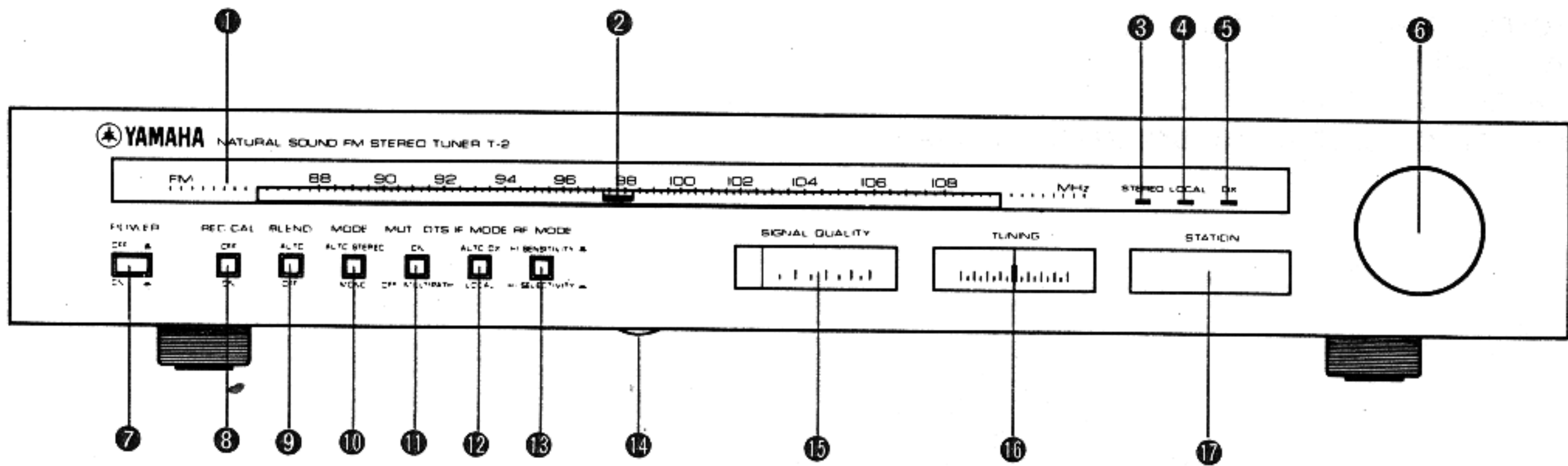


# T-2

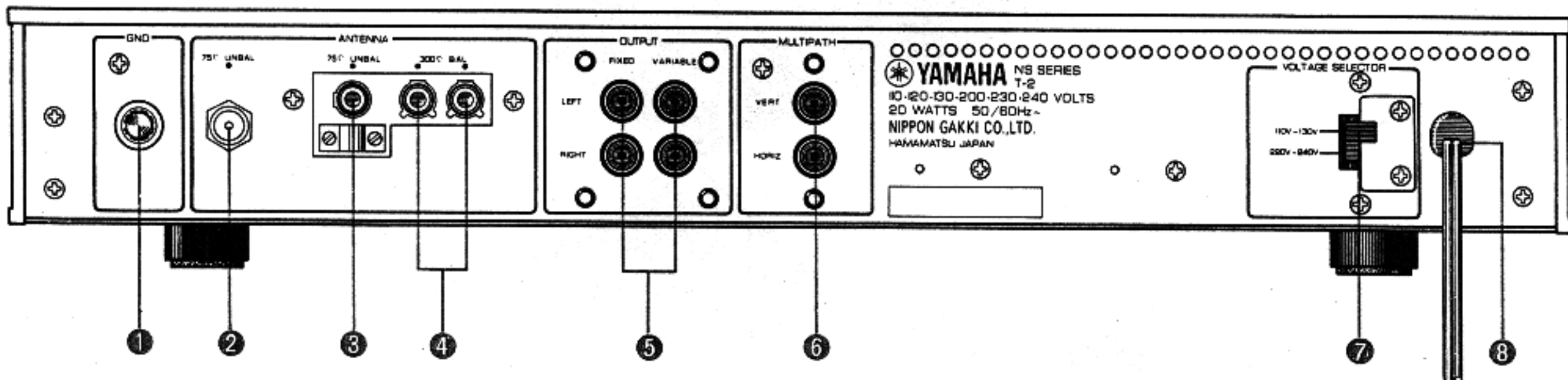
## SERVICE MANUAL

### FRONT PANEL



- |                    |                        |
|--------------------|------------------------|
| ① FM DIAL SCALE    | ⑩ MODE SWITCH          |
| ② DIAL POINTER     | ⑪ MUT/OTS SWITCH       |
| ③ STEREO INDICATOR | ⑫ IF MODE SWITCH       |
| ④ LOCAL INDICATOR  | ⑬ RF MODE SWITCH       |
| ⑤ DX INDICATOR     | ⑭ OUTPUT LEVEL CONTROL |
| ⑥ TUNING KNOB      | ⑮ SIGNAL QUALITY METER |
| ⑦ POWER SWITCH     | ⑯ TUNING METER         |
| ⑧ REC CAL SWITCH   | ⑰ STATION INDICATOR    |
| ⑨ BLEND SWITCH     |                        |

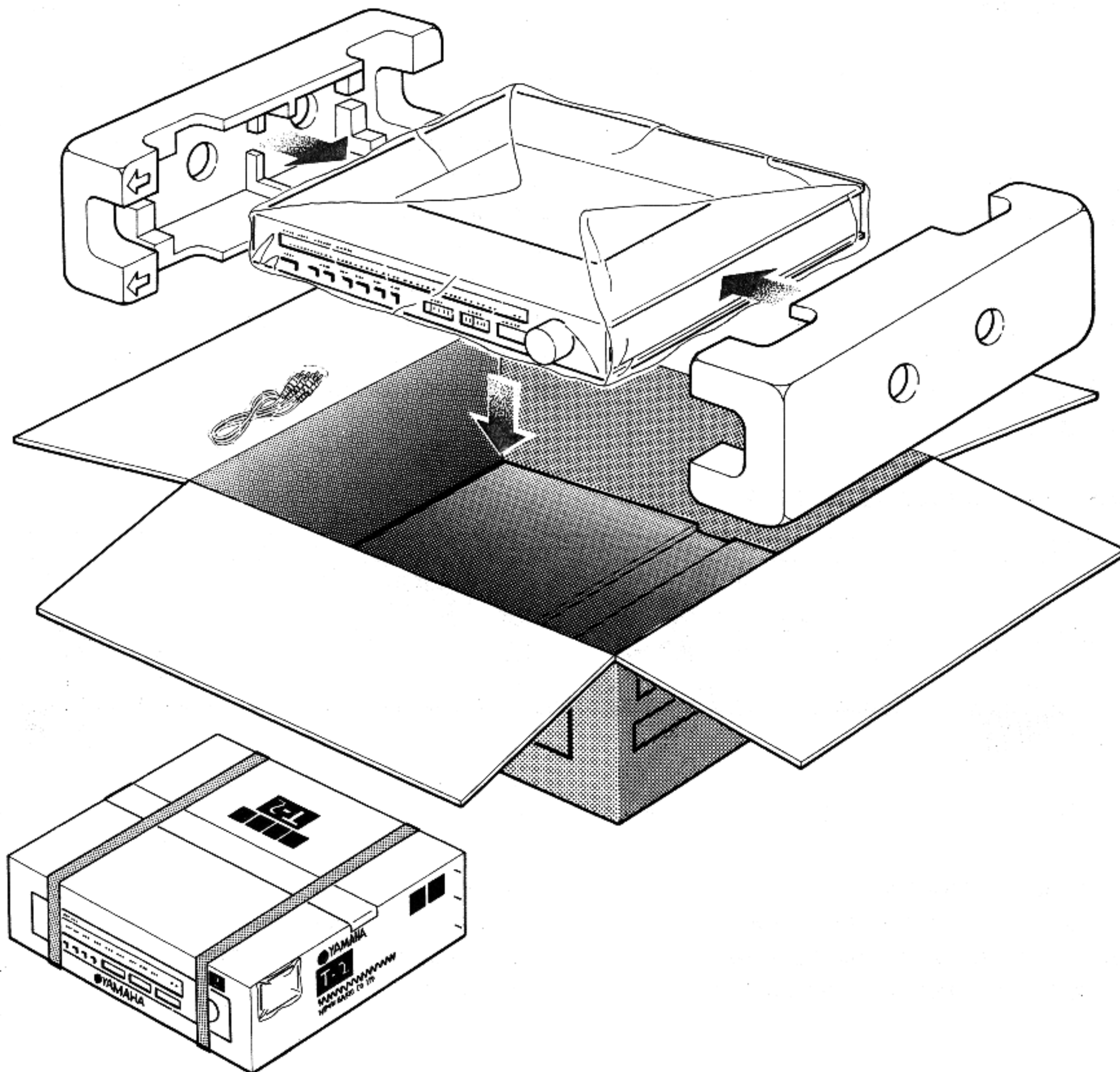
### REAR PANEL (GENERAL MODELS)



- |                                |                           |
|--------------------------------|---------------------------|
| ① GROUND TERMINAL              | ⑤ OUTPUT JACKS            |
| ② 75Ω (UNBAL) ANTENNA SOCKET   | ⑥ MULTIPATH JACKS         |
| ③ 75Ω (UNBAL) ANTENNA TERMINAL | ⑦ VOLTAGE SELECTOR SWITCH |
| ④ 300Ω (BAL) ANTENNA TERMINALS | ⑧ AC CORD                 |

# ■ CONTENTS

PACKAGE .....	2
SPECIFICATIONS .....	3
REAR PANELS .....	4
INTERNAL VIEW .....	5
DIAL MECHANISM .....	5
DISASSEMBLY PROCEDURES .....	6
CIRCUIT DISCRPTION .....	9
TUNER CIRCUIT BOARD/ TEST POINTS .....	11
ADJUSTMENTS .....	13
DIGITAL CIRCUIT BOARD .....	19
PARTS LIST .....	20
SCHEMATIC DIAGRAM .....	30
PRINTED CIRCUIT BOARDS/WIRING DIAGRAM .....	31



# SPECIFICATIONS

## FM SECTION

<b>Tuning Range</b>	87.6 to 108 MHz	
<b>50 dB Quieting Sensitivity</b>		
Mono (HI SENS., AUTO DX MODE)	2.5 $\mu$ V 13.2 dBf	
Stereo (HI SENS., AUTO DX MODE)	28 $\mu$ V 34.2 dBf	
<b>Usable Sensitivity (40 kHz Dev.)</b>		
<b>IHF (98 MHz)</b>		
HI SENS. MODE	1.5 $\mu$ V (300 $\Omega$ ) 8.8 dBf	0.75 $\mu$ V (75 $\Omega$ ) 8.8 dBf
HI SELECT MODE	3 $\mu$ V (300 $\Omega$ ) 14.8 dBf	1.5 $\mu$ V (75 $\Omega$ ) 14.8 dBf
<b>DIN</b>		
Mono (S/N 26 dB)	1.2 $\mu$ V (HI SENS., AUTO DX MODE)	
Stereo (S/N 46 dB)	28 $\mu$ V (HI SENS., AUTO DX MODE)	
<b>Image Response Ratio (98 MHz)</b>	120 dB	
<b>IF Response Ratio (98 MHz)</b>	120 dB	
<b>Spurious response Ratio (98 MHz)</b>	120 dB	
<b>AM Suppression Ratio (IHF)</b>	68 dB	
<b>Capture Ratio (IHF)</b>		
LOCAL MODE	1.0 dB	
DX MODE	1.5 dB	
<b>Alternate Channel Selectivity</b>		
<b>IHF</b>		
AUTODX, HI SELECT MODE	100 dB (Automatically switched to DX mode by interference detection)	
LOCAL MODE	55 dB	
<b>DIN</b>		
AUTO DX HI SELECT MODE	75 dB	
LOCAL MODE	35 dB	
<b>Signal-to-Noise Ratio (at 65 dBf)</b>		
Mono	88 dB (IHF), 83 dB (DIN)	
Stereo	85 dB (IHF), 80 dB (DIN)	
<b>RF Intermodulation (<math>\pm</math> 1 MHz)</b>		
HI SELECT MODE	100 dB	
HI SENS. MODE	85 dB	
<b>Distortion (at 65 dBf)</b>		
Mono	LOCAL MODE	DX MODE
100 Hz	0.03%	0.1%
1 kHz	0.05%	0.15%
6 kHz	0.08%	0.3%
10 kHz	0.05%	0.1%
Stereo	LOCAL MODE	DX MODE
100 Hz	0.05%	0.4%
1 kHz	0.05%	0.4%
6 kHz	0.07%	0.6%
10 kHz	0.1%	1.0%
<b>IM Distortion (IHF)</b>	LOCAL MODE	DX MODE
Mono	0.03%	0.3%
Stereo	0.08%	0.5%

<b>Stereo Separation</b>	LOCAL MODE	DX MODE
1 kHz	55 dB	35 dB
50 Hz to 10 kHz	48 dB	30 dB
<b>Frequency Response</b>		
30 Hz to 15 kHz	+0.3 dB, -0.5 dB	
10 Hz to 18 kHz	+0.3 dB, -3 dB	
<b>Subcarrier Product Ratio</b>	72 dB	
<b>Muting Threshold</b>	3 $\mu$ V (14.8 dBf): AUTO DX, HI SENS. MODE	
<b>AUTO DX Active Level</b>	50 $\mu$ V (39.2 dBf) (Automatically switched to DX mode when interference level reaches approx. -50 dB in stereo mode.)	

## AUDIO SECTION

<b>Output Level/Impedance</b>		
-Variable Terminals-		
FM (100% mod. 1 kHz)	0.1 to 1V/2.5 k $\Omega$ (VR min. to max.) 500 mV/2.5 k $\Omega$ (VR center)	
REC CAL Signal	50 to 500 mV/2.5 k $\Omega$ (VR min. to max.) 250 mV/2.5 k $\Omega$ (VR center) (333 Hz; Corresponding to 50% FM modulation)	
-Fixed Terminals-		
FM (100% mod. 1 kHz)	1V/330 $\Omega$	
REC CAL Signal (333 Hz)	500 mV/330 $\Omega$	

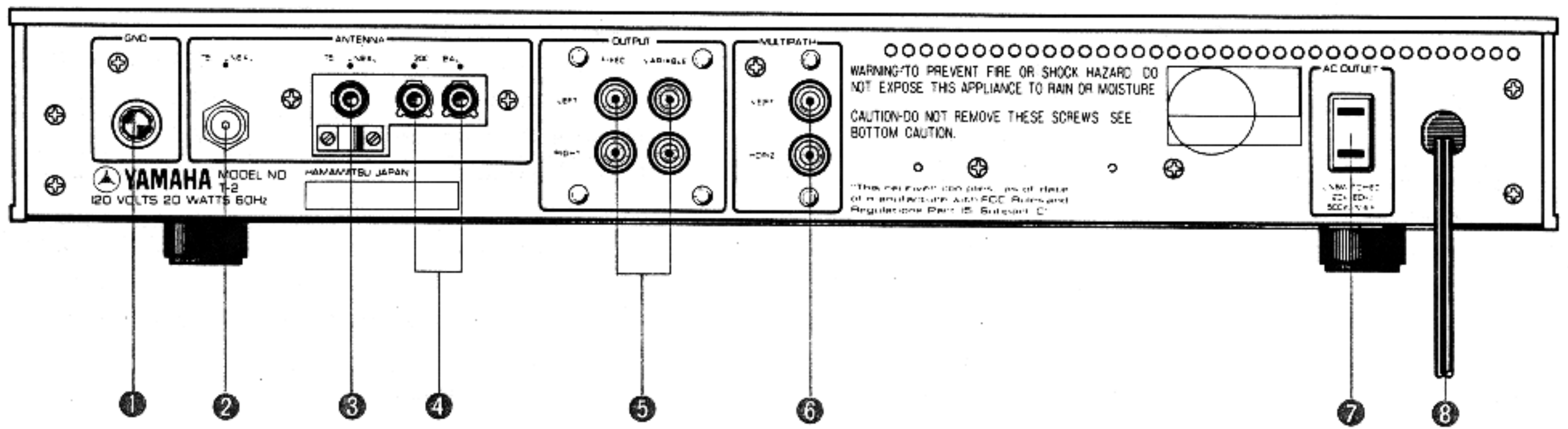
## GENERAL

<b>Semiconductors</b>	60 Transistors, 19 ICs (General, US & Canadian and Australian Models), 21 ICs (European, North European and British Models) 11 FETs, 32 Diodes, 5 Zener Diodes, 3 LEDs, 4 Ceramic Block Filters, 1 Quartz Oscillator.
<b>Power Supply</b>	
US & Canadian models	120 V AC, 60 Hz
General Model	110 ~ 130 V/220 ~ 240 V AC, 50/60 Hz
European Model	110 ~ 130 V/220 ~ 240 V AC, 50 Hz
North European Model	220 V AC, 50 Hz
British & Australian Model	240 V AC, 50 Hz
<b>Power Consumption</b>	20W
<b>Dimensions (W x H x D)</b>	435 x 70 x 349 mm (17-1/8 x 2-3/4 x 13-3/4")
<b>Weight</b>	7 kg (15 lb 7 oz)

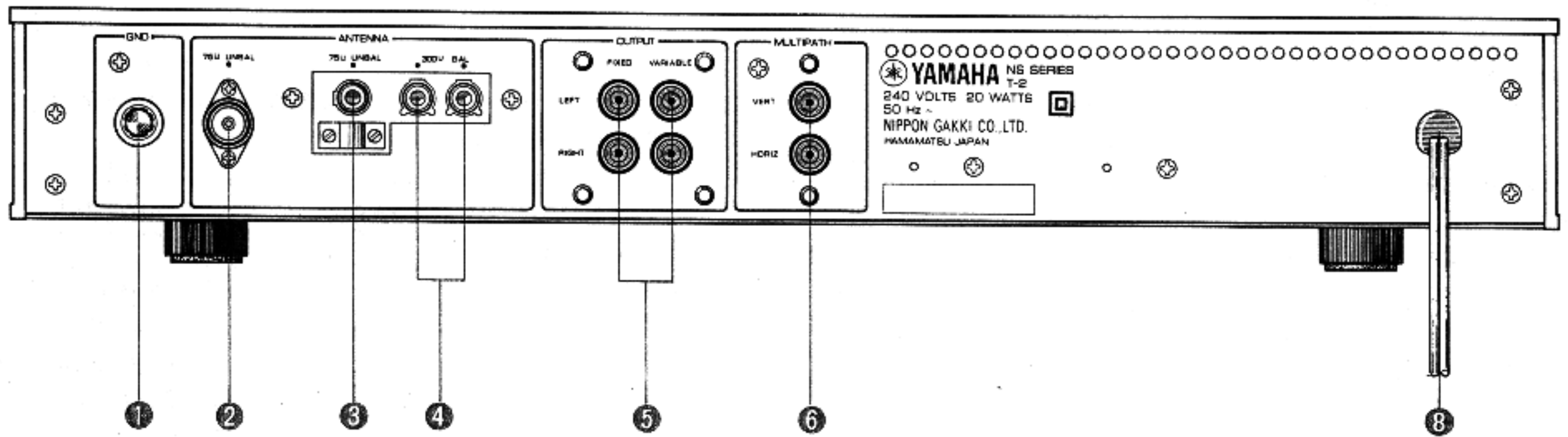
Specifications subject to change without notice.

# REAR PANELS

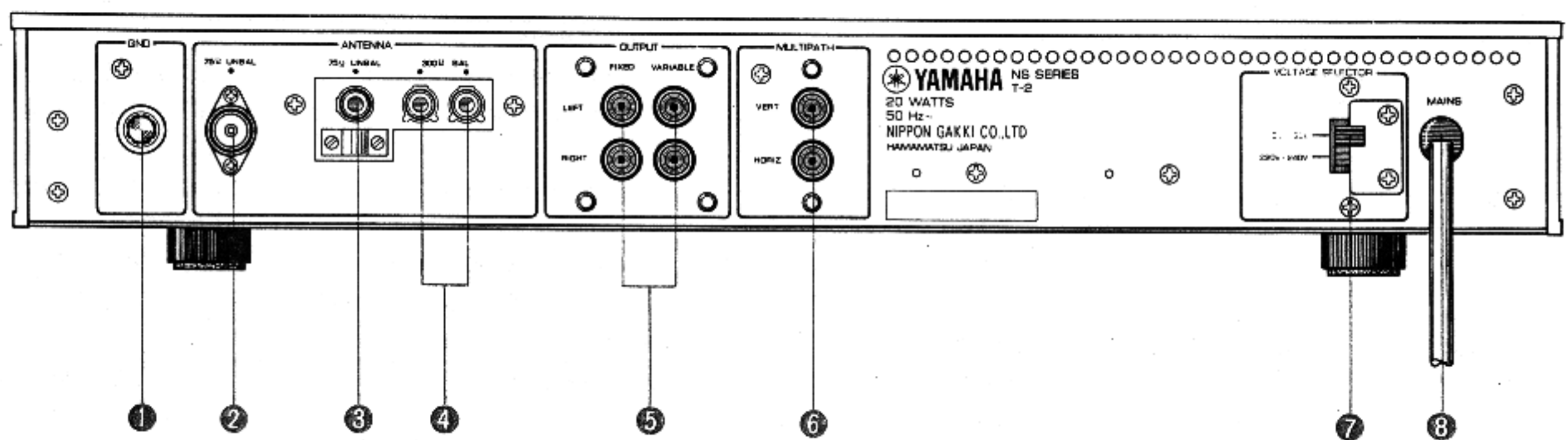
## ▼ US & CANADIAN MODELS



## ▼ NORTH EUROPEAN, AUSTRALIAN & BRITISH MODELS



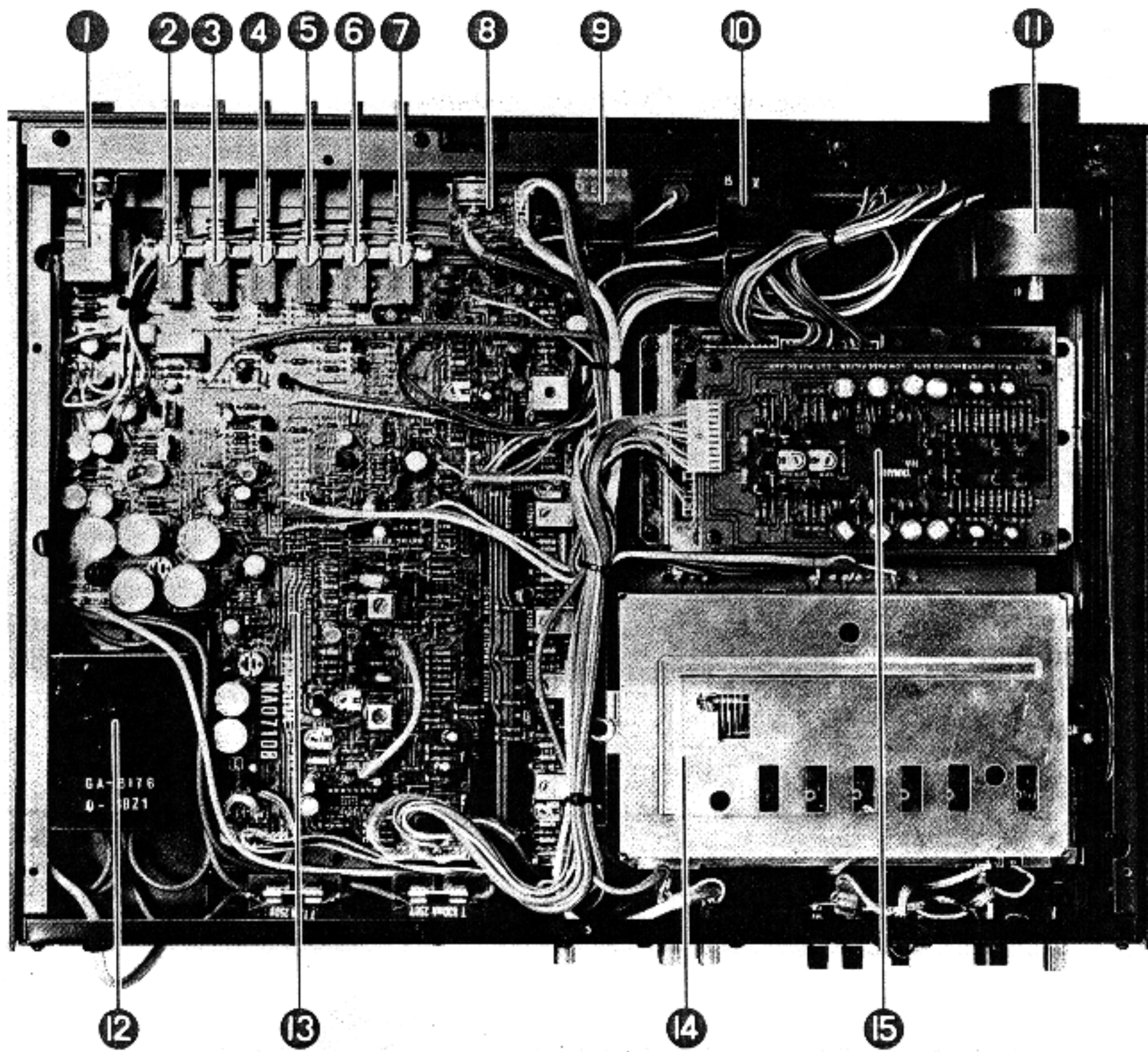
## ▼ EUROPEAN MODEL



- ① GROUND TERMINAL
- ② 75Ω (UNBAL) ANTENNA SOCKET
- ③ 75Ω (UNBAL) ANTENNA TERMINAL
- ④ 300Ω (BAL) ANTENNA TERMINALS

- ⑤ OUTPUT JACKS
- ⑥ MULTIPATH JACKS
- ⑦ VOLTAGE SELECTOR SWITCH
- ⑧ AC CORD

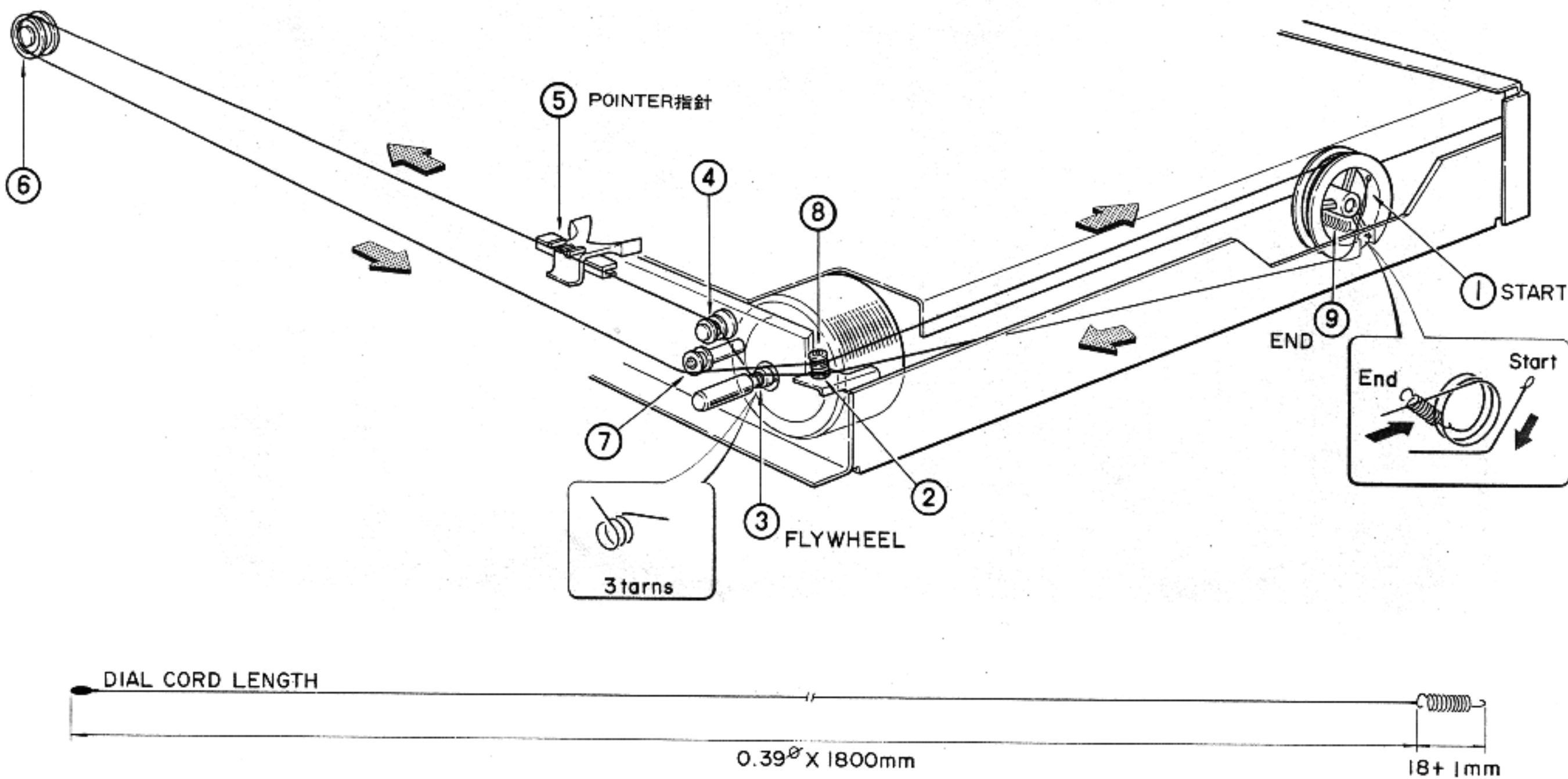
## INTERNAL VIEW



- ① POWER SWITCH
- ② REC CAL SWITCH
- ③ BLEND SWITCH
- ④ MODE SWITCH
- ⑤ MUT/OTS SWITCH
- ⑥ IF MODE SWITCH
- ⑦ RF MODE SWITCH
- ⑧ TUNER CIRCUIT BOARD (3)
- ⑨ SIGNAL METER
- ⑩ TUNING METER
- ⑪ FLYWHEEL
- ⑫ POWER TRANSFORMER
- ⑬ TUNER CIRCUIT BOARD (1)
- ⑭ FRONT END PACK
- ⑮ POST AMP CIRCUIT BOARD

## DIAL MECHANISM

\* Before replacing the dial string, refer to "Removing the scale holder unit" under step 8 of the disassembly procedures and remove the scale holder first.



## DISASSEMBLY PROCEDURES

### 1. Bottom cover removal

Turn the model over and remove screws (1) to (7) in Photo 1 (M3 x 6 pan head screws) as well as the bottom cover.

Note: Adjustments of the printed circuit board and exchange of power transformer are able.

### 2. Front panel ass'y removal

- a. Remove the bottom cover under step 1. Now proceed with step b.
- b. Remove screws (1) to (4) in Photo 2 (M3 x 6 black bind head screws).
- c. Use a 2 mm hexagonal wrench key to loosen the two hexagonal setscrews of the tuning knob from the slit in Photo 2, and then remove the tuning knob.
- d. Remove screws (6) to (10) in Photo 2 (M3 x 6S sems screws).
- e. Hold the rear panel and shift it about 5 cm to the rear. Now separate the push rod and the tuning shaft from the front panel and keep in this state.
- f. Lift up the main chassis unit gently, and remove the main chassis unit from the front panel ass'y.

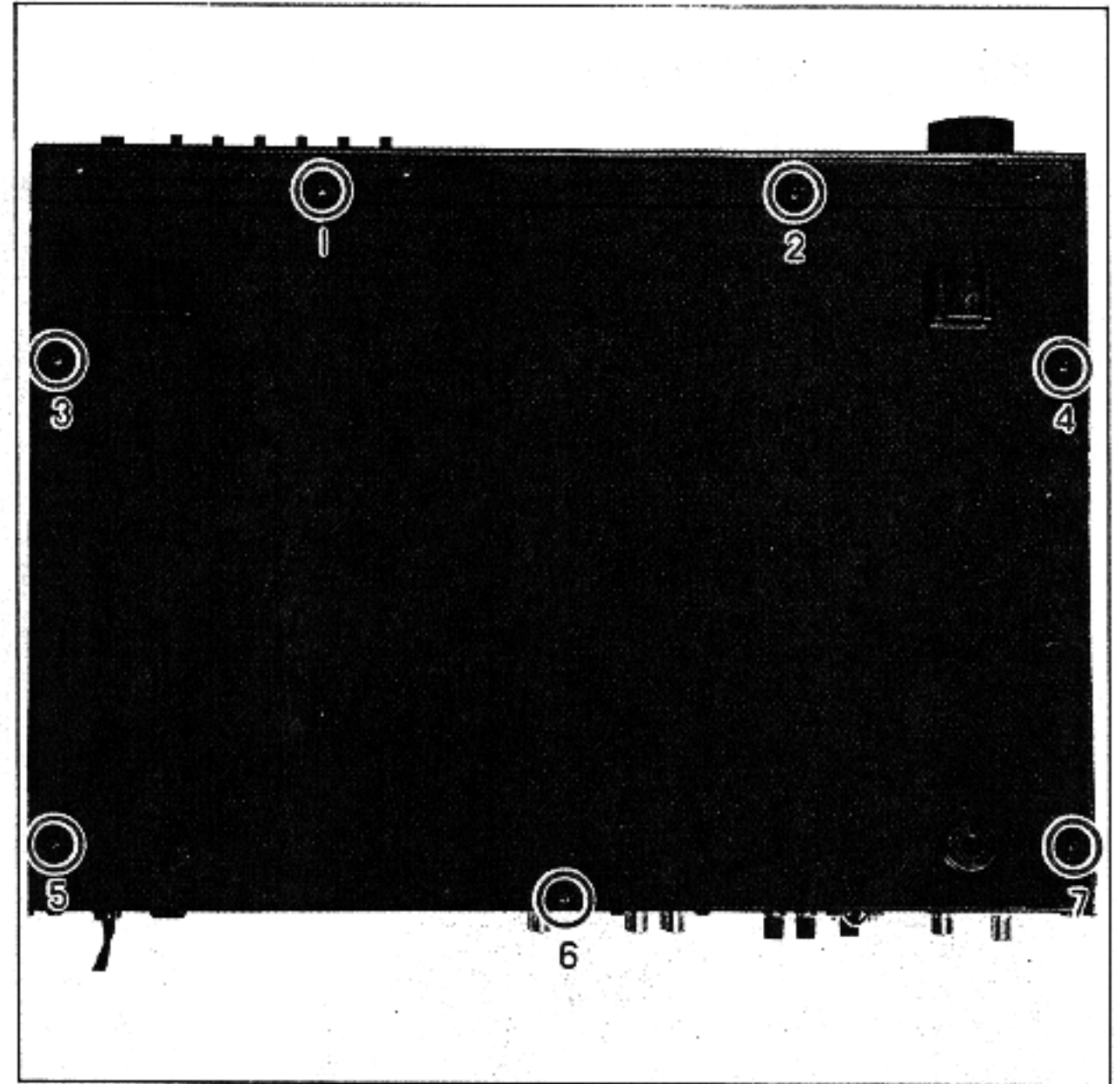


Photo 1

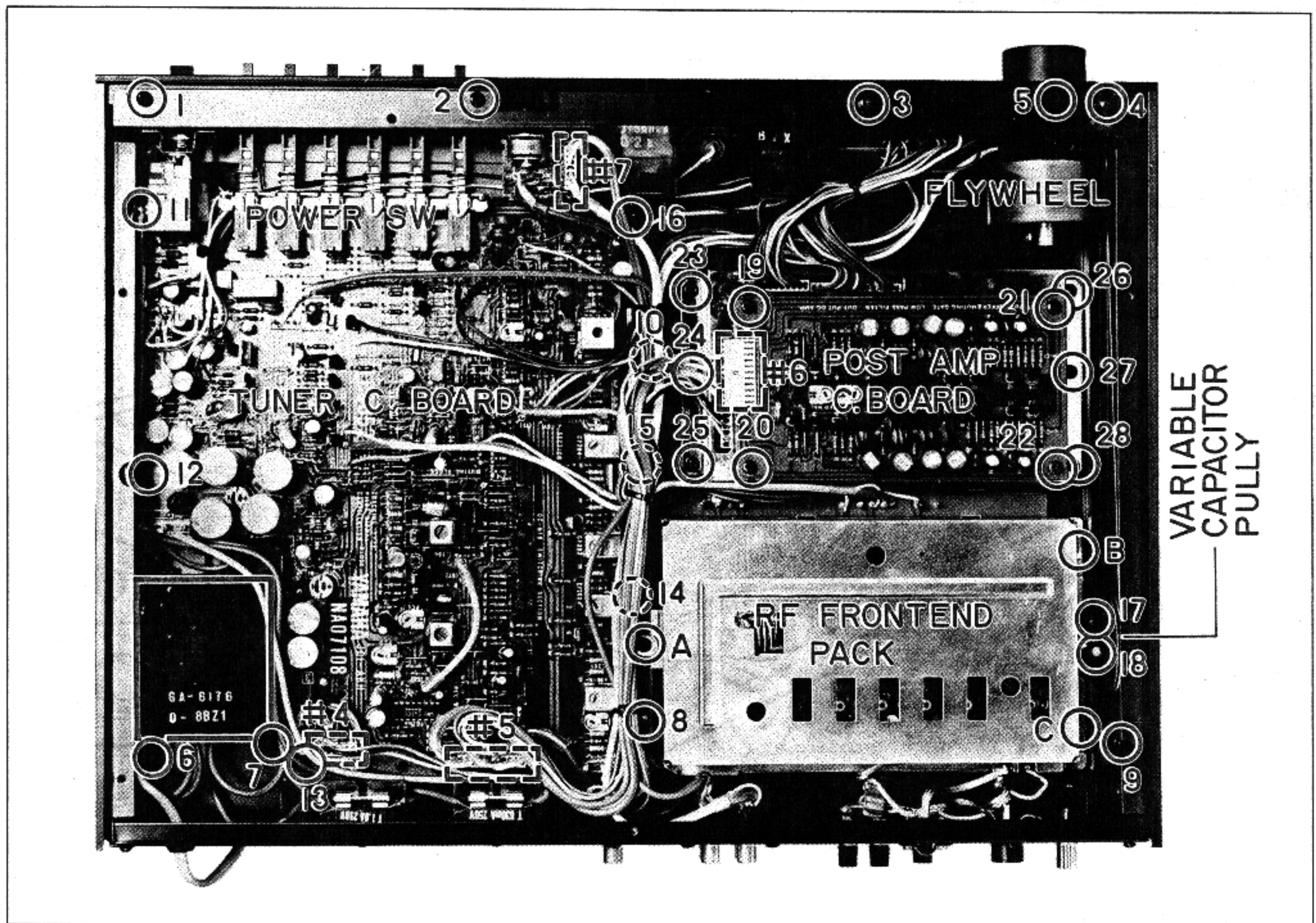


Photo 2

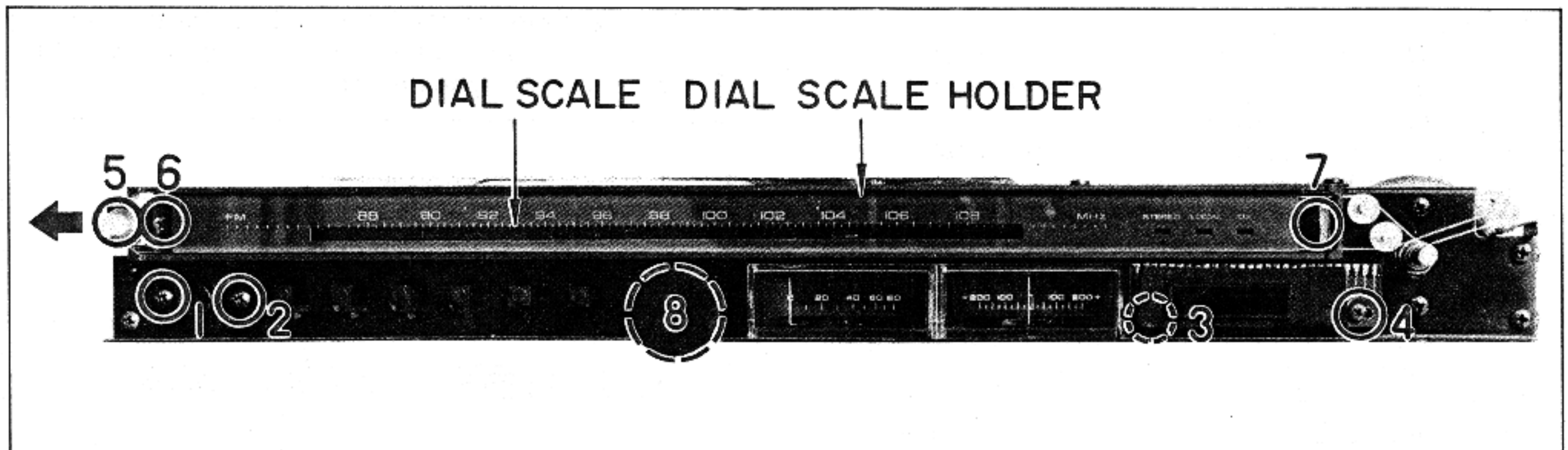


Photo 3

**3. Tuner printed circuit board (1) removal**

- a. Proceed with steps 1 and 2.
- b. Pull out connectors #4 and #5 in Photo 2 which are connected to the tuner printed circuit board (1).
- c. Remove screws (1) and (2) in Photo 3 (M3 x 6 bind head screws), and then remove the power switch along with the fitting.
- d. Remove screws (11) to (16) in Photo 2 (M3 x 6 bind head screws), and then remove the tuner printed circuit board (1).

**4. RF front end pack removal**

- a. Remove the bottom cover under step 1.
- b. Detach the lead wires which are attached to the connectors of the RF front end pack in Photo 2, and also the ground wire.
- c. Loosen screws (17) and (18) of the variable capacitor pulley in Photo 2 and then pull out the pulley from the variable capacitor shaft. You will find that if you wind adhesive tape or vinyl tape to secure the dial string to the pulley so that the string does not get tangled up (see Fig. 1), the replacement operation will be facilitated.
- d. Remove screws (A) to (C) in Photo 2, and then remove the RF front end pack.

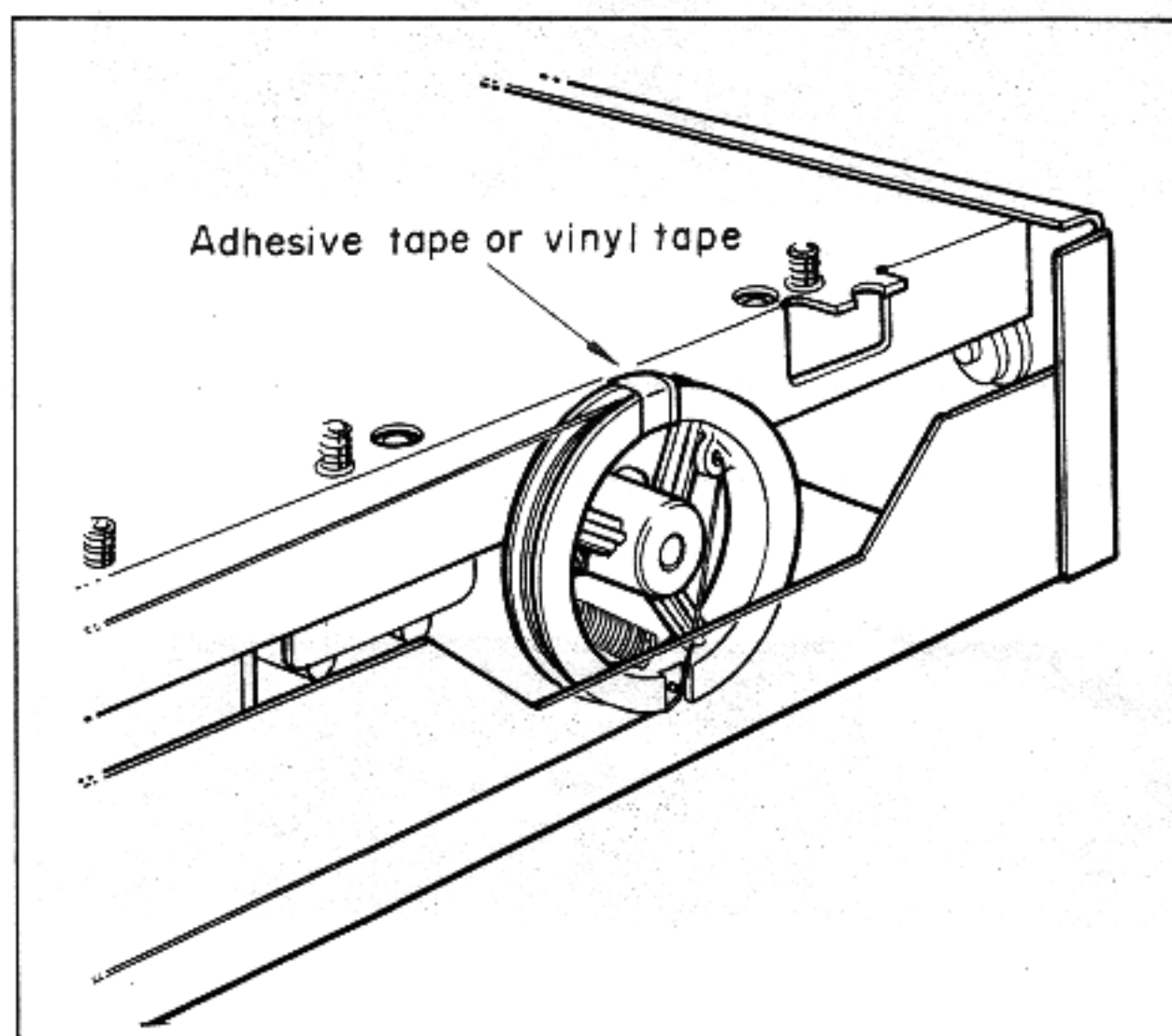


Fig. 1

**5. Post amp printed circuit board removal**

- a. Remove the bottom cover under step 1.
- b. Pull out connector #6 in Photo 2.
- c. Remove screws (19) to (22) in Photo 2 (M3 x 6 bind head screws) and remove the post amp printed circuit board.

**6. Digital printed circuit board removal**

- a. Proceed with the removal of the bottom cover under step 1.
- b. Pull out connector #6 in Photo 2.
- c. Remove screws (23) to (28) in Photo 2 (M3 x 6 bind head screws), and remove the digital printed circuit board along with the shield case. (See Photo 4.)  
\* The post amp printed circuit board is attached to the cover of the shield case and so remove screws (19) to (22) in Photo 2 when removing the post amp printed circuit board.
- d. Pull out connectors #1, #2 and #3 of the digital printed circuit board, and detach the lead wires.

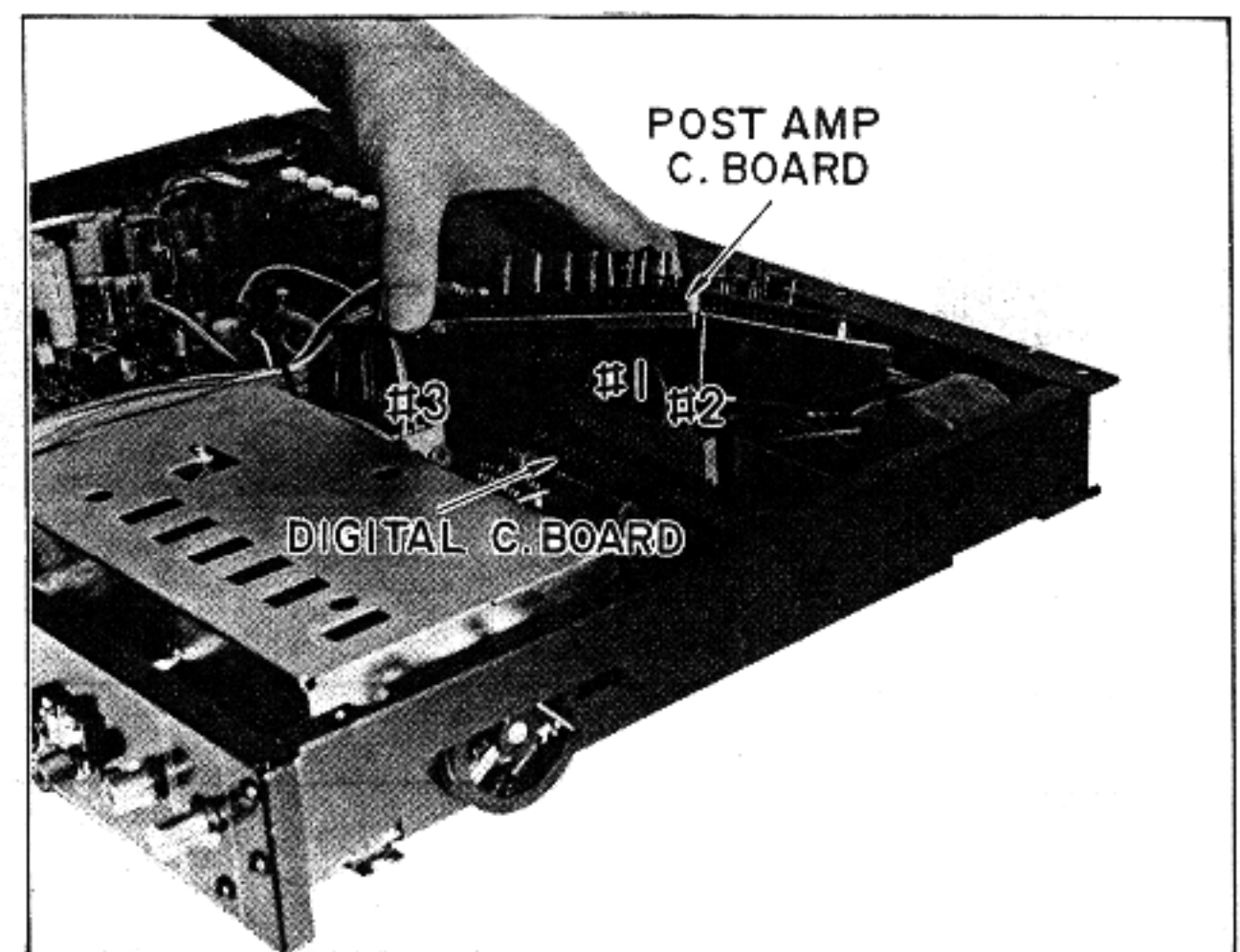


Photo 4

**7. LED indicator (display ass'y) removal**

- a. Proceed with steps 1 and 2.
- b. Remove screws (3) and (4) in Photo 3 (M2.6 x 5 bind head screws) and then remove the LED indicator  
\* Screw (3) is on the inside of the masking tape.
- c. Pull out connectors #1 and #2 of the digital printed circuit board. (See Photo 4.)

### 8. Scale holder unit removal

Note: Wear gloves for this procedure so as not to leave your fingerprints on the dial scale.

- a. Remove the front panel ass'y. (See step 2.)
  - b. Pull out the pilot lamp in Photo 3 in the direction indicated by the arrow.
  - c. As in Fig. 2, depress the dial scale in the direction of arrow 1, and then remove it in the direction of arrow 2.
- \* When the dial scale is attached to the holder, depress in the direction of arrow 1 in Fig. 2 and at the same time slip it into the holder.
- d. Remove screw (6) and (7) in Photo 3 (M3 x 6 bind head screws) and then remove the dial scale holder.

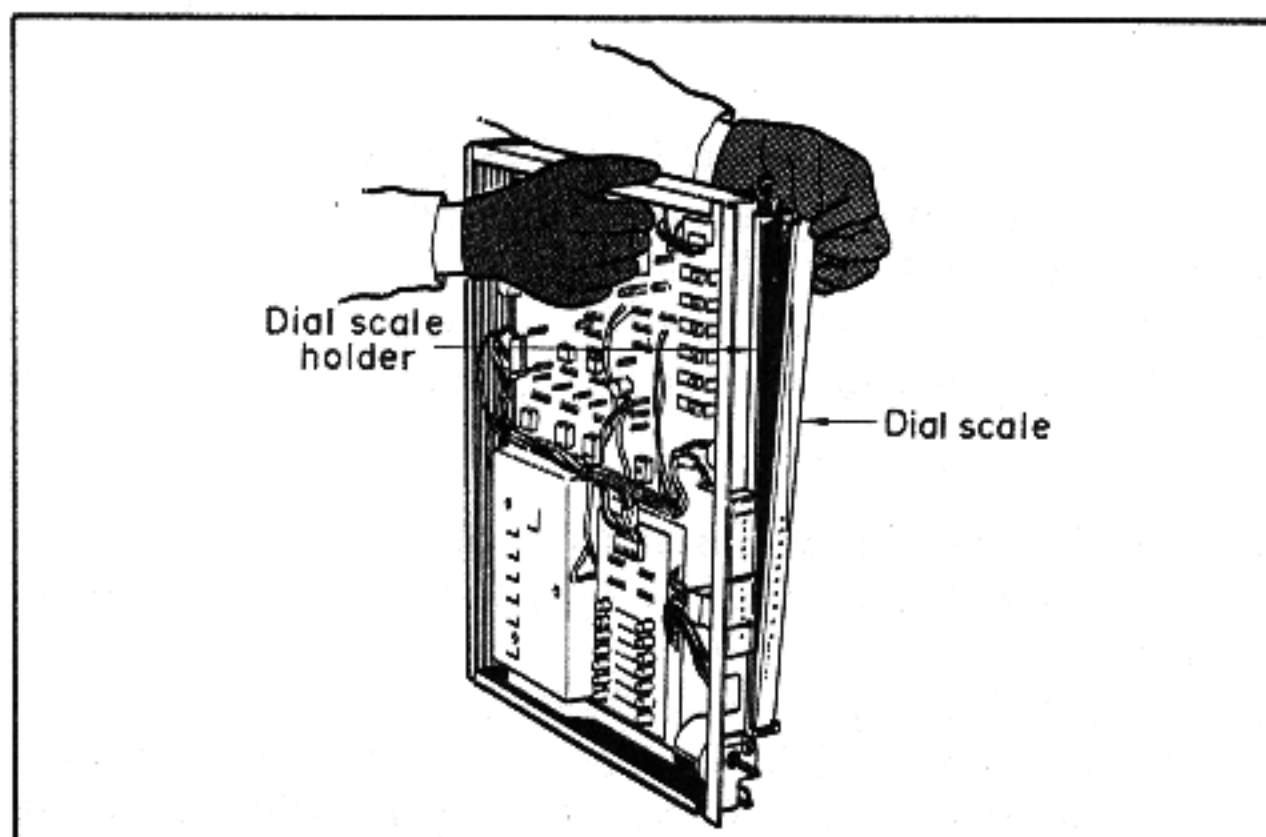


Fig. 2

\* When the dial scale holder is removed, the semi-disassembled model will look like that in Photo 5.

### 9. Tuner printed circuit board (2) LED indicator removal

- a. Remove the dial scale holder. (See step 8.)

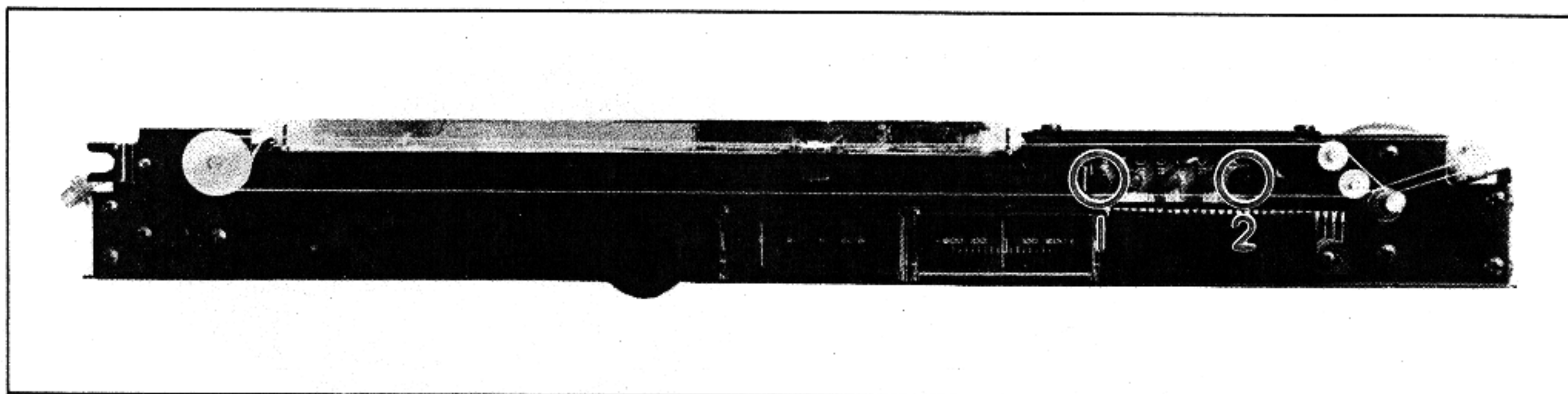


Photo 5

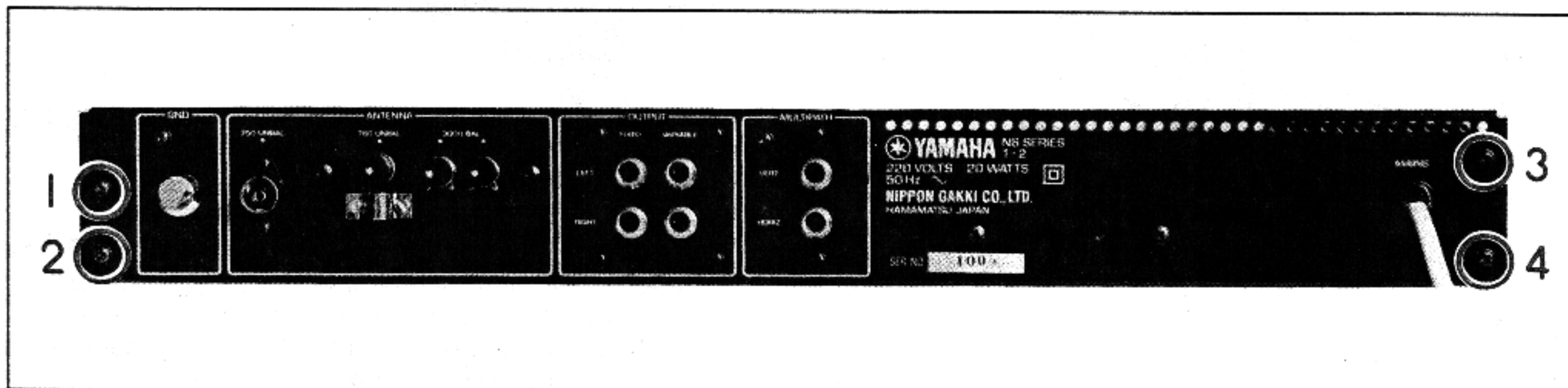


Photo 6

- b. Remove plastic rivets (1) and (2) in Photo 5 (see Fig. 3), and then remove tuner printed circuit board (2).

Fig. 3 Removing the plastic rivets

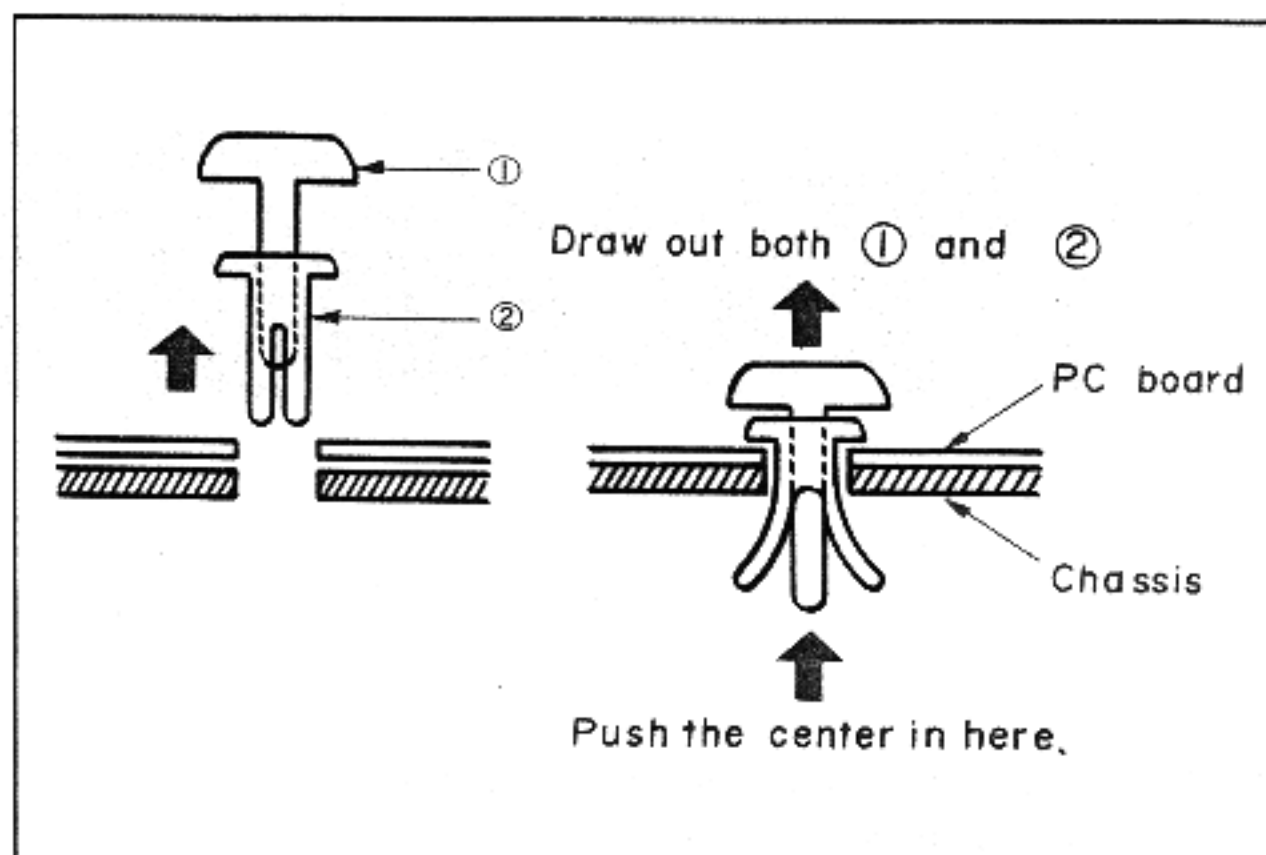


Fig. 3

### 10. Tuner printed circuit board (3) removal

- a. Proceed with steps 1 and 2.
- b. Pull out the knob in Photo 3 gently from the shaft of the variable resistor (VR206, 10KB x 2).
- c. Use an 11 mm key wrench to loosen the nut that secures the variable resistor and remove it.
- d. Pull out connector #7 of the output variable resistor of tuner printed circuit board (3), and detach the lead wires which are connected to the board (refer to Photo 2).

### 11. Rear panel removal

- a. Proceed with steps 1 and 2.
- b. Remove screws (1) to (4) in Photo 6 (M3 x 6 bind head screws).
- c. Detach the lead wires which are connected to the rear panel and then remove the rear panel itself.



## CIRCUIT DESCRIPTION

### Operation of digital printed circuit board

The digital circuit board, which serves to indicate the frequency during tuning, is mainly composed of the following circuits:

- (1) Clock oscillator
- (2) Divider
- (3) RF input circuit
- (4) Counter
- (5) LED drive circuit
- (6) LED lighting circuit

As indicated in the digital printed circuit board's block diagram in Fig. 4, the IC's are actuated by the DC muting voltage for LED control and by the clock oscillation and frequency display pulse signals, the frequency of the local oscillator output from the OSC terminal of the RF front end is divided and detected, and the LED indicators light up.

#### 1. Clock oscillator

The clock oscillator is composed of IC506: TC5082P and a 10.24 MHz crystal oscillator.

IC506 is an IC which integrates a flip-flop for frequency division at a ratio of 1/4096 with the oscillator section.

The oscillation circuit features a 1 M-ohm resistor for feedback connected to the inverter and it causes the crystal oscillator (10.24 MHz) to oscillate.

The oscillation output which has passed through the buffer amplifier can be checked at terminal CHK2.

The oscillation output passes through the 12-stage flip-flop, its frequency is divided by 1/4096 and the output appears as a 2.5 kHz pulse signal at pin 4.

#### 2. Divider

The 2.5 kHz output signal from the clock oscillator is sent to pin 14 of IC505 for the divider.

IC505: SN74LS93 is a high-speed counter composed of four master-slave flip-flops and it is made up of a 1/16 frequency divider.

IC504 is configured at a 4-input NAND gate circuit using multi-emitter transistors. It receives the output of IC505, mixes it and feeds out timing pulses such as those in Fig. 1 from pins 8 and 6.

The output signal from pin 8 becomes the pulse that determines the RF input through time, and the output signal from pin 6 becomes the IC507-510 preset timing pulse.

#### 3. RF input circuit

The input signal of the local oscillator which is taken out from the RF front end OSC terminal enters the RF IN terminal on the digital printed circuit board, and then enters pin 6 of IC501: HD10131.

The signal passes through the two pairs of high-speed flip-flops inside IC501 and its frequency is then divided by 1/4.

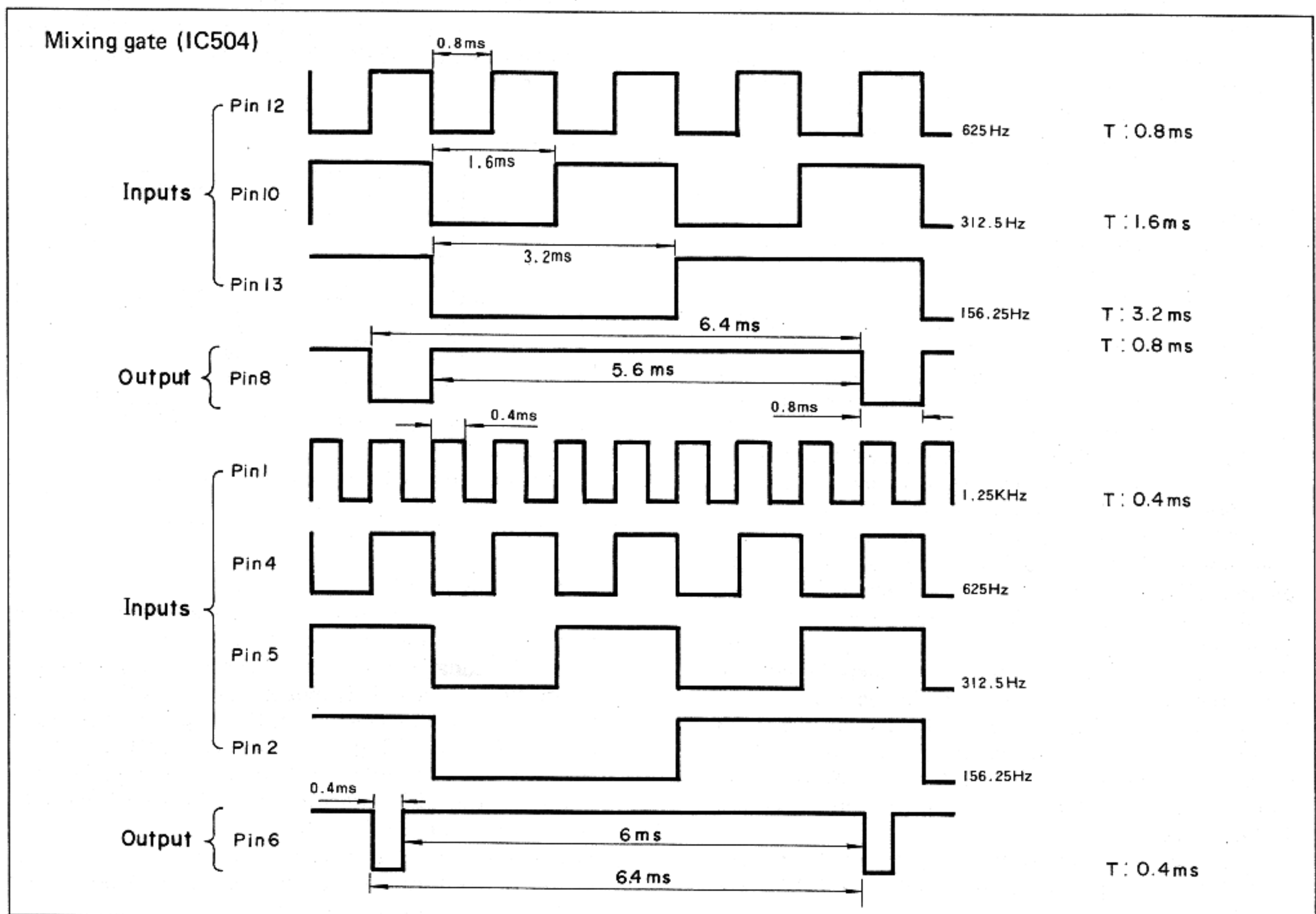


Fig. 1

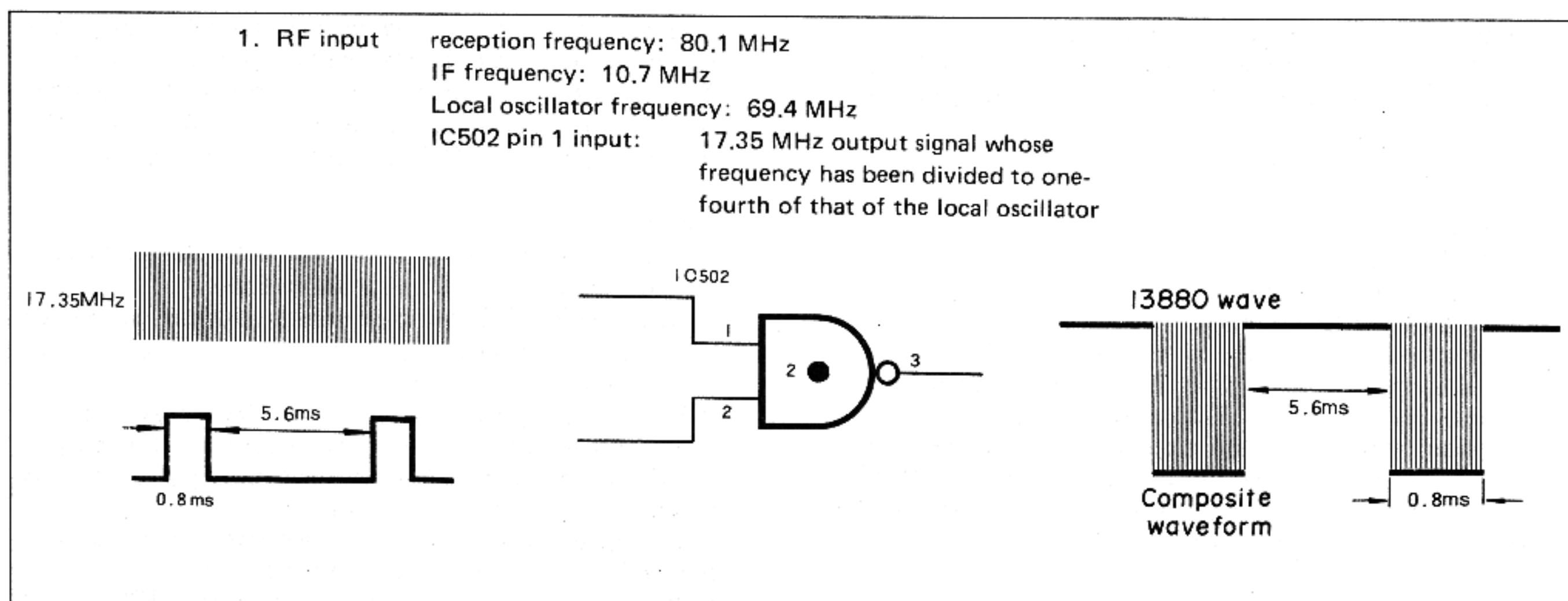


Fig. 2

The signal is then level-converted by TR501 and sent to pin 5 of IC502. Its output from pin 6 of IC502 is then sent to pin 1 of IC502 again.

The 0.8 ms pulse output signal from pin 8 of IC504 is inverted and it enters pin 2 of IC502. This means that composite waveforms such as that illustrated in Fig. 2 are available at pin 3 of IC502.

Pins 1 of IC507 to IC510 are triggered by the trailing edge of the composite waveform, and then the decade counting operation begins.

\* If the FM reception frequency is taken to be 80.1 MHz, then the frequency of the local oscillator will be 69.4 MHz, and a 17.35 MHz signal (frequency which is one-fourth of that of the local oscillator) will enter pin 1 of IC502, it will be mixed with the 0.8 ms pulse and a composite output will be obtained as in Fig. 2.

#### 4. Counter

The output signals appearing from pin 3 of IC502 are sent to each of the presettable counter IC's: IC507, 508, 509 and 510.

Since the IF center frequency ( $f_i$ ) tends to fluctuate, the oscillation frequency of the local oscillator also tends to fluctuate likewise, and these counters serve to compensate for these fluctuations in accordance with the IF center frequency and count. They include

- IC507: SN47LS196 for 10 kHz level counting
- IC508: NS47LS196 for 100 kHz level counting
- IC509: NS47LS196 for 1 MHz level counting
- IC510: NS47LS196 for 10 MHz level counting

The preset values of IC507 to IC510 are determined by the offset printed circuit board which is inserted to all the JP sockets. Therefore, measure the IF center frequency ( $f_i$ ) at the tuning point, refer to the 'offset cutting indication figure' on page 17, cut the offset pattern and mount into the JP sockets.

The output of IC502 enters pin 8 (CP1) of IC507, its frequency is divided, it becomes the pin 12 (QD) output, it is counted to pin CP1 of IC508, and then to IC509 and IC510 and fed until the digits reach the 10 MHz level.

Furthermore, when the output of pin 6 of IC504 goes to LOW, the input data for IC507 to IC510 are preset.

#### 5. LED drive circuit

IC511: SN74LS47 is a decoder/driver IC for driving the 7-segment LED indicator from the 4-bit BCD input. It is configured as an output open collector and a maximum current of 80mA may be allowed to flow to each of the LED indicator segments when it is in the active low mode.

IC511 is responsible for counting at a reception frequency level of 100 kHz. There are seven outputs (A to G), and the LED array through which the outputs of pins A to G are displayed is given in Fig. 3. At the same time, IC512 drives the 1 MHz LED indicator and IC513 drives the 10 MHz LED indicator.

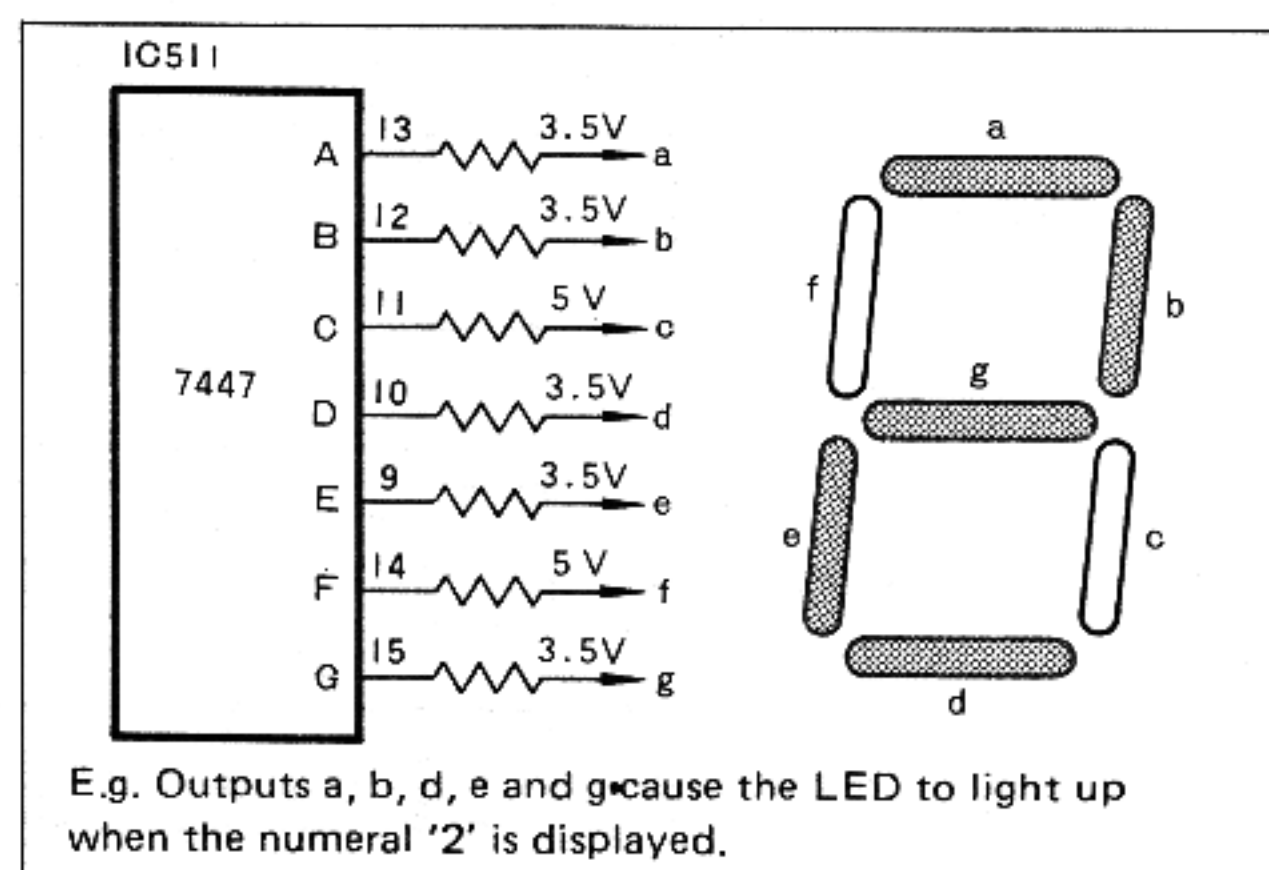


Fig. 3

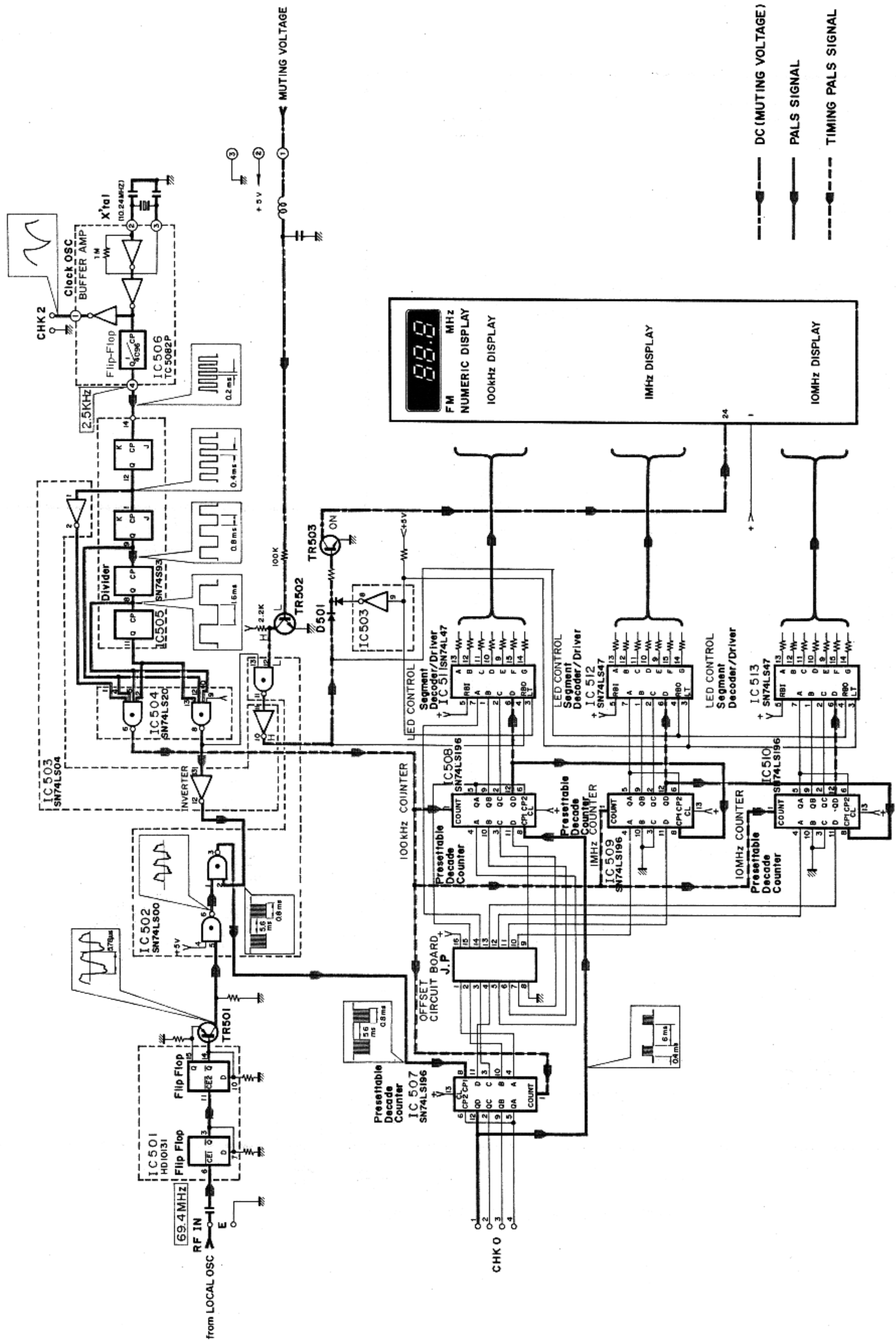
#### 6. LED lighting circuit

The LED lighting display is controlled by the muting voltage of the tuner printed circuit board.

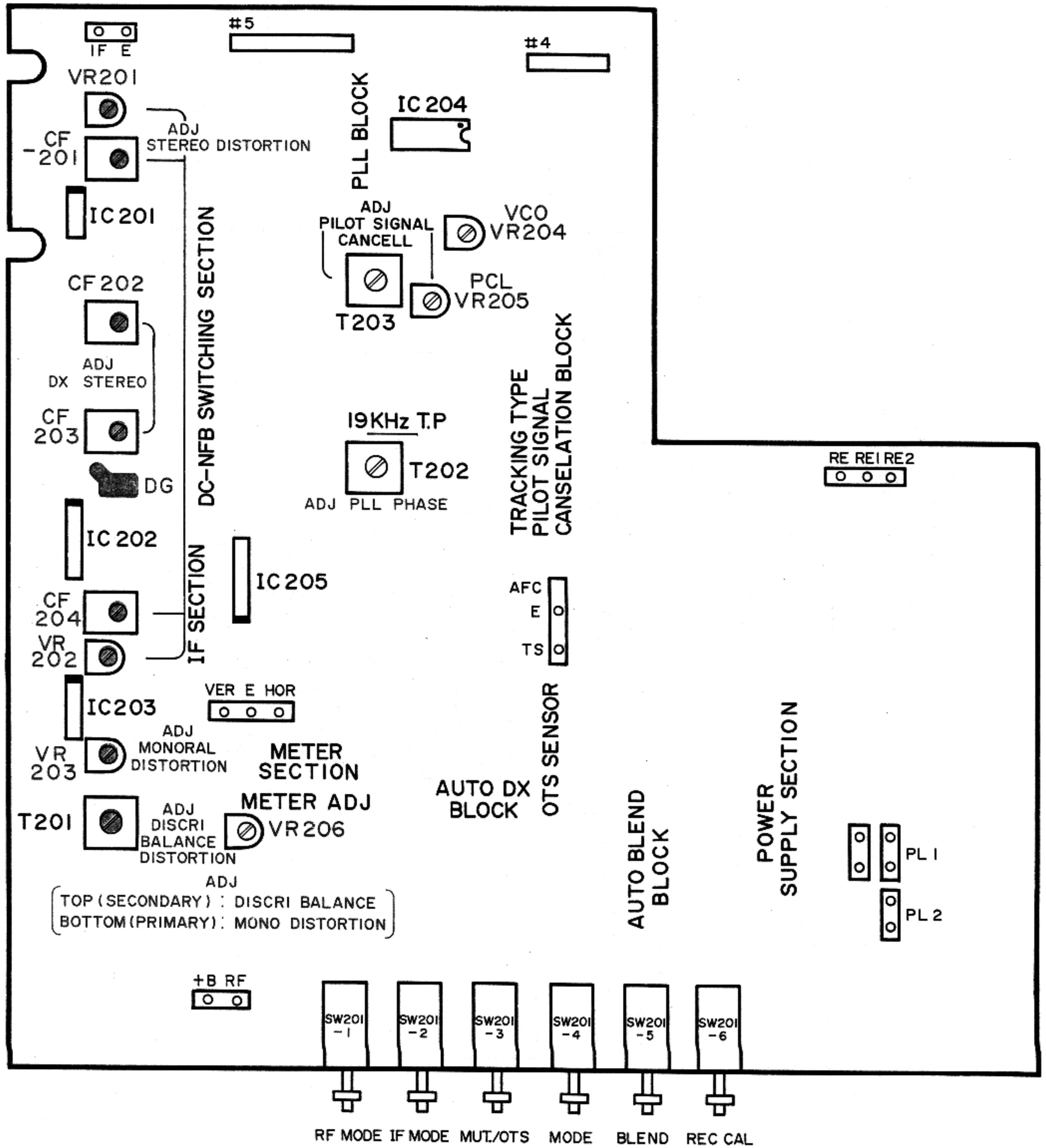
When the tuner is set to the reception mode, there is no muting voltage. This means that TR502 base goes to L, the collector goes to H, IC502 pin 11 goes to L and IC503 pin 10 goes to H. The voltage passes through D501, TR503 is set to ON, the signal enters pin 24 of the LED indicator, the LED's cathode side grounded, and the LED lights up.

With detuning, the reverse operation takes place owing to the muting circuit voltage, TR503 goes OFF and the LED does not light up.

# DIGITAL CIRCUIT BOARD BLOCK DIAGRAM



# TUNER CIRCUIT BOARD/TEST POINT



# ADJUSTMENT

1. Set the switches to the following positions:  
RF MODE – HI SENSITIVITY  
IF MODE – LOCAL  
AUTO BLEND – OFF
2. The center position of the tuning scale at the detuning point is acceptable if it is  $\pm 2$  mm or less from the center of the scale center.
3. The reception frequency indicated on the digital display should indicate the same frequency within the muting width.

\* Measuring instrument abbreviations  
FM SG: FM signal generator  
OSC: Oscilloscope  
DM : Digital multimeter  
DIST M: Distortion meter  
FC: Frequency counter

## 1. Tuning printed circuit board adjustments

Step	Adjustment item	Connection terminal	Measuring instrument (conditions)	Adjustment part	Adjustment method	Rating (St'd)	Remarks
1	Front end IF core preset	Connect FM SG through a 300-ohm dummy load to antenna terminal (300 ohms).	Detuning point FM SG	Front end IF core	Rotate IF core to left and right, set tuning meter pointer to center.		Fig. 1 Fig. 2
2	Discriminator balance	See Step 1.	See Step 1.	TR201 (GE10020) Discriminator coil secondary (top) core	Rotate IF core to left and right, and set so that tuning meter pointer deflects within specification.	Inside center scale	With REC, CAL switches at ON, check that mechanical center point of tuning meter points to "0"
3.	Tuning point setting	See Step 1.	FM SG: antenna input 60dBu, 98MHz	Tuning knob	Set so that tuning meter pointer indicates center.		Fig. 2
4	Monaural distortion adjustment	See Step 1. OUTPUT (L) Terminal only	See Step 3. Monaural 1 kHz 100% modulation OSC, DM, DIST M	T201 (GE10020) Discriminator coil primary (bottom) core (VR203, 2KB)	Reduce distortion to minimum.	Less than -60dB (-66dB)	
5	VCO ADJ	See Step 1. 19 kHz, TP terminal	See Step 3. Non-modulation FC	VCO ADJ VR204 (5KB)	Set to 19 kHz.	19 kHz $\pm 20$ Hz $\pm 5$ Hz	
6	PLL input phase adjustment	See Step 1. OUTPUT (L) terminal only	See Step 3. Stereo 1 kHz, L-R 100% modulation OSC, DM	T202 (GE6056)	Adjust so that L-R level is brought to its maximum.		

Step	Adjustment item	Connection terminal	Measuring instrument (conditions)	Adjustment part	Adjustment method	Rating (St'd)	Remarks
7	Stereo modulation adjustment	See Step 1. OUTPUT (L) terminal only	See Step 3. Stereo (L) 1 kHz 100% modulation DM, DIST M	VR201 (1KB) CF 201 (GE00035) Front end IF core VR202 (500B) CF 204 (GE00035)	Reduce distortion to minimum.	Less than -60dB (66dB)	
8	Pilot canceling adjustment Carrier leakage adjustment	See Step 1. (OUTPUT (L, R))	See Step 3. PILOT 9% modulation OSC, DM	T203 (GE6056) PCL VR205 (100KB)	Adjust so that left and right carrier leakage is reduced to minimum.	Less than -66dB (-72 dB)	
9	Separation adjustment	See Step 1. OUTPUT (L, R)	See Step 3. Stereo (L, R) 1 kHz 100% modulation OSC, DM	SEP VR402 (2KB) SEP BAL VR401 (1KB) Post amp pc board	Attain balance between left and right with VR401, and maximum with VR402.	More than 52dB (58dB)	Fig. 5
10	Signal meter full scale adjustment	See Step 1.	See Step 3. Non-modulation	METER ADJ VR206 (100K)	Set so that meter pointer deflects within specified zone.	Between 70-80 (75)	Fig. 3
11	Pointer alignment	See Step 1.	98 MHz Antenna input 60 dBu	Tuning knob pointer	Rotate the tuning knob, tune so that tuning meter pointer is centered and align pointer with '98' on dial scale.	Less than 2 mm	Fig. 4
12	Stereo operation check	Reception frequency: detuned point near center. With 300-ohm antenna connected (through front end pack)	SG: 98 MHz Stereo L, R 100% modulation OSC, DM	Check that there is separation between L and R channels.	Check that monaural operation is available as soon as MODE SW is set to MONO.		
13.	Muting operation check	See Step 12. FIXED OUTPUT L, R	See Step 6.	Set the MUT/OTS switch to the ON position, and check that the output does not appear while the model is detuned. Check that the output appears when the model is tuned in.			
14	OTS operation check	See Step 12. FIXED OUTPUT L, R	See Step 6.	<ol style="list-style-type: none"> <li>1) Set MUT/OTS switch to the OFF position and check that the pointer returns within <math>\pm 50</math>kHz at a detuned position of <math>\pm 100</math>kHz each when the switch is set to ON.</li> <li>2) Set the MUT/OTS switch to ON, apply a 60Hz, 5mV signal to the TS terminal on the tuner pc board, detune about <math>\pm 100</math>kHz, and check that the pointer returns within <math>\pm 50</math>kHz when the signals are no longer applied.</li> </ol>			

Step	Adjustment item	Connection terminal	Measuring instrument (conditions)	Adjustment part	Adjustment method	Rating (St'd)	Remarks
15	AUTO DX operation check	See Step 2. FIXED OUTPUT L, R	See Step 4 60dB $\mu$ , 10dB $\mu$		1) Set the IF MODE switch to AUTO DX and check that the LOCAL indicator comes on when the model is tuned and that the DX indicator comes on when detuned. 2) In this set-up, check that DX is selected when the antenna input is set to 10 dB $\mu$ .		
16	Forced LOCAL check	See Step 2. FIXED OUTPUT L	See Step 15. 10dB $\mu$		In step 15 set up check that the LOCAL indicator comes on and the model is set to the LOCAL MODE when the IF MODE switch is set to the LOCAL position.		
17	AUTO BLEND operation check	See Step 2. FIXED OUTPUT L	See Step 7. Stereo 1kHz, 100% modulation 20 dB $\mu$ OSC		Check that the separation deteriorates when the FM BLEND switch is set from OFF to the AUTO BLEND position.		
18	REC CAL operation check	FIXED OUTPUT L	OSC, FC		Check that a 333 Hz $\pm$ 60Hz signal is made available when the REC CAL switch is set to the ON position.		
19	IF offset setting	See Step 11. IF terminal on tuner pc board	See Step 11. FC		Read out IF center frequency at tuning point, perform cutting of offset printed circuit board, and mount on digital printed circuit board. (Refer indicate to cutting indication figure under section 2.)		Station indicator should display the reception frequency precisely. Make sure this is performed on completion of adjustments up to Step 10
20	DX stereo adjustment	See Step 1.	See Step 7.	CF202, CF203	Adjust so that signal meter pointer deflects to maximum.	Less than $\pm$ 2mm at tuning point	Adjust at fine adjustment range.

Note) Add the following check items between Steps 7 and 8.  
When the signal generator output is set to over 110dB $\mu$  in the L+R MODE after the stereo distortion adjustment, check that the oscillation waveforms are not checked on the distortion waveforms and also that the deflection of the signal meter pointer does not decrease (within the whole reception frequency band).

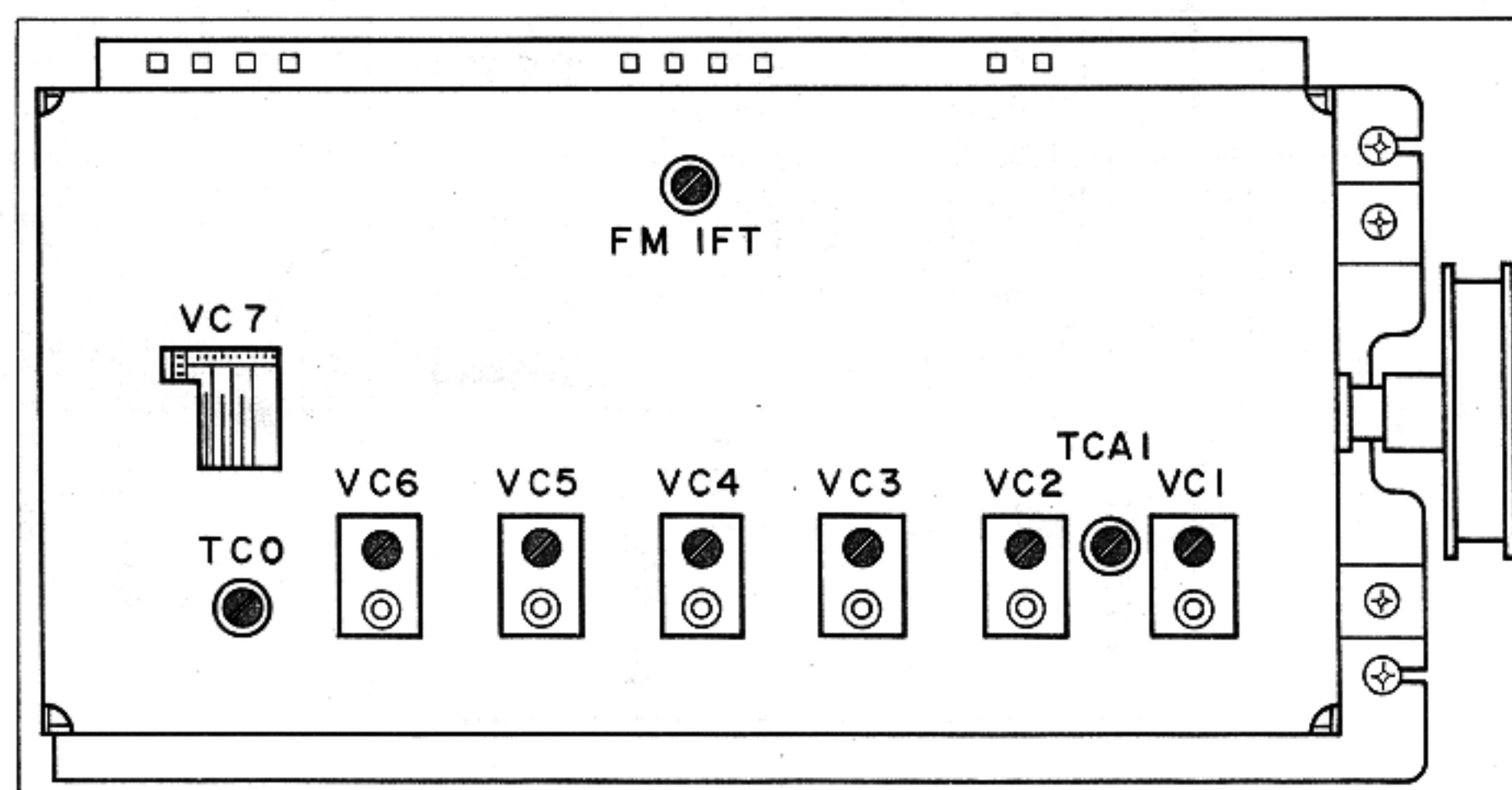


Fig. 1

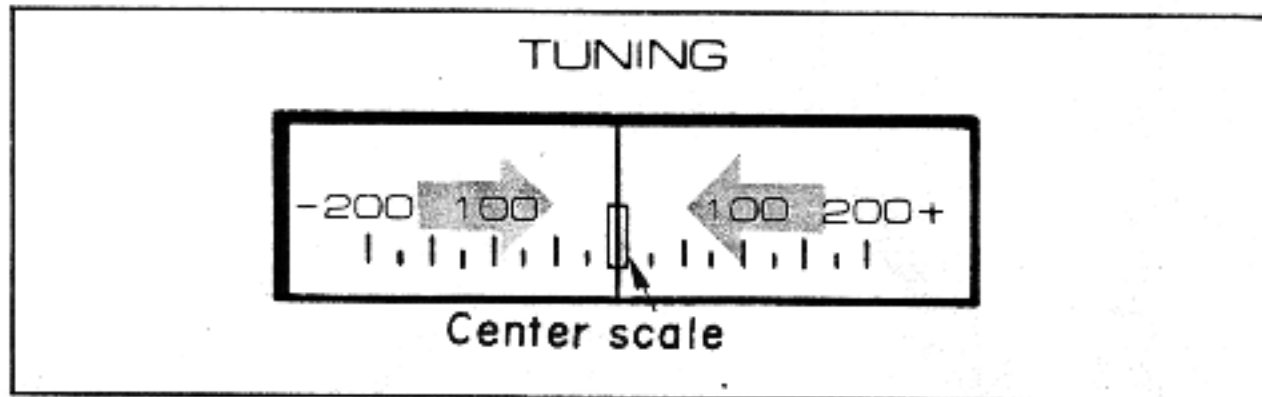


Fig. 2

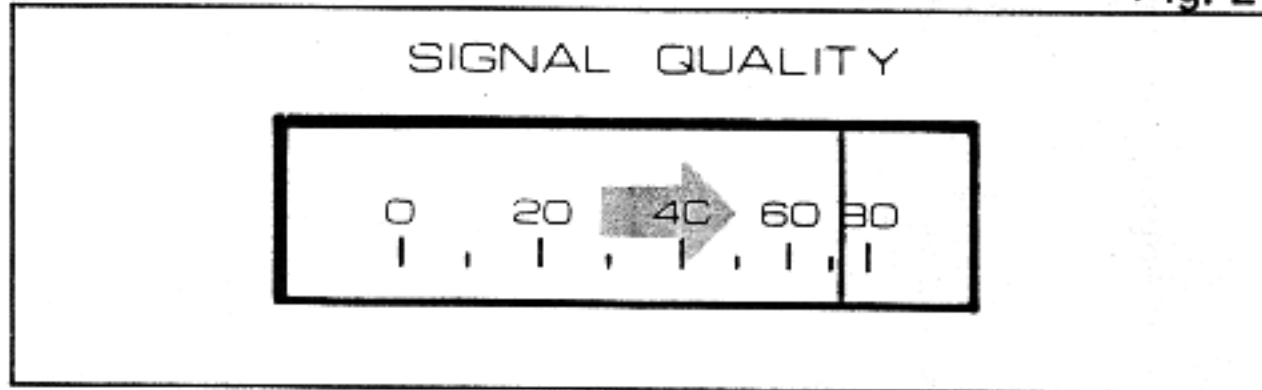


Fig. 3

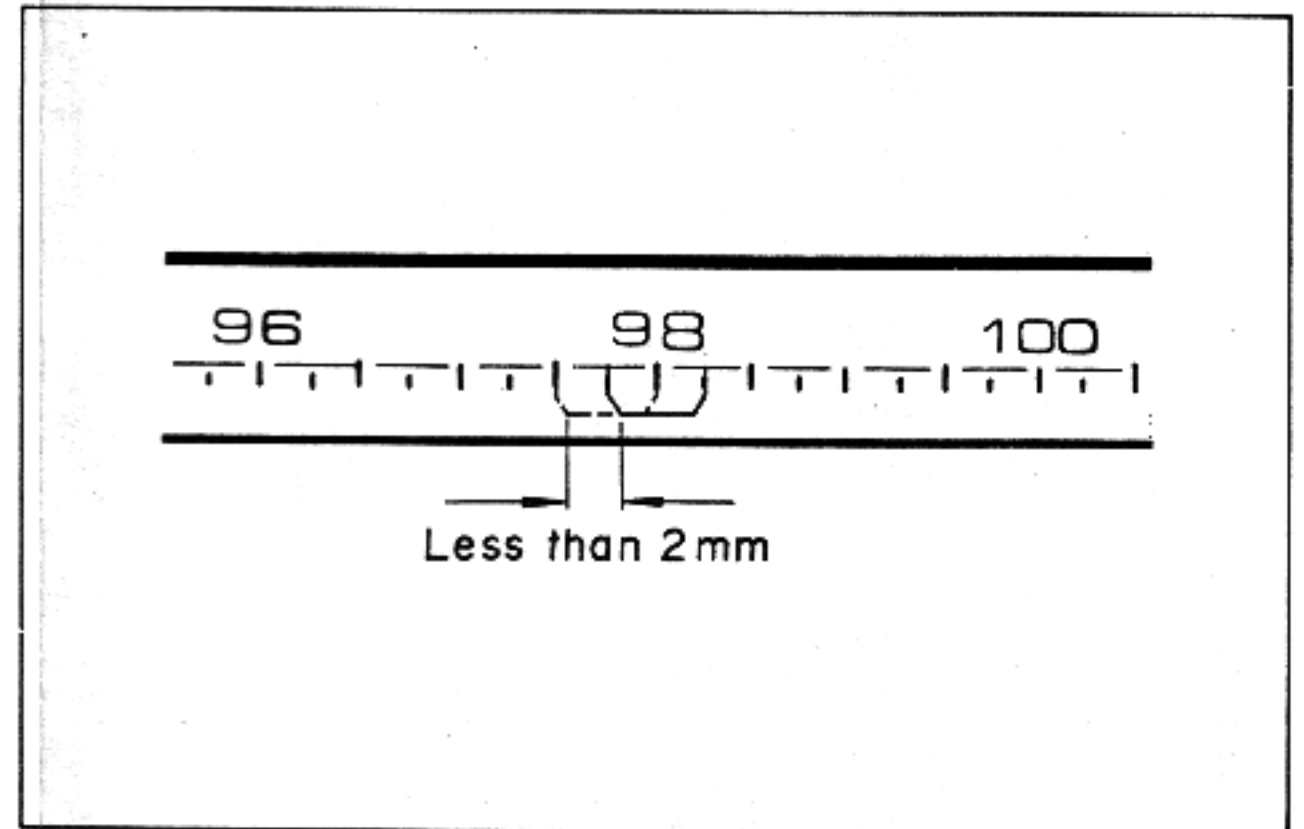


Fig. 4

## 2. Post amp printed circuit board adjustments

Set SEP VR402 (2KB), SEP BAL VR401 (1KB) to their approximate center positions. (See Fig. 5)

Step	Adjustment item	Connection terminal	Measuring instrument (conditions)	Adjustment part	Adjustment method	Rating (St'd)
1	Output check	L1 R1 E LO RO E	OSC 400Hz (through 10 k-ohm load) 200mVrms; -12dBm OSC, DM, DIST M		Apply signals separately to both left and right channels and check the output levels and distortion	Output level +2dBm $\pm$ 3dBm Distortion $\leq$ -74 dB: 0.02%
2	Frequency response check	See Step 1.	OSC 10kHz (through 10k-ohm load)  OSC 15kHz (through 10 k-ohm load)		Read out deviation in level with respect to 400Hz output level.	-10.37dB $\pm$ 0.5dB  -13.66dB $\pm$ 1dB

## 3. Digital printed circuit board adjustment

Step	Adjustment item	Connection terminal	Measuring instrument (conditions)	Rating (St'd)
1	Crystal fo check	CHK2	FC	10.240MHz $\pm$ 2kHz ( $\pm$ 500Hz)

\* The reception frequency indicated on the digital display shall indicate the same frequency within the muting width (R, A, U, C). The digital indication shall be correct to a value of  $\pm 2$  mm or less of the reception frequency scale (G, B, E).

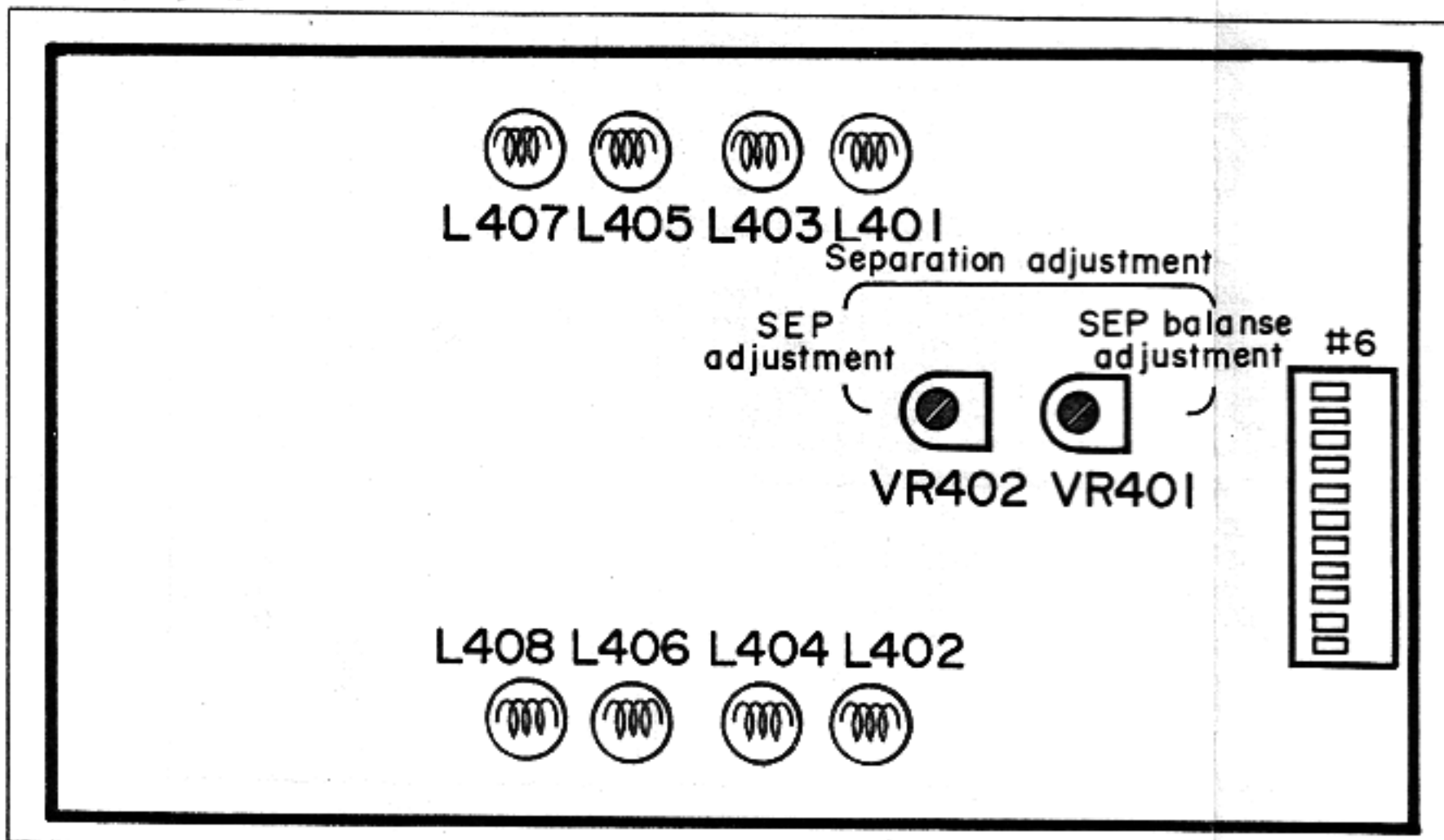


Fig. 5



US, CANADIAN, GENERAL & AUSTRALIAN MODELS

4. Offset cutting indication figure  
 Cut part of the pc board pattern (see Table 1) in accordance with the IF center frequency of the model measured under Step 19, and then mount on the digital pc board. Align the front and rear, paying full attention to the seven locations.  
 (If the pattern is not cut properly, the power supply and ground will be earthed.)  
 Round off the 1kHz units of the IF center frequency measured.  
 \*Always perform this operation upon completion of the model adjustments.

FRONT 10.5MHz level REAR	10.54MHz	10.55MHz	10.56MHz	10.57MHz	10.58MHz	10.59MHz

FRONT 10.6MHz level REAR	10.60MHz	10.61MHz	10.62MHz	10.63MHz	10.64MHz	10.65MHz	10.66MHz	10.67MHz	10.68MHz	10.69MHz

FRONT 10.7MHz level REAR	10.70MHz	10.71MHz	10.72MHz	10.73MHz	10.74MHz	10.75MHz	10.76MHz	10.77MHz	10.78MHz	10.79MHz

FRONT 10.8MHz level REAR	10.80MHz	10.81MHz	10.82MHz	10.83MHz	10.84MHz

EUROPEAN, NORTH EUROPEAN & BRITISH MODELS

FRONT 10.5MHz level REAR	10.53MHz	10.54MHz	10.55MHz	10.56MHz	10.57MHz	10.58MHz	10.59MHz

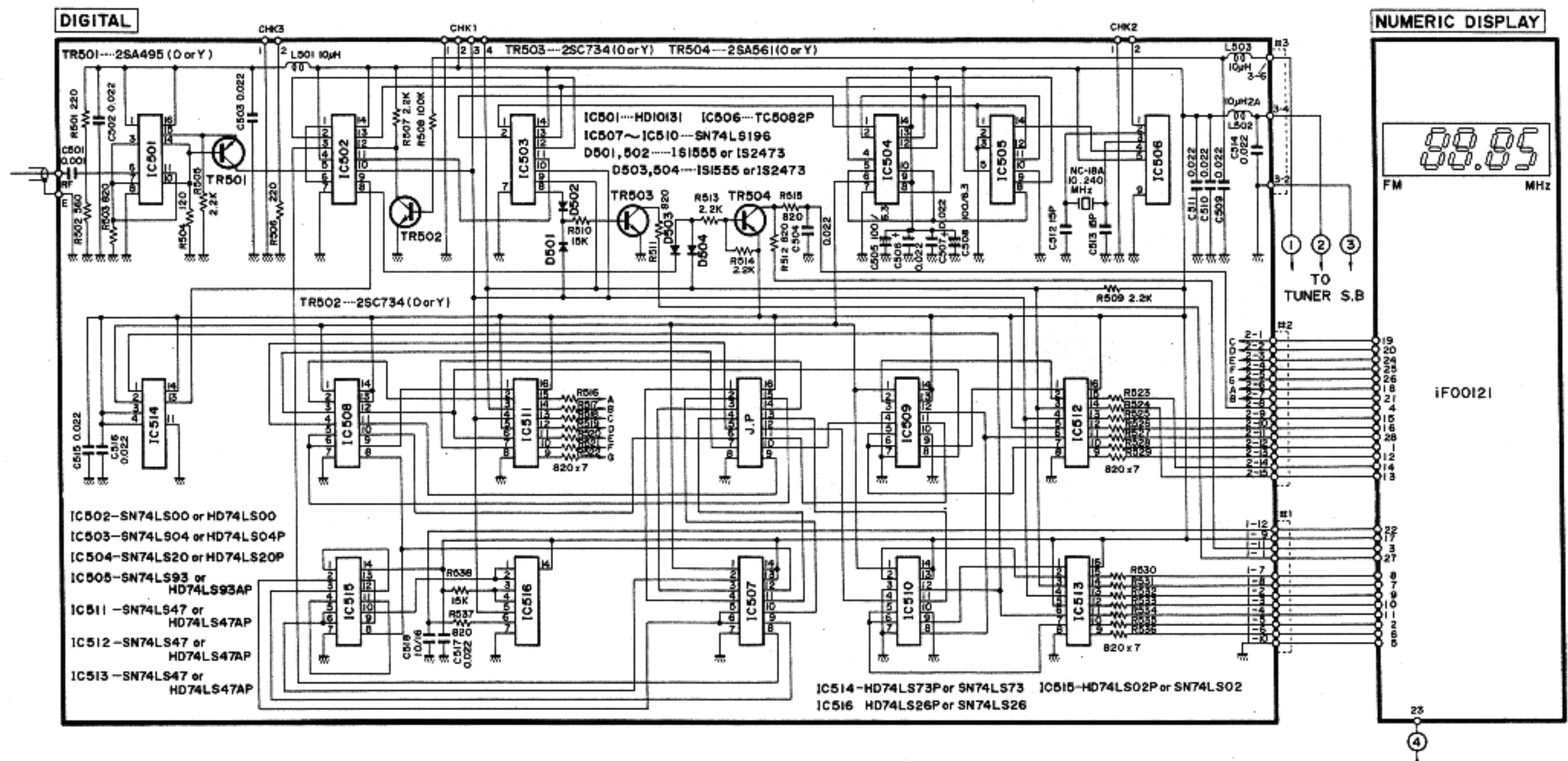
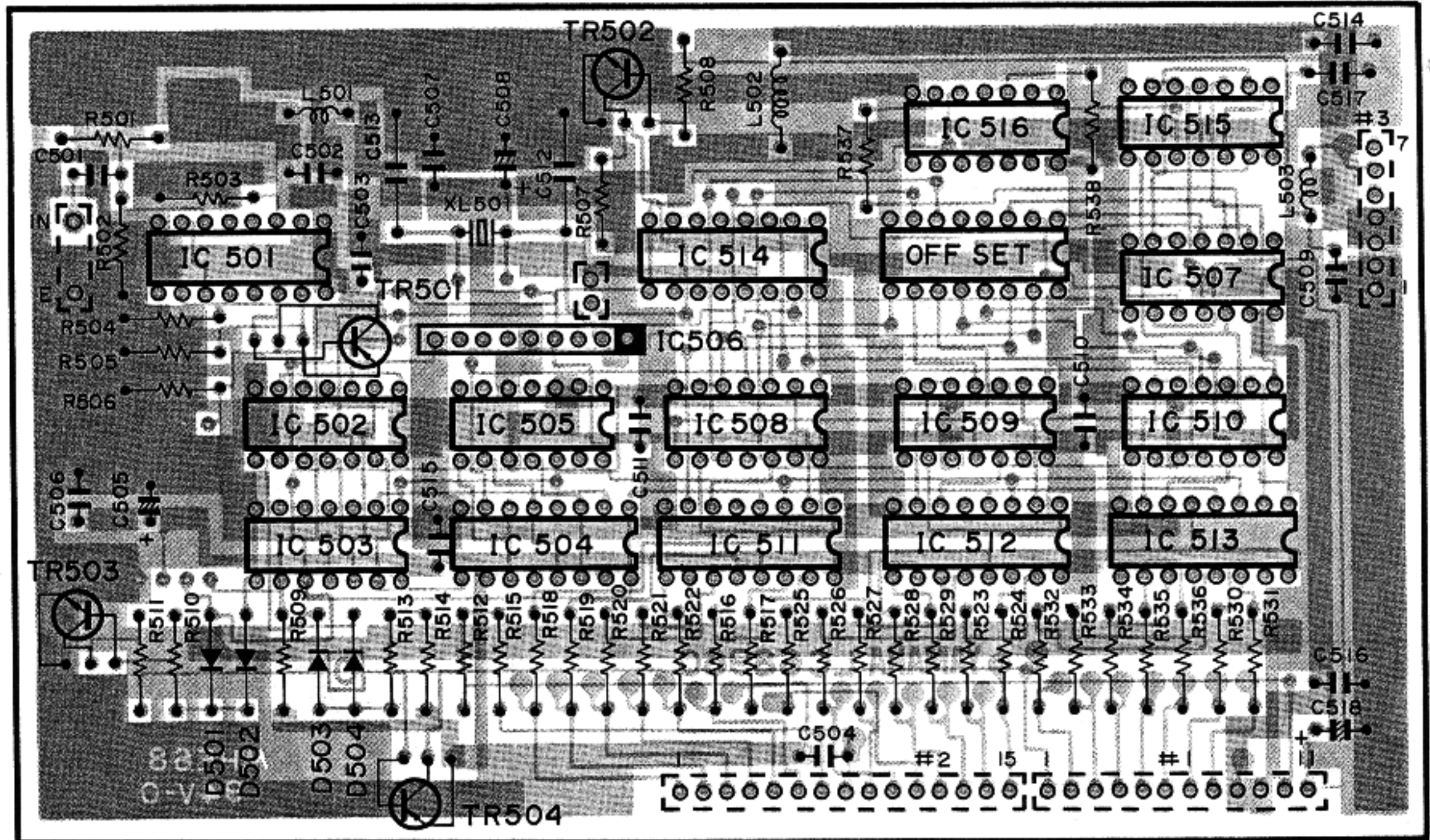
FRONT 10.6MHz level REAR	10.60MHz	10.61MHz	10.62MHz	10.63MHz	10.64MHz	10.65MHz	10.66MHz	10.67MHz	10.68MHz	10.69MHz

FRONT 10.7MHz level REAR	10.70MHz	10.71MHz	10.72MHz	10.73MHz	10.74MHz	10.75MHz	10.76MHz	10.77MHz	10.78MHz	10.79MHz

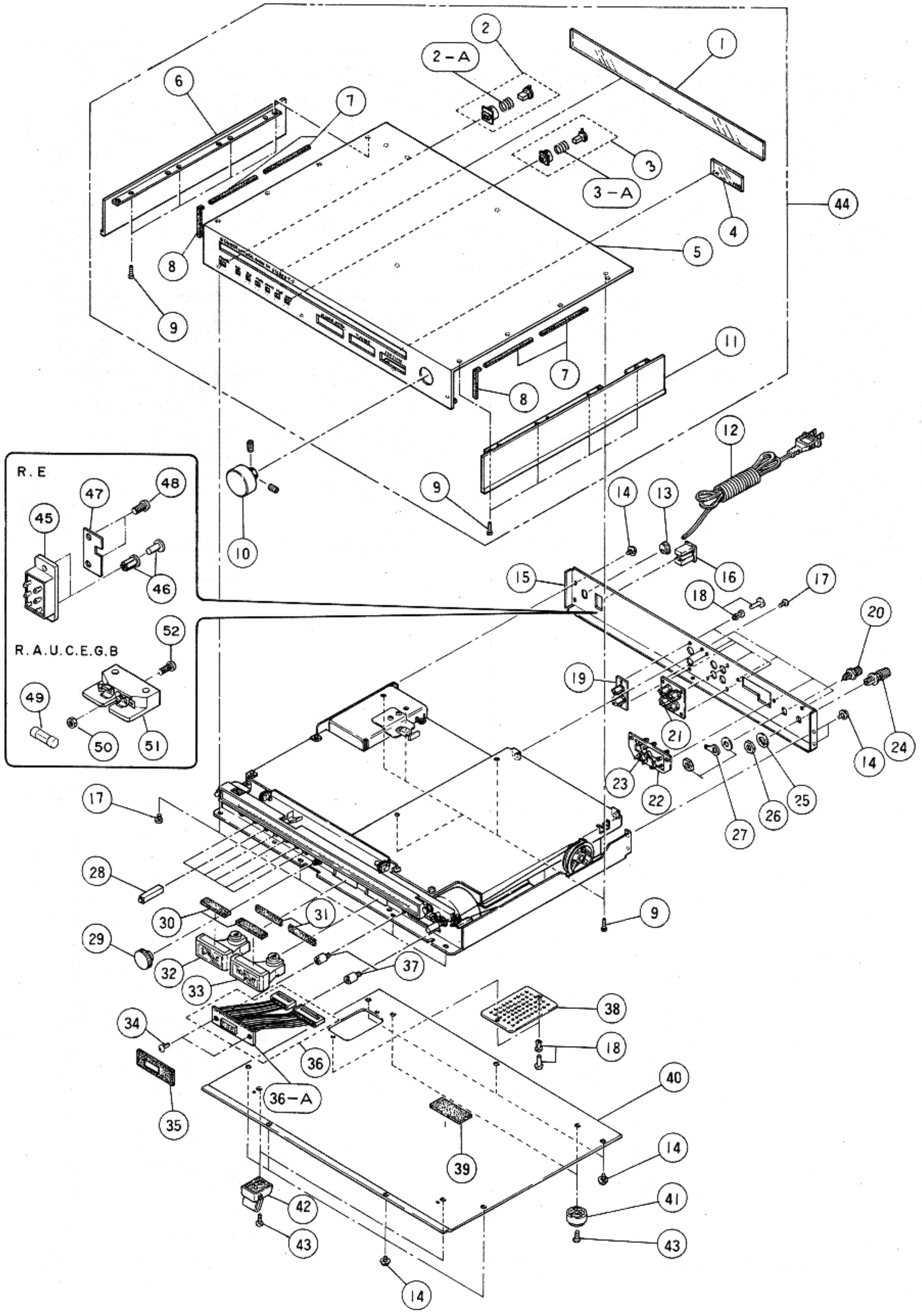
FRONT 10.8MHz level REAR	10.80MHz	10.81MHz	10.82MHz	10.83MHz	10.84MHz

# DIGITAL CIRCUIT BOARD

NA07138: EUROPEAN, NORTH EUROPEAN, BRITISH MODELS



# ■ PARTS LIST

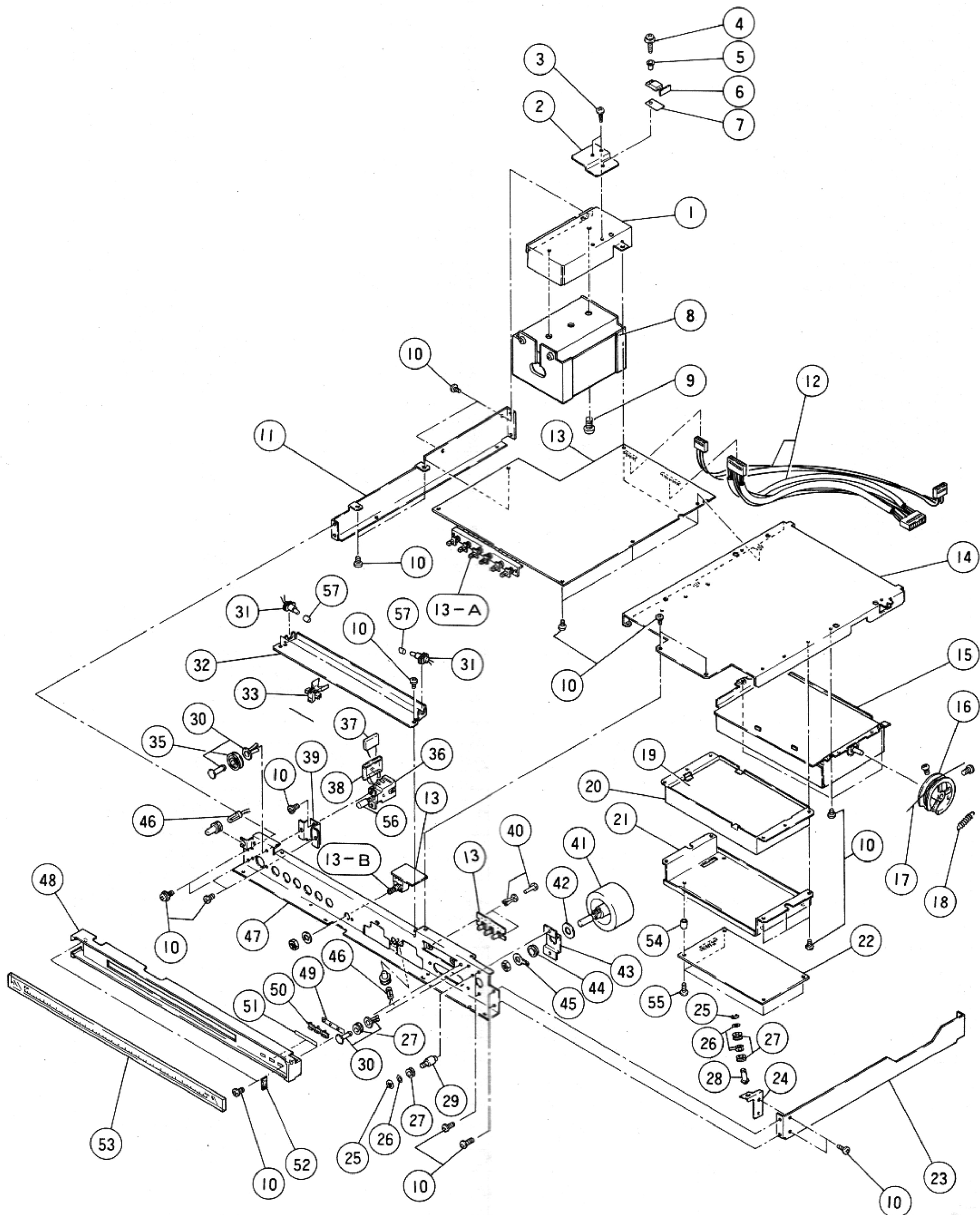


MODELS

R : General      E : European  
 U : US            G : North European  
 A : Australian    B : British  
 C : Canadian

Ref. No.	Part No.	Description (部品名)	Markets	Remarks
* 1	32 00 00 CG 06 07 10	Dial Panel		ダイヤルパネル
* 2	32 00 00 NB 08 46 40	Push Button Assembly (P)		プッシュボタンAss'y(P)
2-A	32 00 00 AA 09 08 30	Push Spring (P)		プッシュスプリング(P)
* 3	32 00 00 NB 08 46 50	Push Button Assembly (F)		プッシュボタンAss'y(F)
3-A	32 00 00 AA 09 08 40	Push Spring (F)		プッシュスプリング(F)
* 4	32 00 00 CB 08 50 90	Filter (DD)	R, U, A, C	フィルター (DD)
	32 00 00 CB 08 75 70	- do. -	E, G, B	"
* 5	32 00 00 BA 07 28 00	Panel		パネル
* 6	32 00 00 BA 07 30 50	Side Panel (L)		サイドパネル (L)
* 7	42 00 00 CB 08 55 20	Shade Tape		遮光テープ
* 8	42 00 00 CB 08 51 60	- do. -		"
9	42 00 00 EN 03 00 80	Pan Head Tapping Screw M3 x 8S FCM-BI		ナベタップタイトネジ2種ミソ
* 10	32 00 00 BA 07 29 40	Knob, Tuning		チューニングつまみ
* 11	32 00 00 BA 07 28 10	Side Panel (R)		サイドパネル (R)
12	42 00 00 MG 00 08 40	AC Cord	R, U, C	電源コード (クロ)
	42 00 00 MG 00 02 90	- do. -	E, G	" (ハイ)
	42 00 00 MG 00 07 90	- do. -	A	" (クロ)
	42 00 00 MZ 07 28 90	- do. -	B	"
13	42 00 00 CB 06 86 30	Cord Stopper SR-3P-4	R, U, A, E, G, C	コードストッパー
	42 00 00 CB 07 27 50	- do. - SR-4N-4	B	"
14	42 00 00	Sems Screw M3 x 6S FCM3-BI		セムスナベ小ネジ (内歯形歯付座金)
* 15	32 00 00 AA 09 29 50	Rear panel	R	リヤパネル
	32 00 00 AA 09 29 60	- do. -	U, C	"
	32 00 00 AA 09 34 60	- do. -	A	"
	32 00 00 AA 09 34 70	- do. -	E	"
	32 00 00 AA 09 34 80	- do. -	G	"
	32 00 00 AA 09 34 90	- do. -	B	"
16	42 00 00 LB 20 07 10	AC Socket SI-6432	U, C	ACソケットバネ式
17	42 00 00 ED 33 00 60	Bind Head Screw M3 x 6 FCM3-BI		鉄バインド小ネジ
18	32 00 00 CB 06 88 80	Plastic Rivet φ3.5		プラスチックリベット
19	42 00 00 LB 20 08 30	Pin-Jack (2P)		2Pピンジャック
20	42 00 00 LB 20 01 60	Receptacle F Type F-61A	R, U, C	F型レセプタクル
	42 00 00 LB 20 12 00	75Ω Coaxial Cable Socket (X-u5024)	A, E, G, B	75Ω同軸コネクタソケット
21	42 00 00 LB 40 02 50	Pin-Jack (4P)		4Pピンジャック
22	42 00 00 LA 00 13 40	Antena Terminal (3P)		3Pアンテナ端子板
23	42 00 00 GE 30 00 70	Balun Transformer		バルーントランス
24	42 00 00 NB 08 26 40	Earth Terminal Assembly		アース端子 Ass'y
25	42 00 00 EV 40 08 00	Toothed Lock Washer 8S ZMC2-Y		歯付座金
26	42 00 00 LA 00 16 80	Hexagonal Nut M8 BNM-3g		六角ナット
27	42 00 00 LA 00 11 70	Earth Lug φ9.5		アースラグ
* 28	32 00 00 CB 08 48 30	Push Rod		プッシュロッド
* 29	32 00 00 CB 08 48 20	Knob, Level		レベルつまみ
* 30	32 00 00 CB 08 52 20	Meter Damper (B)		メーターダンパー(B)
* 31	32 00 00 CB 08 52 10	- do. - (A)		" (A)
* 32	42 00 00 Ji 00 08 50	Signal Meter		シグナルメーター
* 33	42 00 00 Ji 00 08 40	Tuning Meter		チューニングメーター
34	42 00 00 ED 32 60 50	Bind Head Screw M2.6 x 5 FCM3-BI		鉄バインド小ネジ
* 35	42 00 00 CB 08 51 50	Masking Tape (DD)	R, U, A, C	マスキングテープ (DD)
	42 00 00 CB 08 77 60	- do. -	E, G, B	"
* 36	32 00 00 MZ 07 23 70	Display Assembly	R, U, A, C	ディスプレイコネクタAss'y
	32 00 00 MZ 07 37 30	- do. -	E, G, B	"
* 36-	42 00 00 iF 00 10 30	L, E, D Display LS-1463	R, U, A, C	L E D 表示器
	42 00 00 iF 00 12 10	- do. -	E, G, B	"

Ref. No.	Part No.	Description (部 品 名)	Markets	Remarks
*	37 32:00:00:AA 09:15:80	Spacer (DD)		
*	38 32:00:00:CB 08:53:90	Cover		
*	39 42:00:00:CB 08:51:40	Anti Vibration Tape		
*	40 32:00:00:AA 09:13:10	Bottom Cover		
	41 42:00:00:CB 07:28:70	Leg		
	42 32:00:00:CB 07:65:40	- do. -		
	43 42:00:00:ED 33:00:80	Bind Head Screw M3 x8 FCM3-BI		
*	44 32:00:00:NB 08:45:90	Panel Assembly	R, U, A, C	
	32:00:00:NB 08:69:70	- do. -	E, G, B	
	45 42:00:00:KA 40:03:50	Slide Switch 4021-01111	R, E	
	46 32:00:00:CB 06:88:80	Plastic Rivet φ3.5		
	47 32:00:00:CB 08:63:90	VS Stopper	R, E	
	48 42:00:00:EC 30:06:70	Bind Head Screw M3 x 6 FCM3-BI		
	49 42:00:00:KB 00:03:30	Fuse (A) T1A, 250V	A	
	42:00:00:KB 00:12:20	- do. - ST-4 UL0.75A, 250V	U, C	
	42:00:00:KB 00:06:70	- do. - Ⓢ T630mA, 250V	E, G, B	
	42:00:00:KB 00:03:40	Fuse (B) T1.5A, 250V	R, A	
	42:00:00:KB 00:10:60	- do. - ST-4 UL1.0A, 250V	U, C	
	42:00:00:KB 00:07:30	- do. - Ⓢ T1.0A, 250V	E, G, B	
	50 42:00:00:EY 12:30:70	Hexagonal Nut M3 FCM3-BI		
	51 42:00:00:LB 2012:10	Fuse Holder 1PFH	R, U, A, C	
	42:00:00:LB 2014:70	- do. - 1PFH-M	E, G, B	
	52 42:00:00:EC 30:08:70	Bind Head Screw M3 x 8 FCM3-BI		



Ref. No.	Part No.	Description (部品名)	Markets	Remarks
*	1	32:00:00:AA:09:13:00 Transformer Holder		トランスホルダー
*	2	32:00:00:BA:07:31:60 Radiator		放熱プレート
	3	42:00:00 Bind Head Tapping Screw M3 x 6 FCM3-BI		鉄バインドタッピングネジ 2種
	4	42:00:00:EK:01:00:20 Sems Screw M2.6 x 8 ZMC2-Y		鉄セムスナベ小ネジ ダブルカムス
	5	32:00:00:CB:07:28:80 Insuletor Bush		絶縁ブッシュ
	6	42:00:00:ID:04:76:00 Transistor 2SD476 Tr239		トランジスタ
*	7	42:00:00:iL:00:02:70 Mica Base AC229		マイカーベース
	8	42:00:00:GA:61:58:00 Power Transformer		電源トランス
		42:00:00:GA:61:59:00 - do. -		"
		42:00:00:GA:61:76:00 - do. -		"
	9	42:00:00:EA:40:06:70 Pan Head Screw M4 x 6 FCM3-BI		黒ナベ小ネジ
		42:00:00:EC:30:06:70 - do. - M3 x 6 FCM3-BI		"
	10	42:00:00:ED:33:00:60 Bind Head Screw M3 x 6 FCM3-BI		鉄バインド小ネジ
*	11	32:00:00:AA:09:12:60 Side Frame (LEFT)		サイドフレーム(L)
*	12	32:00:00:MZ:07:23:90 Connector Assembly		総組立コネクターAss'y
*	13	32:00:00:NA:07:09:90 Tuner C. Board		チューナーシート
		32:00:00:NA:07:10:80 - do. -		"
		32:00:00:NA:07:17:50 - do. -		"
*	13-A	42:00:00:KA:80:07:00 Push Switch 6 Key H=18, P=17.5 SW201		ブッシュSW Nショート両面基板用
	13-B	42:00:00:HS:41:06:70 Variable Resistor <sup>VR206</sup> 10kΩB x 2 (L=15, H=12.5)		センタークリックVR
*	14	32:00:00:AA:09:12:80 Main Chassis		メインシャーシ
*	15	42:00:00:PA:00:04:10 RF Pack FS711U12		R F パ ッ ク
	16	32:00:00:CB:07:92:60 Pulley Variable Cap		バリコンプリー
	17	32:00:00:CB:07:70:70 Dial String φ0.39 x 1.8 m		ダイヤル糸
	18	32:00:00:AA:08:98:60 Dial Spring		ダイヤルスプリング
*	19	32:00:00:NA:07:06:40 Digital C. Board		デジタルシート
		32:00:00:NA:07:13:80 - do. -		"
*	20	32:00:00:BB:06:70:30 Shield Case A		シールドケースA
*	21	42:00:00:BB:06:70:40 - do. - B		" B
*	22	32:00:00:NA:07:06:10 Post Amp C. Board		ポストアンプシート
		32:00:00:NA:07:06:20 - do. -		"
*	23	32:00:00:AA:09:12:50 Side Frame (RIGHT)		サイドフレーム(R)
*	24	32:00:00:AA:09:13:70 Pulley Metal Fittings		滑車金具
	25	42:00:00:EV:50:12:00 E Ring φ2 ETWJ-2		E リン グ
	26	32:00:00:CB:06:86:50 Washer φ3.1-φ6-t0.2		ルミラーワッシャー
	27	32:00:00:CB:08:29:40 Pulley		滑車
	28	32:00:00:BB:06:70:80 Shaft (A)		軸 (A)
	29	32:00:00:BB:06:70:90 - do. - (B)		" (B)
	30	32:00:00:CB:07:78:90 Pulley-Crip		プリークリップ
*	31	42:00:00:JB:00:06:30 Pilot Lamp (Lens) 14.5 V 80 mA		レンズ付パイロットランプ
*	32	32:00:00:AA:09:14:10 Rail, Dial Pointer		指針レール
*	33	32:00:00:CB:08:49:70 Dial Pointer		指針
	35	32:00:00:CB:07:58:40 Pulley		滑車
	36	42:00:00:KA:80:05:00 Push Switch SDG 1P, 125V, 5A		ブッシュSW
		42:00:00:KA:80:05:10 - do. -		"
	37	42:00:00:FZ:00:01:10 Spark Supressor Capacitor 125V/0.033 + 120Ω		スパークキラーコン
		42:00:00:FZ:00:05:40 - do. - DC500V/AC350V 0.033+120Ω		"
		42:00:00:FZ:00:11:20 - do. - 125V/0.033+120Ω		"
		42:00:00:FZ:00:01:90 - do. - 0.022, 250V		"
		42:00:00:FZ:00:14:40 - do. - 0.01, 250V		"
	38	42:00:00:CB:07:21:90 Capacitor Cover 820826		コンデンサーカバー角型
		42:00:00:CB:08:19:40 - do. - SB0632E-A		"
*	39	32:00:00:AA:09:13:60 PS Metal Fittings		P S 金 具
	40	32:00:00:CB:06:88:80 Plastic Rivet		プラスチックリベット



Ref. No.	Part No.	Description (部品名)	Markets	Remarks
* 41	32 00 00 NB 08 45 80	Tuning Assembly		チューニングユニット
42	42 00 00 CA 06 51 50	Insuletor		絶縁ファイバー
* 43	32 00 00 AA 09 13 80	Tuning Metal Fittings		チューニング金具
44	32 00 00 CB 07 78 80	Insuleter Bush		絶縁ブッシュ
* 45	42 00 00 LA 00 11 70	Earth Lug $\phi 9.5$		アースラグ
46	42 00 00 JB 00 05 50	Pilot Lamp 14.5V, 80mA		パイロットランプ 細コトリード式
* 47	32 00 00 AA 09 12 90	Sub Chassis		サブシャーシ
* 48	32 00 00 CB 08 48 40	Scale Holder		スケールホルダー
* 49	42 00 00 CB 08 53 10	Filter for Diffusing 0.19t		拡散用フィルター
* 50	32 00 00 CB 08 51 00	Filter (L.E.D.)		フィルター(L.E.D)
51	42 00 00 CB 07 41 90	Double Stick Tape 5 x 35		両面粘着テープ
* 52	42 00 00 CB 08 52 40	Scale Damper		スケールダンパー
* 53	32 00 00 CB 08 68 20	Dial Scale		ダイヤルスケール
54	42 00 00 BB 06 70 50	Spacer		スペーサー
55	42 00 00 ED 33 01 00	Bind Head Screw M3 x 10 FCM3-BI		鉄バインド小ネジ
* 56	42 00 00 CB 08 51 30	Knob, Power Switch SDG		スイッチつまみ
* 57	42 00 00 CB 08 53 50	Lamp Ring		ランプリング
13	32 00 00 NA 07 10 80	Tuner C. Board		チューナーシート
	32 00 00 NA 07 09 90	- do. -		"
	32 00 00 NA 07 17 50	- do. -		"
				R, A
				U, C
				E, G, B
C244	42 00 00 FA 15 41 00	Mylar Cap. 0.01/50V MS(J)		マイラーコン
* C252	42 00 00 FE 15 28 20	Polystyrene Cap. 820P(J)		スチコンヨコ
C247	42 00 00 FE 15 41 00	- do. - 10,000P(J)		"
* C223, 225	42 00 00 FS 23 44 70	SB Cap. 0.047/50V(K)		S B L コン
* C218	42 00 00 FS 21 41 20	- do. - 0.012/50V(K)		"
* C263	42 00 00 FS 25 26 80	SA Cap. 680P/50V (J)		S A コン
C245	42 00 00 FG 21 05 00	Ceramic Cap 5P/50V SL(K)		セラコン
C260, 217	42 00 00 FG 21 12 20	- do. - 22P/50V SL(K)		"
C246	42 00 00 FG 21 16 70	Ceramic Cap. 68P/50V SL(K)		"
* C248	42 00 00 FZ 00 13 00	Film Cap. 0.01/50V AWS(J)		フィルムコンデンサー
C214, 215	42 00 00 Fi 17 14 70	Ceramic Cap. 47P		セラコン円筒型
C216	42 00 00 Fi 17 14 70	- do. - 47P		"
C241, 243	42 00 00 Fi 17 21 00	- do. - 100P		"
C249, 235	42 00 00 Fi 17 21 00	- do. - 100P		"
C240, 251	42 00 00 Fi 17 31 00	- do. - 1000P		"
C242	42 00 00 Fi 17 32 20	- do. - 2200P		"
C201 ~210	42 00 00 Fi 17 41 00	- do. - 0.01		"
C212, 213	42 00 00 Fi 17 41 00	- do. - 0.01		"
C228, 234	42 00 00 Fi 17 41 00	- do. - 0.01		"
C229, 238	42 00 00 Fi 17 41 00	- do. - 0.01		"
C258, 221	42 00 00 Fi 17 41 00	- do. - 0.01		"
C288, 289	42 00 00 FC 10 61 00	MM Cap 1/100		M M コン
C256	42 00 00 FJ 11 73 30	Electrolytic Cap. 33/6.3		ケミコンタテ
C227	42 00 00 JF 11 81 00	- do. - 100/6.3		"
C261, 264	42 00 00 FJ 11 82 20	- do. - 220/6.3		"
C291	42 00 00 FJ 11 82 20	- do. - 220/6.3		"
C265, 266	42 00 00 FJ 12 91 00	- do. - 1000/10		"
C267	42 00 00 FJ 11 84 70	- do. - 470/6.3		"
C254, 224	42 00 00 FJ 13 71 00	- do. - 10/16		"
C286, 262	42 00 00 FJ 13 71 00	- do. - 10/16		"
C225, 226	42 00 00 FJ 13 73 30	- do. - 33/16		"
C290	42 00 00 FJ 13 73 30	- do. - 33/16		"

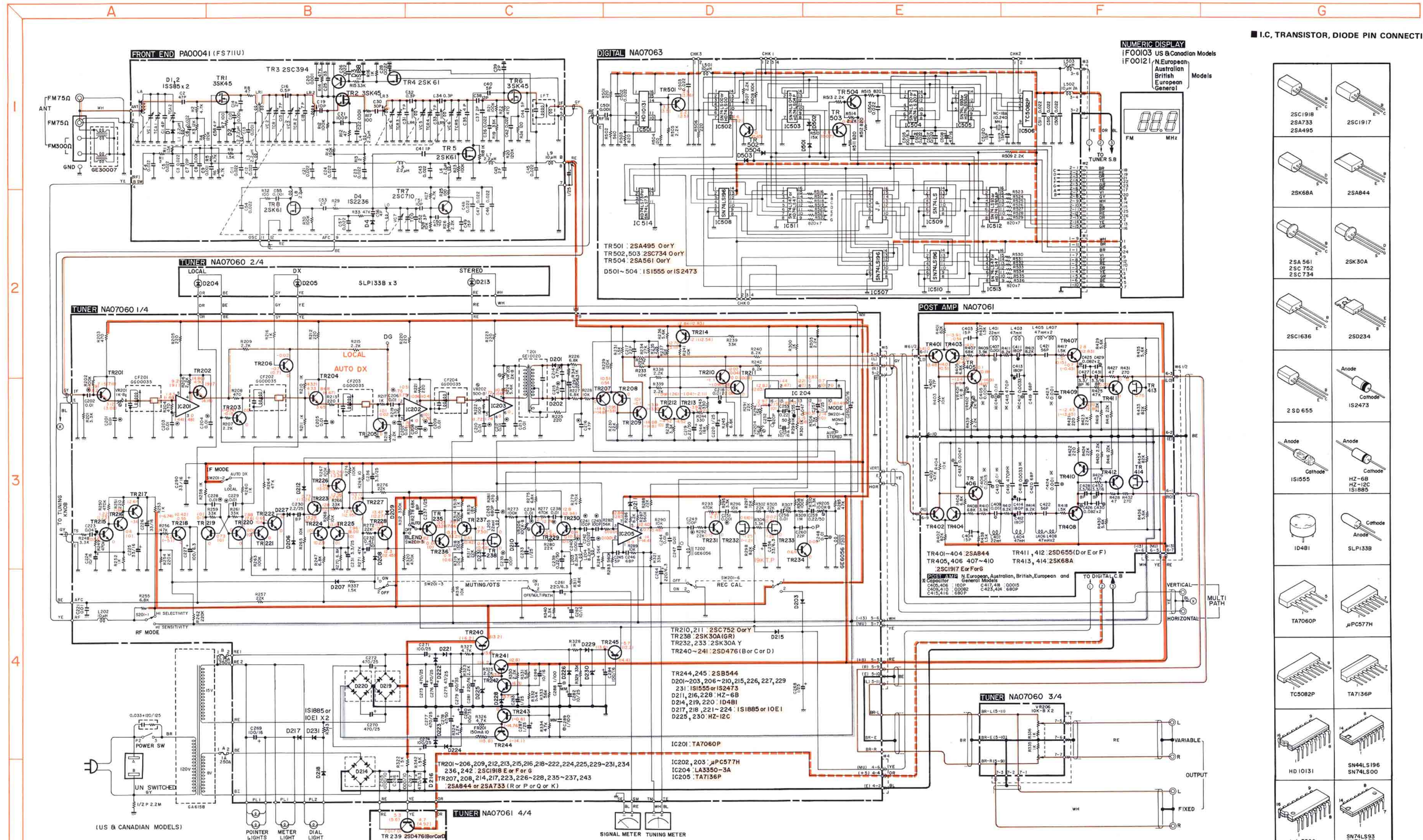
Ref. No.	Part No.	Description (部品名)	Markets	Remarks
C250 269	42 00 00 FJ 13 81 00	- do. - 100/16		ケミコンタテ
C281	42 00 00 FJ 13 82 20	- do. - 220/16		"
C220 233	42 00 00 FJ 14 61 00	- do. - 1/25		"
C257 268	42 00 00 FJ 14 61 00	- do. - 1/25		"
C283 287	42 00 00 FJ 14 61 00	- do. - 1/25		"
C236 231	42 00 00 FJ 14 63 30	- do. - 3.3/25		"
C282	42 00 00 FJ 14 71 00	- do. - 10/25		"
C271 274	42 00 00 FJ 14 81 00	- do. - 100/25		"
C270 272	42 00 00 FJ 14 84 70	- do. - 470/25		"
C273 276	42 00 00 FJ 14 84 70	- do. - 470/25		"
C277	42 00 00 FJ 14 84 70	- do. - 470/25		"
C279 280	42 00 00 FJ 15 81 00	- do. - 100/35		"
C219 239	42 00 00 FJ 26 52 20	- do. - 0.22/50		"
C253 259	42 00 00 FJ 26 52 20	- do. - 0.22/50		"
C232	42 00 00 FJ 16 54 70	- do. - 0.47/50		"
C275 278	42 00 00 FJ 16 74 70	- do. - 47/50		"
C284	42 00 00 FJ 13 84 70	- do. - 470/16		"
C237	42 00 00 FM 22 61 00	- do. - 1/25 (B.P)		B.Pコンタテ
C230	42 00 00 FM 22 62 20	- do. - 2.2/25 (B.P)		"
T201	42 00 00 GE 10 02 00	Discriminator Coil (FM)		FMディスクリコイル
T202 203	42 00 00 GE 20 00 70	MPX Coil		M P X コイル
L202	42 00 00 GE 30 01 30	RF Inductor 10 $\mu$ H		R F インダクター
L203 ~204	42 00 00 GE 30 01 50	- do. - 8.2mH		"
L206	42 00 00 GE 30 01 30	- do. - 10 $\mu$ H		"
L205	42 00 00 GE 20 01 70	MPX Fixed Coil 22mH		M P X 固定コイル
CF 201	42 00 00 GG 00 03 50	Ceramic Filter Block Type		セラミックブロック フィルターユニット
CF 204	42 00 00 GG 00 03 50	- do. -		"
VR 206	42 0 0 00 HS 41 06 70	Variable Resistor 10KB x 2		ポ リ ユ ー ム ( セ ン タ ー ク リ ッ ク 付 )
VR 201	42 00 00 HT 37 00 10	Semi-Fixed Variable Resistor B1K		半固定 V R V 8 K
VR 201	42 00 00 HT 17 00 10	- do. - B1K		" V 8 K 4-1
VR 205	42 00 00 HT 37 00 30	- do. - B100K		" V 8 K
VR 206	42 00 00 HT 37 00 30	- do. - B100K		"
VR 205	42 00 00 HT 17 00 30	- do. - B100K		" V 8 K 4-1
VR 206	42 00 00 HT 17 00 30	- do. - B100K		"
VR 203	42 00 00 HT 37 00 60	- do. - B2K		" V 8 K
	42 00 00 HT 17 00 60	- do. - B2K HT370060		" V 8 K 4-1
VR 202	42 00 00 HT 37 00 40	- do. - B500		" V 8 K
VR 202	42 00 00 HT 17 00 40	- do. - B500		" V 8 K 4-1
VR 204	42 00 00 HT 17 00 50	- do. - B5K		"
VR 204	42 00 00 HT 37 00 50	- do. - B5K		" V 8 K
TR 210	42 00 00 iC 07 52 30	Transistor 2SC752 O.Y		トランジスタ
TR 211	42 00 00 iC 07 52 30	- do. - 2SC752 O.Y.		"
TR 207 208 214				
217 223	42 00 00 iA 08 44 00	- do. - 2SA844		"
243 226	42 00 00 iA 07 33 00	- do. - 2SA733 R.P.Q.K		"
227 235 237				
TR 244	42 00 00 iB 05 44 00	- do. - 2SB544		"
TR 245	42 00 00 iB 05 44 00	- do. - 2SB544		"
TR 201	42 00 00 iC 19 18 00	- do. - 2SC1918, E.F.G.		"
206	42 00 00 iC 19 18 00	- do. - 2SC1918, E.		"
209 213	42 00 00 iC 19 18 00	- do. - - do. -		"

Ref. No.	Part No.	Description (部品名)	Markets	Remarks
TR 212	42:00:00:IC 19:18:00	Transistor 2SC1918 E.F.G		トランジスタ
215 216	42:00:00:IC 19:18:00	- do. -		"
218 ~222	42:00:00:IC 19:18:00	- do. -		"
224 225	42:00:00:IC 19:18:00	Transistor - do. -		"
229 230	42:00:00:IC 19:18:00	- do. -		"
231 234	42:00:00:IC 19:18:00	- do. -		"
242 236	42:00:00:IC 19:18:00	- do. -		"
TR 239	42:00:00:ID 04:76:10	- do. - 2SD476 A,B,C,D		"
241	42:00:00:ID 04:76:10	- do. - 2SD476A,B,C,D		"
TR 232	42:00:00:IE 00:00:10	FET 2SK30A, Y	F E T	
TR 233	42:00:00:IE 00:00:10	- do. - 2SK30A, Y		"
TR 238	42:00:00:IE 00:00:20	- do. - 2SK30A, GR		"
D201 ~203	42:00:00:IF 00:00:40	Diode 1S1555		ダイオード
206 209	42:00:00:IF 00:00:40	- do. -		"
	42:00:00:IF 00:00:40	- do. -		"
215 226	42:00:00:IF 00:00:40	Diode - do. -		ダイオード
227 229	42:00:00:IF 00:00:40	- do. -		"
231 207	42:00:00:IF 00:00:40	- do. -		"
208	42:00:00:IF 00:00:40	- do. -		"
D201 ~203	42:00:00:IF 00:06:70	- do. - 1S2473		"
206 210	42:00:00:IF 00:06:70	- do. -		"
209	42:00:00:IF 00:06:70	- do. -		"
212 215	42:00:00:IF 00:06:70	- do. -		"
226 227	42:00:00:IF 00:06:70	- do. -		"
229 231	42:00:00:IF 06:06:70	- do. -		"
207 208	42:00:00:IF 00:06:70	- do. -		"
D225 230	42:00:00:IF 00:05:50	Zener Diode HZ12C		ツェナーダイオード
D204 205	42:00:00:IF 00:10:50	LED SLP133B	L E D	
D213	42:00:00:IF 00:10:50	- do. - SLP133B		"
D211 216	42:00:00:IF 00:10:70	Zener Diode HZ6B		ツェナーダイオード
D228	42:00:00:IF 00:10:70	- do. - HZ6B		"
IC202 203	42:00:00:IG 00:03:90	IC $\mu$ PC577H	I C	
IC201	42:00:00:IG 00:04:00	- do. - TA7060P		"
IC205	42:00:00:IG 00:12:20	- do. - TA7136P		"
IC204	42:00:00:IG 00:24:10	- do. - LA3350-3A		"
D221 ~224	42:00:00:iH 00:04:40	Diode 1S1885		ダイオード
D217 218	42:00:00:iH 00:04:40	- do. - 1S1885		"
D232	42:00:00:iH 00:04:40	- do. - 1S1885		"
D221 ~224	42:00:00:iH 00:05:90	- do. - 10E1		"
D217 218	42:00:00:iH 00:05:90	- do. - 10E1		"
D232	42:00:00:iH 00:05:90	- do. - 10E1		"
D214 219	42:00:00:iH 00:04:70	- do. - 1D4B1		"
D220	42:00:00:iH 00:04:70	- do. - 1D4B1		"
FR 201	42:00:00:HW 19:41:00	Fuse Resistor 150mA 10 $\Omega$ (M)		ヒューズ抵抗
	42:00:00:LA 00:25:60	Wire Lapping Terminal P=7.5		I型ラッピング端子板2P
	42:00:00:LA 00:00:70	- do. - P=7.5		" 3P
	42:00:00:LB 60:10:00	Miniature Connector Pin 3022-7A		ミニチュアコネクタコンピン
	42:00:00:LB 60:10:10	- do. - 3022-11A		"
22	32:00:00:NA 07:06:10	Post Amp C. Board		ポストアンプシート
	32:00:00:NA 07:06:20	- do. -		"
C407 408	42:00:00:FA 15:31:00	Mylar Cap. 0.001/50V, MS(J)		マイラーコン
C417 418	42:00:00:FA 15:31:50	- do. - 0.0015/50V, MS(J)		"
			A, E, G, B	

Ref. No.	Part No.	Description (部品名)	Markets	Remarks
R417 418	42 00 00 FA 15 33 30	Mylar Cap 0.0033/50V MS(J)	マイラーコン	R, U, C
C409 410	42 00 00 FA 15 38 20	- do. - 0.0082/50V, MS(J)	"	A, E, G, B
R409 410	42 00 00 FA 15 41 00	- do. - 0.01/50V, MS(J)	"	R, U, C
C425 426	42 00 00 FA 11 48 20	- do. - 0.082/50V, MS(K)	"	
C429 430	42 00 00 FA 11 48 20	- do. - 0.082/50V, MS(K)	"	
C433	42 00 00 FA 11 34 70	- do. - 0.0047/50V, MS(K)	"	
C403 404	42 00 00 FG 21 11 50	Ceramic Cap. 15P 50VSL (K)	セラコン	
C421 422	42 00 00 FG 21 15 60	- do. - 56P 50VSL (K)	"	
C419 420	42 00 00 FG 21 16 80	- do. - 68P50VSL (K)	"	
* C401 402	42 00 00 Fi 17 14 70	- do. - 47P	セラコン円筒型	
* C427 428	42 00 00 FM 09 63 30	By-poller Electrolytic Cap 3.3/16	バイポーラケミコンタテ型	
* C431 432	42 00 00 FM 09 63 30	- do. - 3.3/16	"	
* C411 ~414	42 00 00 FS 25 21 80	SA Cap. 180P, 50V	S A コ ン	
C405 406	42 00 00 FS 25 21 80	- do. - 180P, 50V (J)	"	A, E, G, B
C405 406	42 00 00 FA 15 31 50	Mylar Cap. 0.0015, 50V (J)	マイラーコン	R, U, C
C415 416	42 00 00 FS 25 24 70	SA Cap. 470P, 50V (J)	S A コ ン	R, U, C
C415 416	42 00 00 FS 25 26 80	- do. - 680P, 50V (J)	"	A, E, G, B
C423 424	42 00 00 FS 25 26 80	- do. - 680P, 50V (J)	"	A, E, G, B
C423 424	42 00 00 FS 15 31 00	Mylar Cap. 0.001, 50V (J)	マイラーコン	R, U, C
* L401 402	42 00 00 GE 20 01 70	MPX Coil 22mH	M P X 固 定 コ イ ル	
L403 404	42 00 00 GE 20 01 80	- do. - 47mH	"	
L405 406	42 00 00 GE 20 01 80	- do. - 47mH	"	
L407 408	42 00 00 GE 20 01 80	- do. - 47mH	"	
VR 401	42 00 00 HT 37 00 10	Semi-Fixed Variable Resistor B1K	半固定VR V 8 K	
VR 401	42 00 00 HT 17 00 10	- do. - B1K	" V 8 K 4 - 1	
VR 402	42 00 00 HT 37 00 60	- do. - B2K	"	
VR 402	42 00 00 HT 17 00 60	- do. - B2K	"	
TR 401	42 00 00 iA 08 44 00	Transistor 2SA844	トランジスタ	
TR 404	42 00 00 iA 08 44 00	- do. - 2SA844	"	
TR 411	42 00 00 iD 06 55 00	- do. - 2SD655	"	
TR 412	42 00 00 iD 06 55 00	- do. - 2SD655	"	
TR 405	42 00 00 iC 19 17 00	- do. - 2SC1917, E.F.G	"	
TR 410	42 00 00 iC 19 17 00	- do. - 2SC1917, E.F.G	"	
TR 413	42 00 00 iE 10 05 00	FET 2SK68A	F E T	
TR 414	42 00 00 iE 10 05 00	- do. - 2SK68A	"	
	42 00 00 LB 60 11 50	Miniature Connector Pin 3094-11A	ミニチュア コネクタコンピンL型	
19	32 00 00 NA 07 06 40	Digital C.Board	デジタルシート	R, U, A, C
	32 00 00 NA 07 13 80	- do. -	"	E, G, B
* C512 513	42 00 00 FE 11 11 50	Polystyrene Cap. 15/50V	スチコンヨコ	
C501	42 00 00 FG 11 31 00	Ceramic Cap. 0.001/50V, YB (K)	セラコン	
C502 506	42 00 00 FG 14 42 20	- do. - 0.022/50V, YZ(Z)	"	
C507	42 00 00 FG 14 42 20	- do. - 0.022/50V, YZ(Z)	"	
C509 ~511	42 00 00 FG 14 42 20	- do. - 0.022/50V, YZ(Z)	"	
C503 514	42 00 00 FG 14 42 20	- do. - 0.022/50V, YZ(Z)	"	
C504	42 00 00 FG 14 42 20	- do. - 0.022, 50V, YZ(Z)	"	
C515 516	42 00 00 FG 14 42 20	- do. - 0.022, 50V, YZ(Z)	"	E, G, B
C517	42 00 00 FG 14 42 20	Ceramic Cap. 0.22/50V, YZ(Z)	セラコン	E, G, B
C505 508	42 00 00 FJ 11 18 10	Electrolytic Cap. 100/6.3	ケミコンタテ	
C518	42 00 00 FJ 13 71 00	- do. - 10/16V	"	E.G.B.
L501 503	42 00 00 GE 30 01 30	RF Inductor 10μH	R F イ ン ダ ク タ ー	
* L502	42 00 00 GE 30 02 30	- do. - 10S10W20, 10μH, 2A	"	
TR 501	42 00 00 iA 04 95 00	Transistor 2SA495, O.Y.	トランジスタ	

Ref. No.	Part No.				Description (部品名)		Markets	Remarks
TR 504	42:00:00	iA	05:61:70	- do. -	2SA561, O.Y.	"		
TR 502	42:00:00	iC	07:34:30	- do. -	2SC734, O.Y.	"		
TR 503	42:00:00	iC	07:34:30	- do. -	2SC734, O.Y.	"		
D501 502	42:00:00	iF	00:00:40	Diode	1S1555	ダイオード		
D501 502	42:00:00	iF	00:06:70	- do. -	1S2473	"		
D503 504	42:00:00	iF	00:00:40	- do. -	1S1555	"		
D503 504	42:00:00	iF	00:06:70	- do. -	1S2473	"		
IC502	42:00:00	iG	02:69:20	IC	SN74LS00	I C		
IC502	42:00:00	iG	02:69:10	- do. -	HD74LS00	"		
IC503	42:00:00	iG	02:70:20	- do. -	SN74LS04	"		
IC503	42:00:00	iG	02:70:10	- do. -	HD74LS04P	"		
IC504	42:00:00	iG	02:68:20	- do. -	SN74LS20	"		
IC504	42:00:00	iG	02:68:10	- do. -	HD74LS20P	"		
IC505	42:00:00	iG	02:67:20	- do. -	SN74LS93	"		
IC505	42:00:00	iG	02:67:10	- do. -	HD74LS93AP	"		
IC507 ~510	42:00:00	iG	02:89:00	- do. -	SN74LS196	"		
IC511 ~513	42:00:00	iG	02:64:20	- do. -	SN73LS47	"		
IC511 ~513	42:00:00	iG	02:64:10	- do. -	HD74LS47AP	"		
IC514	42:00:00	iG	02:73:10	- do. -	HD74LS73	"		
IC514	42:00:00	iG	02:73:20	- do. -	SN74LS73	"		
IC515	42:00:00	iG	02:90:00	- do. -	HD74LS02P	"		
IC515	42:00:00	iG	02:90:10	- do. -	SN74LS02	"		
IC516	42:00:00	iG	02:91:00	- do. -	HD74LS26P	"		
IC516	42:00:00	iG	02:91:10	- do. -	SN74LS26	"		
	42:00:00	QU	00:02:00	Crystal, OSC	10.240 MHz(NC-18A)	水晶振動子		
	42:00:00	LB	60:10:20	Miniature Connector Pin	3022-15A	ミニチュア コネクタコンピンL型		
	42:00:00	LB	60:10:10	- do. -	3022-11A	"		
*	42:00:00	LB	60:12:70	IC Socket	16P	I C ソ ケ ッ ト		
	42:00:00	LB	60:10:00	Miniature Connector Pin	3022-7A	ミニチュア コネクタコンピンL型		
*	42:00:00	LB	20:13:60	- do. -	3022-2A	"		
*	42:00:00	LA	00:20:00	Wire Lapping Terminal	P=7.5	I 型ラッピング端子板2P		
*	42:00:00	LC	68:58:00	Offset C. Board		オフセットシートピン付		

**SCHEMATIC DIAGRAM**



**I.C. TRANSISTOR, DIODE PIN CONNECTION**


- WIRE COLOR ABBREVIATIONS**
- BL ▶ Black
  - BR ▶ Brown
  - RE ▶ Red
  - OR ▶ Orange
  - YE ▶ Yellow
  - GR ▶ Green
  - BE ▶ Blue
  - VI ▶ Violet
  - GY ▶ Gray
  - WH ▶ White
  - GG ▶ Grass Green
  - SB ▶ Sky Blue
  - PK ▶ Pink

- RESISTOR**
- ▲ Metalized Film Resistor
  - ▴ Metalized Oxidation Resistor
  - ▽ Fire Proof Resistor
  - ⊗ Metal Film Resistor
  - Cement Molded Resistor
  - NO MARK Carbon Film Resistor

- CAPACITOR**
- Cylinder type Ceramic Capacitor
  - SBL capacitor
  - Mylar Film Capacitor
  - Polystyrene Film Capacitor
  - Ceramic Capacitor
  - ⊗ Tantalum Electrolytic Capacitor
  - NO MARK Aluminum Electrolytic Capacitor
  - BP Non-Polar Capacitor

\* All voltages measured with a 1 kΩ/DC electric volt meter.