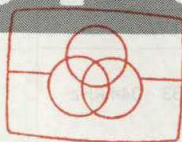


ST-S444ES II

SERVICE MANUAL



Free service manuals

Gratis schema's

Digitized by

AEP Model

www.freeservicemanuals.info



SPECIFICATIONS


FM tuner section

Tuning range	87.5 MHz — 108 MHz
Antenna terminals	75 ohms, unbalanced
Intermediate frequency	10.7 MHz
Sensitivity (at 40 kHz deviation)	at 46 dB quieting 17.3 dBf, 2 μ V (mono) 37.9 dBf, 22.5 μ V (stereo)
Usable sensitivity	10.3 dBf, 0.9 μ F (IHF) 1.6 μ V (S/N = 26 dB)
Signal-to-noise ratio	83 dB (mono) 79 dB (stereo)
Harmonic distortion at 1 kHz	Mono: 0.009% (DISTANT OFF), 0.015% (DISTANT ON) Stereo: 0.025% (DISTANT OFF), 0.04% (DISTANT ON)
IM distortion	Mono: 0.009% (DISTANT OFF), 0.015% (DISTANT ON) Stereo: 0.025% (DISTANT OFF), 0.04% (DISTANT ON)
Separation at 1 kHz	58 dB (DISTANT OFF), 50 dB (DISTANT ON)
Frequency response	40 Hz — 12.5 kHz \pm 0.2 dB 30 Hz — 15 kHz $\begin{matrix} +0.2 \\ -0.5 \end{matrix}$ dB

Selectivity	at 300 kHz 45 dB (DISTANT OFF), 60 dB (DISTANT ON) at 400 kHz 75 dB (DISTANT OFF), 85 dB (DISTANT ON)
Capture ratio	1.0 dB
AM suppression ratio	65 dB
Image rejection ratio	80 dB
IF response ratio	90 dB
Spurious response ratio	100 dB
RF intermodulation	74 dB (IHF)
Muting threshold	Approx. 30 dBf, 18 μ V
Output level/impedance at 75 kHz deviation	750 mV, 1.7 kilohms

—Continued on page 2—

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND 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.

FM STEREO/FM-AM TUNER

SONY®



AM (MW/LW) tuner section

		MW	LW
Tuning range		531 - 1602 kHz (9 kHz step) 530 - 1610 kHz (10 kHz step)	153 - 344 kHz
Antenna		layout-free AM antenna external antenna terminal	
Intermediate frequency		450 kHz	
Usable sensitivity	layout-free AM antenna	300 μ V/m (at 999 or 1,000 kHz)	700 μ V/m (at 230 kHz)
	external antenna	30 μ V (at 999 or 1,000 kHz)	200 μ V (at 230 kHz)
Signal-to-noise ratio		54 dB (50 mV/m)	
Harmonic distortion		0.3% (at 50 mV/m, 400 Hz)	
Selectivity		55 dB (9 kHz) 60 dB (10 kHz)	55 dB (9 kHz)

General

System	PLL quartz-locked digital synthesizer system FM stereo, FM/AM super-heterodyne tuner
Power requirements	220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50/60 Hz
Power consumption	15 watts
Dimensions	Approx. 430 × 80 × 340 mm (w/h/d) (17 ¹ / ₈ × 3 ¹ / ₄ × 13 ¹ / ₂ inches) including projecting parts and controls
Weight	4.1 kg (9 lb 1 oz)

FEATURES**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.

DIRECT COMPARATOR TECHNOLOGY

An employed PLL IC allows the comparison frequency to be as high as the 100 kHz 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.

PROGRAM FUNCTION

Using the program function, you can automatically tune in to 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.

EFFORTLESS TUNING

Quick and accurate station selection is possible with an electronic digital readout on the band/frequency-display.

Four methods of tuning are available:

Manual tuning, in which each band can be scanned either rapidly or step-by-step.

Automatic tuning (FM only), in which the band is scanned automatically until a signal is received.

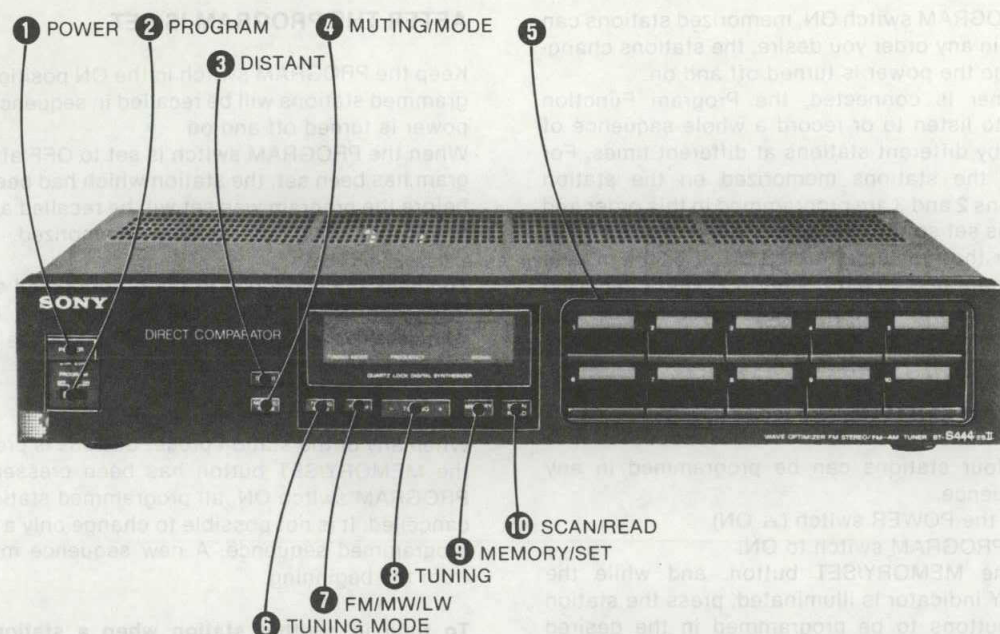
Sweep tuning (FM only), in which the entire band is scanned. In this mode, when a signal is received, scanning stops for a few seconds to allow you to monitor the received station, then the scanning resumes.

Memory preset tuning, in which the frequency of up to 10 stations can be stored in the memory. In this mode, you can tune in your favorite station by pushing its station button.

The settings of the MUTING/MODE button and DISTANT button can also be memorized for each station.

The SCAN/READ button allows you to scan the preset stations only.

FUNCTION OF CONTROLS



Each number in the text is keyed to that of the photo and illustration on above.

1 POWER switch

Depress to turn on the power. To turn the power off, press the switch again.

2 PROGRAM switch

To use the program function, set this switch to ON. For ordinary use, be sure to keep the switch in the OFF position.

3 DISTANT button

Used to select the FM usable selectivity. When an interference occurs due to nearby station, press this button so that the DISTANT indicator lights. In the AM mode, this button is used to change the frequency response of the received sound. When the high-frequency sound is noticeable, press this button so that the DISTANT indicator lights.

4 MUTING/MODE button

This button serves a dual purpose: it is a muting switch and FM mode selector. To tune in a strong FM station, press the button so that the MUTING indicator lights up. In this mode, the muting circuit will be activated to eliminate interstation noise while tuning and the FM station will be received in stereo mode.

When you want to tune in a very weak FM station, press the button again so that the MUTING indicator goes off. The muting circuit will be deactivated and the FM station is received in monaural mode. In this mode, keep the amplifier volume down to avoid speaker damage caused by interstation noise during tuning.

5 Station preset buttons and station identification windows

To call up a memorized station, press the appropriate button. Station labels (supplied) can be placed in these windows.

6 TUNING MODE button

Selects a tuning system—MANUAL, AUTO or SWEEP. The selected tuning system will be indicated in the display window.

7 Band selector

Selects the desired band. The selected band will be indicated in the band/frequency-display window.

8 TUNING button

Press the left side [-] to go to a lower frequency and the right side [+] to go to a higher.

During automatic tuning: Press to start automatic frequency scanning. The frequencies below or above that shown on the display window will be scanned automatically until a signal is received. To resume scanning, press the button again.

During sweep tuning: Press to scan the entire band. When a signal is received, the scanning will stop for a few seconds while the SWEEP indicator flashes, then resume scanning automatically until the next signal is received. This operation will be repeated until you press the MEMORY/SET button.

During manual tuning: Keep pressed to change the frequency continuously until the desired frequency is received. The frequency figures will change rapidly. Successively press and immediately release the button to change the frequency slowly.

9 MEMORY/SET button

This button has a dual purpose. With the PROGRAM switch set to OFF, it works as a MEMORY button and with the PROGRAM switch set to ON, as a program SET button.

MEMORY button: Press to memorize the tuned station to a station preset button. The MEMORY indicator will appear in the frequency display window for a few seconds indicating that the preset memory circuit is standing by.

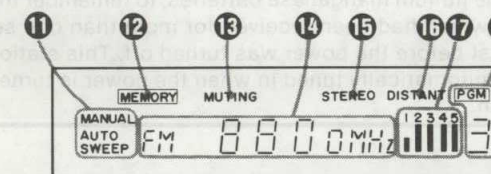
SET button: Press to program the preset stations in the desired order. The MEMORY indicator will appear indicating that the program circuit is standing by.

10 SCAN/READ button

This button has a dual purpose. With the PROGRAM switch set to OFF, it works as a memory SCAN button and with the PROGRAM switch set to ON, as a program READ button.

SCAN button: Press to automatically scan the stations memorized on the station preset buttons.

READ button: By pushing this button, the programmed station order can be checked.

**Display window****11 Tuning mode indicators**

The tuning system selected by the TUNING MODE button is displayed.

12 MEMORY indicator

When the MEMORY/SET button is pressed, the MEMORY indicator will appear for a few seconds indicating that the memory circuit is standing by.

13 MUTING indicator

This indicator illuminates when the MUTING/MODE button is pressed in FM reception.

14 Band/frequency-display

Permits reading the received frequency at a glance from the figures.

15 STEREO indicator

This indicator will light when an FM stereo program of sufficient signal strength is tuned in with the MUTING/MODE button pressed.

16 DISTANT indicator

When the DISTANT button is pressed, this indicator lights to indicate that the distant function is activated.

17 Signal indicator

Indicates the strength of the tuned signal by the amount of indicator illumination.

18 PGM (program) indicator

With the PROGRAM switch set to ON, the PGM indicator lights and the order in the programmed sequence of the station being received is displayed here.

MANUAL TUNING

- Depress the POWER switch (ON).
- Set the PROGRAM switch to OFF.
- Select the desired band with the band selector.
- For FM reception, press the MUTING/MODE button so that the MUTING indicator illuminates. To tune in a very weak station, see below.
- Press the TUNING MODE button so that the MANUAL indicator appears.
- Tune in the desired station with the TUNING button, observing the STEREO indicator (in FM reception), the signal indicator and the band/frequency-display.
- Adjust the volume and tone of the amplifier.

When the frequency figures reach the end of the tuning range of each band, the frequency will then be scanned from the opposite end of the tuning range.

To tune in a weak or noisy station

When FM stereo signals are noisy, or to tune in a very weak FM station, lower the volume and disengage the MUTING/MODE button by pressing it again. The MUTING indicator will go out. This will result in better reception, at the sacrifice of the stereo effect.

To prevent interference due to nearby stations in FM mode

Press the DISTANT button so that the DISTANT indicator lights. The selectivity is improved, resulting in better reception.

AUTOMATIC TUNING (FM only)

- 1 Depress the POWER switch (ON).
- 2 Set the PROGRAM switch to OFF.
- 3 Select the desired band with the band selector.
- 4 For FM reception, press the MUTING/MODE button so that the MUTING indicator appears.
- 5 Press the TUNING MODE button so that the AUTO indicator appears.
- 6 Press the TUNING button. Automatic frequency scanning will stop when a signal is received. If the signal received is not the desired one, press the TUNING button again.
- 7 Adjust the volume and tone of the amplifier.

SWEEP TUNING (FM only)

- 1 Depress the POWER switch (ON).
- 2 Set the PROGRAM switch to OFF.
- 3 Select the desired band with the band selector.
- 4 For FM reception, press the MUTING/MODE button so that the MUTING indicator appears.
- 5 Press the TUNING MODE button so that the SWEEP indicator appears.
- 6 Press the TUNING button. When a signal is received, scanning will stop and the SWEEP indicator flashes, so the received station can be heard for a few seconds, after which scanning resumes. To stop sweep tuning, press the MEMORY/SET button.
- 7 Adjust the volume and tone of the amplifier.

During automatic tuning or sweep tuning, if the signal strength is weak, the band/frequency-display figures will not stop at the desired frequency. When this happens, adjust the antenna for optimum reception. If the signal strength is still too weak for automatic tuning, tune in the station as described in "MANUAL TUNING".

MEMORY PRESET TUNING

Once the frequencies of the stations you want to tune in are memorized, all you have to do is push a button.

For each station preset button, you can memorize an FM, an AM (MW or an LW) station in any desired sequence. A total of 10 stations can be memorized.

TO MEMORIZE STATION FREQUENCIES

- 1 Tune in the desired station following the procedure described in "MANUAL TUNING", "AUTOMATIC TUNING" or "SWEEP TUNING". Set the MUTING/MODE button and DISTANT button according to the reception condition. The settings of these buttons are also memorized.
- 2 Press the MEMORY/SET button, and while the MEMORY indicator is illuminated, press the desired station preset button.

The MEMORY indicator will go out. Then the frequency is memorized.

Repeat these steps for each station preset button.

Press each preset button to check a memorized frequency.

Notes

- Even when the setting of the MUTING/MODE button or DISTANT button is changed, the original settings of these buttons are maintained in the memory.
- The MEMORY indicator will go off automatically after a few seconds. When the indicator is out, the memory circuit does not operate to memorize the station.
- The previous memory will be erased when a new frequency is committed to the memory of the same button. An erasure cannot be made without a new input.

TO RECEIVE A MEMORIZED STATION

Turn the POWER switch on, and simply press the desired station preset button.

Memory of the last received station

This tuner includes a memory circuit, which is backed up by the lithium manganese batteries, to remember the station which had been received for more than one second just before the power was turned off. This station will be automatically tuned in when the power is turned on again.

MEMORY SCANNING

With the PROGRAM switch set to OFF, the SCAN/READ button allows you to quickly hear what kind of programs are being broadcast by the preset station.

When you press the SCAN/READ button, the memorized stations are automatically received in order for a few seconds each. Pushing a particular station preset button stops the scanning. The scanning sequence will be shown by the flickering of the lamp in the station identification window above the station preset button.

PROGRAM FUNCTION

With the PROGRAM switch ON, memorized stations can be received in any order you desire, the stations changing each time the power is turned off and on.

When a timer is connected, the Program Function allows you to listen to or record a whole sequence of broadcasts by different stations at different times. For example, if the stations memorized on the station preset buttons 2 and 3 are programmed in this order and if the timer is set so that the power will be turned on at 8:00 a.m. for the first time, turned off at 8:30 a.m. and turned on again at 9:00 a.m., Station 2 will be received at 8:00 a.m. and Station 3 will be received at 9:00 a.m. automatically.

TO PROGRAM THE PRESET STATIONS

A total of four stations can be programmed in any desired sequence.

- 1 Depress the POWER switch (ON).
- 2 Set the PROGRAM switch to ON.
- 3 Press the MEMORY/SET button, and while the MEMORY indicator is illuminated, press the station preset buttons to be programmed in the desired order. The PGM indicator will show the programmed station.

Notes

- When the MEMORY indicator is out, the program circuit does not operate. (The MEMORY indicator will go off automatically after a few seconds.) If the MEMORY indicator goes out before you finish setting all of the stations to be programmed, press the MEMORY/SET button again to illuminate the MEMORY indicator and press the station preset buttons from the beginning of the sequence.
- Two different stations cannot be received with the Program Function if the power is not turned on and off to change the station. If you want to make a timer-activated recording of one station from 7:30 to 8:00 a.m. and continue recording another station from 8:00 a.m., for example, you should set the timer so that the power will be interrupted at 7:59 and turned on again at 8:00.
- To insure that the data is properly stored in the program circuit, every time the PROGRAM switch is turned ON and every time stations are programmed, wait for a few seconds before turning the PROGRAM switch OFF.
- If you wish to program only two or three stations, press these station preset buttons while the MEMORY indicator is illuminated, then press the MEMORY/SET button again or wait until the indicator goes off.

AFTER THE PROGRAM IS SET

Keep the PROGRAM switch in the ON position. The programmed stations will be recalled in sequence when the power is turned off and on.

When the PROGRAM switch is set to OFF after the program has been set, the station which had been received before the program was set will be recalled again, while the programmed order remains memorized.

To check the sequence of the programmed stations

Push the SCAN/READ button with the PROGRAM switch ON. The programmed stations will be received in order for a few seconds each.

To cancel the programmed stations

When any of the station preset buttons is pressed after the MEMORY/SET button has been pressed with the PROGRAM switch ON, all programmed stations will be cancelled. It is not possible to change only a part of the programmed sequence. A new sequence must be set from the beginning.

To tune in another station when a station is being received with the program function

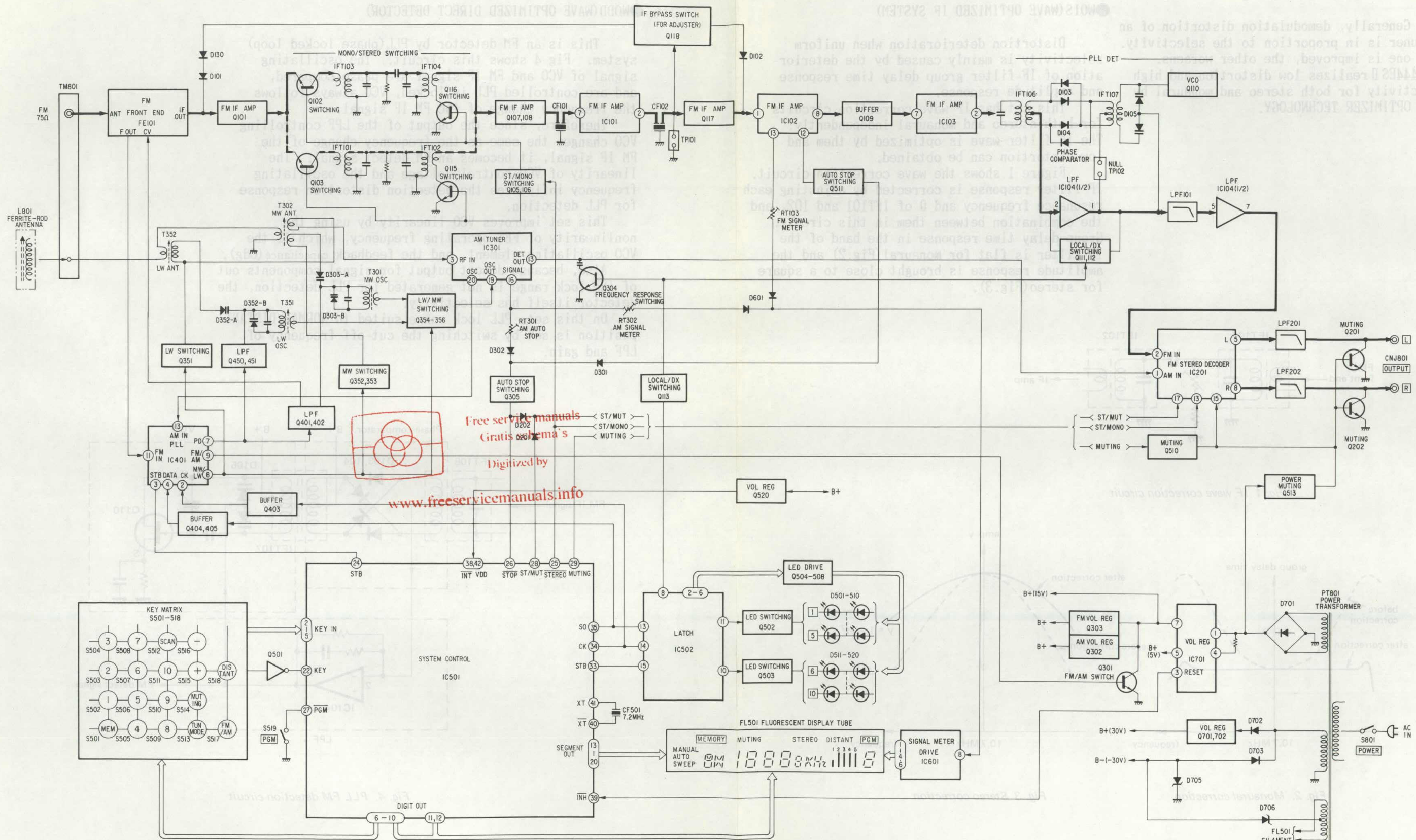
The station preset buttons and the TUNING button are locked when the PROGRAM switch is ON so that the station cannot be accidentally detuned. To change the station, first set the PROGRAM switch to OFF and then tune in the desired station with a station preset button or the TUNING button.

FUNCTION OF CONTROLS

Digitized by WWW.FREESERVICE MANUALS.INFO

ST-S444ES II ST-S444ES II

SECTION 1 BLOCK DIAGRAM



Digitized by WWW.FREESERVICE MANUALS.INFO

SECTION 3
CIRCUIT DESCRIPTION

【 WAVE OPTIMIZER TECHNOLOGY】

Generally, demodulation distortion of an FM tuner is in proportion to the selectivity. When one is improved, the other worsens. ST-S444ES II realizes low distortion and high selectivity for both stereo and monaural by WAVE OPTIMIZER TECHNOLOGY.

●WOIS(WAVE OPTIMIZED IF SYSTEM)

Distortion deterioration when uniform selectivity is mainly caused by the deterioration of IF filter group delay time response and amplitude response.

This set has IF wave correction circuits for both stereo and monaural independently. The IF filter wave is optimized by them and low distortion can be obtained.

Figure 1 shows the wave correction circuit. IF filter response is corrected by adjusting each resonance frequency and Q of IFT101 and 102, and the combination between them in this circuit. Group delay time response in the band of the IF filter is flat for monaural(Fig.2) and the amplitude response is brought close to a square for stereo(Fig.3).

●WODD(WAVE OPTIMIZED DIRECT DETECTOR)

This is an FM detector by PLL(phase locked loop) system. Fig 4 shows this circuit. The oscillating signal of VCO and FM IF signal are phase-compared, and are controlled PLL is locked, VCO always follows the frequency change of the FM IF signal.

Therefore, since the output of the LPF controlling VCO changes the same as the frequency change of the FM IF signal, it becomes an FM detect signal. The linearity of VCO control voltage and the oscillating frequency influences the detection distortion response for PLL detection.

This set improves VCO linearity by using the nonlinearity of FET operating frequency, which is the VCO oscillating element, and the feedback capacitance(Cdg).

Also, because detect output for signal components out of the lock range is not generated for PLL detection, the detector itself has selectivity.

On this set, PLL lock range suited to NORMAL/DISTANT position is set by switching the cut-off frequency of LPF and gain.

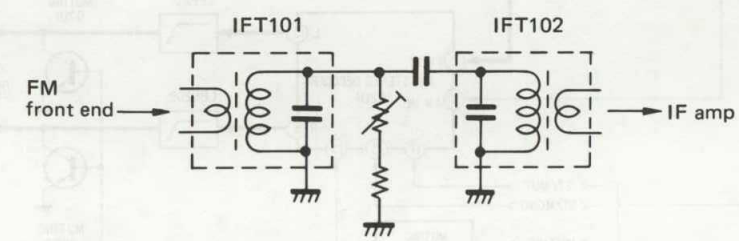


Fig. 1 IF wave correction circuit

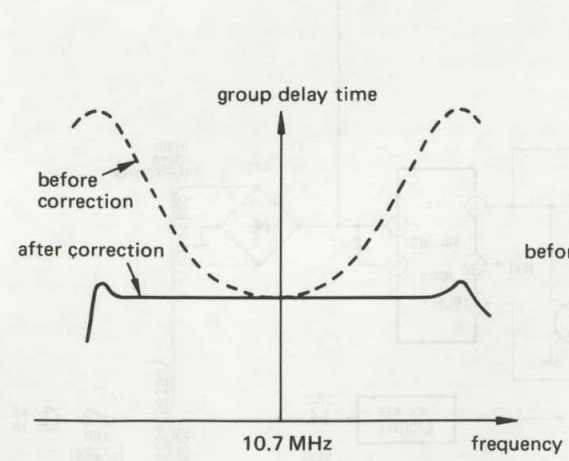


Fig. 2. Monaural correction

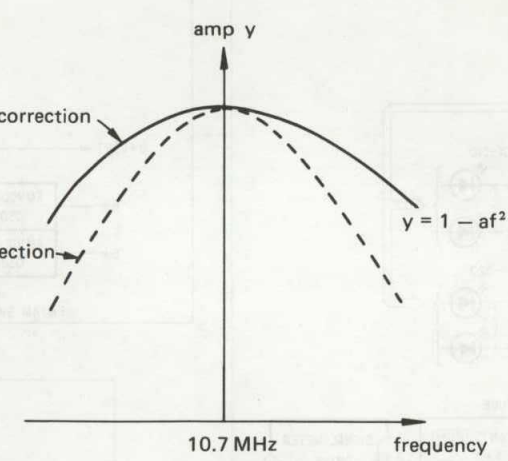


Fig. 3 Stereo correction

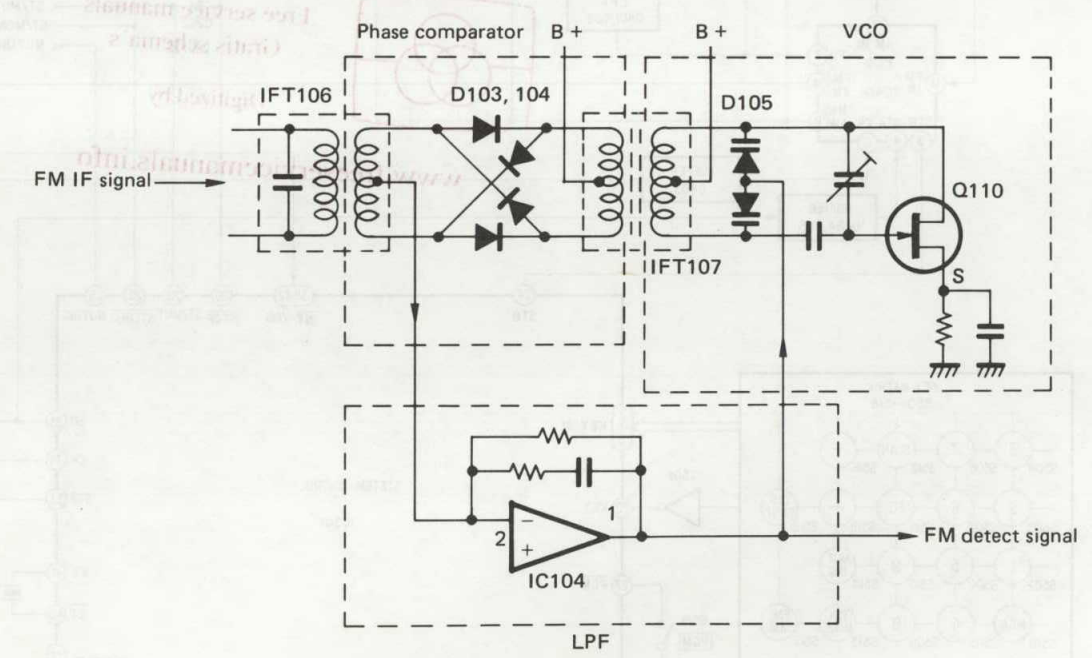


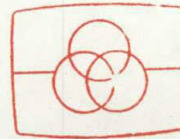
Fig. 4. PLL FM detection circuit

Digitized by WWW.FREESERVICE MANUALS.INFO

[IC501 (SYSTEM CONTROL IC) PIN FUNCTIONS]

IC501 (TC9303N-006) is a system control IC.

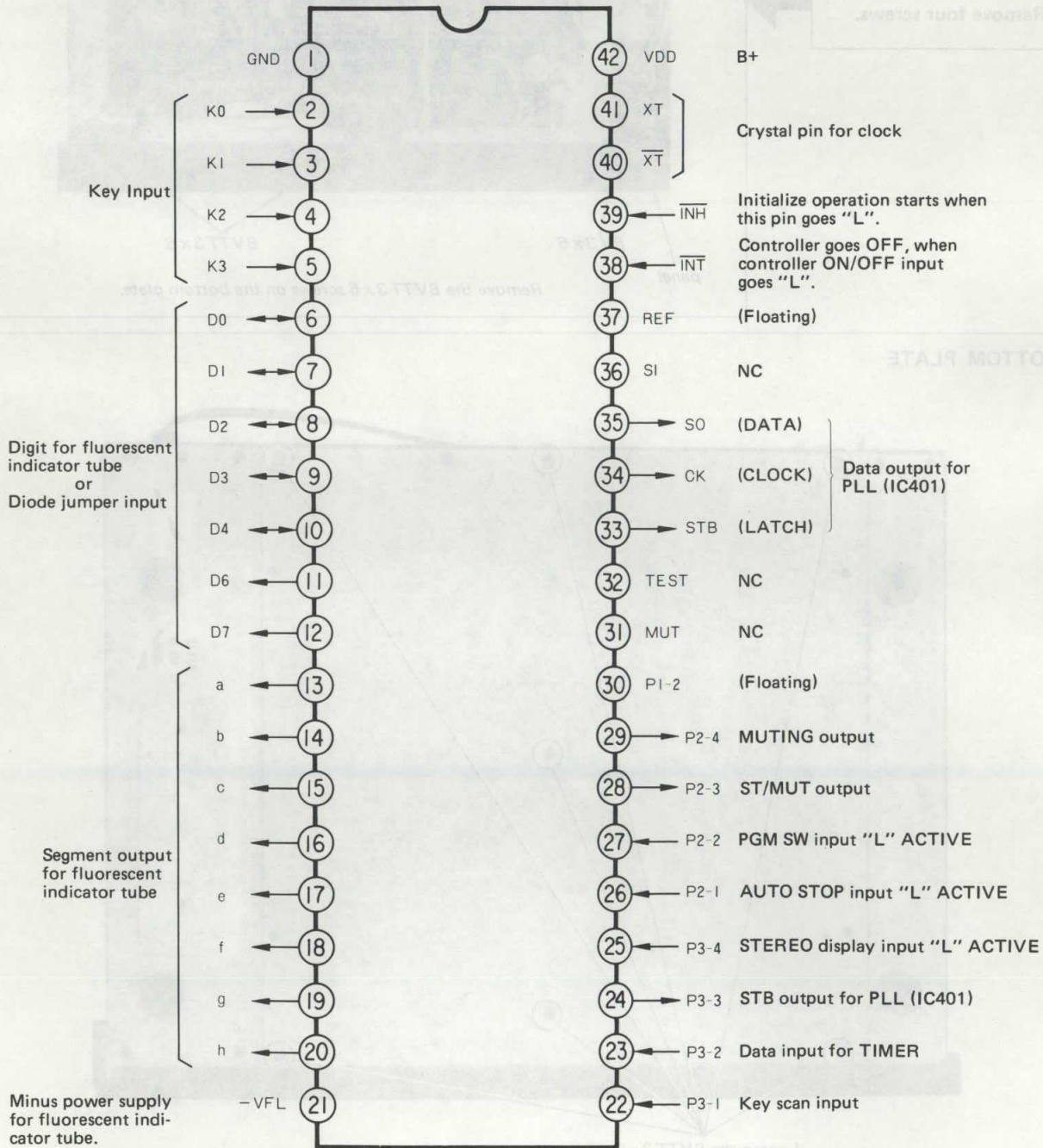
- Main Functions:
- Key input detection.
 - Data generation for PLL Synthesizer (IC401).
 - Fluorescent indicator tube (FL501) drive
 - Preset, program memory



Free service manuals
Gratis schema's

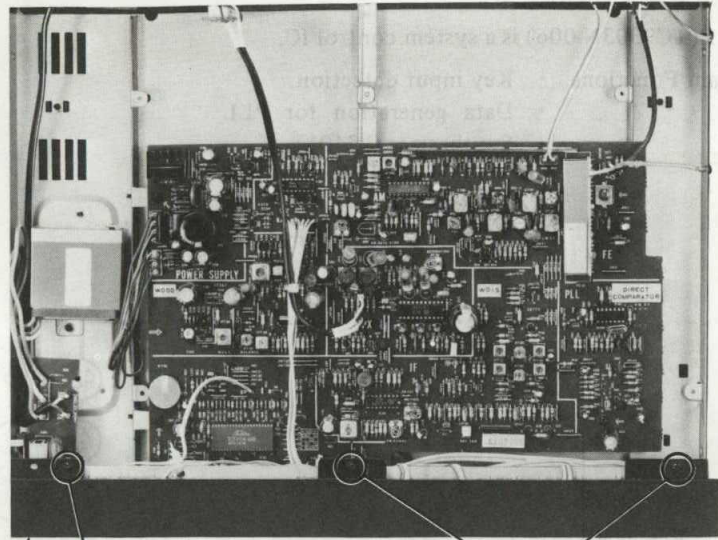
Digitized by

www.freesevicemanuals.info



SECTION 2 DISASSEMBLY

PANEL



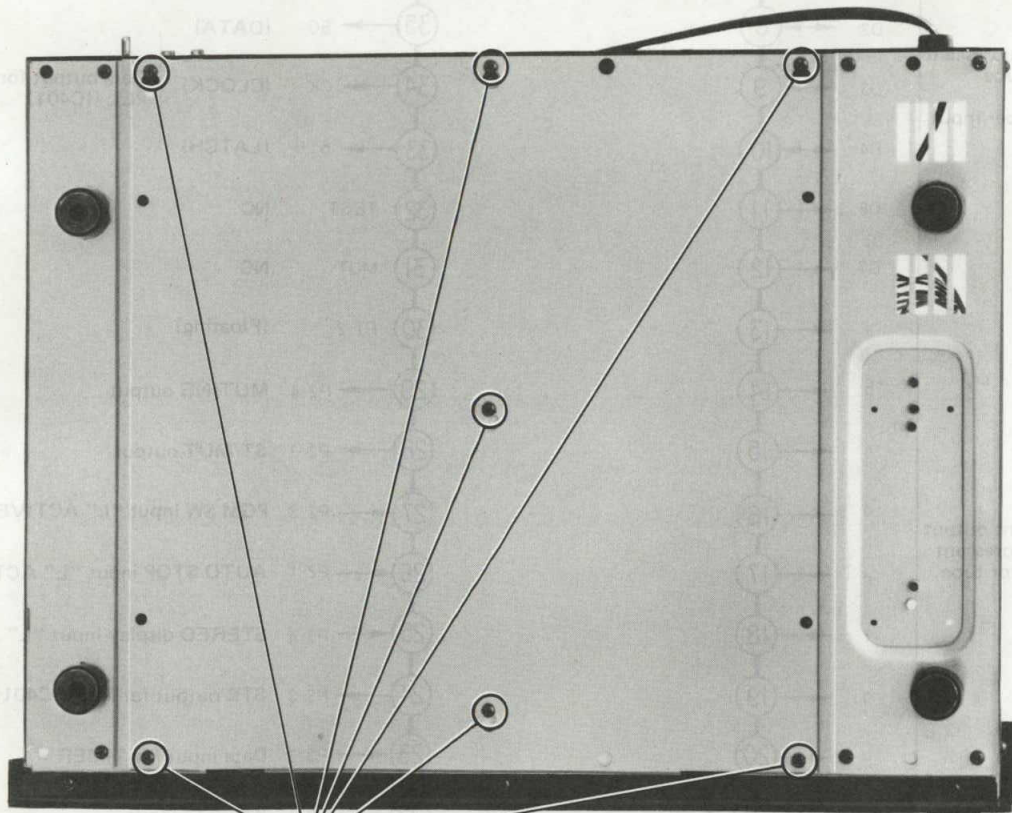
CASE
 • Remove four screws.

BV 3 x 6
 panel

BVTT 3 x 6

Remove the BVTT 3 x 6 screws on the bottom plate.

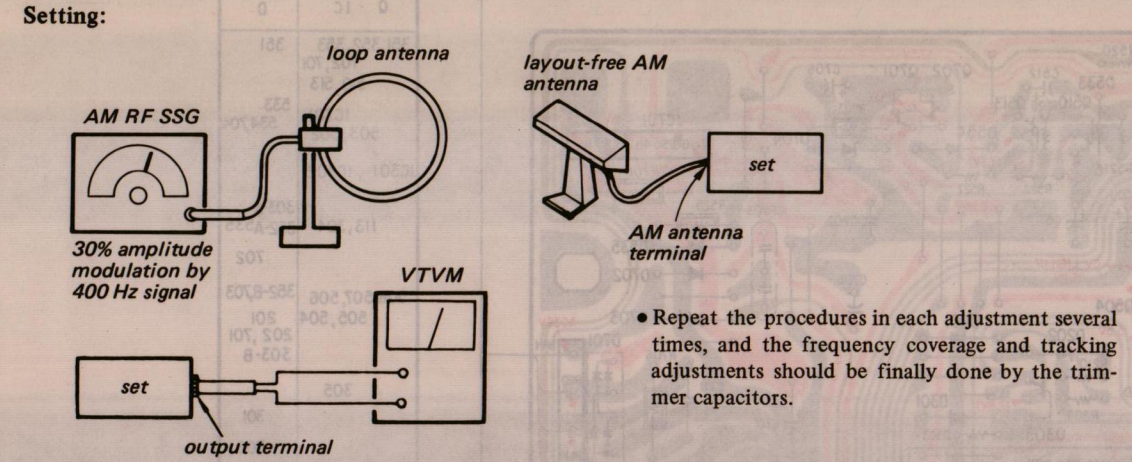
BOTTOM PLATE



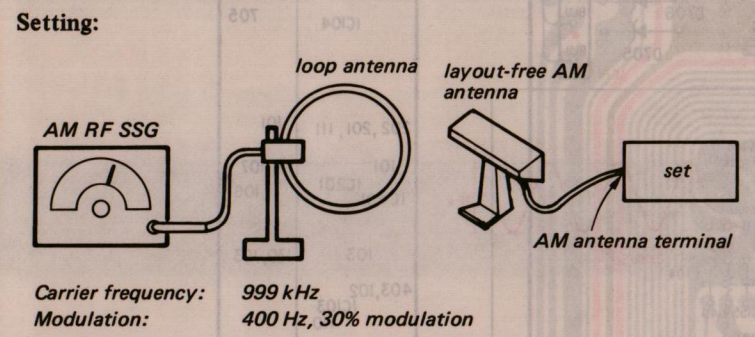
Loosen the BVTT 3 x 6 screws.

SECTION 3 ADJUSTMENTS

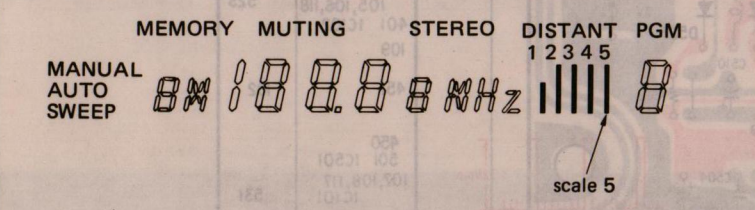
AM SECTION



AM Meter Level Adjustment



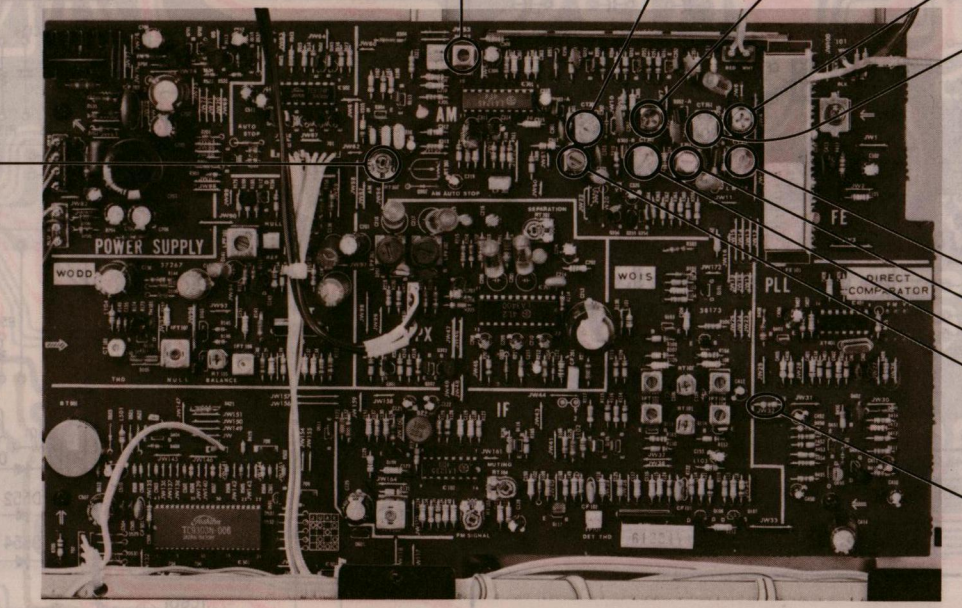
- Procedure:**
1. Set AM RF signal generator so that the AM antenna input level becomes 94 dB (μV/m).
 2. Turn RT302 until the scale 5 on signal indicator lights up.



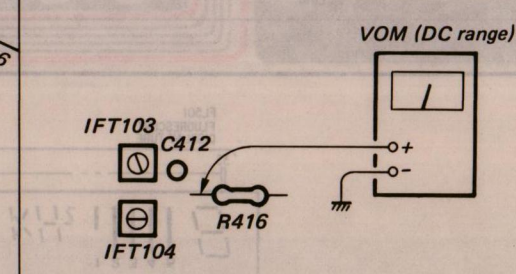
AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
450 kHz	IFT301

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
1,404 kHz	CT301
603 kHz	T302

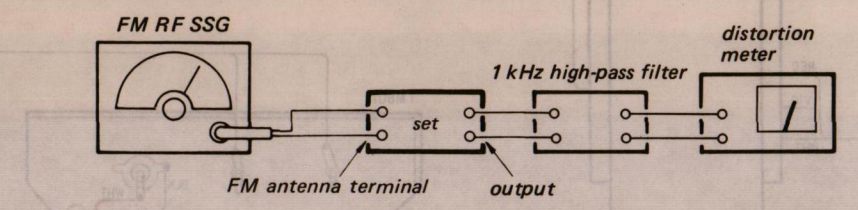
LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
170 kHz	T352
310 kHz	CT351



AM FREQUENCY COVERAGE ADJUSTMENT			
	Adjustment Location	Frequency	VOM reading
LW	CT352	344 kHz	18.5 V ± 0.1 V
	T351	153 kHz	2.2 V ± 0.1 V
MW	CT302	1,602 kHz	22 V ± 0.1 V
	T301	531 kHz	1.8 V ± 0.1 V



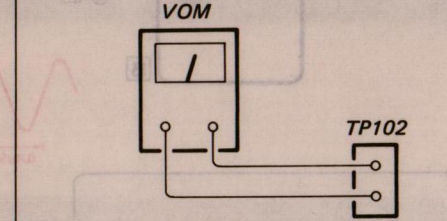
FM SECTION



FM STEREO STANDARD SIGNAL	FM MONAURAL STANDARD SIGNAL
Carrier frequency: 98 MHz Modulation: Audio 1 kHz, 16.25 kHz deviation (40.6%) Sub-channel 38 kHz, 16.25 kHz deviation (40.6%) Pilot 19 kHz, 7.5 kHz deviation (10%)	Carrier frequency: 98 MHz Modulation: 1 kHz, 40 kHz deviation (100%)

Phased Lock Loop Detect Adjustment

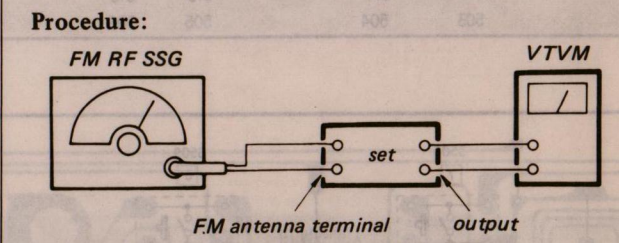
Receiving frequency: 98 MHz
DISTANT switch: OFF
MUTING/MODE switch: OFF



1. Short-circuit TP101 to the ground.
2. Put off the SSG (monaural modulation) output and adjust RT105 for 0 V reading on VOM (TP102).
3. Set the SSG output to 80 dB (μV).
4. Adjust IFT107 for 0 V reading on VOM (TP102).
5. Adjust CT101 for the minimum distortion ratio.
6. Repeat the step 4 and 5 several times.
7. Remove the short-circuit of TP101.

Muting Width Adjustment

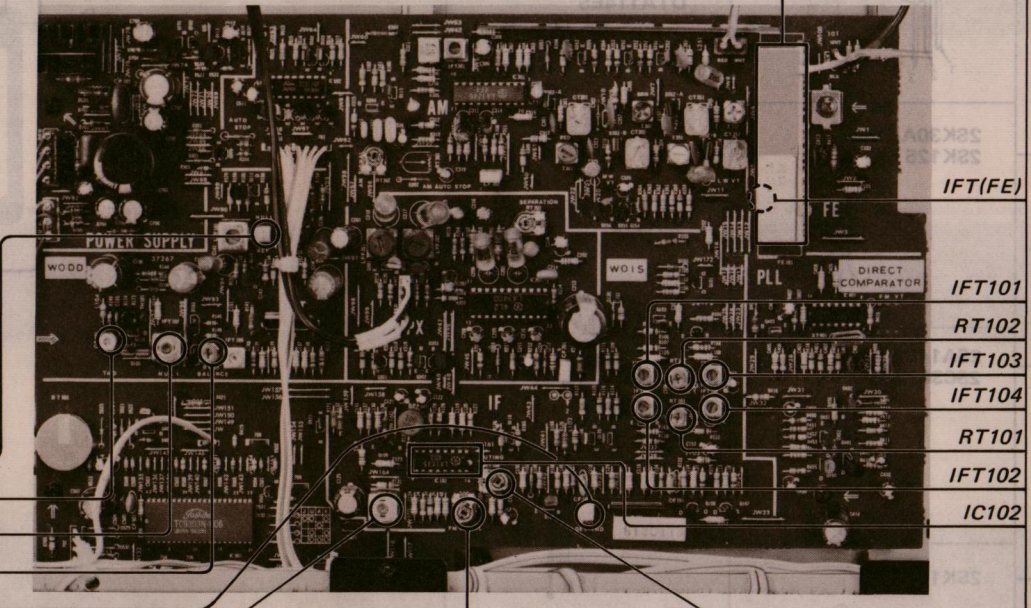
Setting:
DISTANT switch: OFF
MUTING/MODE switch: ON
Receiving frequency: 98 MHz



1. Increase the frequency of FM RF SSG 50 kHz more than that of the receiving frequency and adjust IFT105 to obtain output.
2. Decrease the frequency of FM RF SSG 50 kHz less than the receiving frequency and make sure to obtain output.
3. Repeat step 1 and 2, then adjust IFT105 to obtain output when increasing or decreasing the frequency of FM RF SSG by the same amount.

Servicing Precaution

The front-end section has been carefully adjusted at the factory. When it is worn out, be sure to exchange it all with new section, because it is difficult to repair.

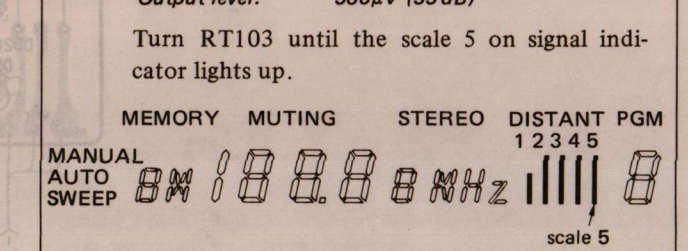


FM Meter Level Adjustment

Setting:
DISTANT switch: OFF

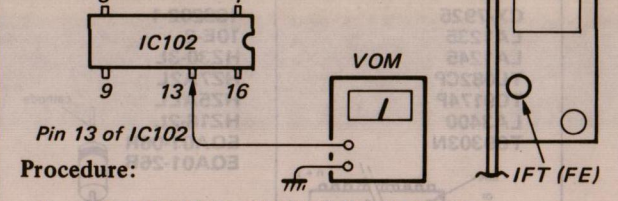
Procedure:

Carrier frequency: 98 MHz
Modulation: No modulation
Output level: 560 μV (55 dB)



IF Distortion Adjustment

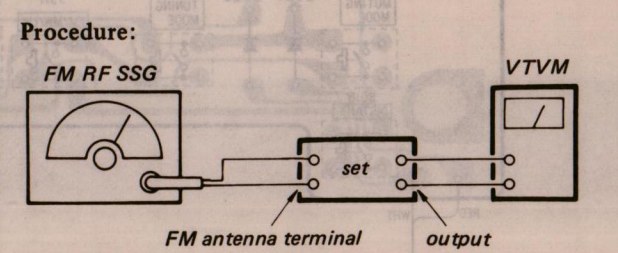
Setting:
Receiving Frequency: 98.0 MHz
DISTANT switch: OFF
MUTING/MODE switch: OFF



- Procedure:**
1. Turn RT101 and 102 fully clockwise.
 2. Set the SSG (monaural) output to the weak input (about 20 dB (μV)) and put off the MUTING/MODE switch. Then adjust IFT102 for the maximum reading on VOM.
 3. Adjust IFT (FE) for the maximum reading on VOM.
 4. Set the SSG output to 80 dB (μV).
 5. Adjust IFT101 and RT101 alternately for the minimum distortion.
 6. Set the SSG output to the weak input (about 20 dB (μV)) and put on the MUTING/MODE switch. Then adjust IFT104 for the maximum reading on VOM.
 7. Set the SSG output to 80 dB (μV) at stereo modulation mode.
 8. Adjust IFT103, RT102 alternately for the minimum distortion.

FM Muting Level Adjustment

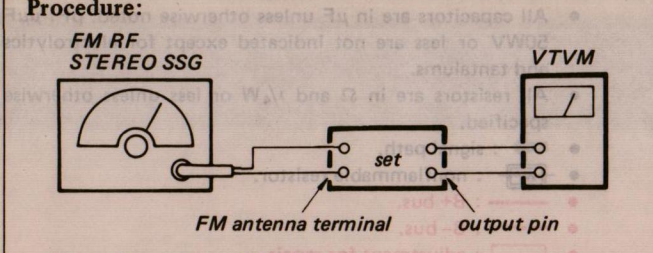
Setting:
DISTANT switch: OFF
MUTING/MODE switch: ON



1. Tune the set to 83 MHz by pushing the TUNING (+, -) button.
2. Adjust RT104 for instantaneous 0 V reading on VTVM.

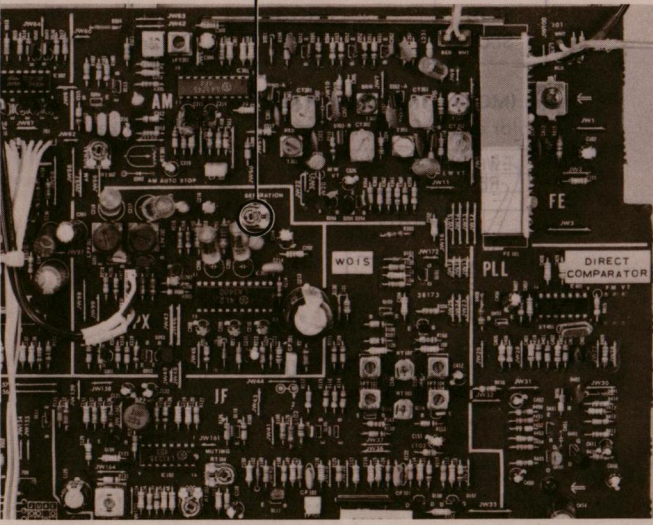
FM Stereo Separation Adjustment

Setting:
DISTANT switch: OFF
MUTING/MODE switch: ON



FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	(B) Adjust RT201 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RT201 for minimum reading.

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



SECTION 4
DIAGRAMS

- Note: (SCHEMATIC DIAGRAM)**
- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
 - : signal path.
 - : nonflammable resistor.
 - : B+ bus.
 - : B- bus.
 - : adjustment for repair.
 - : Voltage are dc with respect to ground unless otherwise noted.
 - Readings are taken under no-signal (detuned) conditions with VOM (50 k Ω /V).
no mark: FM
(): MW
< > : LW
 - Voltage variations may be noted due to normal production tolerances.
 - Waveforms are taken to ground in no signal mode by using oscilloscope.
 - Voltage variations may be noted due to normal production tolerances.

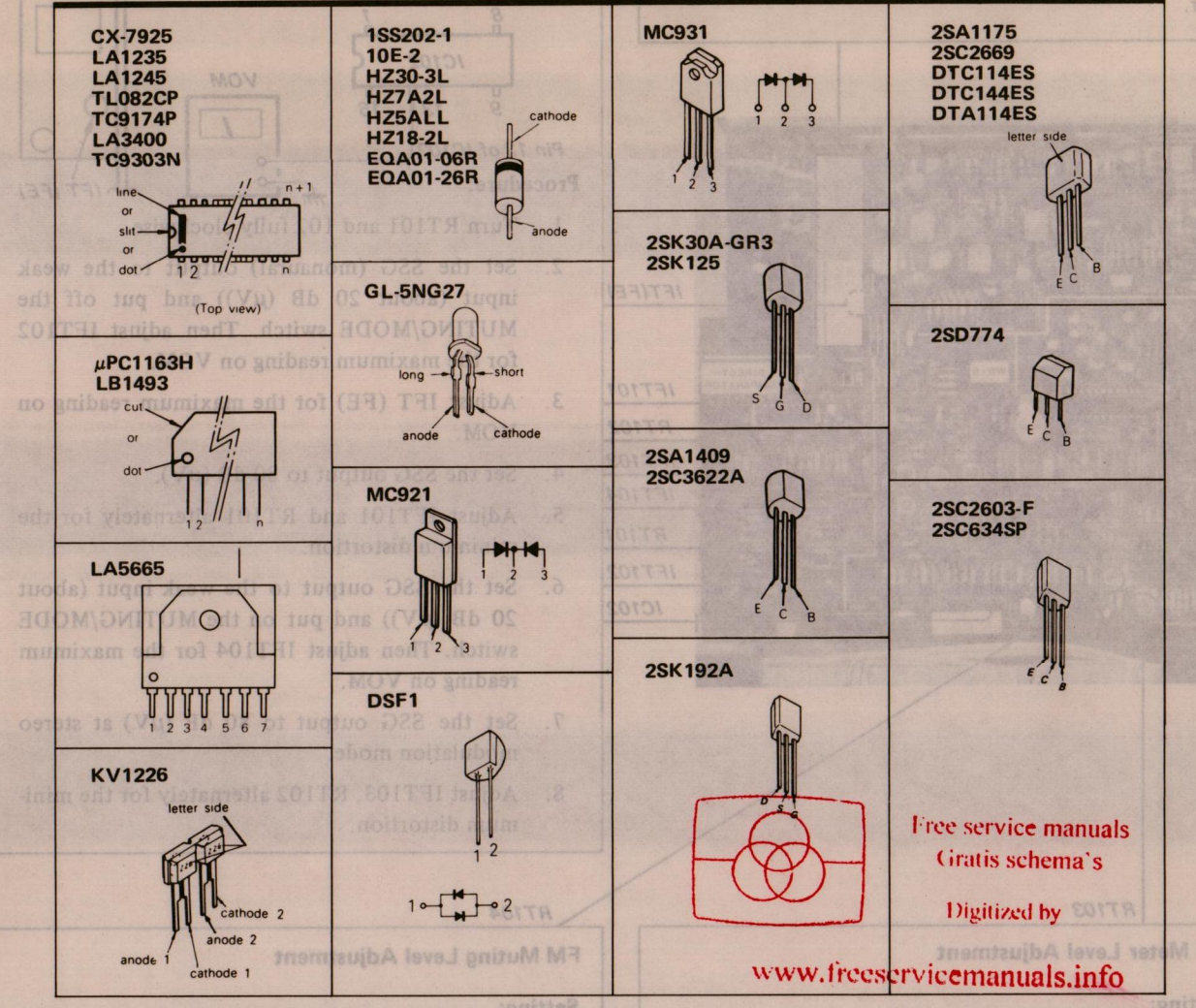
Switches

Ref. No.	Switch	Position
S501	MEMORY SET	OFF
S502	PRESET 1	OFF
S503	PRESET 2	OFF
S504	PRESET 3	OFF
S505	PRESET 4	OFF
S506	PRESET 5	OFF
S507	PRESET 6	OFF
S508	PRESET 7	OFF
S509	PRESET 8	OFF
S510	PRESET 9	OFF
S511	PRESET 10	OFF
S512	SCAN READ	OFF
S513	TUNING MODE	OFF
S514	MUTING MODE	OFF
S515	TUNING \oplus	OFF
S516	TUNING \ominus	OFF
S517	FM/MW/LW	OFF
S518	DISTANT	OFF
S519	PROGRAM	OFF
S801	POWER	OFF

- Note: (MOUNTING DIAGRAM)**
- Color code of sleeving over the end of the jacket.
 - : parts extracted from the component side.
 - : indicates side identified with part number.
 - : signal path
 - : L-CH signal path
 - : R-CH signal path
 - : B+ pattern
 - : B- pattern

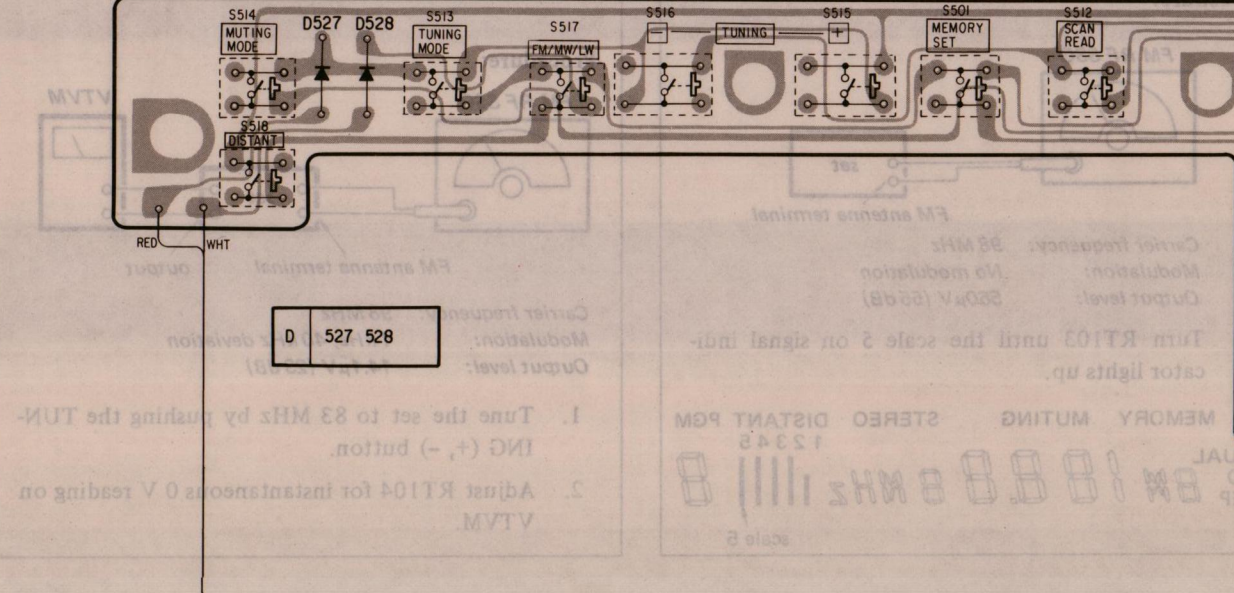
4-1. MOUNTING DIAGRAM

• Semiconductor Lead Layouts

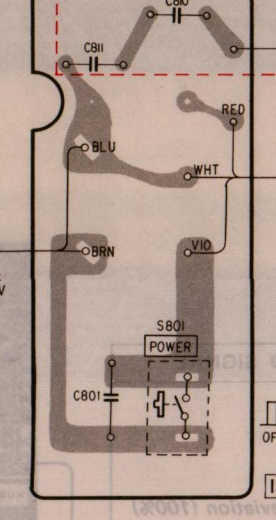


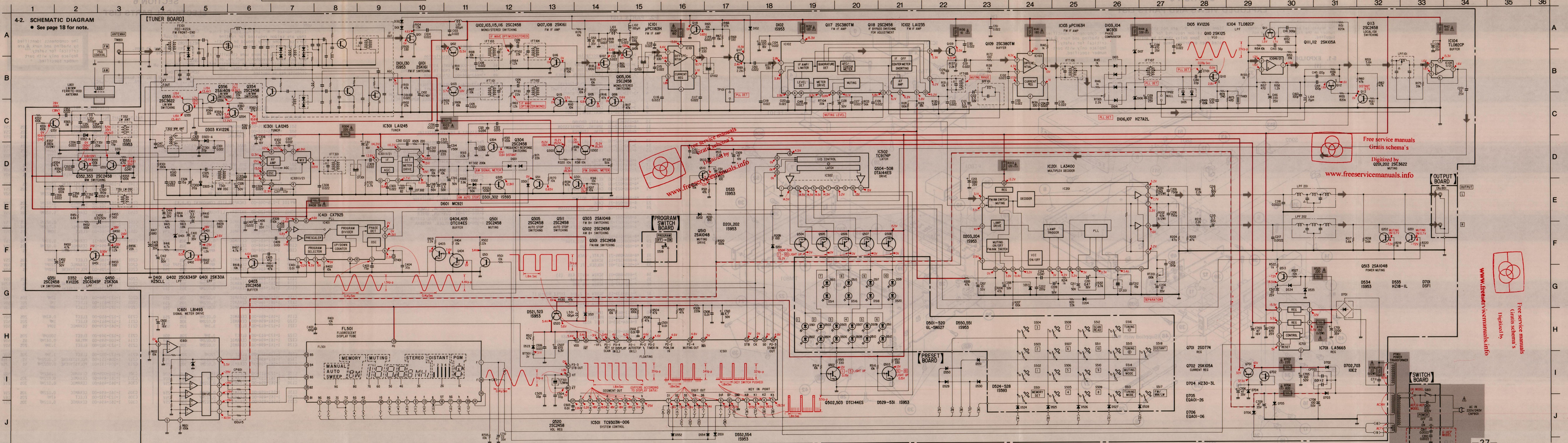
Free service manuals
Gratis schema's
Digitized by
www.freeservicemanuals.info

[PRESET BOARD]



[AC SW BOARD]





Free service manuals
 Digitized by
www.freeservicemanuals.info

Free service manuals
 Gratis schema's
 Digitized by
www.freeservicemanuals.info

Free service manuals
 Gratis schema's
 Digitized by
www.freeservicemanuals.info

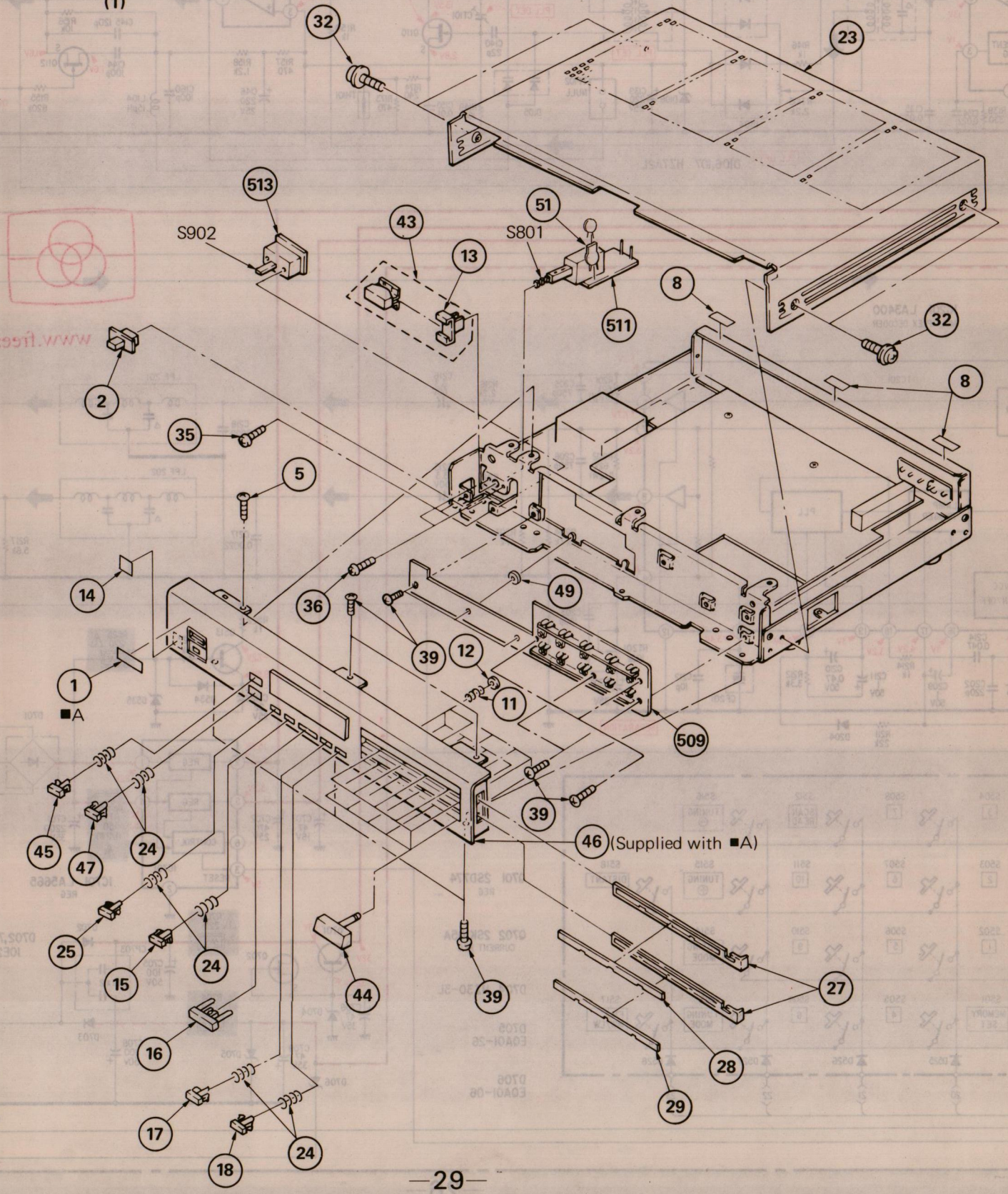
SECTION 5
EXPLODED VIEWS AND PARTS LIST

NOTE:
The mechanical parts with no reference number in the exploded views are not supplied.

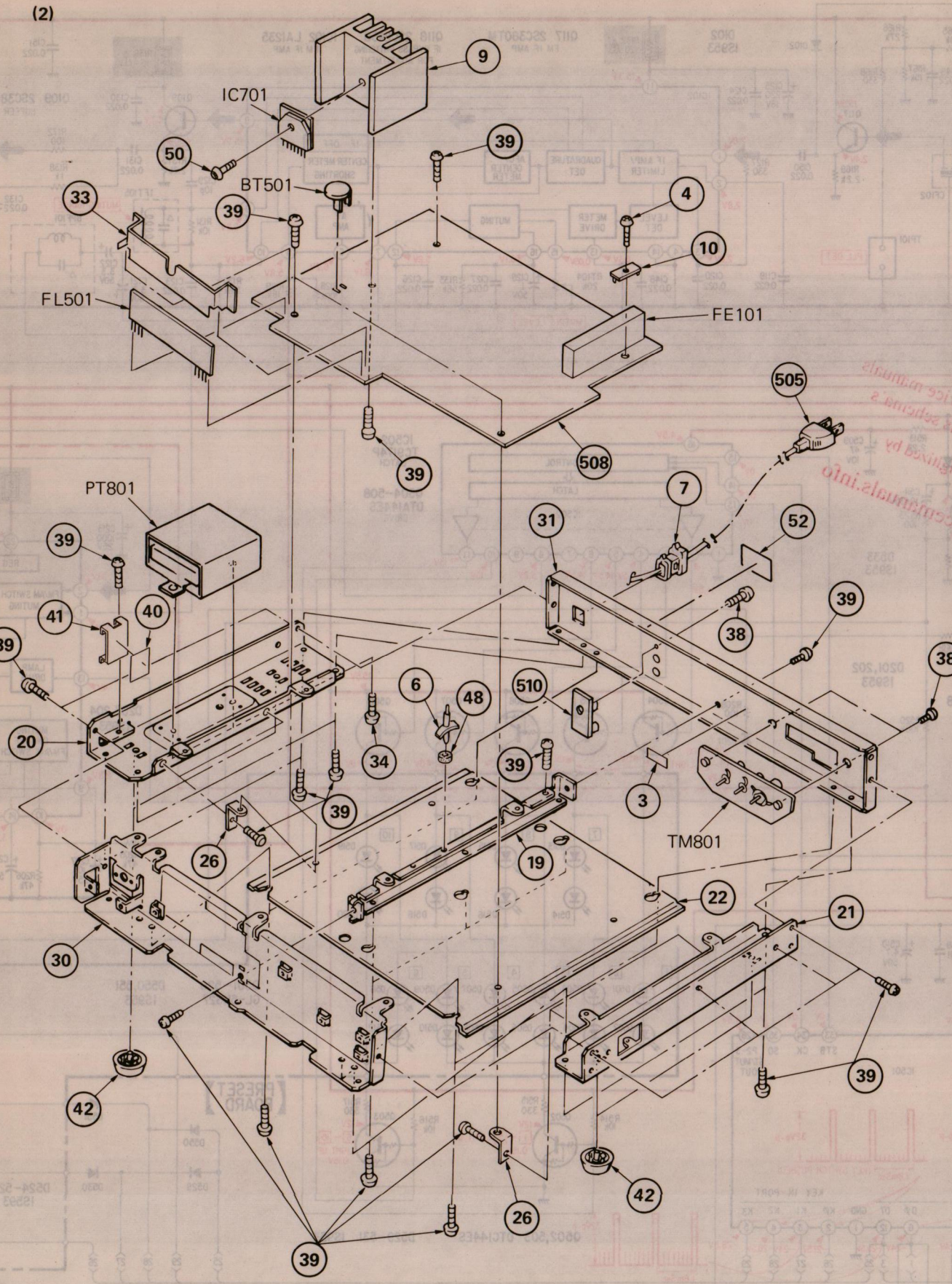
Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

5-1. EXPLODED VIEWS
(1)



(2)



5-2. PARTS LIST

GENERAL SECTION		
No.	Part No.	Description
1	3-304-974-01	EMBLEM, SONY
2	3-575-515-21	KNOB, SLIDE SWITCH
3	*3-701-030-00	LABEL, SERIAL NUMBER
4	3-701-589-00	SCREW, SELF-TAPPING
5	3-703-108-21	SCREW +BV 3X6, S TIGHT
6	*3-703-353-05	SUPPORT, PC BOARD
7	3-703-244-00	BUSHING (2104), CORD
8	3-831-441-XX	CUSHION, SPEAKER
9	*4-363-146-11	HEAT SINK, V.OUT
10	*4-835-639-00	PLATE, GROUND
11	4-854-743-00	SPRING, COMPRESSION
12	4-862-338-00	RING, STOPPER
13	4-866-342-00	JOINT (B), KNOB
14	3-703-713-41	STICKER, SONY SYMBOL (10)
15	4-886-084-21	KNOB (B), SQUARE
16	4-886-003-00	KNOB, TUNING
17	4-886-004-01	KNOB (C), SQUARE
18	4-886-004-11	KNOB (C), SQUARE
19	*4-886-015-00	REINFORCEMENT
20	*4-886-022-00	CHASSIS (LEFT)
21	*4-886-023-00	CHASSIS (RIGHT)
22	*4-886-025-00	PLATE, BOTTOM
23	4-886-026-21	CASE
24	4-886-032-00	SPRING, COMPRESSION
25	4-886-084-11	KNOB (B), SQUARE
26	*4-886-087-01	BRACKET, PC BOARD
27	4-886-088-01	HOLDER, INDICATOR
28	*4-908-015-01	LABEL, INDICATOR
29	*4-908-016-01	LABEL, INDICATOR
30	*4-886-094-01	PANEL, SUB
31	*4-886-095-21	PLATE, JACK
32	4-889-321-11	SCREW
33	*4-907-637-01	HOLDER, FL TUBE
34	7-685-880-01	SCREW +BVTT 4X6 (S)
35	7-621-775-10	SCREW +8 2.6X4
36	7-682-647-01	SCREW +PS 3X6
37	7-685-133-19	SCREW +P 2.6X6 TYPE2 NON-SLIT
38	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
39	7-685-751-09	SCREW +BVTT 3X6 (S)
40	9-911-863-XX	INSULATOR
41	*4-884-808-00	PROTECTOR
42	X-4864-303-0	FOOT ASSY
43	X-4885-901-0	KNOB ASSY, POWER
44	X-4886-002-1	KNOB (PRESET) ASSY
45	X-4886-005-1	KNOB (B) ASSY, SQUARE

GENERAL SECTION		
No.	Part No.	Description
46	X-4886-008-1	PANEL ASSY
47	X-4886-007-1	KNOB (B) ASSY, SQUARE
48	*3-642-684-00	SPACER, ARM
49	7-623-954-51	WASHER (FIBER)
50	7-685-872-09	SCREW +BVTT 3X8 (S)
51	4-875-455-01	COVER (DIA. 20), CAPACITOR
52	*4-908-010-01	LABEL, MODEL NUMBER (AE1)

ACCESSORY & PACKING MATERIAL		
Part No.	Description	
1-402-082-11	ANTENNA, FERRITE-ROD (LW/MW/SW)(L801)	
1-417-090-00	TRANSFORMER, ANTENNA MATCHING	
1-501-161-00	ANTENNA, FEEDER	
1-551-734-11	CORD, CONNECTION (RK- 74A)	
3-701-630-00	BAG, POLYETHYLENE	
3-760-468-11	MANUAL, INSTRUCTION	
4-858-078-00	SHEET, PROTECTION	
4-886-064-01	LABEL, INDICATOR	
4-886-065-01	LABEL, INDICATOR	
4-886-071-01	CUSHION, LOWER	
4-886-072-01	CUSHION, UPPER	
4-886-097-01	INDIVIDUAL CARTON	
4-905-237-01	HOLDER, ANTENNA	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:µF, PF:µµF.
RESISTORS
All resistors are in ohms.
F : nonflammable

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS				
Ref.No.	Part No.	Description		
501	*1-535-115-00	TERMINAL		
502	*1-535-116-00	TERMINAL		
503	*1-535-117-00	TERMINAL		
504	*1-535-140-00	BASE POST 19MM (10MM PITCH) 3P		
505	*1-555-795-00	(AEF)....CORD, POWER		
506	1-535-416-00	TERMINAL		
507	*1-560-242-71	BUS BAR 6P		
508	*A-4351-455-A	MOUNTED PCB, TUNER		
509	*1-614-284-11	PC BOARD, PRESET		
510	*1-614-285-11	PC BOARD, OUTPUT		
511	*1-614-286-11	PC BOARD, AC SW		
513	*1-614-288-11	PC BOARD, PGM SW		
BPF101	1-235-046-00	ENCAPSULATED COMPONENT (B.P.F)		
BT501	1-528-120-00	BATTERY, LITHIUM (CR-2025)		
C101	1-161-494-00	CERAMIC	0.022MF	30% 25V
C102	1-123-332-00	ELECT	47MF	20% 16V
C103	1-161-494-00	CERAMIC	0.022MF	30% 25V
C104	1-161-494-00	CERAMIC	0.022MF	30% 25V
C105	1-161-494-00	CERAMIC	0.022MF	30% 25V
C106	1-102-504-00	CERAMIC	4PF	0.25PF 50V
C108	1-161-494-00	CERAMIC	0.022MF	30% 25V
C109	1-102-504-00	CERAMIC	4PF	0.25PF 50V
C112	1-161-494-00	CERAMIC	0.022MF	30% 25V
C113	1-161-494-00	CERAMIC	0.022MF	30% 25V
C114	1-161-494-00	CERAMIC	0.022MF	30% 25V
C115	1-161-494-00	CERAMIC	0.022MF	30% 25V
C116	1-161-494-00	CERAMIC	0.022MF	30% 25V
C117	1-161-494-00	CERAMIC	0.022MF	30% 25V
C118	1-161-494-00	CERAMIC	0.022MF	30% 25V
C119	1-161-494-00	CERAMIC	0.022MF	30% 25V
C120	1-161-494-00	CERAMIC	0.022MF	30% 25V
C121	1-123-613-00	ELECT	3.3MF	20% 50V
C122	1-123-613-00	ELECT	3.3MF	20% 50V
C123	1-161-494-00	CERAMIC	0.022MF	30% 25V
C124	1-161-494-00	CERAMIC	0.022MF	30% 25V
C125	1-123-321-00	ELECT	220MF	20% 16V
C126	1-161-494-00	CERAMIC	0.022MF	30% 25V
C127	1-161-494-00	CERAMIC	0.022MF	30% 25V
C128	1-123-611-00	ELECT	1MF	20% 50V
C129	1-161-494-00	CERAMIC	10PF	5% 50V
C130	1-161-494-00	CERAMIC	0.022MF	30% 25V
C131	1-161-494-00	CERAMIC	0.022MF	30% 25V
C132	1-161-494-00	CERAMIC	0.022MF	30% 25V
C133	1-161-494-00	CERAMIC	0.022MF	30% 25V

ELECTRICAL PARTS				
Ref.No.	Part No.	Description		
C134	1-161-494-00	CERAMIC	0.022MF	30% 25V
C135	1-161-494-00	CERAMIC	0.022MF	30% 25V
C136	1-123-333-00	ELECT	100MF	20% 25V
C138	1-124-085-00	ELECT	470MF	20% 25V
C139	1-123-334-00	ELECT	220MF	20% 25V
C140	1-102-514-00	CERAMIC	22PF	5% 50V
C141	1-103-712-11	POLYSTYRENE	300PF	5% 50V
C143	1-161-268-00	CERAMIC	56PF	5% 50V
C144	1-103-701-00	POLYSTYRENE	100PF	5% 50V
C145	1-104-055-00	POLYSTYRENE	120PF	5% 50V
C146	1-123-334-00	ELECT	220MF	20% 25V
C147	1-101-005-00	CERAMIC	0.022MF	50V
C148	1-161-494-00	CERAMIC	0.022MF	30% 25V
C149	1-161-494-00	CERAMIC	0.022MF	30% 25V
C150	1-161-494-00	CERAMIC	0.022MF	30% 25V
C151	1-161-494-00	CERAMIC	0.022MF	30% 25V
C152	1-161-494-00	CERAMIC	0.022MF	30% 25V
C153	1-123-356-00	ELECT	10MF	20% 35V
C155	1-162-306-31	CERAMIC	0.01MF	30% 16V
C156	1-161-494-00	CERAMIC	0.022MF	30% 25V
C160	1-103-701-00	POLYSTYRENE	100PF	5% 50V
C201	1-124-180-91	ELECT	33MF	20% 25V
C202	1-161-315-00	CERAMIC	220PF	10% 50V
C203	1-161-705-00	POLYSTYRENE	150PF	5% 50V
C204	1-123-356-00	ELECT	10MF	20% 35V
C205	1-104-234-00	POLYSTYRENE	750PF	5% 125V
C206	1-104-234-00	POLYSTYRENE	750PF	5% 125V
C207	1-123-356-00	ELECT	10MF	20% 35V
C208	1-123-611-00	ELECT	1MF	20% 50V
C209	1-123-611-00	ELECT	1MF	20% 50V
C210	1-123-610-00	ELECT	0.47MF	20% 50V
C211	1-123-611-00	ELECT	1MF	20% 50V
C212	1-161-279-00	CERAMIC	10PF	5% 50V
C213	1-123-349-00	ELECT	1000MF	20% 25V
C214	1-108-595-00	MYLAR	0.047MF	5% 50V
C215	1-123-382-00	ELECT	3.3MF	20% 50V
C216	1-123-382-00	ELECT	3.3MF	20% 50V
C217	1-104-151-00	POLYSTYRENE	0.0022MF	5% 125V
C218	1-104-151-00	POLYSTYRENE	0.0022MF	5% 125V
C301	1-101-005-00	CERAMIC	0.022MF	50V
C303	1-161-494-00	CERAMIC	0.022MF	30% 25V
C304	1-161-494-00	CERAMIC	0.022MF	30% 25V
C305	1-161-494-00	CERAMIC	0.022MF	30% 25V
C306	1-123-332-00	ELECT	47MF	20% 16V
C307	1-161-494-00	CERAMIC	0.022MF	30% 25V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C308	1-161-494-00	CERAMIC	0.022MF	30%	25V
C309	1-161-494-00	CERAMIC	0.022MF	30%	25V
C310	1-161-494-00	CERAMIC	0.022MF	30%	25V
C311	1-123-332-00	ELECT	47MF	20%	16V
C312	1-161-323-00	CERAMIC	0.001MF	10%	50V
C313	1-161-494-00	CERAMIC	0.022MF	30%	25V
C314	1-123-611-00	ELECT	1MF	20%	50V
C315	1-161-494-00	CERAMIC	0.022MF	30%	25V
C316	1-123-611-00	ELECT	1MF	20%	50V
C317	1-161-263-00	CERAMIC	22PF	5%	50V
C318	1-123-619-00	ELECT	4.7MF	20%	50V
C319	1-123-613-00	ELECT	3.3MF	20%	50V
C320	1-108-599-00	MYLAR	0.068MF	5%	50V
C321	1-108-597-00	MYLAR	0.056MF	5%	50V
C322	1-108-583-00	MYLAR	0.015MF	5%	50V
C323	1-101-005-00	CERAMIC	0.022MF		50V
C324	1-102-951-00	CERAMIC	15PF	5%	50V
C325	1-104-070-00	POLYSTYRENE	510PF	5%	50V
C326	1-123-611-00	ELECT	1MF	20%	50V
C351	1-161-053-00	CERAMIC	0.0015MF	30%	50V
C352	1-101-005-00	CERAMIC	0.022MF		50V
C353	1-101-005-00	CERAMIC	0.022MF		50V
C354	1-104-081-00	POLYSTYRENE	0.0015MF	5%	50V
C355	1-102-951-00	CERAMIC	15PF	5%	50V
C356	1-101-005-00	CERAMIC	0.022MF		50V
C357	1-101-006-00	CERAMIC	0.047MF		50V
C358	1-161-311-00	CERAMIC	68PF	5%	50V
C359	1-101-005-00	CERAMIC	0.022MF		50V
C360	1-103-707-00	POLYSTYRENE	180PF	5%	50V
C401	1-161-330-00	CERAMIC	0.01MF	30%	25V
C402	1-161-271-00	CERAMIC	100PF	5%	50V
C403	1-102-526-00	CERAMIC	75PF	5%	50V
C404	1-102-517-00	CERAMIC	30PF	5%	50V
C405	1-161-267-00	CERAMIC	47PF	5%	50V
C406	1-123-356-00	ELECT	10MF	20%	35V
C407	1-161-494-00	CERAMIC	0.022MF	30%	25V
C408	1-161-494-00	CERAMIC	0.022MF	30%	25V
C409	1-161-323-00	CERAMIC	0.001MF	10%	50V
C410	1-123-356-00	ELECT	10MF	20%	35V
C411	1-123-613-00	ELECT	3.3MF	20%	50V
C412	1-123-607-00	ELECT	0.1MF	20%	50V
C413	1-131-346-00	TANTALUM	0.68MF	10%	35V
C414	1-123-346-00	ELECT	220MF	20%	35V
C450	1-123-609-00	ELECT	0.33MF	20%	50V
C452	1-123-610-00	ELECT	0.47MF	20%	50V
C501	1-162-306-31	CERAMIC	0.01MF	30%	16V
C502	1-162-306-31	CERAMIC	0.01MF	30%	16V
C503	1-162-306-31	CERAMIC	0.01MF	30%	16V
C504	1-102-518-00	CERAMIC	33PF	5%	50V
C505	1-102-518-00	CERAMIC	33PF	5%	50V
C506	1-161-494-00	CERAMIC	0.022MF	30%	25V
C507	1-123-298-00	ELECT	470MF	20%	6.3V
C508	1-162-306-31	CERAMIC	0.01MF	30%	16V
C509	1-123-306-00	ELECT	47MF	20%	10V
C510	1-123-619-00	ELECT	4.7MF	20%	50V
C511	1-123-356-00	ELECT	10MF	20%	35V
C512	1-123-818-00	ELECT	22MF	20%	25V
C602	1-123-622-00	ELECT	22MF	20%	16V

ELECTRICAL PARTS


Ref.No.	Part No.	Description			
C701	1-125-383-00	ELECT(BLOCK)	2200MF	20%	35V
C702	1-124-085-00	ELECT	470MF	20%	25V
C703	1-123-332-00	ELECT	47MF	20%	16V
C705	1-123-360-00	ELECT	100MF	20%	50V
C706	1-123-359-00	ELECT	47MF	20%	35V
C708	1-123-360-00	ELECT	100MF	20%	50V
C709	1-123-359-00	ELECT	47MF	20%	35V
C710	1-123-357-00	ELECT	22MF	20%	35V
C711	1-130-789-00	FILM	1MF	5%	100V
C801	1-161-744-00	CERAMIC	0.01MF		400V
CF101	1-527-799-00	FILTER, CERAMIC			
CF102	1-527-799-00	FILTER, CERAMIC			
CF201	1-567-286-11	OSCILLATOR, CERAMIC			
CF301	1-567-309-11	FILTER, CERAMIC			
CF302	1-527-981-00	FILTER, CERAMIC			
CF501	1-567-294-11	OSCILLATOR, CERAMIC			
CNJ801	1-507-912-11	JACK, PIN 2P (OUTPUT)			
CP601	1-231-572-00	COMPOSITION CIRCUIT BLOCK			
CP703	1-102-394-00	CERAMIC	250V		
CT101	1-141-232-00	CAP, TRIMMER			
CT301	1-141-171-00	CAP, TRIMMER 20P			
CT302	1-141-171-00	CAP, TRIMMER 20P			
CT351	1-141-171-00	CAP, TRIMMER 20P			
CT352	1-141-171-00	CAP, TRIMMER 20P			
D101	8-719-107-94	DIODE 1SS202-1			
D102	8-719-107-94	DIODE 1SS202-1			
D103	8-719-000-12	DIODE MC931			
D104	8-719-000-12	DIODE MC931			
D105	8-719-912-27	DIODE KV1226			
D106	8-719-910-72	DIODE HZ7A2L			
D107	8-719-910-72	DIODE HZ7A2L			
D130	8-719-107-94	DIODE 1SS202-1			
D201	8-719-107-94	DIODE 1SS202-1			
D202	8-719-107-94	DIODE 1SS202-1			
D203	8-719-107-94	DIODE 1SS202-1			
D204	8-719-107-94	DIODE 1SS202-1			
D301	8-719-107-94	DIODE 1SS202-1			
D302	8-719-107-94	DIODE 1SS202-1			
D303	8-719-912-27	DIODE KV1226			
D351	8-719-107-94	DIODE 1SS202-1			
D352	8-719-912-27	DIODE KV1226			
D401	8-719-951-11	DIODE HZ5ALL			
D501	8-719-919-13	DIODE GL-5NG27-A			
D502	8-719-919-13	DIODE GL-5NG27-A			
D503	8-719-919-13	DIODE GL-5NG27-A			
D504	8-719-919-13	DIODE GL-5NG27-A			
D505	8-719-919-13	DIODE GL-5NG27-A			
D506	8-719-919-13	DIODE GL-5NG27-A			
D507	8-719-919-13	DIODE GL-5NG27-A			
D508	8-719-919-13	DIODE GL-5NG27-A			
D509	8-719-919-13	DIODE GL-5NG27-A			
D510	8-719-919-13	DIODE GL-5NG27-A			
D511	8-719-919-13	DIODE GL-5NG27-A			
D512	8-719-919-13	DIODE GL-5NG27-A			
D513	8-719-919-13	DIODE GL-5NG27-A			
D514	8-719-919-13	DIODE GL-5NG27-A			
D515	8-719-919-13	DIODE GL-5NG27-A			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D516	8-719-919-13	DIODE GL-5NG27-A
D517	8-719-919-13	DIODE GL-5NG27-A
D518	8-719-919-13	DIODE GL-5NG27-A
D519	8-719-919-13	DIODE GL-5NG27-A
D520	8-719-919-13	DIODE GL-5NG27-A
D521	8-719-107-94	DIODE 1SS202-1
D522	8-719-107-94	DIODE 1SS202-1
D523	8-719-107-94	DIODE 1SS202-1
D524	8-719-107-94	DIODE 1SS202-1
D525	8-719-107-94	DIODE 1SS202-1
D526	8-719-107-94	DIODE 1SS202-1
D527	8-719-107-94	DIODE 1SS202-1
D528	8-719-107-94	DIODE 1SS202-1
D529	8-719-107-94	DIODE 1SS202-1
D530	8-719-107-94	DIODE 1SS202-1
D531	8-719-107-94	DIODE 1SS202-1
D532	8-719-107-94	DIODE 1SS202-1
D533	8-719-107-94	DIODE 1SS202-1
D534	8-719-107-94	DIODE 1SS202-1
D535	8-719-910-82	DIODE HZ18-2L
D550	8-719-107-94	DIODE 1SS202-1
D551	8-719-107-94	DIODE 1SS202-1
D552	8-719-107-94	DIODE 1SS202-1
D553	8-719-107-94	DIODE 1SS202-1
D554	8-719-107-94	DIODE 1SS202-1
D601	8-719-000-06	DIODE MC921
D701	8-719-200-70	DIODE DSF1
D702	8-719-200-02	DIODE 10E-2
D703	8-719-200-02	DIODE 10E-2
D704	8-719-913-03	DIODE HZ30-3L
D705	8-719-936-26	DIODE EQA01-26R
D706	8-719-936-06	DIODE EQA01-06R
FE101	1-463-615-11	FRONT END, FM (FEE-4122A)
FL501	1-519-299-21	INDICATOR TUBE, FLUORESCENT
IC101	8-759-111-63	IC UPC1163H
IC102	8-759-812-35	IC LA1235
IC103	8-759-111-63	IC UPC1163H
IC104	8-759-990-82	IC TL082CP
IC201	8-759-801-20	IC LA3400
IC301	8-759-812-45	IC LA1245
IC401	8-757-925-00	IC CX-7925
IC502	8-759-202-07	IC TC9174P
IC501	8-759-204-23	IC TC9303N-006
IC601	8-759-800-95	IC LB1493
IC701	8-759-801-79	IC LA5665
I FT101	1-404-593-11	COIL, FM IF
I FT102	1-404-593-11	COIL, FM IF
I FT103	1-404-593-11	COIL, FM IF
I FT104	1-404-593-11	COIL, FM IF
I FT105	1-404-312-00	TRANSFORMER, IF
I FT106	1-404-592-11	COIL, FM DET (1)
I FT107	1-404-595-11	COIL, FM DET (2)
I FT301	1-404-326-00	TRANSFORMER, IF
L101	1-408-575-00	MICRO INDUCTOR 100UH
L102	1-408-575-00	MICRO INDUCTOR 100UH
L103	1-408-575-00	MICRO INDUCTOR 100UH
L104	1-408-565-00	MICRO INDUCTOR 15UH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L351	1-408-579-00	MICRO INDUCTOR 220UH
L501	1-408-575-00	MICRO INDUCTOR 100UH
L801	1-402-082-11	ANTENNA, FERRITE-ROD (LW/MW/SW)
LPF101	1-235-061-00	INCAPSULATED COMPONENT
LPF201	1-235-164-00	FILTER, LOW PASS
LPF202	1-235-164-00	FILTER, LOW PASS
PT801A	1-447-661-00	TRANSFORMER, POWER
Q101	8-729-200-66	TRANSISTOR 2SK192A
Q102	8-729-606-33	TRANSISTOR 2SC2603F
Q103	8-729-606-33	TRANSISTOR 2SC2603F
Q105	8-729-606-33	TRANSISTOR 2SC2603F
Q106	8-729-606-33	TRANSISTOR 2SC2603F
Q107	8-729-200-66	TRANSISTOR 2SK192A
Q108	8-729-200-66	TRANSISTOR 2SK192A
Q109	8-729-266-93	TRANSISTOR 2SC2669
Q110	8-729-802-43	TRANSISTOR 2SK125-3
Q111	8-729-115-30	TRANSISTOR 2SK105A-30
Q112	8-729-115-30	TRANSISTOR 2SK105A-30
Q113	8-729-606-33	TRANSISTOR 2SC2603F
Q115	8-729-606-33	TRANSISTOR 2SC2603F
Q116	8-729-606-33	TRANSISTOR 2SC2603F
Q117	8-729-266-93	TRANSISTOR 2SC2669
Q118	8-729-606-33	TRANSISTOR 2SC2603F
Q201	8-729-107-98	TRANSISTOR 2SC3622A-L
Q202	8-729-107-98	TRANSISTOR 2SC3622A-L
Q301	8-729-606-33	TRANSISTOR 2SC2603F
Q302	8-729-606-33	TRANSISTOR 2SC2603F
Q303	8-729-117-54	TRANSISTOR 2SA1175
Q304	8-729-606-33	TRANSISTOR 2SC2603F
Q305	8-729-606-33	TRANSISTOR 2SC2603F
Q351	8-729-606-33	TRANSISTOR 2SC2603F
Q352	8-729-606-33	TRANSISTOR 2SC2603F
Q353	8-729-606-33	TRANSISTOR 2SC2603F
Q354	8-729-606-33	TRANSISTOR 2SC2603F
Q355	8-729-107-98	TRANSISTOR 2SC3622A-L
Q356		TRANSISTOR 2SA1409
Q401	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q402	8-729-600-27	TRANSISTOR 2SC634SP
Q403	8-729-606-33	TRANSISTOR 2SC2603F
Q404	8-729-900-80	TRANSISTOR DTC114ES
Q405	8-729-900-80	TRANSISTOR DTC114ES
Q450	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q451	8-729-600-27	TRANSISTOR 2SC634SP
Q501	8-729-606-33	TRANSISTOR 2SC2603F
Q502	8-729-900-89	TRANSISTOR DTC144ES
Q503	8-729-900-89	TRANSISTOR DTC144ES
Q504	8-729-900-65	TRANSISTOR DTA144ES
Q505	8-729-900-65	TRANSISTOR DTA144ES
Q506	8-729-900-65	TRANSISTOR DTA144ES
Q507	8-729-900-65	TRANSISTOR DTA144ES
Q508	8-729-900-65	TRANSISTOR DTA144ES
Q510	8-729-117-54	TRANSISTOR 2SA1175
Q511	8-729-606-33	TRANSISTOR 2SC2603F
Q513	8-729-117-54	TRANSISTOR 2SA1175
Q520	8-729-606-33	TRANSISTOR 2SC2603F
Q701	8-729-117-43	TRANSISTOR 2SD774
Q702	8-729-115-30	TRANSISTOR 2SK105A-30

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Digitized by WWW.FREESERVICE MANUALS.INFO

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R101	1-247-171-00	CARBON	47K	5%	1/4W
R102	1-247-165-00	CARBON	27K	5%	1/4W
R103	1-247-107-00	CARBON	100	5%	1/4W F
R104	1-247-135-00	CARBON	1.5K	5%	1/4W
R105	1-247-119-00	CARBON	330	5%	1/4W
R106	1-247-141-00	CARBON	2.7K	5%	1/4W
R107	1-247-155-00	CARBON	10K	5%	1/4W
R108	1-247-155-00	CARBON	10K	5%	1/4W
R109	1-247-155-00	CARBON	10K	5%	1/4W
R110	1-247-155-00	CARBON	10K	5%	1/4W
R111	1-247-155-00	CARBON	10K	5%	1/4W
R112	1-247-155-00	CARBON	10K	5%	1/4W
R114	1-247-155-00	CARBON	10K	5%	1/4W
R115	1-247-155-00	CARBON	10K	5%	1/4W
R116	1-247-171-00	CARBON	47K	5%	1/4W
R117	1-247-171-00	CARBON	47K	5%	1/4W
R118	1-247-179-00	CARBON	100K	5%	1/4W
R119	1-247-119-00	CARBON	330	5%	1/4W
R121	1-247-179-00	CARBON	100K	5%	1/4W
R122	1-247-119-00	CARBON	330	5%	1/4W
R124	1-247-119-00	CARBON	330	5%	1/4W
R125	1-247-119-00	CARBON	330	5%	1/4W
R126	1-247-113-00	CARBON	180	5%	1/4W F
R127	1-247-119-00	CARBON	330	5%	1/4W
R128	1-247-179-00	CARBON	100K	5%	1/4W
R129	1-247-161-00	CARBON	18K	5%	1/4W
R130	1-247-149-00	CARBON	5.6K	5%	1/4W
R131	1-247-155-00	CARBON	10K	5%	1/4W
R132	1-247-109-00	CARBON	120	5%	1/4W F
R133	1-247-173-00	CARBON	56K	5%	1/4W
R134	1-247-171-00	CARBON	47K	5%	1/4W
R136	1-247-688-11	CARBON	10	5%	1/4W F
R137	1-247-717-11	CARBON	2.2K	5%	1/4W
R138	1-247-131-00	CARBON	1K	5%	1/4W
R139	1-247-119-00	CARBON	330	5%	1/4W
R140	1-247-131-00	CARBON	1K	5%	1/4W
R141	1-247-113-00	CARBON	180	5%	1/4W F
R142	1-247-107-00	CARBON	100	5%	1/4W F
R144	1-247-119-00	CARBON	330	5%	1/4W F
R145	1-247-831-00	CARBON	1K	5%	1/6W
R146	1-247-831-00	CARBON	1K	5%	1/6W
R149	1-247-879-00	CARBON	100K	5%	1/6W
R150	1-247-131-00	CARBON	1K	5%	1/4W
R151	1-246-543-00	CARBON	820K	5%	1/4W
R152	1-247-169-00	CARBON	39K	5%	1/4W
R153	1-247-169-00	CARBON	39K	5%	1/4W
R154	1-247-155-00	CARBON	10K	5%	1/4W
R155	1-246-543-00	CARBON	820K	5%	1/4W
R156	1-247-155-00	CARBON	10K	5%	1/4W
R157	1-247-123-00	CARBON	470	5%	1/4W
R158	1-247-133-00	CARBON	1.2K	5%	1/4W
R159	1-247-149-00	CARBON	5.6K	5%	1/4W
R160	1-247-171-00	CARBON	47K	5%	1/4W
R161	1-247-155-00	CARBON	10K	5%	1/4W
R162	1-247-171-00	CARBON	47K	5%	1/4W
R163	1-247-133-00	CARBON	1.2K	5%	1/4W
R164	1-247-133-00	CARBON	1.2K	5%	1/4W
R165	1-247-155-00	CARBON	10K	5%	1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R166	1-247-165-00	CARBON	27K	5%	1/4W
R167	1-247-159-00	CARBON	15K	5%	1/4W
R168	1-247-119-00	CARBON	330	5%	1/4W
R169	1-247-717-11	CARBON	2.2K	5%	1/4W
R170	1-247-155-00	CARBON	10K	5%	1/4W
R171	1-247-163-00	CARBON	22K	5%	1/4W
R172	1-247-107-00	CARBON	100	5%	1/4W
R173	1-247-823-00	CARBON	470	5%	1/6W
R174	1-247-816-00	CARBON	240	5%	1/6W
R175	1-247-169-00	CARBON	39K	5%	1/4W
R176	1-247-155-00	CARBON	10K	5%	1/4W
R201	1-214-908-00	METAL	62K	1%	1/2W
R202	1-214-908-00	METAL	62K	1%	1/2W
R203	1-247-171-00	CARBON	47K	5%	1/4W
R204	1-247-171-00	CARBON	47K	5%	1/4W
R205	1-247-171-00	CARBON	47K	5%	1/4W
R206	1-247-171-00	CARBON	47K	5%	1/4W
R207	1-247-179-00	CARBON	100K	5%	1/4W
R209	1-247-807-00	CARBON	100	5%	1/6W
R210	1-247-807-00	CARBON	100	5%	1/6W
R211	1-247-163-00	CARBON	22K	5%	1/4W
R212	1-247-143-00	CARBON	3.3K	5%	1/4W
R213	1-247-109-00	CARBON	120	5%	1/4W F
R214	1-247-131-00	CARBON	1K	5%	1/4W
R215	1-247-717-11	CARBON	2.2K	5%	1/4W
R216	1-247-717-11	CARBON	2.2K	5%	1/4W
R217	1-247-149-00	CARBON	5.6K	5%	1/4W
R218	1-247-149-00	CARBON	5.6K	5%	1/4W
R219	1-247-131-00	CARBON	1K	5%	1/4W
R220	1-247-131-00	CARBON	1K	5%	1/4W
R301	1-246-535-00	CARBON	390K	5%	1/4W
R302	1-247-717-11	CARBON	2.2K	5%	1/4W
R303	1-247-879-00	CARBON	100K	5%	1/6W
R304	1-247-115-00	CARBON	220	5%	1/4W F
R305	1-247-115-00	CARBON	220	5%	1/4W
R306	1-247-115-00	CARBON	220	5%	1/4W
R307	1-247-105-00	CARBON	82	5%	1/4W
R308	1-247-145-00	CARBON	3.9K	5%	1/4W
R309	1-247-155-00	CARBON	10K	5%	1/4W
R310	1-247-179-00	CARBON	100K	5%	1/4W
R311	1-247-155-00	CARBON	10K	5%	1/4W
R312	1-247-155-00	CARBON	10K	5%	1/4W
R313	1-247-717-11	CARBON	2.2K	5%	1/4W
R315	1-247-179-00	CARBON	100K	5%	1/4W
R316	1-247-155-00	CARBON	10K	5%	1/4W
R317	1-247-155-00	CARBON	10K	5%	1/4W
R318	1-247-155-00	CARBON	10K	5%	1/4W
R319	1-247-131-00	CARBON	1K	5%	1/4W
R320	1-247-155-00	CARBON	10K	5%	1/4W
R321	1-247-141-00	CARBON	2.7K	5%	1/4W
R351	1-247-179-00	CARBON	100K	5%	1/4W
R352	1-247-179-00	CARBON	100K	5%	1/4W
R353	1-247-179-00	CARBON	100K	5%	1/4W
R354	1-247-147-00	CARBON	4.7K	5%	1/4W
R355	1-247-179-00	CARBON	100K	5%	1/4W
R356	1-247-155-00	CARBON	10K	5%	1/4W
R357	1-246-535-00	CARBON	390K	5%	1/4W

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

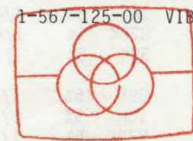
Digitized by WWW.FREESERVICE MANUALS.INFO

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R358	1-247-179-00	CARBON	100K	5%	1/4W	
R359	1-247-171-00	CARBON	47K	5%	1/4W	
R360	1-247-155-00	CARBON	10K	5%	1/4W	
R361	1-247-179-00	CARBON	100K	5%	1/4W	
R362	1-247-165-00	CARBON	27K	5%	1/4W	
R363	1-247-163-00	CARBON	22K	5%	1/4W	
R364	1-247-163-00	CARBON	22K	5%	1/4W	
R365	1-246-545-00	CARBON	1M	5%	1/4W	
R366	1-247-147-00	CARBON	4.7K	5%	1/4W	
R401	1-247-155-00	CARBON	10K	5%	1/4W	
R402	1-247-155-00	CARBON	10K	5%	1/4W	
R404	1-247-855-00	CARBON	10K	5%	1/6W	
R406	1-247-171-00	CARBON	47K	5%	1/4W	
R407	1-247-147-00	CARBON	4.7K	5%	1/4W	
R408	1-247-695-11	CARBON	39	5%	1/4W	F
R409	1-247-125-00	CARBON	560	5%	1/4W	
R410	1-247-125-00	CARBON	560	5%	1/4W	
R411	1-247-133-00	CARBON	1.2K	5%	1/4W	
R412	1-247-119-00	CARBON	330	5%	1/4W	
R413	1-247-137-00	CARBON	1.8K	5%	1/4W	
R414	1-247-151-00	CARBON	6.8K	5%	1/4W	
R415	1-247-147-00	CARBON	4.7K	5%	1/4W	
R416	1-247-147-00	CARBON	4.7K	5%	1/4W	
R417	1-247-127-00	CARBON	680	5%	1/4W	
R418	1-247-155-00	CARBON	10K	5%	1/4W	
R419	1-249-421-11	CARBON	2.2K	5%	1/6W	
R421	1-247-113-00	CARBON	180	5%	1/4W	F
R450	1-247-147-00	CARBON	4.7K	5%	1/4W	
R451	1-247-151-00	CARBON	6.8K	5%	1/4W	
R452	1-247-179-00	CARBON	100K	5%	1/4W	
R453	1-247-119-00	CARBON	330	5%	1/4W	
R454	1-247-133-00	CARBON	1.2K	5%	1/4W	
R455	1-247-125-00	CARBON	560	5%	1/4W	
R456	1-247-163-00	CARBON	22K	5%	1/4W	
R501	1-247-855-00	CARBON	10K	5%	1/6W	
R502	1-247-863-00	CARBON	22K	5%	1/6W	
R504	1-247-871-00	CARBON	47K	5%	1/6W	
R505	1-247-855-00	CARBON	10K	5%	1/6W	
R506	1-247-879-00	CARBON	100K	5%	1/6W	
R507	1-247-871-00	CARBON	47K	5%	1/6W	
R508	1-247-871-00	CARBON	47K	5%	1/6W	
R509	1-247-887-00	CARBON	220K	5%	1/6W	
R512	1-247-847-00	CARBON	4.7K	5%	1/6W	
R513	1-247-717-11	CARBON	2.2K	5%	1/4W	
R514	1-247-155-00	CARBON	10K	5%	1/4W	
R515	1-247-119-00	CARBON	330	5%	1/4W	
R516	1-247-155-00	CARBON	10K	5%	1/4W	
R517	1-247-119-00	CARBON	330	5%	1/4W	
R520	1-247-879-00	CARBON	100K	5%	1/6W	
R521	1-247-871-00	CARBON	47K	5%	1/6W	
R522	1-247-831-00	CARBON	1K	5%	1/6W	
R523	1-247-807-00	CARBON	100	5%	1/6W	
R525	1-247-115-00	CARBON	220	5%	1/4W	F
R526	1-247-855-00	CARBON	10K	5%	1/6W	
R527	1-247-855-00	CARBON	10K	5%	1/6W	
R530	1-247-171-00	CARBON	47K	5%	1/4W	
R601	1-247-879-00	CARBON	100K	5%	1/6W	

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R602	1-247-855-00	CARBON	10K	5%	1/6W	
R701	1-247-220-00	CARBON	150	5%	1/2W	F
R703	1-247-115-00	CARBON	220	5%	1/4W	F
R704	1-247-129-00	CARBON	820	5%	1/4W	F
R705	1-247-155-00	CARBON	10K	5%	1/4W	
R706	1-247-200-00	CARBON	22	5%	1/2W	F
RT101	1-228-995-00	RES, ADJ, METAL GLAZE	22K			
RT102	1-228-995-00	RES, ADJ, METAL GLAZE	22K			
RT103	1-226-238-00	RES, ADJ, CARBON	50K			
RT104	1-226-237-00	RES, ADJ, CARBON	20K			
RT105	1-228-991-00	RES, ADJ, METAL GLAZE	2.2K			
RT201	1-226-239-00	RES, ADJ, CARBON	100K			
RT302	1-226-240-00	RES, ADJ, CARBON	200K			
S501	1-554-303-00	SWITCH, KEY BOARD				
S502	1-553-739-21	SWITCH, KEY BOARD				
S503	1-553-739-21	SWITCH, KEY BOARD				
S504	1-553-739-21	SWITCH, KEY BOARD				
S505	1-553-739-21	SWITCH, KEY BOARD				
S506	1-553-739-21	SWITCH, KEY BOARD				
S507	1-553-739-21	SWITCH, KEY BOARD				
S508	1-553-739-21	SWITCH, KEY BOARD				
S509	1-553-739-21	SWITCH, KEY BOARD				
S510	1-553-739-21	SWITCH, KEY BOARD				
S511	1-553-739-21	SWITCH, KEY BOARD				
S512	1-554-303-00	SWITCH, KEY BOARD				
S513	1-554-303-00	SWITCH, KEY BOARD				
S514	1-554-303-00	SWITCH, KEY BOARD				
S515	1-553-739-21	SWITCH, KEY BOARD				
S516	1-553-739-21	SWITCH, KEY BOARD				
S517	1-554-303-00	SWITCH, KEY BOARD				
S518	1-554-303-00	SWITCH, KEY BOARD				
S519	1-552-625-00	SWITCH, SLIDE				
S801	1-553-318-00	SWITCH, PUSH (AC POWER)(1 KEY)				
T301	1-405-927-00	COIL, MW OSC				
T302	1-402-080-11	COIL, ANT (MW)				
T351	1-405-914-00	COIL, LW OSC				
T352	1-402-081-11	COIL, ANT (LW)				
TH101	1-800-199-00	THERMISTOR				
TM801	1-536-851-11	TERMINAL BOARD (ANT)				
TP101	*1-560-060-00	PIN, CONNECTOR 2P				
TP102	*1-560-060-00	PIN, CONNECTOR 2P				
XT401	1-567-125-00	VIBRATOR, CRYSTAL				



Free service manuals
Gratis schema's
Digitized by

www.freeservicemanuals.info

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.