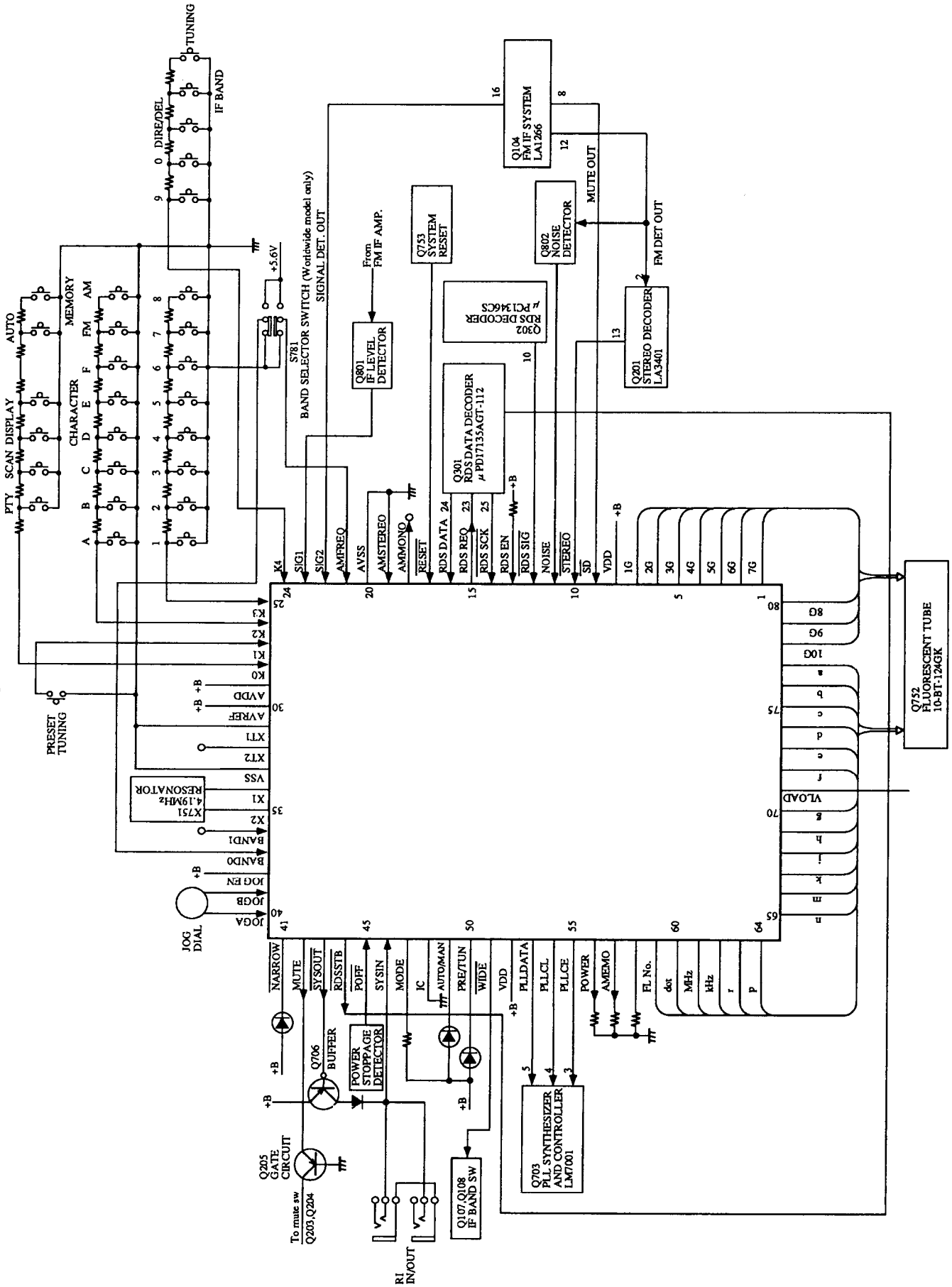
REF.NO.	PART NO.		DESCRIPTION
1	27110787A		Front bracket
2	28191669		Clear plate
4	27100276		Chassis
5	27190511		KGLS-16RT,Holder
10	27121804A		Rear panel <D>
	27121805A		Rear panel <P>
	27121807A		Rear panel <W>
11	27300750	⚠	Bushing cord
14	82143006		3P+6FN(BC),Pan head screw
15	834430088		3TTS+8B(BC),Self-tapping screw
16	831130088		3TTW+8B,Self-tapping screw
17	833430080		3TTP+8P(BC),Self-tapping screw
31	28184488B		Top cover
32	28140680		Cushion
51	1A462121		Front panel ass'y
	28135199Y		Badge
54	28198778		Facet
55	28125257		End cap L
56	28125258		End cap R
61	28324898		Knob, tuning
62	28324140		Knob, power
63	27267830		Guide, power
66	27175254		Leg

REF.NO.	PART NO.		DESCRIPTION
P701	2047251512		NCFC7-251512,Flexible flat cable
P901	253191HIT	⚠	AS-UC-7 #18,Power supply cord <D>
	253193HIT	⚠	AS-CEE,Power supply cord <P/W>
U1	1A462546-1		NARF-4846-1,Main circuit pc board ass'y <D>
	1A462546-1A		NARF-4846-1A,Main circuit pc board ass'y <P>
	1A462546-1B		NARF-4846-1B,Main circuit pc board ass'y <W>
U2	1A462547-1		NADIS-4847-1,Display circuit pc board ass'y <D>
	1A462547-1A		NADIS-4847-1A,Display circuit pc board ass'y <P>
	1A462547-1B		NADIS-4847-1B,Display circuit pc board ass'y <W>
U3	1A462548-1		NASW-4848-1,Jog dial pc board ass'y
U4	1A462549-1		NAPS-4849-1,Power supply pc board ass'y <D>
	1A462549-1A		NAPS-4849-1A,Power supply pc board ass'y <P>
	1A462549-1B		NAPS-4849-1B,Power supply pc board ass'y <W>
U5	1A462550-1		NAPS-4850-1,Voltage selector switch pc board ass'y <W>

NOTE: <P>:Only 120V model
<P>:Only 230V model
<W>:Only Worldwide model

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

MICROPROCESSOR CONNECTION DIAGRAM



TERMINAL DESCRIPTION

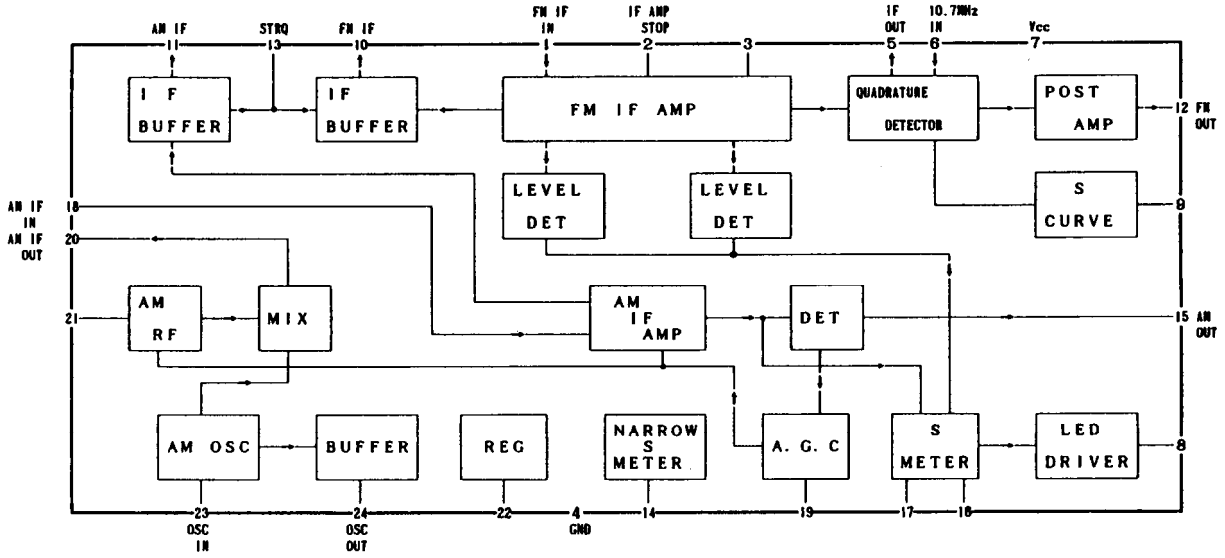
Pin No.	Function	I/O	Descriptions
1~7	7G~1G	O	Grid output terminals for fluorescent tube.
8	VDD		Power supply terminal
9	$\overline{SD}$	I	Broadcast detection input more than the muting level
10	$\overline{STEREO}$	I	Stereo broadcast detection input
11	NOISE	I	Noise detection input
12	$\overline{RDSSIG}$	I	RDS broadcast detection input
13	RDSEN	I	Initializing input for RDS operation
14	$\overline{RDSSCK}$	I	Connect to the terminal $\overline{SCK}$ of RDS data decoder IC μPD17135AGT-112.
15	RDSREQ	O	Connect to the terminal REQ of RDS data decoder IC μPD17135AGT-112.
16	RDSDATA	I	Connect to the terminal DATA of RDS data decoder IC μPD17135AGT-112.
17	$\overline{RESET}$	I	System reset terminal
18	AMMONO	O	AM AUTO/MANUAL control output. Not used.
19	AMST	I	Initializing input for AM stereo operation
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
24~28	K4~K0	I	Operation key connection terminals
29	AVDD		Analog power supply terminal of A/D converter
30	AVREF		Reference voltage input of A/D converter
31	XT1		Resonator terminals for sub system.
32	XT2		Not used.
33	VSS		Ground terminal
34	X1		Resonator terminals for main system
35	X2		Connect the 4.19MHz ceramic resonator.
36	BAND1	I	Initializing input for FM band step
37	BAND0	I	
38	JOGEN	I	Initializing input for Jog operation
39	JOGB	I	Jog dial signal A
40	JOGA	I	Jog dial signal B

Pin No.	Function	I/O	Descriptions
41	$\overline{NARROW}$	O	NARROW indicator output
42	MUTE	O	Muting control output
43	$\overline{SYSOUT}$	O	System code output
44	$\overline{RDSSTB}$	I	Connect to the terminal $\overline{STB}$ of RDS data decoder. Not used.
45	$\overline{POFF}$	I	Power stoppage detection input
46	SYSIN	I	System code input
47	MODE	I	Initializing input for operation mode
48	IC		Connect to the ground terminal.
49	AUTO/MAN	O	TUNING indicator output
50	PRE/TUN	O	PRESET indicator output
51	NARROW	O	IF BAND control 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	POWER	O	Power source control output
57	AMEMO	O	AUTO MEMORY control output
58			Not used.
59~70	P18~P7	O	Segment output terminals for fluorescent tube.
71	VLOAD		Pull-down resistor connection terminal of FL controller and driver.
72~77	P6~P1	O	Segment output terminals for fluorescent tube
78~80	10G~8G	O	Grid output terminals for fluorescent tube

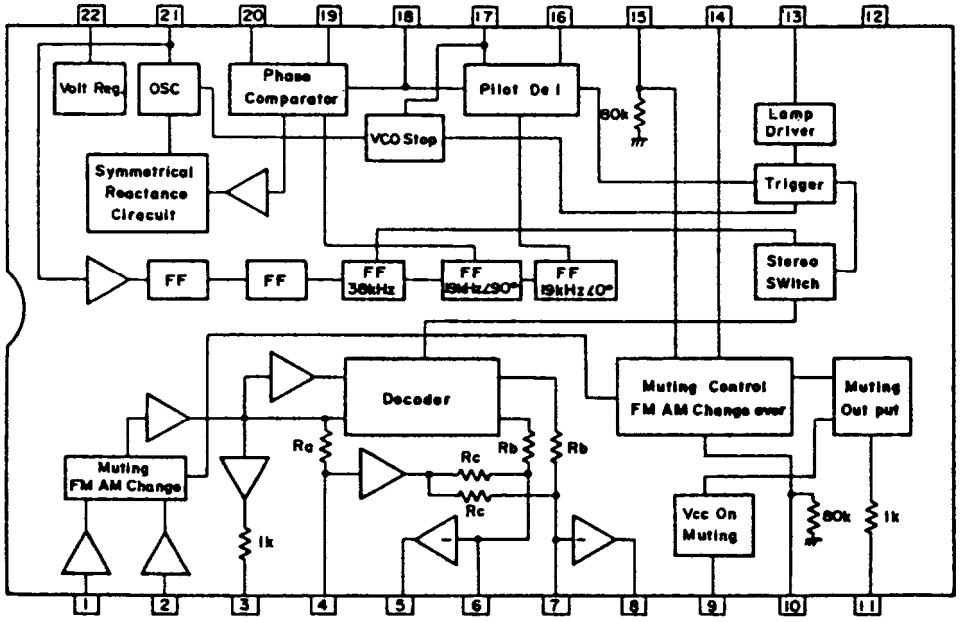
INITIALIZING OF FM/AM BAND

				FM		AM	
BAND0	BAND1	AM10K	Region	Frequency range	Step	Frequency range	Step
0	1	0	Europe	87.5~108.00MHz	50kHz	522~1611kHz	9kHz
1	0	0	Worldwide	87.5~108.00MHz	50kHz	531~1602kHz	9kHz
1	1	1	120V model	87.9~107.9MHz	200kHz	530~1710kHz	10kHz
0	0	0	Japan	76.0~108.0MHz	100kHz	522~1611kHz	9kHz

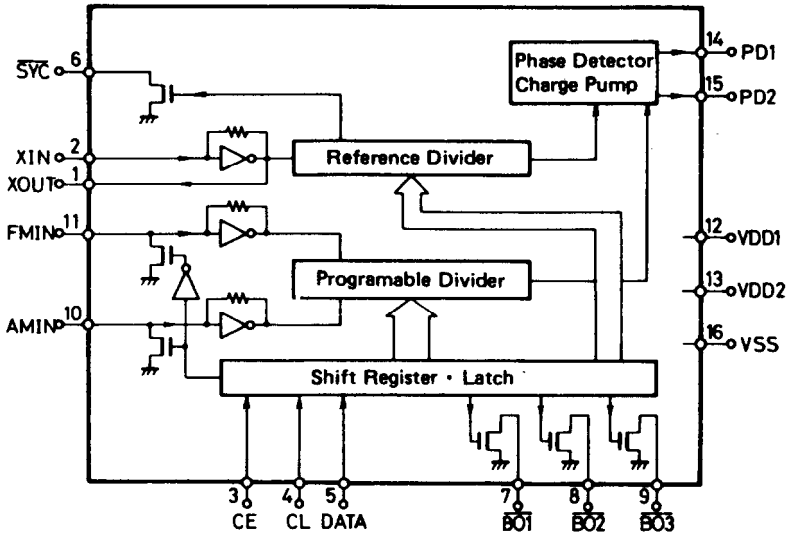
LA1266 (FM IF/AM radio system)



AN3401 (FM stereo decoder)



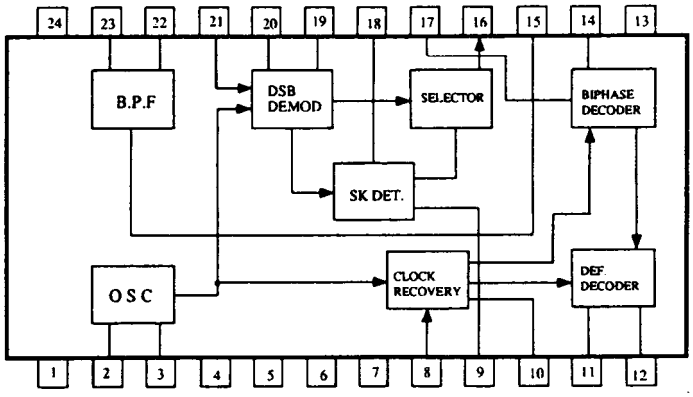
LM7001 (PLL frequency synthesizer)



Pin No.	Terminal	Description
1	XOUT	Connect to the 7.2 MHz crystal oscillator.
2	XIN	
3	CE	Chip enable terminal. Connect to the PLL terminal of microprocessor .
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of microprocessor .
5	DATA	Serial data input terminal. Connect to the DATA terminal of microprocessor .
6	SYN	Not used.
8	BAND1	Band selector output terminal.
9	BAND2	
7	BO1	This is the output terminal for AUTO/MONO. 'L' when AUTO.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator input terminal.
12	VDD 1	Power supply terminal for back-up.
13	VDD 2	Power supply terminal.
14	PD1	Charge pump output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency. In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator through the low pass filters.
15	PD2	
16	Vss	Ground terminal.

BAND	BAND 1	BAND 2
FM	L	H
AM	H	L

μPC1346CS (RDS Decoder)



No.	Terminal	Description	No.	Terminal	Description
1	Vcc	Supply voltage for the digital circuit	13	GND	Ground for the analog circuit
2	OSC IN	Resonator input	14	INTEG	Integrating filter terminal
3	OSC OUT	Resonator output	15	BPF ADJ	Adjustment fc of band pass filter
4	GND	Ground for the digital circuit	16	PSK OUT	Biphase signal output
5	TEST1	Test input	17	PSK IN	Biphase decoder input
6	TEST2	Test input	18	LPF SK	Low pass filter for the detection SK
7	OP.CTL	Control input of the operation stop	19	LPF Q	Low pass filter for the crossed detector
8	S/L CTL	Mode control input of the synchonizing detection	20	LPF I	Low pass filter for the synchronizing detector
9	SK OUT	SK detection output	21	DSB IN	DSB demodulator circuit input
10	RDS OUT	RDS synchonizing detection output	22	BPF OUT	Band pass filter output
11	CLOCK OUT	Bit rate clock output	23	BPF IN	Band pass filter input
12	DATA OUT	RDS data output	24	Vcc	Supply voltage for analog circuit

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 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	DC voltmeter	L102	0±20mV	IF BAND switch: WIDE FM MUTE/MODE switch:OFF/MONO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L103	Minimum	
Stereo Distortion		Fig.2	99.1MHz Ext. mod.65dBf(60dB)	Channel L or R 1kHz	99.1MHz	Distortion analyzer	IFT on the front end	Minimum	FM MUTE/MODE switch:ON/STEREO Don't turn more than ±180°
Stereo Separation	1	Fig.2	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.2	99.1MHz 1kHz 22.5kHz devi. 19.2dBf(14dB)	—	99.1MHz	Oscilloscope	R101	Signal output	
RDS		Fig.3	99.1MHz Ext. mod.60dB	RDS data or 57kHz 3% devi.	99.1MHz	Oscilloscope	R301	Maximum	

2.AM ADJUSTMENT

120V model

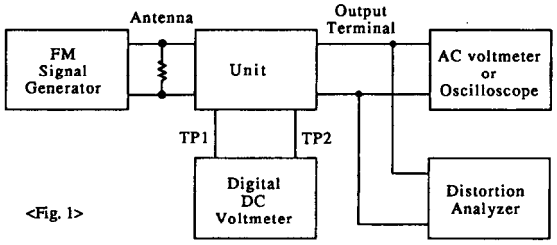
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	1.5±0.4V
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

Reference Specification
FM tuned voltage:87.9MHz~107.9MHz
2.0±0.5V~7.5±0.5V
AM tuned voltage:530kHz~1710kHz
1.5±0.5V~8.0±0.5V

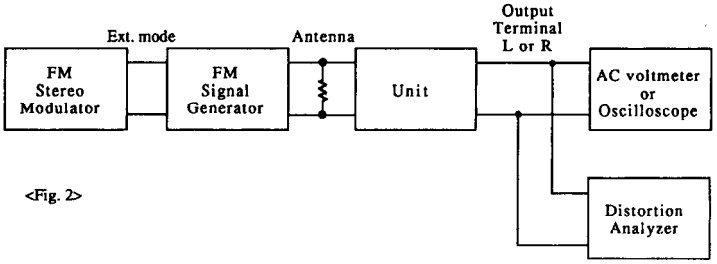
230V and Wolrdwide models

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	1.5±0.4V
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

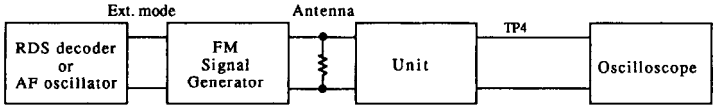
Reference Specification
FM tuned voltage:87.5MHz~108.0MHz
2.0±0.5V~7.5±0.5V
AM tuned voltage:522kHz~1611kHz
1.5±0.5V~7.5±0.5V
(230V model)
AM tuned voltage:531kHz~1602kHz
1.5±0.5V~7.5±0.5V
(Worldwide model)



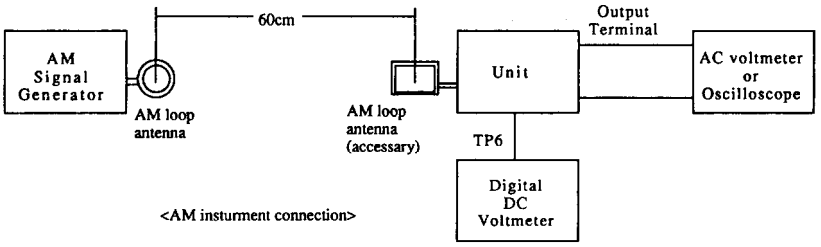
<Fig. 1>



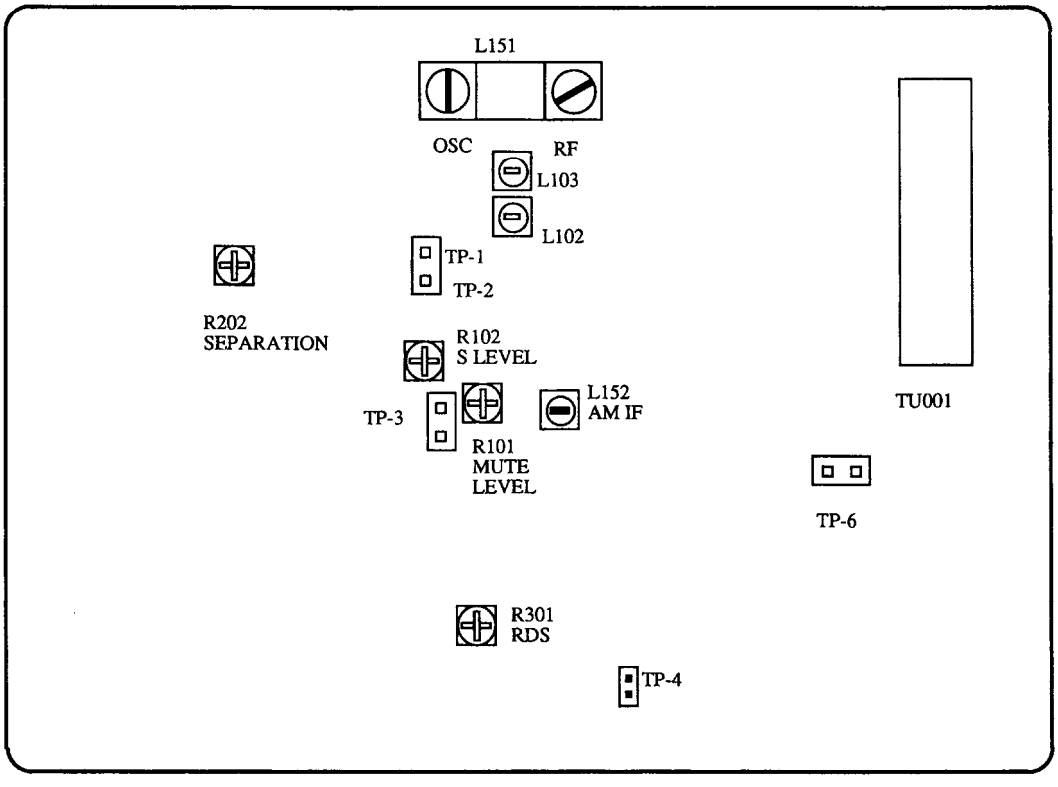
<Fig. 2>



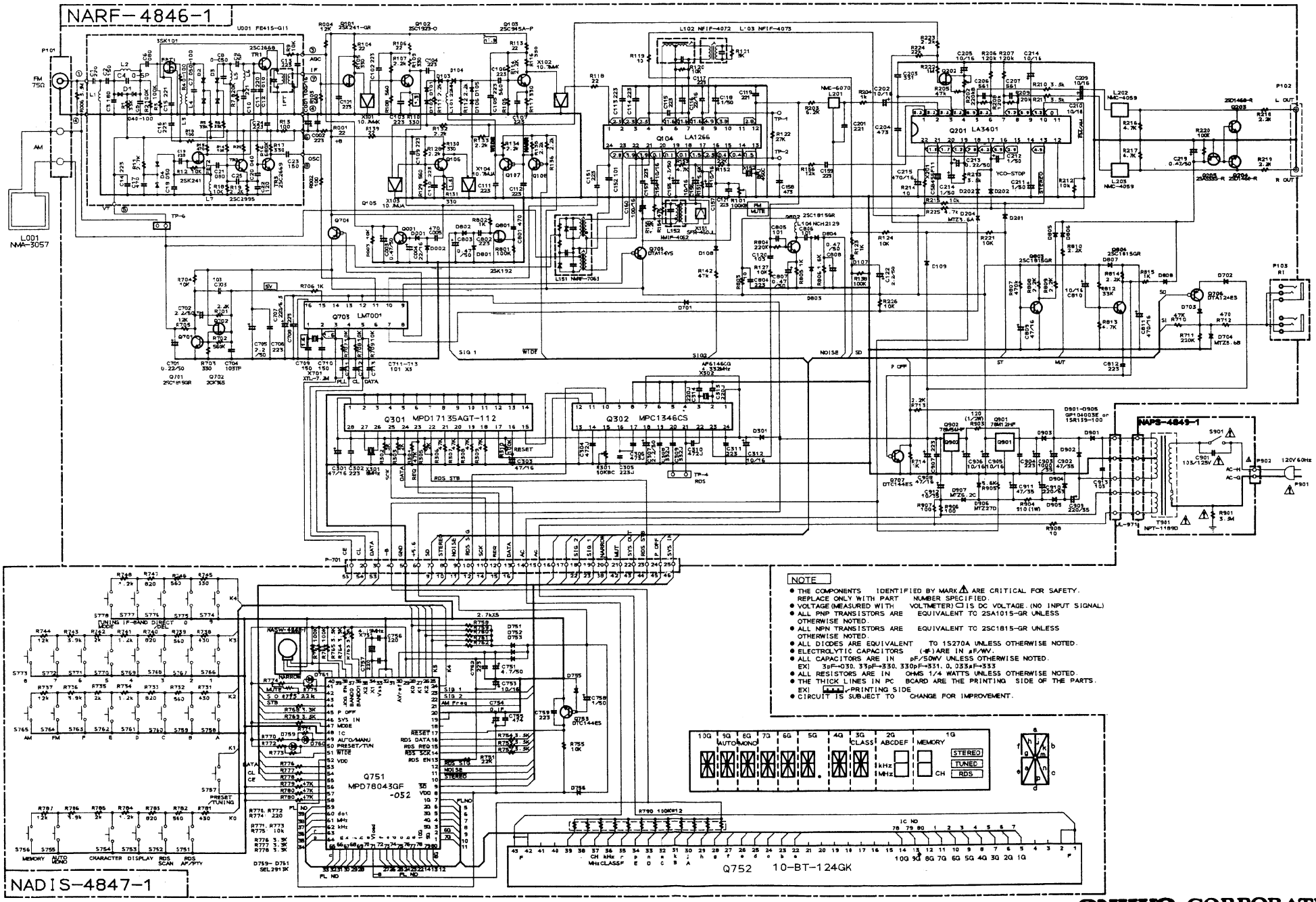
<Fig. 3>



<AM instrument connection>



SCHEMATIC DIAGRAM —120V model—



PRINTED CIRCUIT BOARD – PARTS LIST

MAIN CIRCUIT PC BOARD (NARF-4846-1/1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
U001	240089	FE415-G11
	ICs	
Q104	22240039	LA1266
Q201	22240252	LA3401
Q301	22240639A	μPD17135AGT-112
Q302	22240679	μPC1346CS
Q703	22240090	LM7001
Q901	222780125NEC	78M12HF
Q902	222780565JRC	78M56
	Transistors	
Q001,Q701	2211255 or	2SC1815-GR or
Q802-Q804	2214915	2PC1815-GR
Q101	2212195	2SK241-GR
Q102	2211723	2SC1923-O
Q103,Q106	2210746	2SC945A-P
Q107,Q108	221281	DTC114YS
Q202	2211945	2SK246-GR
Q203,Q204	2212794	2SD1468-R
Q205	2213074	2SA933-R
Q702	2212445	2SK365-GR
Q704,Q705	2213090	DTA114YS
Q706	2212600	DTA124ES
Q707	221282	DTC144ES
Q801	2212274	2SK192A-Y
	Diodes	
D001,D002	223191	SD101
D101-D109	223163,	1SS133,
D201-D203	223222 or	WG713A or
D301,D701	223171	1SS270A
D204	224450361	MTZ3.6A
D703	223163,	1SS133,
D805-D808	223222 or	WG713A or
D810	223171	1SS270A
D704	224450562	MTZ5.6B
D801-D804	223191	SD101
D901-D905	22380032 or	1SR139-100 or
	22380035	GP104003E
D906	224452702	MTZ27B
D907	224450753	MTZ7.5C
	Transformers	
L102	233401	NFIF-4072
L103	233402	NFIF-4073
L152	232139	NMIF-4062
	Coils	
L101	233411K220	NCH-1387
L104	231081	NCH-2129
L151	232148	NMRF-7050
L201	233383	NMC-6070
L202,L203	233355A	NMC-4059
	Ceramic filters	
X101,X102	3010137	SFE10.7MMK
X103,X104	3010087	SFE10.7MJA
X151	3010123	SFZ-450JL
X152	3010076	BFU-450C

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resonators	
X201	3010152	CSB456F11,Ceramic
X301	3010190	CST8.00MTW,Ceramic
X302	3010203	AF6146CG,Crystal
X701	3010141 or	XTL-7.2M,Crystal
	3010158	
	Capacitors	
C001,C160	354741019	100μF,16V,Elect.
C003,C122	354784799	0.47μF,50V,Elect.
C004,C116	354742209	22μF,16V,Elect.
C118	354780109	1μF,50V,Elect.
C154,C156	354741009	10μF,16V,Elect.
C155	354780479	4.7μF,50V,Elect.
C157,C202	354741009	10μF,16V,Elect.
C158,C204	374724734	0.047μF±5%,50V,Plastic
C159	374722234	0.022μF±5%,50V,Plastic
C205,C209	354741009	10μF,16V,Elect.
C206,C207	370135614	560pF±5%,100V,Plastic <D>
	370132714	270pF±5%,100V,Plastic <P/W>
C210,C221	354741009	10μF,16V,Elect.
C211,C212	354780109	1μF,50V,Elect.
C213,C701	354782299	0.22μF,50V,Elect.
C214	354780109	1μF,50V,Elect.
C215,C811	354744719	470μF,16V,Elect.
C219,C220	370131514	150pF±5%,100V,Plastic <W>
C222,C803	354784799	0.47μF,50V,Elect.
C301,C303	354744709	47μF,16V,Elect.
C304,C310	374724724	4700pF±5%,50V,Plastic
C305,C306	374722234	0.022μF±5%,50V,Plastic
C307	354780229	2.2μF,50V,Elect.
C308,C309	374723324	3300pF±5%,50V,Plastic
C312,C810	354741009	10μF,16V,Elect.
C702,C705	354780229	2.2μF,50V,Elect.
C703,C704	374721034	0.01μF±5%,50V,Plastic
C707	354722219	220μF,6.3V,Elect.
C807,C808	354784799	0.47μF,50V,Elect.
C809,C908	354744709	47μF,16V,Elect.
C902,C911	354764709	47μF,35V,Elect.
C903	354761029	1000μF,35V,Elect.
C905,C906	354741009	10μF,16V,Elect.
C909	354762219	220μF,35V,Elect.
C910	354782219	220μF,50V,Elect.
C912	354761009	10μF,35V,Elect.
	Resistors	
R006	431523355	3.3MΩ ±10%,1/2W,Solid <D>
R101	5210266	N06HR100KBC,Trim
R202	5210267	N06HR200KBC,Trim
R301	5210265	N06HR50KBC,Trim
R904	442629114	910Ω ±5%,1W,Metal oxide
	Plugs	
TP-4	25055038	NPLG-2P29
	Terminals	
P101	25060117	NTM-2PDML051
P102	25045333	NPJ-2PDBL185
P103	25045330	HSJ-2PDBL184

CIRCUIT NO.	PART NO.		DESCRIPTION
	Wire traps		
P701	25051010		NSCT-25P797
P971	25051109		NSCT-5P896
	Switch		
S201	25065286		NSS-22112,Slide <W>

DISPALY CIRCUIT PC BOARD (NADIS-4847-1/1A/1B)

CIRCUIT NO.	PART NO.		DESCRIPTION
	IC		
Q751	22240757		μ PD78043GF-052 <D>
	22240732		μ PD78043GF-037 <P/W>
	FL tube		
Q752	212125		10-BT-124GK
	Transistor		
Q753	221282		DTC144ES
	Diodes		
D751-D753	223163,		1SS133,
D755,D756	223222 or		WG713A or
	223171		1SS270A
D759-D761	225142 or	*	SEL2913K or
	225206D	*	SEL2910D-D,LED
	Resonator		
X751	3010224		XTL-4.19M,Crystal
	Capacitors		
C751	355780479		4.7 μ F,50V,Elect.
C753	355741009		10 μ F,16V,Elect.
C754	3000057		0.1F,5.5V,Super
C755	375524744		0.47 μ F$\pm$5%,50V,Plastic
C758	355780109		1 μ F,50V,Elect.
	Switches		
S751-S778	25035652		NPS-111-S604
S781	25065414		NSS-2215S <W>
	Wire trap		
P701	25050722 or		NSCT-25P526 or
	25050931		NSCT-25P718
	Holder		
	27190929		FL tube
	Spacer		
	27270376 or		for SEL2913K
	27270378		for SEL2910D

JOG DIAL PC BOARD (NASW-4848-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S731	25065481	EC16B25B0,Encode
P703	25050267	NSCT-3P95,Wire trap

POWER SUPPLY PC BOARD (NAPS-4849-1/1A/1B)

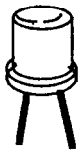
CIRCUIT NO.	PART NO.		DESCRIPTION
T901	2300963	⚠	NPT-1189D,Power transfomer <D>
	2300964	⚠	NPT-1189P,Power transfomer <P>
	2300965	⚠	NPT-1189DG,Power transfomer <W>
C901	3500065A	⚠	DE7150FZ103PAC400V/125V, Capacitor IS
S901	25035636	⚠	NPS-111-L590P,Push switch
P902	25055675		NPLG-2P631,Plug
R901	431523355	⚠	3.3M,1/2W,Solid resistor <D>

VOLTAGE SELECTOR SWITCH PC BOARD (NAPS-4850-1)
(Worldwide model only)

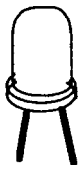
CIRCUIT NO.	PART NO.		DESCRIPTION
P906	25065437	⚠	NSS-22157,Slide switch

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

NOTE:



SEL2913K

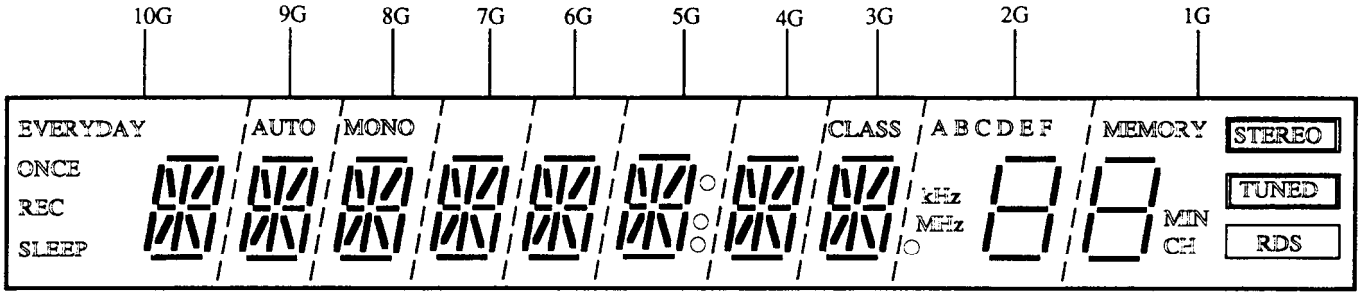


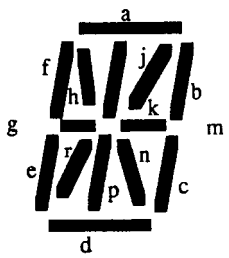
SEL2910D-D

Use the same type LED when replacement for LED of mark *.

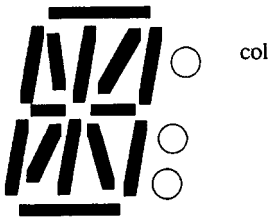
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

FL TUBE VIEW

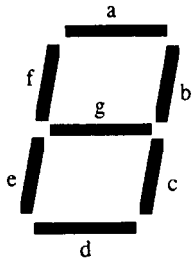




10G~3G



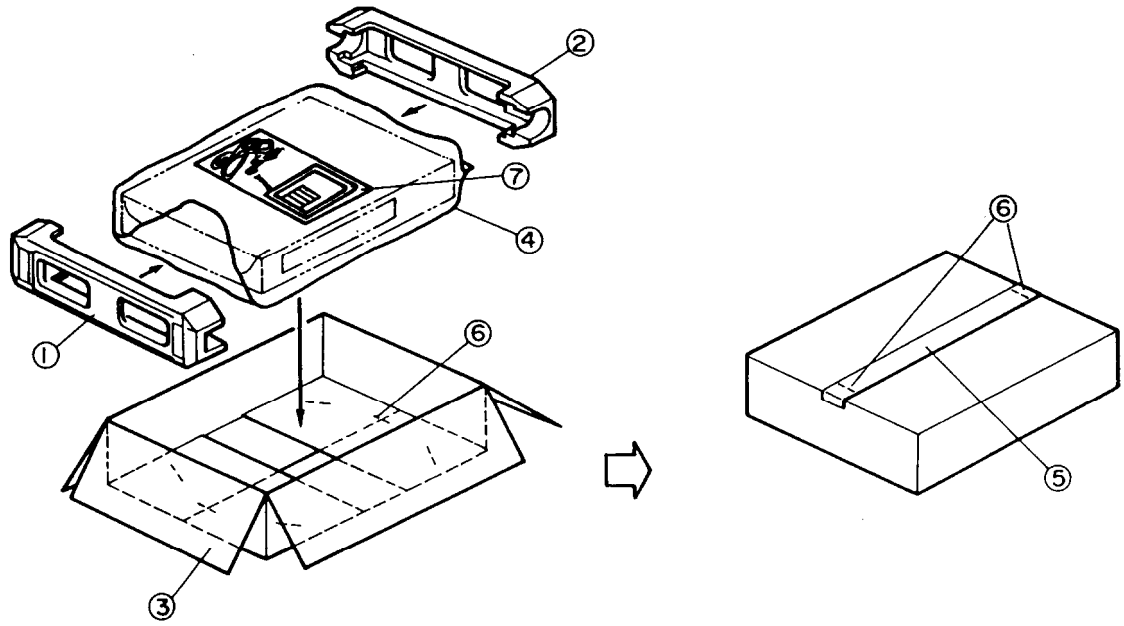
5G



2G,1G

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a	a	a
P2	b	b	b	b	b	b	b	b	b	b
P3	c	c	c	c	c	c	c	c	c	c
P4	d	d	d	d	d	d	d	d	d	d
P5	e	e	e	e	e	e	e	e	e	e
P6	f	f	f	f	f	f	f	f	f	f
P7	g	g	g	g	g	g	g	g	g	g
P8	h	h	h	h	h	h	h	h	—	—
P9	j	j	j	j	j	j	j	j	A	MEMORY
P10	k	k	k	k	k	k	k	k	B	STEREO
P11	m	m	m	m	m	m	m	m	C	TUNED
P12	n	n	n	n	n	n	n	n	D	RDS
P13	p	p	p	p	p	p	p	p	E	—
P14	r	r	r	r	r	r	r	r	F	—
P15	EVERYDAY	AUTO	MONO	—	—	col	—	CLASS	kHz	MIN
P16	ONCE	—	—	—	—	○	—	—	MHz	CH
P17	REC	—	—	—	—	—	—	—	○	—
P18	SLEEP	—	—	—	—	—	—	—	—	—

PACKING VIEW



REF.NO.	PART NO.	DESCRIPTION
1	29091647	Pad L
2	29091648	Pad R
3	29052677	Master carton box
4	29100033A	Styrene bag
5	29110071	PP tape
6	261504	Adhesive tape
7	282301	Staple
8	Accessary bag ass'y	
	29341884	Instruction manual
	29341885	Instruction manual <P>
	29341886	Instruction manual <W>
	29100097	350×250,Styrene bag
	25065462	FM adaptor <D>
	292112Y	FM antenna
	232140	NMA-3057,AM loop antenna
	2010098A	Connection cord
	2010200	Connection cord RI
	29365019A	Warranty card <N>
	25055040	CV-K-2,Conversion plug <W>
	29358002J	Service station list <N>

NOTE: <D>:120V model only
<P>:230V model only
<W>:Worldwide model only
<N>:U.S.A. model only

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