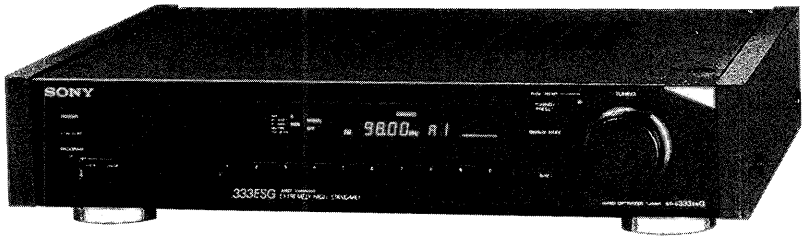
ST-S333ESG

SERVICE MANUAL

E Model



SPECIFICATIONS

General

Circuit System	FM stereo, FM/AM super-heterodyne tuner PLL quartz-locked digital synthesizer system
Power requirements	120V, 220 – 240V AC adjustable, 50/60Hz
Power consumption	20 watts
Dimension	Approx. 470 x 96 x 372 mm (w/h/d) (18 5/8 x 3 7/8 x 14 3/4 inches)
Weight	Approx. 6.4 kg (14 lb 2 oz)
Accessories Supplied	Connecting Cord (1) FM ribbon antenna (1) AM loop antenna (1) Antenna connector (1) Remote control cord (4-pin) (1) Short screw (M4 x 8) (4)

FM STEREO / FM-AM TUNER

SONY®

FM tuner		
Tuning range		87.5-108 MHz
Intermediate frequency		10.7 MHz
Sensitivity	mono S/N 26 dB	10.3 dBf, 0.9 μV/75 ohms
	stereo S/N 46 dB	38.5 dBf, 23 μV/75 ohms
Usable sensitivity		10.3 dBf, 0.9 μV/75 ohms (IHF)
Signal-to noise ratio	at 40 kHz deviation	95 dB (mono) 86 dB (stereo)
Harmonic distortion		WIDE 0.008% (mono) 0.02% (stereo)
		NARROW 0.04% (mono) 0.08% (stereo)
Separation at 1 kHz		65 dB
Selectivity	at 400 kHz	WIDE 80 dB NARROW 90 dB
	at 300 kHz	WIDE 45 dB NARROW 70 dB
Output	at 40 kHz deviation	400 mV

AM tuner		
Tuning range		AM: 531–1602 kHz (9 kHz step) 530–1710 kHz (10 kHz step)
Intermediate frequency		450 kHz
Usable sensitivity		
MW	AM loop antenna	250 μV/m
	External antenna	30 μV/m
LW	AM loop antenna	700 μV/m
	External antenna	200 μV/m
Signal-to-noise ratio		54 dB
Harmonic distortion		0.3 %
Selectivity		at 9 kHz: 65 dB (NARROW) 50 dB (WIDE)

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Features

Precise Tuning with the large knob

The detected revolution of the tuning knob is under digital-control so that you can tune in the correct frequency and stored station easily.
This system employs a variable muting function that adjusts itself to the rotation speed of the TUNING knob and changes the muting time. This function realizes a feeling which is very close to that of an analog type tuner.

Direct comparator technology

An employed PLL IC allows the comparison frequency to be as high as the channel spacing frequency, thus eliminating the tendency of a low comparison frequency to slip into the audio range and degrade the signal-to-noise ratio.

Free from digital noise

When the tuning completes, the clock oscillator of the micro-computer stops. Since the received signal passes through only analog circuits, you can enjoy the pure sound without an interference.

Wave optimizer technology

The WOIS (Wave Optimized IF System) which makes the IF waveform optimum shape in stereo and monaural mode and the WODD (Wave Optimized Direct Detector) which forms the VCO oscillation waveform of the PLL detector ensure low distortion sound.

Program function

Using the program function, you can automatically tune in up to four stations which have been memorized in any sequence you want. Stations will be received one by one as the power is turned on and off by an optional audio timer.

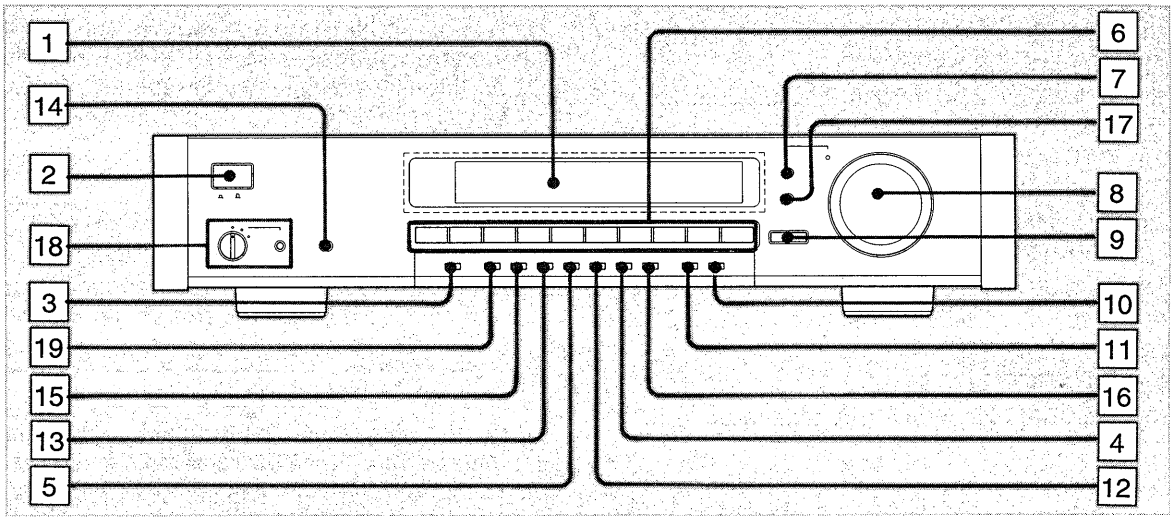
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

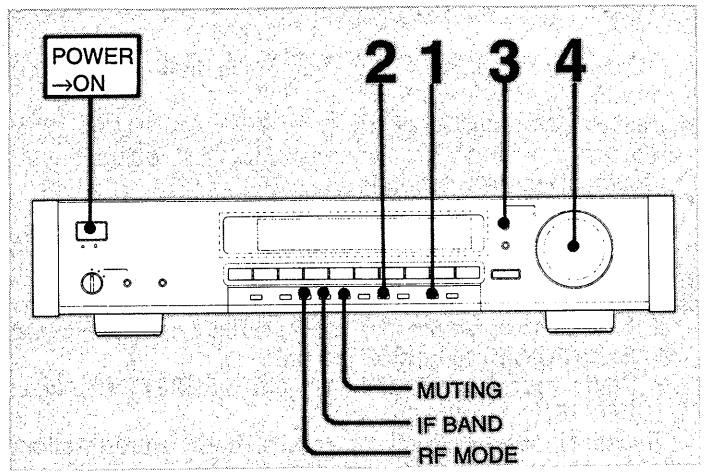
1-1. LOCATION AND FUNCTION OF CONTROLS



1 Display window
2 POWER switch
3 CAL TONE (calibrating tone) button
Press this button to obtain a 400 Hz, 50% modulated signal for adjusting the recording level on a cassette deck. "CAL" will appear when a 400 Hz calibrating tone signal is provided. To deactivate the calibrating tone circuit, press the button again.
4 TUNE MODE (tuning mode) button
5 MUTING button
6 PRESET buttons
7 TUNING/PRESET button
8 TUNING knob
9 SHIFT button
10 MEMORY button
11 Band selector
12 FM MODE button
Auto Stereo: Normally, select this mode (by making the HI-BLEND and MONO indicators disappear from the display window) when you tune in a strong FM broadcast.
HI-BLEND: Select this position when the high-frequency sound is noisy in the FM band. The high-frequency noise will be reduced, but this lowers the stereo effect.
MONO: Select this position when you tune in a very weak or noisy FM station. Although the sound will come out in monaural the noise will be greatly reduced.
13 IF (intermediate frequency) BAND button
To prevent inter-station interference, press this button. The NARROW indicator apears on the display and the selectivity is improved.
14 DISPLAY button
15 RF MODE button
16 MPX FILTER (multiplex filter) button
Press this button when you record an FM stereo program using the Dolby NR* (Noise Reduction) system. The MPX FILTER indicator appears.
This filter cuts off the 38 kHz subcarrier signals, which may otherwise interfere with proper operation of the Dolby NR* (Noise Reduction). If your deck has an MPX FILTER button, use that button rather than the button of this tuner.
* Dolby noise reduction manufactured under License from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.
17 DISPLAY MODE button
18 PROGRAM switch and CHECK button
19 ANT button

1-2. BROADCAST RECEPTION

1-2-1. Tuning in Manually



1 **Select the desired band** with the bnad selector.

2 If the AUTO indicator appears on the display, **press TUNE MODE**. The AUTO indicator disappears.

3 Check if the TUNING indicator appears on the display. If not, press TUNING/PRESET.

4 **Find the desired station** by turning the TUNING knob toward ▶ for higher frequencies or ◀ for lower frequencies.

For FM stereo reception
Normally, press MUTING.
MUTING indicator appears on the display. To tune in a very weak FM station, press again to reset it. The MUTING indicator goes off.

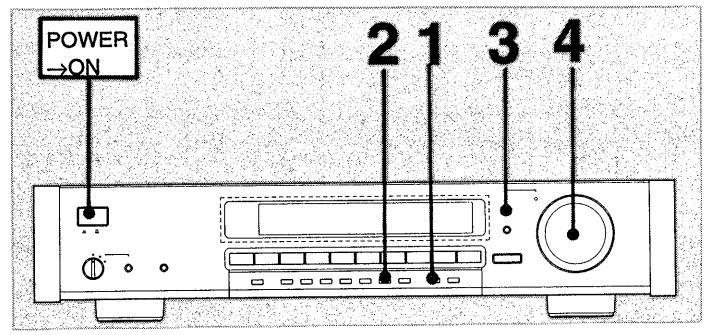
To receive a weak FM broadcast
Set MUTING off (press MUTING so that the MUTING indicator disappears from the display window), and if it is still noisy, set FM MODE to the MONO mode.

To tune in only stations with strong signals
Press RF MODE to make the DIRECT indicator appear.

When the desired station is interfered with adjacent stations
Press the IF BAND button so that the NARROW indicator appears in the display window. In this mode, the selectivity increases so that interference-free sound is obtained.

1-2-2. Tuning in Automatically

(FM only for European countries, FM and AM for other countries)



1 **Select the desired band** with the band selector.

2 **Press TUNE MODE** so that the AUTO indicator appears on the display.

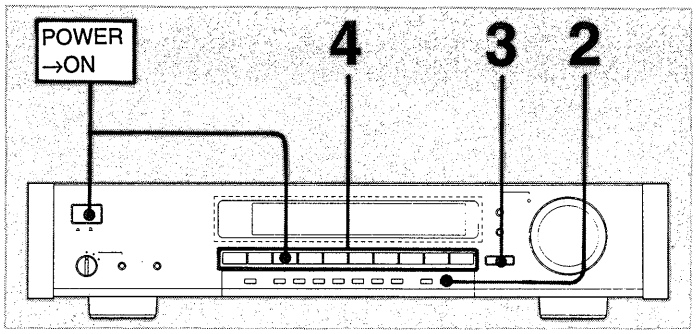
3 Check if the TUNING indicator appears on the display. If not, press TUNING/PRESET.

4 **Turn the TUNING knob** toward ▶ for higher or ◀ for lower frequencies.
When automatic frequency scanning starts, release the knob. Scanning stops when a signal is received. If the signal is not the desired one, turn the knob again to restart scanning.

To receive other stations
When the received station is not the one you want, turn TUNING knob again.

To receive a strong FM broadcast
Normally, set MUTING on (press MUTING so that the MUTING indicator appears on the display) to reduce noise. Also, set FM MODE to the auto stereo mode. The unit operates in the stereo mode for a stereo signal, and automatically switches to the monaural mode for a monaural signal. If it is still noisy, set FM MODE to the HI-BLEND mode.

1-2-3. Storing station frequency into memory



A total of 30 FM/AM stations (Station names can stored only twenty among of thirty stations) in any band can be memorized.

Storing all stations automatically
To preset the frequencies and other modes of 30 stations, press the PRESET button 3 while pressing POWER.
To preset the frequencies, station names, and other modes of 20 stations, press the PRESET button 2 while pressing power.

Once they are presetted, they will be memorized. (Even for 1 month with the power off)

Storing one station at a time

1 **Tune in the desired station.**

2 **Press MEMORY.**
"MEMORY" appears in the window.

3 Press SHIFT to select the memory page A, B, or C.

4 **Select a preset number** with the PRESET button.

Repeat the above steps for each station to be stored in memory.

Notes on storing

If you select an incorrect number, press the MEMORY button again and select the correct number.

If the MEMORY indicator disappeared, before you pressed PRESET, press MEMORY again.

If the power remains off, the memory is maintained for approximately one month.

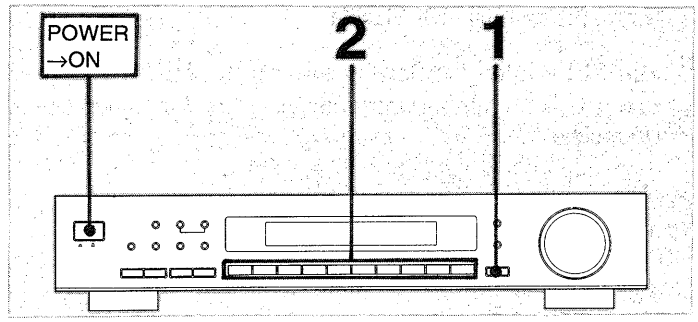
If a new station is stored over a preset station number, the previously stored station is erased.

If you set the ANTENNA, RF MODE, IF BAND, MUTING, they can be stored when you press MEMORY and PRESET.

If the indicators on the display are not properly displayed,
1 Press POWER to turn off the unit.
2 While pressing PRESET "9" and PRESET "0", press POWER to turn on the unit.
This unit is reset to initial state and all of the stored stations and settings are erased.

1-2-4. Receiving a Stored Station

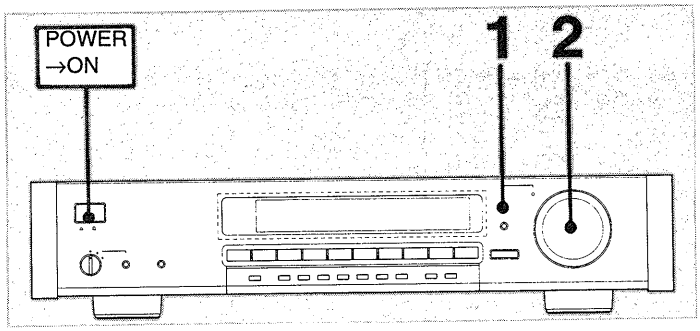
Method A: When you know the preset number of the desired station.



1 Press SHIFT to select the memory page A, B, or C.

2 **Select the desired number with the PRESET button.**

Method B: When you don't know the preset number of the desired station.



1 **Press TUNING/PRESET** to make the PRESET indicator appear.

2 **Find the desired station** by turning the TUNING knob control toward ▶ for higher numbered stations or ◀ for lower numbered stations.

1-2-5. Scanning Stored Stations Automatically

Press TUNE MODE to make "AUTO" appear and turn the TUNING knob.

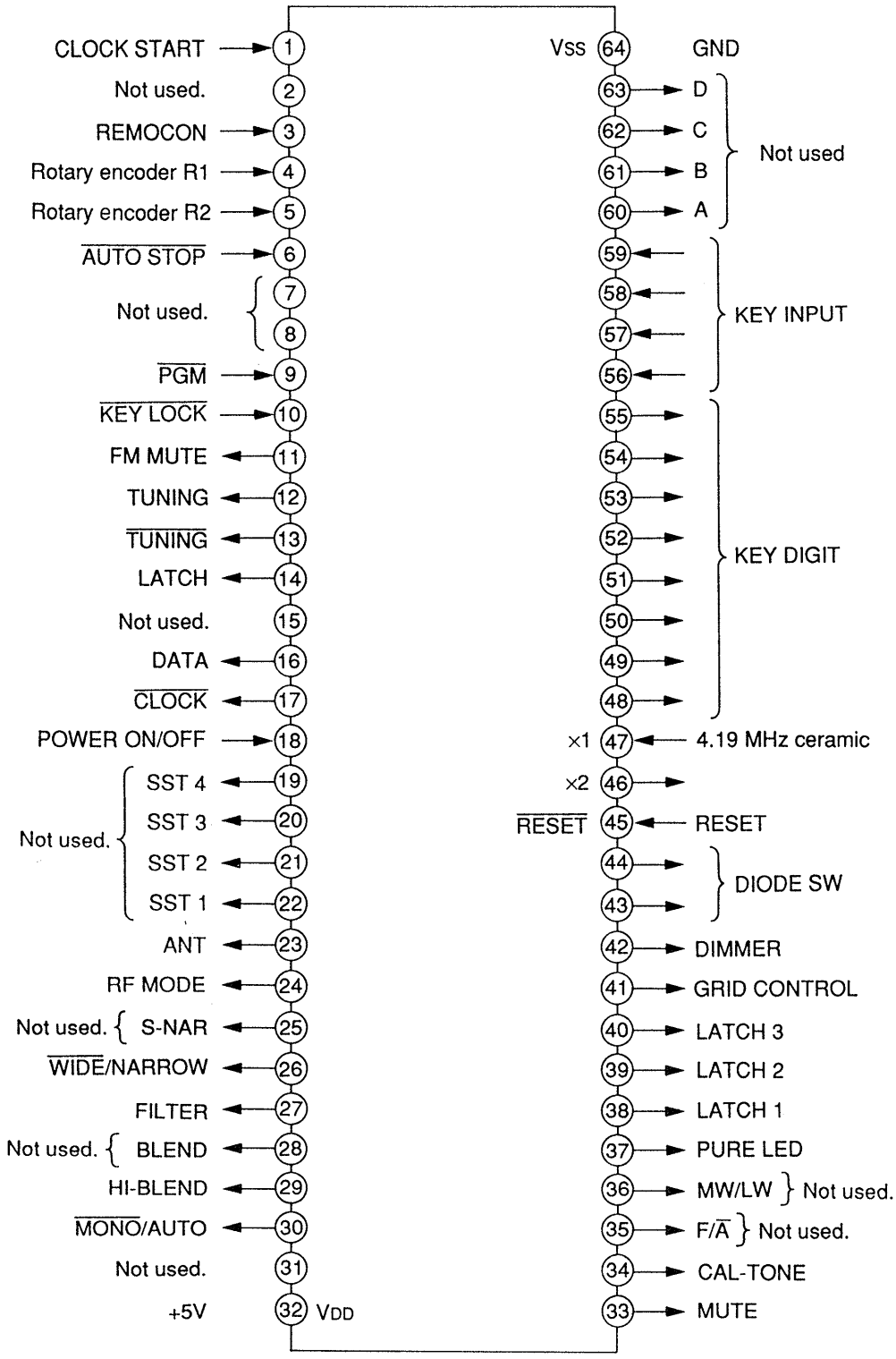
If scanning does not start
Scanning starts only when you turn the TUNING knob while the code indicator is flashing. If the flashing has stopped, press TUNE MODE again.

1-2-6. Scanning Stored Stations Manually

1. Press TUNING/PRESET to make the PRESET indicator appear.
2. Press TUNE MODE.
   AUTO indicator goes off.
3. Turn TUNING/CHARACTER, until desired station is received.

SECTION 2
IC PIN FUNCTIONS

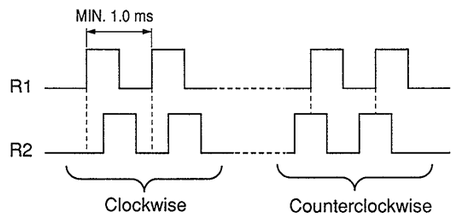
2-1. IC601 (μPD75108CW-A76) PIN FUNCTIONS



• IC601 SYSTEM CONTROLLER (μPD75108CW-A76) PIN FUNCTION

Pin No.	Pin Name	I/O	ACTIVE	Description
1	CLOCK START	I	H	Stop mode control input. (1) When there is no key input continuously for 2 seconds and the signal remains "L", the I/O port is maintained in the state immediately before and the stop mode is entered. PURE (pin 37) goes "H" and D701 lights. (2) When there is a key input, releases the stop mode. PURE (pin 37) goes "L".
2	N.C.	I		Not used.
3	REMOCON	I		Remote control signal input.
4	R1	I		Rotary encoder rotation detect input (※1)
5	R2	I		Rotary encoder rotation detect input (※1)
6	$\overline{\text{AUTO STOP}}$	I	L	Auto stop signal input from IC251. "L": when signal detect
7	N.C.	I		Not used.
8				
9	$\overline{\text{PGM}}$	I	L	PROGRAM switch (S661) input. "L": PROGRAM
10	$\overline{\text{KEY LOCK}}$	I	L	PROGRAM switch (S661) input. "L": KEY LOCK
11	F-MUT	O	H	FM MUTING output. "H": MUTE
12	TUN	O	H	FM MUTING SENS select output. "L": STOP, "H": TUNING
13	$\overline{\text{TUN}}$	O	L	AM muting output. "H": STOP, "L": TUNING
14	LATCH	O	H	Signal meterdriver (IC705) latch output.
15	N.C.	I		
16	DATA	O	H	Display data output to FL driver (IC501, 701 – 703, 705)
17	$\overline{\text{CLK}}$	O	L	Data transfer clock output to FL driver (IC501, 701 – 703, 705)
18	POWER	I	H	Power down detect input "H": normal, "L": power down
19 – 22	SST4 – SST1	O	H	Not used (pull up)
23	ANT	O	L	FM antenna select output. "L": antenna "A". "H": antenna "B"
24	RF MODE	O	H	Antenna attenuator ON/OFF output. "L": through, "H": ATT
25	S-NAR	O	H	Not used (pull up)
26	$\overline{\text{W}}$/N	O	H	Wide/Narrow select output. "L": WIDE, "H": NARROW
27	FILTER	O	H	Multiplex filter switch. "H": MPX FILTER ON
28	BLD	O	H	Not used (pull up)
29	HI-B	O	H	HIGH BLEND switch (Q306) control output.
30	$\overline{\text{MONO}}$/AUTO	O	H	Auto stereo select switch. "H": AUTO STEREO
31				Not used.
32	V_{DD}	–		Power supply terminal (+5V)
33	MUT	O	H	Line mute output. "H": MUTE
34	CAL	O	L	CAL TONE ON/OFF output. "L": CAL TONE
35	F/$\overline{\text{A}}$	O	H	Not used (open)
36	M/$\overline{\text{L}}$	O	H	Not used.
37	PURE	O	H	PURE LED (D701) ON/OFF output. "H": ON (stop mode)
38	LATCH 1	O	H	FL driver (IC701) latch output
39	LATCH 2	O	H	FL driver (IC702) latch output
40	LATCH 3	O	H	FL driver (IC703) latch output
41	GRID	O	L	FL indicator tube grid control output (center grid 2G) (※2)
42	DIMMER	O	L	FL indicator tube grid control output (both sidesgrid 1G, 3G) (※2)
43 • 44	DIODE	O	H	Diode switch output.
45	RESET	I	L	System RESET input. "L": RESET
46	X2	O		Clock output
47	X1	I		Clock input (4.19 MHz)
48 – 55	KEY DI (S1)	O	H	Key matrix output
56 – 59	KEY INPUT	I	H	Key matrix input
60 – 63	LED A – LED D	O		Not used (pull down)
64	GND	–		Power supply terminal (GND)

※1 Rotary encoder ratation detect



※2 When the DISPLAY MODE key is pressed, the FL display changes cyclically as follows.

→ Fully lit → Partially lit → Not lit →

The output ports change as follows.

	Fully lit	Parcially	Not lit
41 pin GRID	L	L	H
42 pin DIMMER	L	H	H

※ When the BAND key is pressed, the output ports change cyclically as shown in the table below.

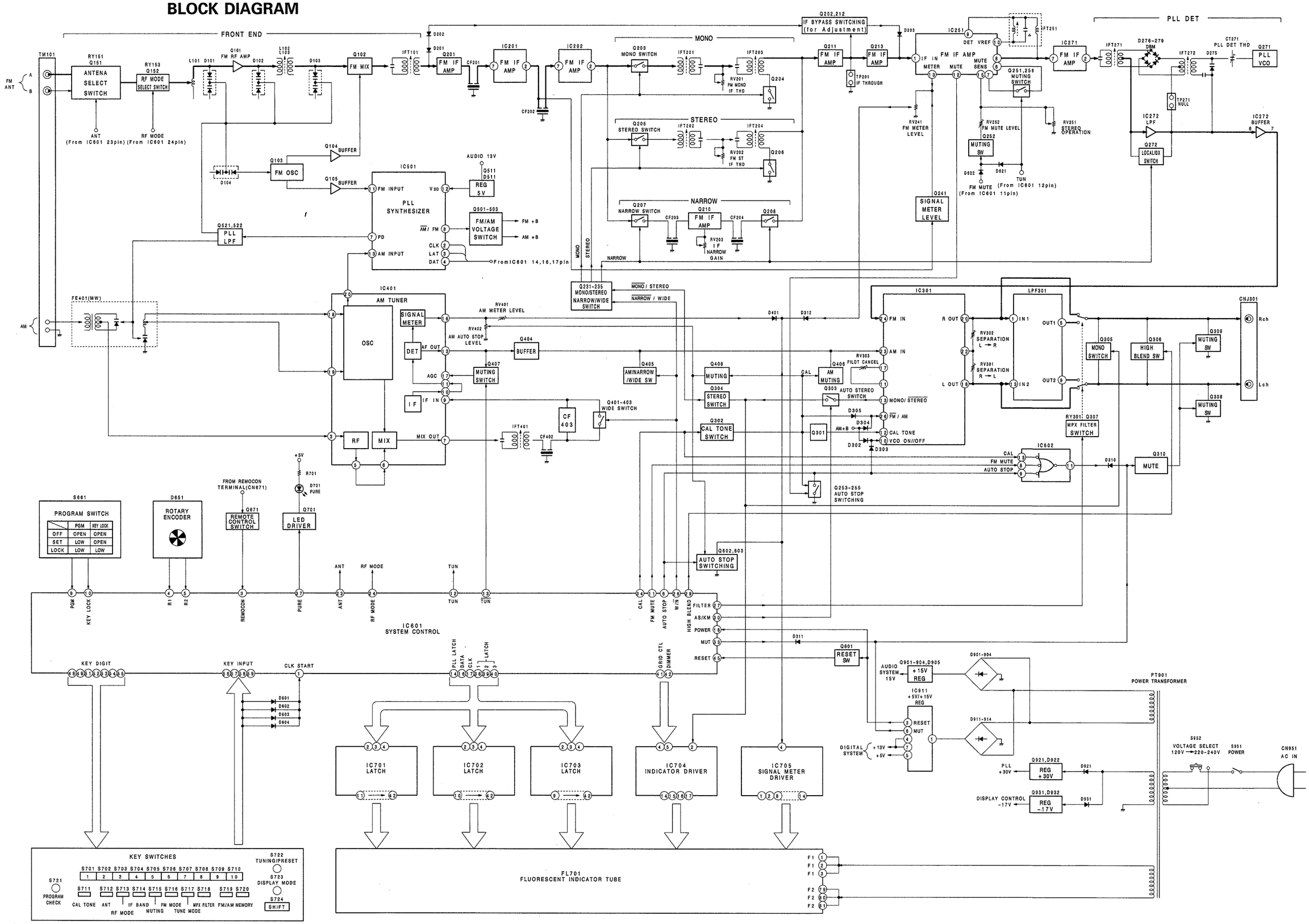
	FM	MW
IC501 CX7925 8 pin AO	H	L
IC501 CX7925 9 pin BO	DON'T CARE	H

• TEST MODE

When the SHIFT key is held depressed and the power is turned on, all segments in the FL display light while the key is held, so simple checking can be done.

When the SHIFT key is released, normal operation is restored.

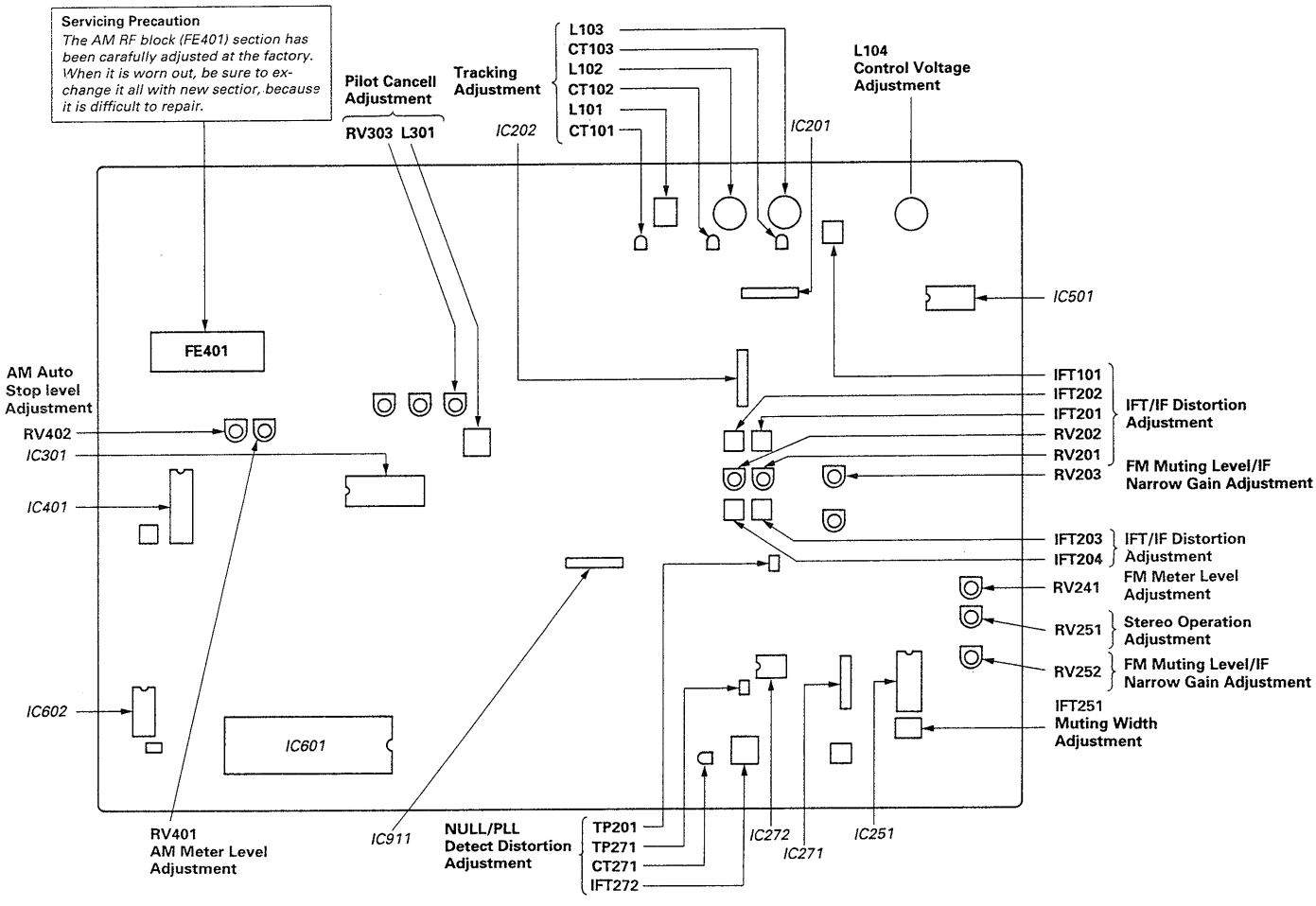
SECTION 3
BLOCK DIAGRAM



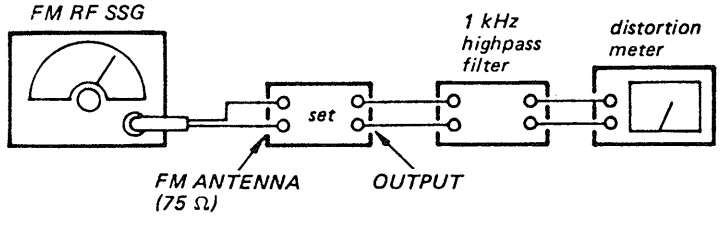
SECTION 4
ELECTRICAL ADJUSTMENTS

Notes: Perform adjustment in the order given.

• Parts location diagram relevant to the adjustment.



FM SECTION



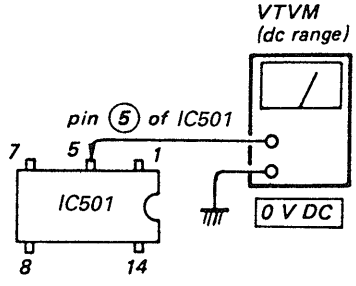
• Standard signals for adjustment.

FM RF Stereo Signal	FM RF Monaural Signal
Carrier frequency : 98 MHz Modulation : Audio 1 kHz, 16.25 kHz deviation (21.7%) Subchannel 16.25 kHz deviation (21.7%) Pilot 19 kHz, 7.5 kHz deviation (13.3%)	Carrier frequency : 98 MHz Modulation : Audio 1 kHz, 40 kHz deviation (53%)

Control Voltage Adjustment

Procedure:

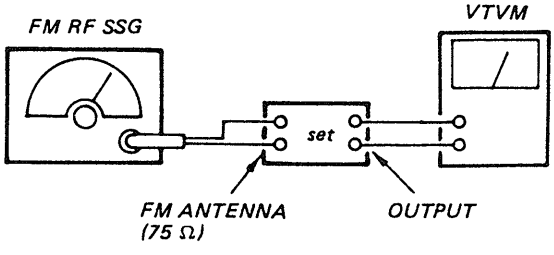
1. Turn the set to 108 MHz.
2. Adjust L104 for 21.0 ±0.2 V reading on the VTVM.
3. Tune the set to 87.5 MHz.
4. Confirm that the voltage reading on the VTVM is within 8.0 ±1.0V.



Tracking Adjustment

Setting:

IF BAND : NARROW



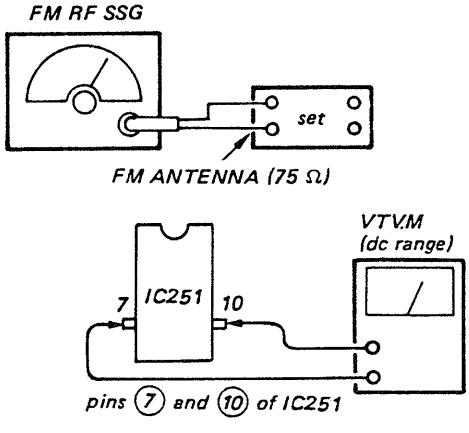
Procedure:

1. Tune the set to 108 MHz.
2. Adjust CT101, CT102 and CT103 for maximum reading on the VTVM.
3. Tune the set to 87.5 MHz.
4. Adjust L101, L102 and L103 for maximum reading on the VTVM.
5. Repeat the step 2 – 4 several times.

Muting Width Adjustment

Setting:

IF BAND : WIDE
MUTING switch : ON



Carrier frequency: *98 MHz*
Modulation: *FM RF Monaural signal*
Output level: *10 mV (80 dBμ)*

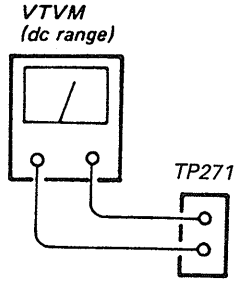
Procedure:

1. Tune the set to 98 MHz.
2. Adjust IFT251 for 0V reading on the VTVM.

NULL/PLL Detect Distortion Adjustment

Setting:

IF BAND : WIDE
MUTING switch: ON



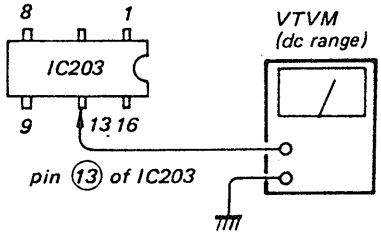
Procedure:

1. Tune the set to 98 MHz.
2. Short-circuit TP201 to the ground (The set turns into IF through state.)
3. Set the SSG output to 80 dBμ (10 mV).
4. Adjust IFT272 for 0 V reading on the VTVM (TP271). (Null adj.)
5. Adjust CT271 for minimum distortion reading on the distortion meter. (PLL Detect Distortion adj.)
6. Repeat the step 4 and 5 several times.
7. Remove the short circuit of TP201.

IFT/IF Distortion Adjustment

Setting:

IF BAND : WIDE
MUTING switch: OFF



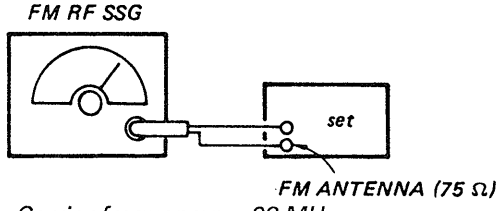
Procedure:

1. Tune the set to 98 MHz.
2. Turn RV201 and RV202 to fully clockwise.
3. Set the SSG output to 40 dBμ (100 μV) at monaural modulation mode.
4. Adjust IFT201 for maximum reading on the VTVM. (IF Distortion Pre adj. • MONO)
5. Set the SSG output to 40 dBμ (100 μV) at stereo modulation mode.
6. Adjust IFT202 for maximum reading on the VTVM. (IF Distortion Pre adj. • STEREO)
7. Adjust IFT101 for maximum reading on the VTVM (IFT adj.)
8. Set the SSG output to 80 dBμ (10 mV) at monaural modulation mode.
9. Turn RV201 and RV202 to mechanical center position.
10. Adjust IFT203 for the minimum distortion. (IF Distortion adj. • MONO)
11. Set the SSG output to 80 dBμ (10 mV) at stereo modulation mode. (Lch only)
12. Adjust IFT204 for the minimum distortion. (IF Distortion adj. • STEREO)

Stereo Operation Adjustment

Setting:

IF BAND : WIDE
MUTING switch: OFF



Carrier frequency: *98 MHz*
Modulation: *FM RF Stereo signal*
Output level: *10 μV (20 dB)*

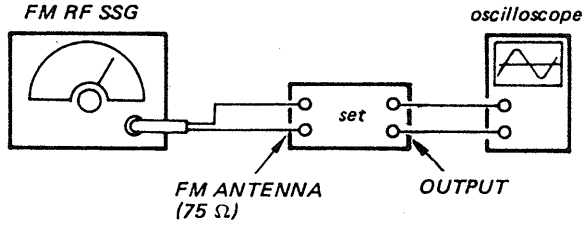
Procedure:

1. Tune the set to 98 MHz.
2. Adjust RV251 so that the STEREO indicator goes on.

FM Muting Level/IF Narrow Gain Adjustment

Setting:

IF BAND : WIDE
MUTING switch: ON



Carrier frequency: *98 MHz*
Modulation: *FM RF Monaural signal*
Output level: *12.6 μV (22 dB)*

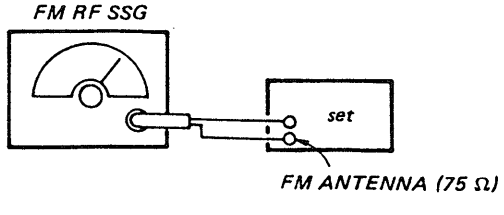
Procedure:

1. Tune the set to 98 MHz and adjust output level of signal generator at 25 dBμ (17.8 μV).
2. Turn RV252 at the position where the waveform suddenly appears on the oscilloscope (FM Muting level adj.)
3. IF BAND : NARROW
4. Turn RV203 at the position where the waveform suddenly appears on the oscilloscope (IF Narrow Gain adj.)

FM Meter Level Adjustment

Setting:

IF BAND : WIDE



Carrier frequency: *98 MHz*
Modulation: *FM RF Monaural signal*
Output level: *3 mV (70 dBμ)*

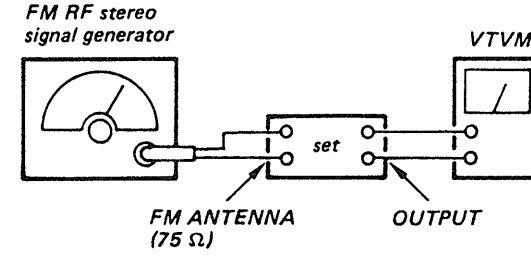
Procedure:

1. Tune the set to 98 MHz.
2. Adjust RV241 so that 1 – 10 indication bars light up on the signal meter.

Pilot Cancell Adjustment

Setting:

IF BAND : WIDE



Carrier frequency: *98 MHz*
Modulation: *pilot only*
Output level: *10 mV (80 dBμ)*

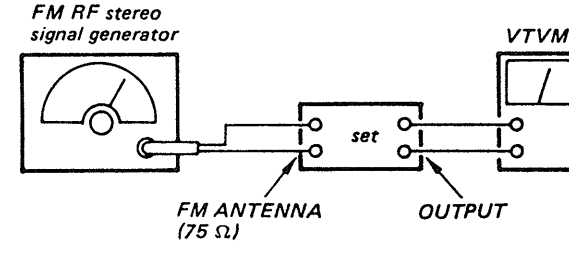
Procedure:

1. Turn the set to 98 MHz.
2. Adjust RV303 and L301 alternately for minimum reading on the VTVM and also tune the both channel of L-CH and R-CH balanced at this time.
3. Repeat the step 2 several times.

Stereo Separation Adjustment

Setting:

IF BAND : WIDE



Carrier frequency: *98 MHz*
Modulation: *FM RF stereo signal*
Output level: *10 mV (80 dBμ)*

Procedure:

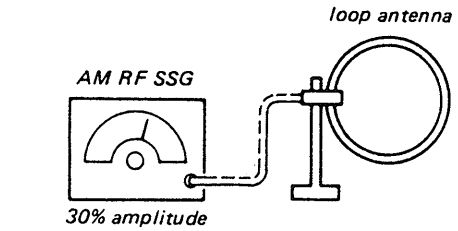
FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV301 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV302 for minimum reading.

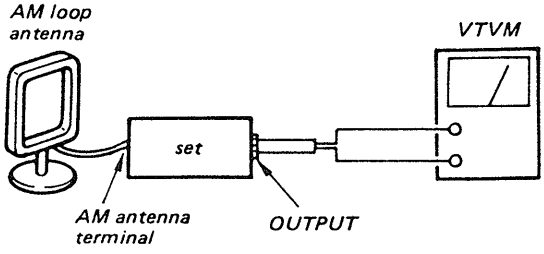
L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ
The separations of both channels should be equal.

SECTION 5
DIAGRAMS

AM SECTION

Setting:





AM Meter Level Adjustment

Setting:

Carrier frequency: *216 kHz*
Modulation: *400 Hz, 30% modulation*

Procedure:

1. Set AM RF signal generator so that the AM antenna input level becomes 74 dBμ/m (5 mV/m.)
2. Adjust RV401 so that 1 – 10 indication bars light up on the signal meter.

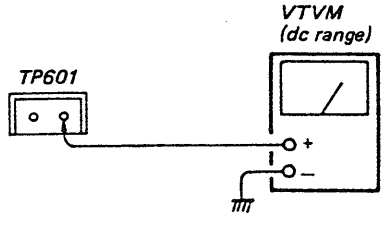
AM Auto Stop Level Adjustment

Setting:

Carrier frequency: *999 kHz*
Modulation: *400 Hz, 30% modulation*

Procedure:

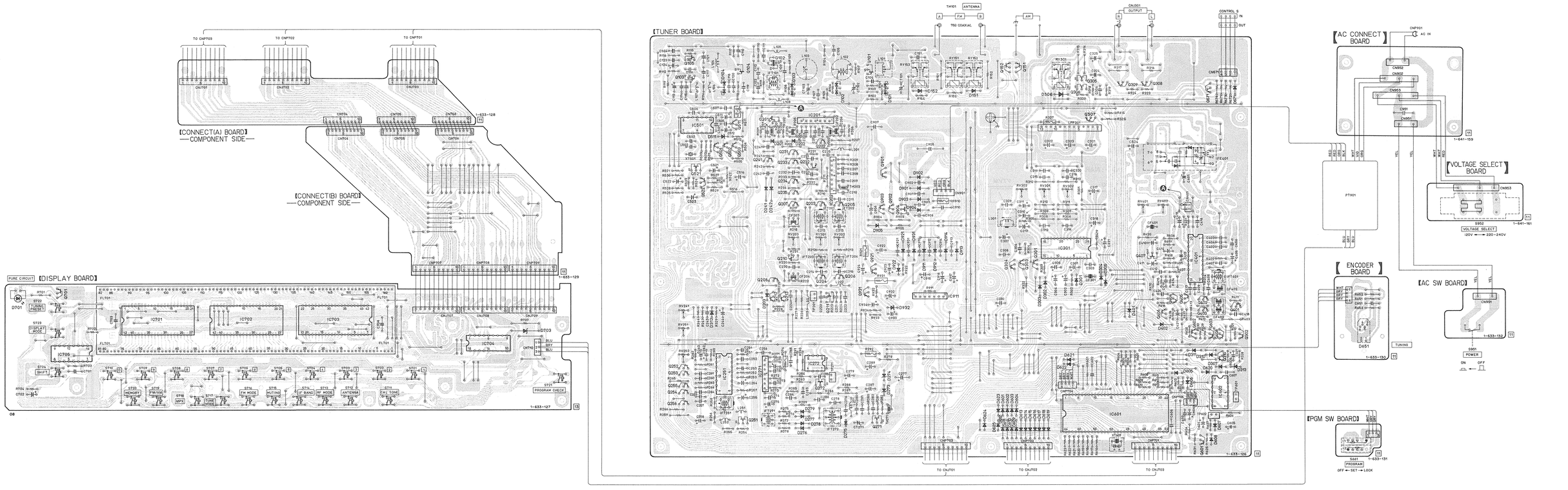
1. Set AM RF signal generator so that the AM antenna input level becomes 58 dBμ/m (0.8 mV/m.)
2. Adjust RV402 for 2.5V reading on the VTVM.



※ Repeat the procedure in AM Meter Level and AM Auto Stop Level adj. alternately several times.

• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D101	C-19	D624	J-21	Q232	D-17
D102	B-18	D625	J-21	Q233	D-17
D103	B-17	D651	H-29	Q234	D-17
D104	B-15	D671	B-26	Q235	E-17
D151	B-21	D701	G-1	Q241	D-16
D152	B-20	D703	G-11	Q251	I-16
D201	C-17	D901	E-20	Q252	H-15
D202	C-17	D902	D-20	Q253	H-15
D203	G-16	D903	E-20	Q254	I-15
D241	E-16	D904	D-20	Q255	I-15
D242	E-16	D905	E-19	Q256	I-15
D273	I-19	D911	F-20	Q271	I-19
D274	H-19	D912	F-20	Q272	I-18
D275	I-18	D913	F-20	Q301	F-22
D276	I-17	D914	F-20	Q302	G-26
D277	I-17	D921	F-19	Q303	F-22
D278	I-17	D922	F-19	Q304	F-21
D279	I-17	D931	F-19	Q305	B-23
D301	F-23	D932	G-19	Q306	B-23
D302	F-22	IC201	C-18	Q307	C-23
D303	F-22	IC202	E-18	Q308	B-24
D304	F-23	IC251	I-16	Q309	B-24
D305	F-23	IC271	I-16	Q310	H-26
D306	C-22	IC272	H-17	Q401	G-26
D307	H-26	IC301	F-23	Q402	G-25
D310	H-25	IC401	F-25	Q403	G-25
D311	H-25	IC501	C-15	Q404	G-25
D312	G-15	IC601	J-24	Q405	G-25
D313	H-26	IC602	I-26	Q406	G-25
D401	G-24	IC701	G-4	Q407	F-24
D402	G-24	IC702	G-6	Q408	G-26
D511	C-15	IC703	G-7	Q501	D-15
D601	I-21	IC704	H-11	Q502	D-15
D602	I-21	IC705	H-2	Q503	D-16
D603	I-21	IC911	G-20	Q511	C-16
D604	I-21	Q101	B-18	Q521	D-15
D605	H-25	Q102	B-17	Q522	E-15
D606	I-25	Q103	B-15	Q601	J-25
D607	I-26	Q104	B-16	Q602	G-25
D608	J-26	Q105	B-15	Q603	G-25
D609	J-21	Q151	B-21	Q671	C-25
D610	J-21	Q152	B-21	Q701	G-2
D611	J-21	Q201	C-16	Q901	D-19
D612	J-21	Q202	D-17	Q902	E-19
D613	J-22	Q203	E-17	Q903	E-19
D614	J-22	Q204	F-18	Q904	E-19
D615	J-22	Q205	E-18	Q921	E-19
D616	J-22	Q206	F-18	Q931	G-18
D617	J-22	Q207	E-17		
D618	J-22	Q208	F-16		
D619	J-22	Q210	F-17		
D620	H-25	Q211	G-18		
D621	H-23	Q212	G-17		
D622	H-23	Q213	G-17		
D623	I-21	Q231	D-17		


【CONNECT(A) BOARD】
—COMPONENT SIDE—
【CONNECT(B) BOARD】
—COMPONENT SIDE—
【DISPLAY BOARD】
【TUNER BOARD】
【AC CONNECT BOARD】
【VOLTAGE SELECT BOARD】
【ENCODER BOARD】
【AC SW BOARD】
【PGM SW BOARD】
ANTENNA
AC IN
VOLTAGE SELECT
POWER
PROGRAM
TUNING
PROGRAM CHECK

5-2. SCHEMATIC DIAGRAM

- See page 24 for notes IC Block Diagrams.
- See page 24 for waveforms.

Note:
- All capacitors are in μF unless otherwise noted. pf : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

- △ : internal component.
- ⎓ : fusible resistor.
- ▭ : adjustment for repair.
- Voltages are taken with a VOM (50 kΩ/V). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Voltage are dc with respect to ground under no-signal (detuned) condition. no mark : FM ( ) : MW

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VOLTAGE AT IC601 PIN

PIN No.	VOLTAGE	PIN No.	VOLTAGE	PIN No.	VOLTAGE
1	0	24	RF DIRECT : 2.8	44	0
2	GND		RF NORMAL : 0	45	4.8
3	0	25	0	46	5
4	4.8	26	0	47	0
5	4.8		NARROW : 2.3	48	5
6	4	27	0	49	5
7	GND		MPX FILTER : 4.8	50	-
8	GND	28	0	51	5
9	4.8	29	PROGRAM SET : 0	52	5
	PROGRAM SET : 0		HI-BLEND : 13.1	53	5
10	4.8		MONO : 0	54	5
	PROGRAM LOCK : 0	30	-	55	5
11	0		STEREO : 0	56	0
	MUTING ON : 4.9	31	-	57	0
12	0	32	5	58	0
	TUNING : 4.9	33	-	59	0
13	5		MUTE : 5.0	60	0
14	0	34	-	61	4.9
15	GND		CAL-TONE : 0	62	4.9
16	0	35	-	63	4.9
17	0	36	-	64	GND
18	5	37	5		
19	87.5 MHz : 0	38	0		
20	87.5 MHz : 0	39	0		
21	87.5 MHz : 0	40	0		
22	87.5 MHz : 0	41	0		
23	ANTENNA A : 0	42	0		
	ANTENNA B : 2.6	43	0		

【TUNER BOARD】 (FRONT END) (IF) (PLL DET) (AM) (PLL) (CONTROL)

IC201, IC202 FM IF AMP
IC251 FM IF AMP
IC271 FM IF AMP
IC272 LOWPASS FILTER, BUFFER
IC301 FM MPX
IC401 AM RF AMP, MIX, OSC, IF AMP, DET, AGC
IC501 PLL SYNTHESIZER
IC601 μPD75108CW-A76 SYSTEM CONTROL
IC602 MUTING CONTROL SWITCH
IC704 MSL916RS
IC701, IC702, IC703 LC7570 FL DRIVER
IC705 LB1494

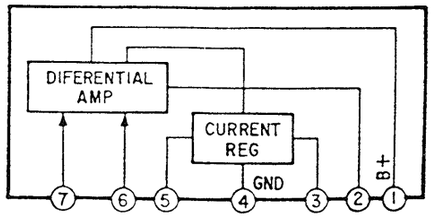
【ENCORDER BOARD】 【PGM SW BOARD】 【VOLTAGE SELECT BOARD】 【AC SW BOARD】 【AC CONNECT BOARD】

【DISPLAY BOARD】

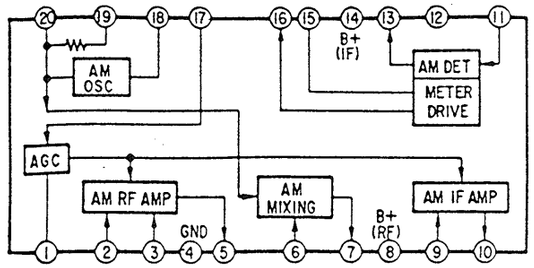
FL701 FLUORESCENT INDICATOR TUBE

5-3. IC BLOCK DIAGRAM

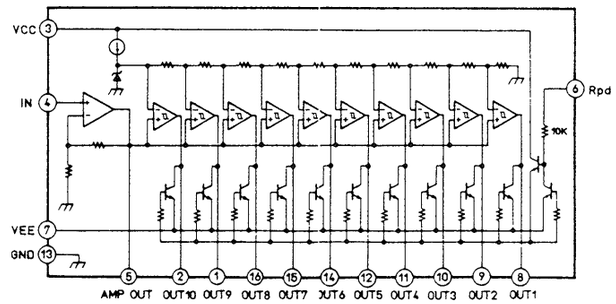
IC201, 202, 271 μPC1163HA



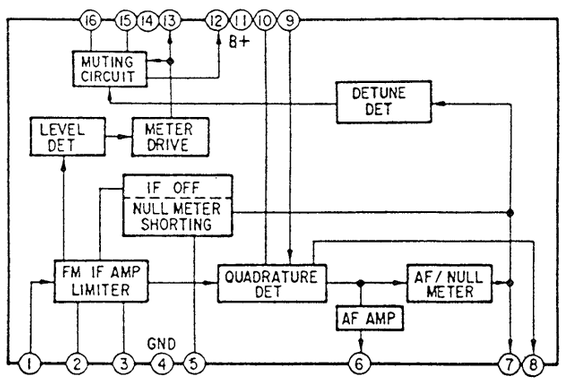
IC401 LA1245



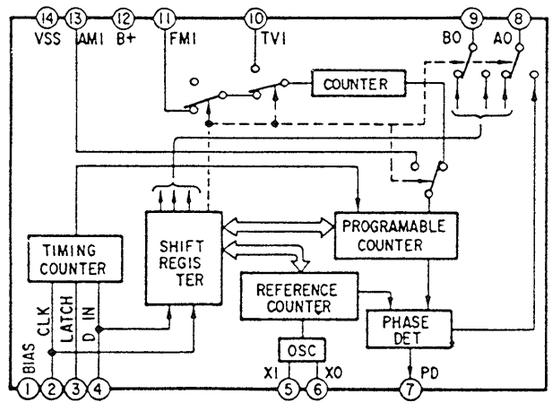
IC705 LB1494



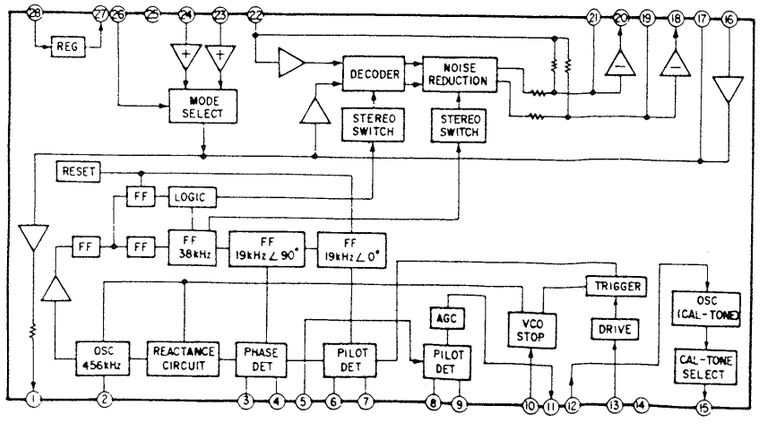
IC251 LA1235



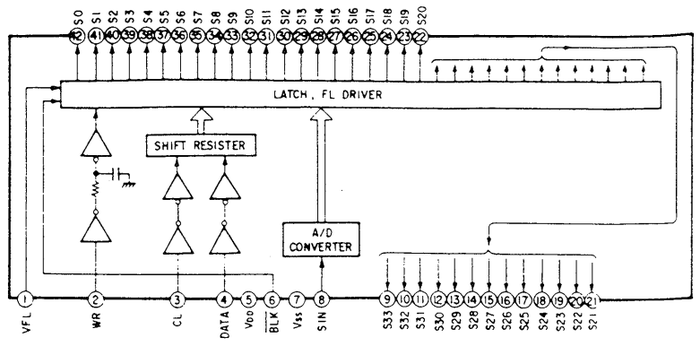
IC501 CX7925B



IC301 CXA1064S

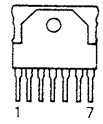


IC701, 702, 703 LC7570

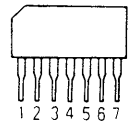


5-4. SEMICONDUCTOR LEAD LAYOUTS

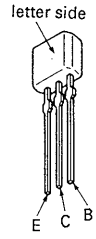
LA5667



μPC1163HA

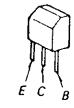


DTA144ES
DTC114ES
DTC114TS
DTC144ES
2SA1175-HFE
2SC2603-EF
2SC2669-0Y
2SC2785-HFE
2SC3623A-LK
2SC3899

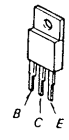


2SA1409-LK
2SC1815-GR

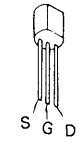
2SB734-34
2SD774-34



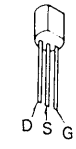
2SC2275-P



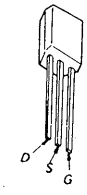
2SK125-3
2SK246-GR2
2SK30A-GR3



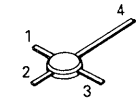
2SK152-3



2SK161-GR
2SK241-Y

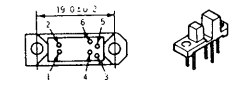


3SK122K



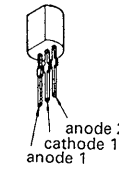
1. GATE 2
2. GATE 1
3. SOURCE
4. DRAIN

GP-1A06

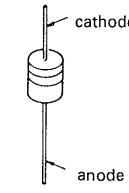


1. anode
2. cathode
3. GND
4. V_{O2}
5. V_{O1}
6. Vcc

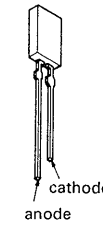
KV1320



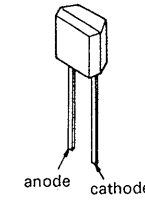
HZS30-2L
HZS-6A1L
HZS-6A3L
UZL-7M1
1SS120
1T22A
11ES2



SEL4825A



SVC333



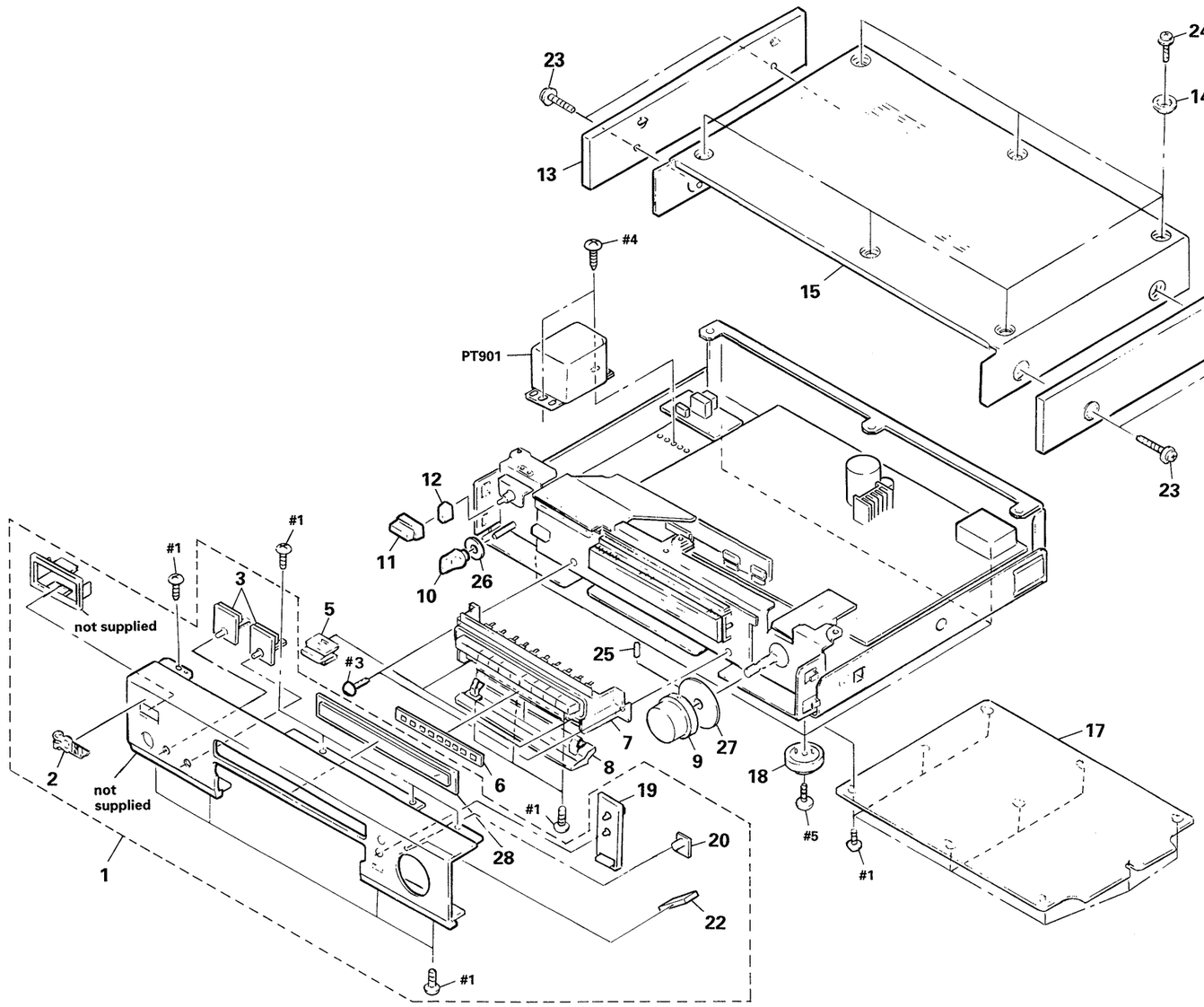
SECTION 6
EXPLODED VIEWS

6-1 CABINET ASSEMBLY

NOTE:

- _XX, _X mean standardized parts so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE). . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list is given in the last of this parts list.

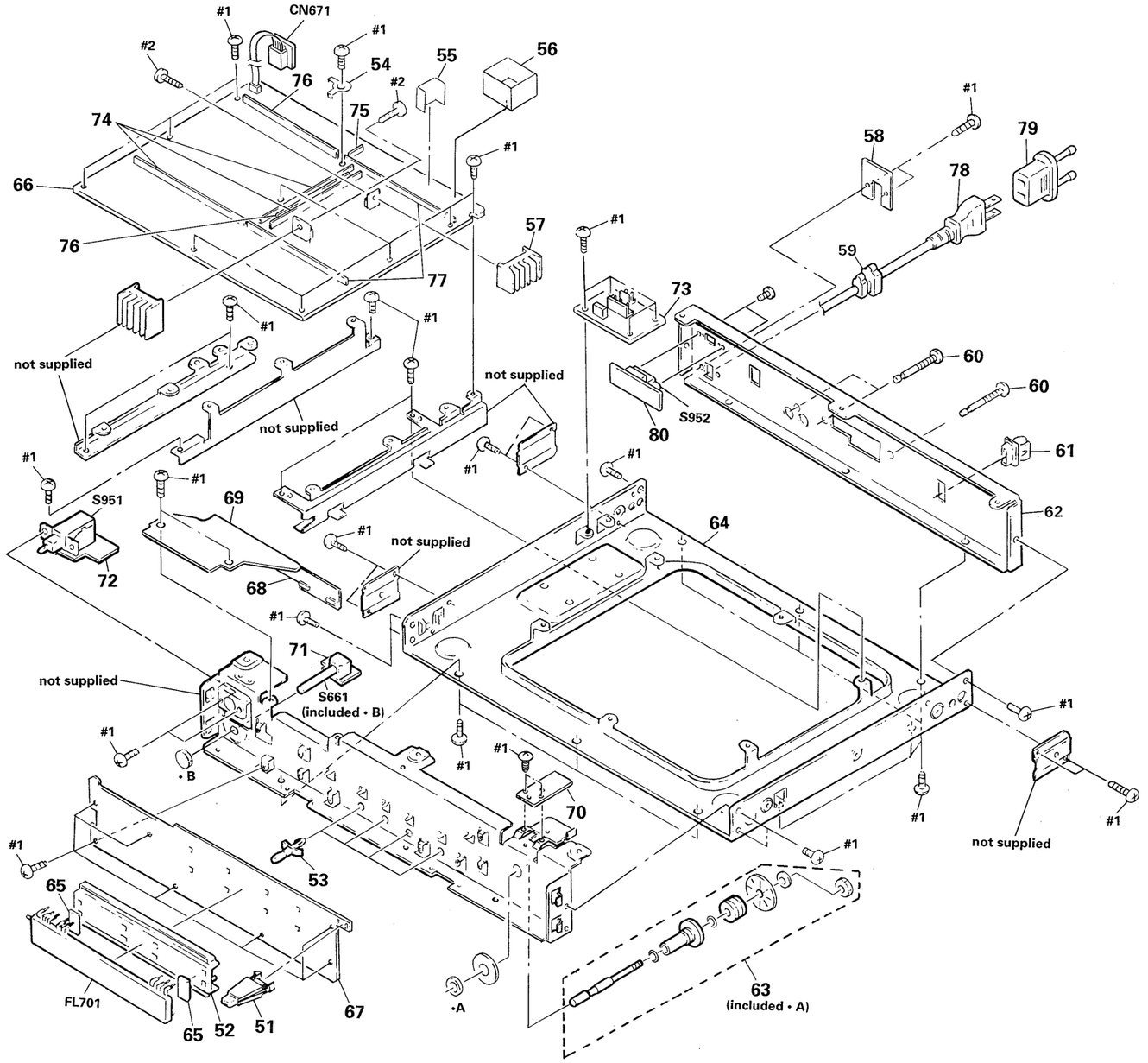
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



Ref. No.	Part No.	Description	Remark
1	A-4325-063-A	PANEL ASSY, FRONT	
2	4-908-848-01	EMBLEM, SONY	
3	X-4886-042-1	BUTTON (A) ASSY	
5	1-452-419-21	MAGNET	
6	4-923-475-11	PLATE, ORNAMENTAL	
7	X-4886-044-1	ESCUTCHEON ASSY, PANEL	
8	X-4886-047-1	LID ASSY	
9	4-923-482-01	KNOB	
10	4-908-097-21	KNOB	
11	4-908-046-01	KNOB, SQUARE	
12	4-864-307-00	RING	
13	X-4886-045-1	PANEL (LEFT) ASSY, SIDE	
14	4-923-474-01	RING, ORNAMENTAL	
15	4-935-802-11	CASE	
16	X-4886-046-1	PANEL (RIGHT) ASSY, SIDE	
17	* 4-908-036-11	PLATE, BOTTOM	
18	X-3304-944-1	FOOT ASSY	
19	X-4886-041-1	BUTTON (3 GANG) ASSY	
20	4-884-612-21	INDICATOR, EJECT	
22	4-923-477-01	PLATE, LIGHT INTERCEPTION	
23	4-933-446-01	SCREW (SIDE PANEL)	
24	3-704-366-01	SCREW (CASE) (M3X8)	
25	3-701-506-01	SET SCREW, DOUBLE POINT 3X4	
26	3-533-938-00	CLOTH	
27	4-935-807-01	CLOTH, BLIND	
28	4-923-492-11	WINDOW, DISPLAY	
PT901	⚠ 1-450-410-11	TRANSFORMER, POWER	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-2. CHASSIS ASSEMBLY



Ref.No.	Part No.	Description	Remark
51	* 3-304-605-11	HOLDER (NO.1), LED	
52	* 4-923-499-01	HOLDER (FL)	
53	* 3-703-353-01	SUPPORT, PC BOARD	
54	* 3-346-266-21	PLATE, GROUND	
55	* 4-911-325-01	PLATE (A), SHIELD	
56	* 2-287-441-01	PLATE, SHIELD	
57	* 4-921-402-01	HEAT SINK	
58	* 4-923-873-01	BRACKET, CORD STOPPER	
59	2-352-626-01	BUSHING, CORD	
60	3-704-242-01	SCREW, TERMINAL, + BVTP CLAW	
61	* 4-908-019-01	HOLDER (A), ANTENNA	
62	* 4-923-498-23	PANEL, BACK	
63	* X-4886-023-1	PLATE ASSY, SLIT	
64	* 4-908-042-11	CHASSIS, MAIN	
65	* 4-923-479-01	SPACER	
66	* A-4345-298-A	TUNER BOARD, COMPLETE	
67	* 1-633-127-11	DISPLAY BOARD	
68	* 1-633-128-11	CONNECT (A) BOARD	
69	* 1-633-129-11	CONNECT (B) BOARD	
70	* 1-633-130-11	ENCODER BOARD	
71	* 1-633-131-11	PGM SW BOARD	
72	* 1-633-132-11	AC SW BOARD	
73	* 1-641-159-11	AC CONNECTOR BOARD	
74	* 1-560-242-51	BUS BAR 7P	
75	* 1-560-242-61	BUS BAR 2P	
76	* 1-560-242-71	BUS BAR 6P	
77	* 1-560-242-91	BUS BAR 10P	
78	⚠ 1-559-297-31	CODE, POWER	
79	⚠ 1-569-007-11	ADAPTER, CONVERSION 2P	
80	* 1-641-161-11	VOLTAGE SELECT BOARD	
CN671	* 1-599-135-41	CORD (WITH CONNECTOR)	
FL701	1-519-558-11	INDICATOR TUBE, FLOURESCENT	
S661	1-571-333-11	SWITCH, ROTARY	
S951	⚠ 1-572-267-21	SWITCH, PUSH (AC POWER) (1 KEY)	
S952	⚠ 1-572-944-11	SWITCH, POWER VOLTAGE SELECTION	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7

ELECTRICAL PARTS LIST

DISPLAY **CONNECT(A)** **CONNECT(B)** **ENCODER**

PGM SW **AC SW** **AC CONNECTOR** **VOLTAGE SELECT**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- _XX, _X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA... : μA..., uPA... : μPA..., uPB... : μPB, uPC... : μPC..., uPD...: μPD
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description				Remark
	* 1-633-127-11	DISPLAY BOARD				
		**********				
	* 1-633-128-11	CONNECT (A) BOARD				
		**********				
	* 1-633-129-11	CONNECT (B) BOARD				
		**********				
	* 1-633-130-11	ENCODER BOARD				
		**********				
	* 1-633-131-11	PGM SW BOARD				
		**********				
	* 1-633-132-11	AC SW BOARD				
		**********				
	* 1-641-159-11	AC CONNECTOR BOARD				
		**********				
	* 1-641-161-11	VOLTAGE SELECT BOARD				
		**********				
	* 3-304-605-11	HOLDER (NO. 1), LED				
	* 4-923-479-01	SPACER				
	* 4-923-499-01	HOLDER (FL)				
		< CAPACITOR >				
C651	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C701	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C702	1-124-903-11	ELECT	1uF	20%	50V	
C703	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C704	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C951	1-161-744-00	CERAMIC	0.01uF		400V	
		< CONNECTOR >				
CN704	1-564-610-41	CONNECTOR, BOARD TO BOARD 10P				
CN705	1-564-610-41	CONNECTOR, BOARD TO BOARD 10P				
CN706	1-564-610-41	CONNECTOR, BOARD TO BOARD 10P				
CN902	* 1-564-687-11	PIN, CONNECTOR 3P				
CN952	* 1-564-321-00	PIN, CONNECTOR 2P				
CNJ701	* 1-565-486-11	CONNECTOR, BOARD TO BOARD 10P				
CNJ702	* 1-565-486-11	CONNECTOR, BOARD TO BOARD 10P				
CNJ703	* 1-565-486-11	CONNECTOR, BOARD TO BOARD 10P				
CNJ707	* 1-565-486-11	CONNECTOR, BOARD TO BOARD 10P				
CNJ708	* 1-565-486-11	CONNECTOR, BOARD TO BOARD 10P				
CNJ709	* 1-565-486-11	CONNECTOR, BOARD TO BOARD 10P				
CNP707	1-508-693-00	CONNECTOR PIN 10P				
CNP708	1-508-693-00	CONNECTOR PIN 10P				
CNP709	1-508-693-00	CONNECTOR PIN 10P				
		< DIODE >				
D651	8-719-913-37	DIODE	GP-1A06 (PURE CIRCUIT)			
D701	8-719-304-52	DIODE	SEL4825A-C			
D703	8-719-000-84	DIODE	UZL-7M1			
		< FLUORESCENT TUBE >				
FL701	1-519-558-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC701	8-759-820-08	IC	LC7570			
IC702	8-759-820-08	IC	LC7570			
IC703	8-759-820-08	IC	LC7570			
IC704	8-759-909-15	IC	MSL915RS			
IC705	8-759-801-57	IC	LB1494			
		< TRANSISTOR >				
Q701	8-729-900-89	TRANSISTOR	DTC144ES			
		< RESISTOR >				
R651	1-249-417-11	CARBON	1K	5%	1/4W	
R652	1-249-417-11	CARBON	1K	5%	1/4W	
R653	1-249-409-11	CARBON	220	5%	1/4W	
R701	1-247-708-11	CARBON	470	5%	1/4W	

DISPLAY **CONNECT(A)** **CONNECT(B)** **ENCODER**

PGM SW **AC SW** **AC CONNECTOR** **VOLTAGE SELECT** **TUNER**

Ref. No.	Part No.	Description				Remark
R702	1-259-404-11	CARBON	100	5%	1/6W	
R703	1-259-476-11	CARBON	100K	5%	1/6W	
R704	1-259-452-11	CARBON	10K	5%	1/6W	
R707	1-259-468-11	CARBON	47K	5%	1/6W	
		< SWITCH >				
S661	1-571-333-11	SWITCH, ROTARY (PROGRAM)				
S701	1-554-303-21	SWITCH, TACTILE (1)				
S702	1-554-303-21	SWITCH, TACTILE (2)				
S703	1-554-303-21	SWITCH, TACTILE (3)				
S704	1-554-303-21	SWITCH, TACTILE (4)				
S705	1-554-303-21	SWITCH, TACTILE (5)				
S706	1-554-303-21	SWITCH, TACTILE (6)				
S707	1-554-303-21	SWITCH, TACTILE (7)				
S708	1-554-303-21	SWITCH, TACTILE (8)				
S709	1-554-303-21	SWITCH, TACTILE (9)				
S710	1-554-303-21	SWITCH, TACTILE (0)				
S711	1-554-303-21	SWITCH, TACTILE (CAL TONE)				
S712	1-554-303-21	SWITCH, TACTILE (ANT)				
S713	1-554-303-21	SWITCH, TACTILE (RF MODE)				
S714	1-554-303-21	SWITCH, TACTILE (IF BAND)				
S715	1-554-303-21	SWITCH, TACTILE (TUNING)				
S716	1-554-303-21	SWITCH, TACTILE (FM MODE)				
S717	1-554-303-21	SWITCH, TACTILE (TUNE MODE)				
S718	1-554-303-21	SWITCH, TACTILE (MPX)				
S719	1-554-303-21	SWITCH, TACTILE (FM/AM)				
S720	1-554-303-21	SWITCH, TACTILE (MEMORY)				
S721	1-554-303-21	SWITCH, TACTILE (PROGRAM CHECK)				
S722	1-554-303-21	SWITCH, TACTILE (TUNING PRESET)				
S723	1-554-303-21	SWITCH, TACTILE (DISPLAY MODE)				
S724	1-554-303-21	SWITCH, TACTILE (SHIFT)				
S951	1-572-267-21	SWITCH, PUSH (AC POWER) (1 KEY)				
**********						
*	A-4345-298-A	TUNER BOARD, COMPLETE				
		**********				
*	1-560-242-51	BUS BAR 7P				
*	1-560-242-61	BUS BAR 2P				
*	1-560-242-71	BUS BAR 6P				
*	1-560-242-91	BUS BAR 10P				
*	2-287-441-01	PLATE, SHIELD				
*	3-346-266-21	PLATE, GROUND				
*	4-911-325-01	PLATE (A), SHIELD				
*	4-921-402-01	HEAT SINK				
	7-682-548-09	SCREW +B 3X8				

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C104	1-162-195-31	CERAMIC	4.7PF	10%	50V
C105	1-161-379-00	CERAMIC	0.01uF	20%	25V
C107	1-101-004-00	CERAMIC	0.01uF		50V
C109	1-162-196-31	CERAMIC	5.6PF	10%	50V
C110	1-162-199-31	CERAMIC	10PF	5%	50V
C111	1-162-282-31	CERAMIC	100PF	10%	50V
C112	1-161-379-00	CERAMIC	0.01uF	20%	25V
C113	1-124-907-11	ELECT	10uF	20%	50V
C114	1-161-379-00	CERAMIC	0.01uF	20%	25V
C115	1-162-195-31	CERAMIC	4.7PF	10%	50V
C116	1-162-199-31	CERAMIC	10PF	5%	50V
C117	1-162-206-31	CERAMIC	20PF	5%	50V
C118	1-162-197-31	CERAMIC	6.8PF	10%	50V
C119	1-101-004-00	CERAMIC	0.01uF		50V
C120	1-162-191-31	CERAMIC	2.2PF	10%	50V
C121	1-162-187-31	CERAMIC	1PF	20%	50V
C122	1-161-379-00	CERAMIC	0.01uF	20%	25V
C123	1-161-379-00	CERAMIC	0.01uF	20%	25V
C124	1-124-119-00	ELECT	330uF	20%	16V
C151	1-161-379-00	CERAMIC	0.01uF	20%	25V
C201	1-161-379-00	CERAMIC	0.01uF	20%	25V
C202	1-161-379-00	CERAMIC	0.01uF	20%	25V
C203	1-161-379-00	CERAMIC	0.01uF	20%	25V
C204	1-161-379-00	CERAMIC	0.01uF	20%	25V
C205	1-161-379-00	CERAMIC	0.01uF	20%	25V
C206	1-161-379-00	CERAMIC	0.01uF	20%	25V
C207	1-161-379-00	CERAMIC	0.01uF	20%	25V
C208	1-161-379-00	CERAMIC	0.01uF	20%	25V
C209	1-161-379-00	CERAMIC	0.01uF	20%	25V
C210	1-161-379-00	CERAMIC	0.01uF	20%	25V
C211	1-161-379-00	CERAMIC	0.01uF	20%	25V
C212	1-162-195-31	CERAMIC	4.7PF	10%	50V
C213	1-162-195-31	CERAMIC	4.7PF	10%	50V
C214	1-161-379-00	CERAMIC	0.01uF	20%	25V
C215	1-161-379-00	CERAMIC	0.01uF	20%	25V
C220	1-161-379-00	CERAMIC	0.01uF	20%	25V
C221	1-161-379-00	CERAMIC	0.01uF	20%	25V
C222	1-161-379-00	CERAMIC	0.01uF	20%	25V
C223	1-161-379-00	CERAMIC	0.01uF	20%	25V
C224	1-161-379-00	CERAMIC	0.01uF	20%	25V
C225	1-161-379-00	CERAMIC	0.01uF	20%	25V
C231	1-161-379-00	CERAMIC	0.01uF	20%	25V
C232	1-161-379-00	CERAMIC	0.01uF	20%	25V
C233	1-161-379-00	CERAMIC	0.01uF	20%	25V
C241	1-162-199-31	CERAMIC	10PF	10%	50V
C242	1-161-379-00	CERAMIC	0.01uF	20%	25V

Ref. No.	Part No.	Description			Remark
C243	1-161-379-00	CERAMIC	0.01uF	20%	25V
C244	1-124-907-11	ELECT	10uF	20%	50V
C251	1-161-379-00	CERAMIC	0.01uF	20%	25V
C252	1-161-379-00	CERAMIC	0.01uF	20%	25V
C253	1-161-379-00	CERAMIC	0.01uF	20%	25V
C254	1-124-925-11	ELECT	2.2uF	20%	100V
C255	1-124-925-11	ELECT	2.2uF	20%	100V
C256	1-161-379-00	CERAMIC	0.01uF	20%	25V
C257	1-161-379-00	CERAMIC	0.01uF	20%	25V
C258	1-126-026-11	ELECT	470uF	20%	25V
C259	1-161-379-00	CERAMIC	0.01uF	20%	25V
C260	1-161-379-00	CERAMIC	0.01uF	20%	25V
C261	1-161-379-00	CERAMIC	0.01uF	20%	25V
C262	1-161-379-00	CERAMIC	0.01uF	20%	25V
C263	1-124-463-00	ELECT	0.1uF	20%	50V
C264	1-161-379-00	CERAMIC	0.01uF	20%	25V
C271	1-161-379-00	CERAMIC	0.01uF	20%	25V
C272	1-161-379-00	CERAMIC	0.01uF	20%	25V
C273	1-161-379-00	CERAMIC	0.01uF	20%	25V
C274	1-161-379-00	CERAMIC	0.01uF	20%	25V
C275	1-126-022-11	ELECT	47uF	20%	25V
C276	1-161-379-00	CERAMIC	0.01uF	20%	25V
C277	1-124-557-11	ELECT	1000uF	20%	25V
C278	1-161-379-00	CERAMIC	0.01uF	20%	25V
C279	1-126-025-11	ELECT	330uF	20%	25V
C280	1-130-471-00	MYLAR	0.001uF	5%	50V
C281	1-102-518-11	CERAMIC	33PF	5%	50V
C282	1-161-379-00	CERAMIC	0.01uF	20%	25V
C283	1-110-335-11	MYLAR	100PF	5%	50V
C284	1-130-467-00	MYLAR	470PF	5%	50V
C285	1-110-340-11	MYLAR	270PF	5%	50V
C286	1-110-340-11	MYLAR	270PF	5%	50V
C287	1-126-025-11	ELECT	330uF	20%	25V
C288	1-130-475-00	MYLAR	0.0022uF	5%	50V
C289	1-126-025-11	ELECT	330uF	20%	25V
C301	1-124-902-00	ELECT	0.47uF	20%	50V
C302	1-124-903-11	ELECT	1uF	20%	50V
C303	1-136-161-00	FILM	0.047uF	5%	50V
C304	1-124-903-11	ELECT	1uF	20%	50V
C305	1-124-903-11	ELECT	1uF	20%	50V
C306	1-130-483-00	MYLAR	0.01uF	5%	50V
C307	1-124-902-00	ELECT	0.47uF	20%	50V
C308	1-104-319-11	POLYSTYRENE	0.01uF	10%	50V
C309	1-130-483-00	MYLAR	0.01uF	5%	50V
C310	1-124-252-00	ELECT	0.33uF	20%	50V
C311	1-124-463-00	ELECT	0.1uF	20%	50V
C312	1-124-902-00	ELECT	0.47uF	20%	50V
C313	1-104-271-11	POLYSTYRENE	750PF	5%	50V
C314	1-104-271-11	POLYSTYRENE	750PF	5%	50V

Ref. No.	Part No.	Description			Remark
C315	1-102-953-00	CERAMIC	18PF	5%	50V
C316	1-102-953-00	CERAMIC	18PF	5%	50V
C317	1-124-997-11	ELECT	470uF	20%	10V
C318	1-126-026-11	ELECT	470uF	20%	25V
C319	1-130-475-00	MYLAR	0.0022uF	5%	50V
C320	1-130-475-00	MYLAR	0.0022uF	5%	50V
C321	1-126-023-11	ELECT	100uF	20%	25V
C322	1-126-023-11	ELECT	100uF	20%	25V
C323	1-126-025-11	ELECT	330uF	20%	25V
C324	1-124-929-11	ELECT	22uF	20%	100V
C325	1-124-929-11	ELECT	22uF	20%	100V
C326	1-136-166-00	FILM	0.12uF	5%	50V
C327	1-124-907-11	ELECT	10uF	20%	50V
C330	1-124-130-00	ELECT	100uF	20%	63V
C331	1-124-903-11	ELECT	1uF	20%	50V
C401	1-124-903-11	ELECT	1uF	20%	50V
C402	1-161-379-00	CERAMIC	0.01uF	20%	25V
C403	1-161-379-00	CERAMIC	0.01uF	20%	25V
C404	1-161-379-00	CERAMIC	0.01uF	20%	25V
C405	1-124-477-11	ELECT	47uF	20%	25V
C406	1-161-379-00	CERAMIC	0.01uF	20%	25V
C407	1-161-379-00	CERAMIC	0.01uF	20%	25V
C408	1-161-379-00	CERAMIC	0.01uF	20%	25V
C409	1-161-379-00	CERAMIC	0.01uF	20%	25V
C410	1-123-382-00	ELECT	3.3uF	20%	100V
C411	1-126-101-11	ELECT	100uF	20%	16V
C412	1-161-379-00	CERAMIC	0.01uF	20%	25V
C413	1-124-903-11	ELECT	1uF	20%	50V
C414	1-124-903-11	ELECT	1uF	20%	50V
C415	1-124-927-11	ELECT	4.7uF	20%	100V
C416	1-161-379-00	CERAMIC	0.01uF	20%	25V
C417	1-162-294-31	CERAMIC	0.001uF	10%	50V
C418	1-162-215-31	CERAMIC	47PF	5%	50V
C419	1-161-379-00	CERAMIC	0.01uF	20%	25V
C420	1-162-291-31	CERAMIC	560PF	10%	50V
C421	1-124-902-00	ELECT	0.47uF	20%	50V
C501	1-161-379-00	CERAMIC	0.01uF	20%	25V
C502	1-102-959-00	CERAMIC	22PF	5%	50V
C503	1-102-959-00	CERAMIC	22PF	5%	50V
C504	1-161-379-00	CERAMIC	0.01uF	20%	25V
C505	1-161-379-00	CERAMIC	0.01uF	20%	25V
C506	1-161-379-00	CERAMIC	0.01uF	20%	25V
C507	1-161-379-00	CERAMIC	0.01uF	20%	25V
C511	1-124-907-11	ELECT	10uF	20%	50V
C512	1-124-907-11	ELECT	10uF	20%	50V
C516	1-124-484-11	ELECT	220uF	20%	35V
C521	1-126-059-11	ELECT	10uF	20%	50V
C522	1-123-382-00	ELECT	3.3uF	20%	100V
C523	1-124-254-00	ELECT	0.68uF	20%	50V

TUNER

Ref. No.	Part No.	Description			Remark
C524	1-124-463-00	ELECT	0.1uF	20%	50V
C601	1-123-382-00	ELECT	3.3uF	20%	100V
C602	1-161-379-00	CERAMIC	0.01uF	20%	25V
C603	1-161-379-00	CERAMIC	0.01uF	20%	25V
C604	1-131-377-00	TANTALUM	10uF	10%	10V
C605	1-125-548-11	DOUBLE LAYERS	0.1F		5.5V
C606	1-161-379-00	CERAMIC	0.01uF	20%	25V
C607	1-161-379-00	CERAMIC	0.01uF	20%	25V
C901	1-101-004-00	CERAMIC	0.01uF		50V
C902	1-101-004-00	CERAMIC	0.01uF		50V
C903	1-101-004-00	CERAMIC	0.01uF		50V
C904	1-101-004-00	CERAMIC	0.01uF		50V
C905	1-125-578-11	ELECT	2200uF	20%	
C906	1-126-023-11	ELECT	100uF	20%	25V
C907	1-126-067-11	ELECT	1000uF	20%	63V
C910	1-130-789-00	FILM	1uF	5%	100V
C911	1-101-004-00	CERAMIC	0.01uF		50V
C912	1-101-004-00	CERAMIC	0.01uF		50V
C913	1-101-004-00	CERAMIC	0.01uF		50V
C914	1-101-004-00	CERAMIC	0.01uF		50V
C915	1-126-104-11	ELECT	470uF	20%	35V
C916	1-124-126-00	ELECT	47uF	20%	10V
C917	1-126-101-11	ELECT	100uF	20%	16V
C921	1-101-004-00	CERAMIC	0.01uF		50V
C922	1-124-920-11	ELECT	330uF	20%	50V
C923	1-126-051-11	ELECT	47uF	20%	50V
C924	1-126-051-11	ELECT	47uF	20%	50V
C931	1-101-004-00	CERAMIC	0.01uF		50V
C932	1-124-912-11	ELECT	330uF	20%	50V
C933	1-124-910-11	ELECT	47uF	20%	50V
C934	1-124-910-11	ELECT	47uF	20%	50V

< FILTER >

CF201	1-567-389-11	FILTER, CERAMIC	
CF202	1-567-389-11	FILTER, CERAMIC	
CF203	1-567-389-11	FILTER, CERAMIC	
CF204	1-567-107-71	FILTER, CERAMIC	
CF301	1-567-250-11	OSCILLATOR, CERAMIC	
CF401	1-527-981-00	FILTER, CERAMIC	
CF402	1-527-826-00	FILTER, CERAMIC	
CF403	1-527-937-00	FILTER, CERAMIC	

< CONNECTOR >

CN671 *	1-559-135-41	CORD (WITH CONNECTOR)	4P
CN901 *	1-560-062-00	PIN, CONNECTOR	4P
CNJ301	1-563-560-11	JACK, PIN	2P

Ref. No.	Part No.	Description		Remark
CNP701 *	1-506-608-11	PIN, CONNECTOR	10P	
CNP702 *	1-506-608-11	PIN, CONNECTOR	10P	
CNP703 *	1-506-608-11	PIN, CONNECTOR	10P	
CNP704 *	1-564-338-00	PIN, CONNECTOR	4P	
CNP705 *	1-564-337-00	PIN, CONNECTOR	3P	

< TRIMMER >

CT101	1-141-304-21	CAP, TRIMMER	10PF
CT102	1-141-304-21	CAP, TRIMMER	10PF
CT103	1-141-304-21	CAP, TRIMMER	10PF
CT271	1-141-232-00	CAP, TRIMMER	

< DIODE >

D101	8-719-901-59	DIODE	KV1320
D102	8-719-901-59	DIODE	KV1320
D103	8-719-901-59	DIODE	KV1320
D104	8-719-901-59	DIODE	KV1320
D151	8-719-912-20	DIODE	1SS120
D152	8-719-912-20	DIODE	1SS120
D201	8-719-912-20	DIODE	1SS120
D202	8-719-912-20	DIODE	1SS120
D203	8-719-912-20	DIODE	1SS120
D241	8-719-022-21	DIODE	1T22A
D242	8-719-022-21	DIODE	1T22A
D273	8-719-933-35	DIODE	HZS6A3L
D274	8-719-933-35	DIODE	HZS6A3L
D275	8-719-936-88	DIODE	SVC333-M1-SONY
D276	8-719-912-20	DIODE	1SS120
D277	8-719-912-20	DIODE	1SS120
D278	8-719-912-20	DIODE	1SS120
D279	8-719-912-20	DIODE	1SS120
D301	8-719-912-20	DIODE	1SS120
D302	8-719-912-20	DIODE	1SS120
D303	8-719-912-20	DIODE	1SS120
D304	8-719-912-20	DIODE	1SS120
D305	8-719-912-20	DIODE	1SS120
D307	8-719-912-20	DIODE	1SS120
D310	8-719-912-20	DIODE	1SS120
D311	8-719-912-20	DIODE	1SS120
D312	8-719-912-20	DIODE	1SS120
D313	8-719-933-33	DIODE	HZS6A1L
D401	8-719-912-20	DIODE	1SS120
D402	8-719-912-20	DIODE	1SS120
D511	8-719-933-33	DIODE	HZS6A1L
D601	8-719-912-20	DIODE	1SS120
D602	8-719-912-20	DIODE	1SS120
D603	8-719-912-20	DIODE	1SS120
D604	8-719-912-20	DIODE	1SS120

Ref. No.	Part No.	Description	Remark
D605	8-719-912-20	DIODE 1SS120	
D606	8-719-912-20	DIODE 1SS120	
D607	8-719-912-20	DIODE 1SS120	
D608	8-719-912-20	DIODE 1SS120	
D609	8-719-912-20	DIODE 1SS120	
D610	8-719-912-20	DIODE 1SS120	
D611	8-719-912-20	DIODE 1SS120	
D612	8-719-912-20	DIODE 1SS120	
D613	8-719-912-20	DIODE 1SS120	
D614	8-719-912-20	DIODE 1SS120	
D615	8-719-912-20	DIODE 1SS120	
D616	8-719-912-20	DIODE 1SS120	
D617	8-719-912-20	DIODE 1SS120	
D618	8-719-912-20	DIODE 1SS120	
D619	8-719-912-20	DIODE 1SS120	
D620	8-719-912-20	DIODE 1SS120	
D621	8-719-912-20	DIODE 1SS120	
D622	8-719-912-20	DIODE 1SS120	
D623	8-719-912-20	DIODE 1SS120	
D624	8-719-912-20	DIODE 1SS120	
D625	8-719-912-20	DIODE 1SS120	
D671	8-719-912-20	DIODE 1SS120	
D901	8-719-200-82	DIODE 11ES2	
D902	8-719-200-82	DIODE 11ES2	
D903	8-719-200-82	DIODE 11ES2	
D904	8-719-200-82	DIODE 11ES2	
D905	8-719-933-33	DIODE HZS6A1L	
D911	8-719-200-82	DIODE 11ES2	
D912	8-719-200-82	DIODE 11ES2	
D913	8-719-200-82	DIODE 11ES2	
D914	8-719-200-82	DIODE 11ES2	
D921	8-719-200-82	DIODE 11ES2	
D922	8-719-934-22	DIODE HZS30-2L	
D931	8-719-200-82	DIODE 11ES2	
D932	8-719-002-06	DIODE UZL-18L	
		< AM RF BLOCK >	
FE401	1-239-042-11	ENCAPSULATED COMPONENT (MW RF)	
		< IC >	
IC201	8-759-111-72	IC uPC1163HA	
IC202	8-759-111-72	IC uPC1163HA	
IC251	8-759-812-35	IC LA1235	
IC271	8-759-111-72	IC uPC1163HA	
IC272	8-759-602-01	IC M5220P	
IC301	8-759-802-57	IC CXA1064S	
IC401	8-759-812-45	IC LA1245	
IC501	8-757-925-20	IC CX-7925B	
IC601	8-759-055-60	IC uPD75108CW-C79	
IC602	8-759-140-11	IC UPD4011BC	
IC911	8-759-820-09	IC LA5667	
		< COIL >	
IFT101	1-404-666-11	COIL, FM IFT	
IFT201	1-404-665-11	COIL, FM IFT (2)	
IFT202	1-404-665-11	COIL, FM IFT (2)	
IFT203	1-404-665-11	COIL, FM IFT (2)	
IFT204	1-404-665-11	COIL, FM IFT (2)	
IFT251	1-404-669-11	COIL, DISCRIMINATOR	
IFT271	1-404-668-11	COIL, FM DET (1)	
IFT272	1-404-667-11	COIL, FM DET (2)	
IFT401	1-404-326-00	TRANSFORMER, IF	
		< COIL >	
L101	1-402-240-11	COIL (ANT)	
L102	1-426-249-11	COIL (RF)	
L103	1-459-647-11	COIL (WITH CORE)	
L104	1-459-618-11	COIL	
L105	1-410-967-11	INDUCTOR 2.2uH	
L106	1-410-501-11	INDUCTOR 2.2uH	
L107	1-408-988-21	INDUCTOR 390uH	
L108	1-410-977-11	INDUCTOR 100uH	
L201	1-410-977-11	INDUCTOR 100uH	
L202	1-410-977-11	INDUCTOR 100uH	
L203	1-410-977-11	INDUCTOR 100uH	
L251	1-410-781-11	INDUCTOR 33mH	
L252	1-410-781-11	INDUCTOR 33mH	
L271	1-410-978-11	INDUCTOR 150uH	
L301	1-409-413-11	COIL (TUNING)	
		< FILTER >	
LPF301	1-236-560-11	ENCAPSULATED COMPONENT (LPF)	
		< TRANSISTOR >	
Q101	8-729-200-55	TRANSISTOR 2SK241-Y	
Q102	8-729-144-76	TRANSISTOR 3SK122K	
Q103	8-729-216-13	TRANSISTOR 2SK161-GR	
Q104	8-729-216-13	TRANSISTOR 2SK161-GR	
Q105	8-729-216-13	TRANSISTOR 2SK161-GR	
Q151	8-729-904-39	TRANSISTOR DTC114TS	
Q152	8-729-904-39	TRANSISTOR DTC114TS	
Q201	8-729-800-43	TRANSISTOR 2SK152-3	
Q202	8-729-904-39	TRANSISTOR DTC114TS	
Q203	8-729-904-39	TRANSISTOR DTC114TS	
Q204	8-729-904-39	TRANSISTOR DTC114TS	
Q205	8-729-904-39	TRANSISTOR DTC114TS	
Q206	8-729-904-39	TRANSISTOR DTC114TS	

TUNER

Ref. No.	Part No.	Description		Remark
Q207	8-729-904-39	TRANSISTOR	DTC114TS	
Q208	8-729-904-39	TRANSISTOR	DTC114TS	
Q210	8-729-200-55	TRANSISTOR	2SK241-Y	
Q211	8-729-200-55	TRANSISTOR	2SK241-Y	
Q212	8-729-900-89	TRANSISTOR	DTC144ES	
Q213	8-729-230-XX	TRANSISTOR	2SC2669-OY	
Q231	8-729-900-89	TRANSISTOR	DTC144ES	
Q232	8-729-904-39	TRANSISTOR	DTC114TS	
Q233	8-729-904-39	TRANSISTOR	DTC114TS	
Q234	8-729-900-65	TRANSISTOR	DTA144ES	
Q235	8-729-900-89	TRANSISTOR	DTC144ES	
Q241	8-729-230-XX	TRANSISTOR	2SC2669-OY	
Q251	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q252	8-729-900-89	TRANSISTOR	DTC144ES	
Q253	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q254	8-729-900-89	TRANSISTOR	DTC144ES	
Q255	8-729-806-24	TRANSISTOR	2SC3899	
Q256	8-729-900-89	TRANSISTOR	DTC144ES	
Q271	8-729-802-43	TRANSISTOR	2SK125-3	
Q272	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q301	8-729-806-24	TRANSISTOR	2SC3899	
Q302	8-729-900-89	TRANSISTOR	DTC144ES	
Q303	8-729-900-89	TRANSISTOR	DTC144ES	
Q304	8-729-900-65	TRANSISTOR	DTA144ES	
Q305	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q306	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q308	8-729-141-30	TRANSISTOR	2SC3623A-LK	
Q309	8-729-141-30	TRANSISTOR	2SC3623A-LK	
Q310	8-729-900-65	TRANSISTOR	DTA144ES	
Q401	8-729-900-89	TRANSISTOR	DTC144ES	
Q402	8-729-904-39	TRANSISTOR	DTC114TS	
Q403	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q404	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q405	8-729-904-39	TRANSISTOR	DTC114TS	
Q406	8-729-806-24	TRANSISTOR	2SC3899	
Q407	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q408	8-729-806-24	TRANSISTOR	2SC3899	
Q501	8-729-900-89	TRANSISTOR	DTC144ES	
Q502	8-729-119-76	TRANSISTOR	2SA1175-HFE	
Q503	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q511	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q521	8-729-203-05	TRANSISTOR	2SK30A-GR3	
Q522	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q601	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q602	8-729-141-30	TRANSISTOR	2SC3623A-LK	
Q603	8-729-620-05	TRANSISTOR	2SC2603-EF	
Q671	8-729-900-89	TRANSISTOR	DTC144ES	
Q901	8-729-127-53	TRANSISTOR	2SC2275-P	
Q902	8-729-281-53	TRANSISTOR	2SC945-GR	
Q903	8-729-281-53	TRANSISTOR	2SC945-GR	
Q904	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q921	8-729-140-96	TRANSISTOR	2SD774-34	
Q931	8-729-140-97	TRANSISTOR	2SB734-34	

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R101	1-249-437-11	CARBON	47K	5%	1/4W	
R102	1-249-437-11	CARBON	47K	5%	1/4W	
R103	1-249-437-11	CARBON	47K	5%	1/4W	
R104	1-249-405-11	CARBON	100	5%	1/4W	
R105	1-249-437-11	CARBON	47K	5%	1/4W	
R106	1-249-437-11	CARBON	47K	5%	1/4W	
R107	1-249-399-11	CARBON	33	5%	1/4W	
R108	1-249-441-11	CARBON	100K	5%	1/4W	
R109	1-249-441-11	CARBON	100K	5%	1/4W	
R110	1-249-441-11	CARBON	100K	5%	1/4W	
R111	1-249-405-11	CARBON	100	5%	1/4W	
R112	1-249-405-11	CARBON	100	5%	1/4W	
R114	1-249-431-11	CARBON	15K	5%	1/4W	
R115	1-249-437-11	CARBON	47K	5%	1/4W	
R116	1-249-405-11	CARBON	100	5%	1/4W	
R117	1-249-411-11	CARBON	330	5%	1/4W	
R118	1-249-437-11	CARBON	47K	5%	1/4W	
R119	1-249-405-11	CARBON	100	5%	1/4W	
R151	1-249-721-11	CARBON	100K	5%	1/2W	
R152	1-249-721-11	CARBON	100K	5%	1/2W	
R153	1-249-404-00	CARBON	82	5%	1/4W	
R154	1-249-404-00	CARBON	82	5%	1/4W	
R201	1-249-411-11	CARBON	330	5%	1/4W	
R202	1-249-411-11	CARBON	330	5%	1/4W	
R203	⚠ 1-212-857-00	FUSIBLE	10	5%	1/4W	F
R204	1-249-411-11	CARBON	330	5%	1/4W	
R205	1-249-405-11	CARBON	100	5%	1/4W	
R206	1-249-411-11	CARBON	330	5%	1/4W	
R207	⚠ 1-212-857-00	FUSIBLE	10	5%	1/4W	F
R208	1-249-411-11	CARBON	330	5%	1/4W	
R209	1-249-405-11	CARBON	100	5%	1/4W	
R210	1-249-413-11	CARBON	470	5%	1/4W	
R211	⚠ 1-212-857-00	FUSIBLE	10	5%	1/4W	F
R212	1-249-422-11	CARBON	2.7K	5%	1/4W	
R213	1-249-422-11	CARBON	2.7K	5%	1/4W	
R217	1-249-411-11	CARBON	330	5%	1/4W	
R218	1-249-411-11	CARBON	330	5%	1/4W	
R220	1-249-411-11	CARBON	330	5%	1/4W	
R221	1-249-395-11	CARBON	15	5%	1/4W	
R222	1-249-411-11	CARBON	330	5%	1/4W	
R223	1-249-441-11	CARBON	100K	5%	1/4W	
R224	1-249-411-11	CARBON	330	5%	1/4W	
R225	1-249-429-11	CARBON	10K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
R226	1-249-434-11	CARBON	27K	5%	1/4W	
R227	⚠ 1-212-857-00	FUSIBLE	10	5%	1/4W	F
R228	1-249-417-11	CARBON	1K	5%	1/4W	
R231	1-249-428-11	CARBON	8.2K	5%	1/4W	
R232	1-249-429-11	CARBON	10K	5%	1/4W	
R233	1-249-429-11	CARBON	10K	5%	1/4W	
R234	1-249-429-11	CARBON	10K	5%	1/4W	
R241	1-247-887-00	CARBON	220K	5%	1/4W	
R242	1-249-417-11	CARBON	1K	5%	1/4W	
R243	1-249-437-11	CARBON	47K	5%	1/4W	
R244	1-249-437-11	CARBON	47K	5%	1/4W	
R251	1-249-411-11	CARBON	330	5%	1/4W	
R252	1-249-441-11	CARBON	100K	5%	1/4W	
R253	1-249-432-11	CARBON	18K	5%	1/4W	
R254	1-247-903-00	CARBON	1M	5%	1/4W	
R255	1-249-434-11	CARBON	27K	5%	1/4W	
R256	1-249-430-11	CARBON	12K	5%	1/4W	
R257	1-249-417-11	CARBON	1K	5%	1/4W	
R258	1-249-425-11	CARBON	4.7K	5%	1/4W	
R259	⚠ 1-212-881-11	FUSIBLE	100	5%	1/4W	F
R260	1-249-438-11	CARBON	56K	5%	1/4W	
R261	1-249-441-11	CARBON	100K	5%	1/4W	
R262	1-249-437-11	CARBON	47K	5%	1/4W	
R263	1-249-437-11	CARBON	47K	5%	1/4W	
R264	1-249-433-11	CARBON	22K	5%	1/4W	
R265	1-249-437-11	CARBON	47K	5%	1/4W	
R266	1-249-437-11	CARBON	47K	5%	1/4W	
R271	1-249-421-11	CARBON	2.2K	5%	1/4W	
R272	1-249-411-11	CARBON	330	5%	1/4W	
R273	1-249-417-11	CARBON	1K	5%	1/4W	
R274	⚠ 1-212-857-00	FUSIBLE	10	5%	1/4W	F
R275	1-249-417-11	CARBON	1K	5%	1/4W	
R276	1-249-417-11	CARBON	1K	5%	1/4W	
R277	1-249-417-11	CARBON	1K	5%	1/4W	
R278	1-249-417-11	CARBON	1K	5%	1/4W	
R279	⚠ 1-212-881-11	FUSIBLE	100	5%	1/4W	F
R280	1-249-441-11	CARBON	100K	5%	1/4W	
R281	1-249-409-11	CARBON	220	5%	1/4W	
R282	1-249-410-11	CARBON	270	5%	1/4W	
R283	1-249-417-11	CARBON	1K	5%	1/4W	
R284	1-249-434-11	CARBON	27K	5%	1/4W	
R285	1-249-429-11	CARBON	10K	5%	1/4W	
R286	1-249-429-11	CARBON	10K	5%	1/4W	
R287	1-249-422-11	CARBON	2.7K	5%	1/4W	
R288	1-249-413-11	CARBON	470	5%	1/4W	
R289	1-247-903-00	CARBON	1M	5%	1/4W	
R290	1-249-417-11	CARBON	1K	5%	1/4W	
R291	1-249-418-11	CARBON	1.2K	5%	1/4W	
R292	⚠ 1-212-881-11	FUSIBLE	100	5%	1/4W	F
R301	⚠ 1-212-857-00	FUSIBLE	10	5%	1/4W	F
R302	1-249-423-11	CARBON	3.3K	5%	1/4W	
R303	1-249-431-11	CARBON	15K	5%	1/4W	
R304	1-249-427-11	CARBON	6.8K	5%	1/4W	
R305	1-249-426-11	CARBON	5.6K	5%	1/4W	
R306	1-249-441-11	CARBON	100K	5%	1/4W	
R307	1-247-886-11	CARBON	200K	5%	1/4W	
R308	1-249-441-11	CARBON	100K	5%	1/4W	
R309	1-247-886-11	CARBON	200K	5%	1/4W	
R310	1-247-887-00	CARBON	220K	5%	1/4W	
R311	1-247-887-00	CARBON	220K	5%	1/4W	
R312	1-249-399-11	CARBON	33	5%	1/4W	
R313	1-249-399-11	CARBON	33	5%	1/4W	
R314	1-249-417-11	CARBON	1K	5%	1/4W	
R315	1-249-417-11	CARBON	1K	5%	1/4W	
R316	1-249-437-11	CARBON	47K	5%	1/4W	
R317	1-249-437-11	CARBON	47K	5%	1/4W	
R318	1-249-429-11	CARBON	10K	5%	1/4W	
R319	1-247-903-00	CARBON	1M	5%	1/4W	
R320	1-247-903-00	CARBON	1M	5%	1/4W	
R321	1-249-429-11	CARBON	10K	5%	1/4W	
R322	1-249-429-11	CARBON	10K	5%	1/4W	
R323	1-249-417-11	CARBON	1K	5%	1/4W	
R324	1-249-417-11	CARBON	1K	5%	1/4W	
R325	1-249-405-11	CARBON	100	5%	1/4W	
R327	⚠ 1-212-873-11	FUSIBLE	47	5%	1/4W	F
R328	1-249-429-11	CARBON	10K	5%	1/4W	
R329	1-249-436-11	CARBON	39K	5%	1/4W	
R401	1-249-429-11	CARBON	10K	5%	1/4W	
R402	1-249-421-11	CARBON	2.2K	5%	1/4W	
R403	⚠ 1-212-889-00	FUSIBLE	220	5%	1/4W	F
R404	1-249-413-11	CARBON	470	5%	1/4W	
R405	1-249-429-11	CARBON	10K	5%	1/4W	
R406	1-249-429-11	CARBON	10K	5%	1/4W	
R407	1-249-405-11	CARBON	100	5%	1/4W	
R408	1-249-404-00	CARBON	82	5%	1/4W	
R409	1-249-424-11	CARBON	3.9K	5%	1/4W	
R410	⚠ 1-212-885-00	FUSIBLE	150	5%	1/4W	F
R411	1-249-422-11	CARBON	2.7K	5%	1/4W	
R412	1-249-429-11	CARBON	10K	5%	1/4W	
R413	1-249-441-11	CARBON	100K	5%	1/4W	
R414	1-249-430-11	CARBON	12K	5%	1/4W	
R415	1-249-430-11	CARBON	12K	5%	1/4W	
R416	1-249-422-11	CARBON	2.7K	5%	1/4W	
R417	1-249-426-11	CARBON	5.6K	5%	1/4W	
R418	1-249-433-11	CARBON	22K	5%	1/4W	
R419	1-249-429-11	CARBON	10K	5%	1/4W	
R420	1-247-903-00	CARBON	1M	5%	1/4W	
R501	1-249-429-11	CARBON	10K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

TUNER

Ref. No.	Part No.	Description				Remark
R502	1-249-429-11	CARBON	10K	5%	1/4W	
R503	1-249-429-11	CARBON	10K	5%	1/4W	
R504	1-249-423-11	CARBON	3.3K	5%	1/4W	
R505	1-249-433-11	CARBON	22K	5%	1/4W	
R511	⚠ 1-212-889-00	FUSIBLE	220	5%	1/4W	F
R512	1-249-421-11	CARBON	2.2K	5%	1/4W	
R516	⚠ 1-217-402-00	FUSIBLE	180	5%	1/4W	F
R521	1-249-414-11	CARBON	560	5%	1/4W	
R522	1-249-414-11	CARBON	560	5%	1/4W	
R523	1-249-418-11	CARBON	1.2K	5%	1/4W	
R524	1-249-411-11	CARBON	330	5%	1/4W	
R525	1-249-420-11	CARBON	1.8K	5%	1/4W	
R526	1-249-427-11	CARBON	6.8K	5%	1/4W	
R527	1-249-425-11	CARBON	4.7K	5%	1/4W	
R528	1-249-417-11	CARBON	1K	5%	1/4W	
R529	1-249-415-11	CARBON	680	5%	1/4W	
R530	1-249-425-11	CARBON	4.7K	5%	1/4W	
R601	1-249-433-11	CARBON	22K	5%	1/4W	
R602	1-249-433-11	CARBON	22K	5%	1/4W	
R603	1-249-433-11	CARBON	22K	5%	1/4W	
R604	1-249-437-11	CARBON	47K	5%	1/4W	
R605	1-249-437-11	CARBON	47K	5%	1/4W	
R606	1-249-437-11	CARBON	47K	5%	1/4W	
R607	1-249-437-11	CARBON	47K	5%	1/4W	
R608	1-249-429-11	CARBON	10K	5%	1/4W	
R609	1-249-429-11	CARBON	10K	5%	1/4W	
R610	1-249-429-11	CARBON	10K	5%	1/4W	
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R612	1-249-429-11	CARBON	10K	5%	1/4W	
R613	1-249-429-11	CARBON	10K	5%	1/4W	
R614	1-249-437-11	CARBON	47K	5%	1/4W	
R615	1-249-429-11	CARBON	10K	5%	1/4W	
R616	1-249-433-11	CARBON	22K	5%	1/4W	
R617	1-249-433-11	CARBON	22K	5%	1/4W	
R618	1-249-433-11	CARBON	22K	5%	1/4W	
R619	1-249-433-11	CARBON	22K	5%	1/4W	
R620	1-249-429-11	CARBON	10K	5%	1/4W	
R621	1-249-429-11	CARBON	10K	5%	1/4W	
R622	1-249-429-11	CARBON	10K	5%	1/4W	
R623	1-249-429-11	CARBON	10K	5%	1/4W	
R624	1-247-895-00	CARBON	470K	5%	1/4W	
R625	1-249-433-11	CARBON	22K	5%	1/4W	
R626	⚠ 1-212-873-11	FUSIBLE	47	5%	1/4W	F
R627	1-249-417-11	CARBON	1K	5%	1/4W	
R628	1-249-441-11	CARBON	100K	5%	1/4W	
R629	1-247-883-00	CARBON	150K	5%	1/4W	
R630	1-249-433-11	CARBON	22K	5%	1/4W	
R631	1-249-429-11	CARBON	10K	5%	1/4W	
R671	1-249-410-11	CARBON	270	5%	1/4W	
R672	1-249-393-11	CARBON	10	5%	1/4W	
R673	1-249-437-11	CARBON	47K	5%	1/4W	
R674	1-249-429-11	CARBON	10K	5%	1/4W	
R903	1-249-409-11	CARBON	220	5%	1/4W	
R904	1-249-429-11	CARBON	10K	5%	1/4W	
R905	1-249-427-11	CARBON	6.8K	5%	1/4W	
R910	⚠ 1-212-865-00	FUSIBLE	22	5%	1/4W	F
R911	1-249-437-11	CARBON	47K	5%	1/4W	
R921	⚠ 1-212-889-00	FUSIBLE	220	5%	1/4W	F
R922	1-249-424-11	CARBON	3.9K	5%	1/4W	
R931	⚠ 1-217-497-00	FUSIBLE	220	5%	1W	F
R932	1-249-425-11	CARBON	4.7K	5%	1/4W	
R933	1-247-883-00	CARBON	150K	5%	1/4W	
R934	1-249-440-11	CARBON	82K	5%	1/4W	

< VARIABLE RESISTOR >

RV201	1-237-460-11	RES, ADJ, CARBON 20K
RV202	1-237-460-11	RES, ADJ, CARBON 20K
RV203	1-237-456-11	RES, ADJ, CARBON 1K
RV241	1-237-463-11	RES, ADJ, CARBON 200K
RV251	1-237-459-11	RES, ADJ, CARBON 10K
RV252	1-237-463-11	RES, ADJ, CARBON 200K
RV301	1-237-465-11	RES, ADJ, CARBON 1M
RV302	1-237-465-11	RES, ADJ, CARBON 1M
RV303	1-237-461-11	RES, ADJ, CARBON 50K
RV401	1-237-463-11	RES, ADJ, CARBON 200K
RV402	1-237-461-11	RES, ADJ, CARBON 50K

< RELAY >

RY151	1-515-614-11	RELAY
RY152	1-515-614-11	RELAY
RY153	1-515-614-11	RELAY

< THERMISTOR >

TH201	1-807-970-11	THERMISTOR 150
TH202	1-808-269-11	THERMISTOR 250
TH203	1-808-269-11	THERMISTOR 250
TH271	1-807-972-11	THERMISTOR 1250

< TERMINAL >

TM101	1-537-247-11	TERMINAL BOARD (ANT)

< TEST PIN >

TP201	* 1-565-513-11	PIN, CONNECTOR 2P
TP271	* 1-565-513-11	PIN, CONNECTOR 2P
TP601	* 1-565-513-11	PIN, CONNECTOR 2P
TP602	* 1-565-513-11	PIN, CONNECTOR 2P

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		< VIBRATOR, CRYSTAL >	
XT501	1-567-826-21	VIBRATOR, CRYSTAL	
XT601	1-577-359-21	VIBRATOR, CERAMIC	
**********			
		MISCELLANEOUS	
		**********	
5	1-452-419-21	MAGNET	
78	⚠ 1-559-297-31	CODE, POWER	
79	⚠ 1-569-007-11	ADAPTER, CONVERSION 2P	
CN671	* 1-599-135-41	CORD (WITH CONNECTOR)	
PT901	⚠ 1-450-410-11	TRANSFORMER, POWER	
S952	⚠ 1-572-944-11	SWITCH, POWER VOLTAGE SELECTION	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-417-141-11	MATCHING TRANSFORMER, ANTENNA	
	1-501-224-00	ANTENNA, FEEDER	
	1-501-451-11	ANTENNA, LOOP	
	1-558-233-11	CORD (WITH CONNECTOR) (SIRCS) 4P	
	1-559-533-11	CORD, CONNECTION	
	3-704-366-01	SCREW (CASE) (M3X8)	
	3-753-233-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, ITALIAN)	
*	4-923-472-01	CUSHION	
*	4-926-824-41	INDIVIDUAL CARTON	
**********			

HARDWARE LIST

****

#1	7-682-547-09	SCREW +BV 3X6, S TIGHT
#2	7-682-548-09	SCREW +B 3X8
#3	7-682-549-09	SCREW +BVTT 3X10 (S)
#4	7-682-560-09	SCREW +BVTT 4X6 (S)
#5	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT
#6	7-685-883-09	SCREW +BVTT 4X12 (S)

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