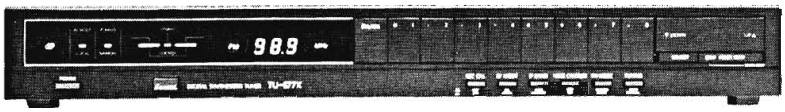
# SERVICE MANUAL

## DIGITAL SYNTHESIZER TUNER

# SANSUI TU-S77X/S77XW



## CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

Sansui

SANSUI ELECTRIC CO., LTD.

## •SPECIFICATIONS

### FM Section

**Tuning range** ..... 88 to 108 MHz
**Usable sensitivity**
Mono IHF ..... 10.8 dBf (1.9 μV : T100)
DIN ..... 0.95 μV
**50 dB quieting sensitivity**
Mono ..... 16.2 dBf
Stereo ..... 37.7 dBf
**Signal to noise ratio at 85 dBf**
Mono ..... 90 dB
Stereo ..... 85 dB
**Distortion at 65 dBf**
Mono ..... less than 0.015% at 1,000 Hz
Stereo ..... less than 0.02% at 1,000 Hz
**Alternate channel selectivity (at 400 kHz)**
NARROW ..... 60 dB
**Capture ratio** ..... 1.0 dB
**Image response ratio** ..... 100 dB
**Spurious response ratio** .... 100 dB
**Stereo separation** ..... 60 dB at 1,000 Hz
**Frequency response**
Stereo ..... 20 to 15,000 Hz
+0.2 dB, —0.5 dB
**Antenna input impedance**
..... 300 ohms balanced
75 ohms unbalanced

### AM Section

**Tuning range** ..... 530 to 1,600 kHz
**Usable sensitivity** ..... 50 dB/m (316 μV/m)
**Signal to noise ratio** ..... 50 dB
**Image response ratio** ..... 45 dB at 1,000 kHz

### Others

**Output voltage and impedance**
..... 775 mV/2.2 kilohms
**Power requirements** ..... 120/220/240V
50/60 Hz
For U.S.A. and Canada
..... 120V (60 Hz)
**Power consumption** ..... 13W
**Dimensions**
w/o sidewood ..... 430 mm (16-15/16″)W
57 mm (2-1/4″)H
306 mm (12-1/16″)D
w/ sidewood ..... 466 mm (18-3/8″)W
57 mm (2-1/4″)H
306 mm (12-1/16″)D
**Weight**
w/o sidewood ..... 3.5 kg (7.7 lbs) net
4.3 kg (9.5 lbs) packed
w/ sidewood ..... 4.0 kg (8.8 lbs) net
4.8 kg (10.6 lbs) packed

* Design and specifications subject to change without notice for improvements.

# CAUTION

1. The symbols, UL, CSA, BS, UK, EU, AS and XX on the parts list and the schematic diagram mean followings respectively.

   UL..... Manufactured for U.S.A market.
   (Underwriters Laboratories approved model.)
   CSA..... Manufactured for Canadian market.
   BS, UK ..... Manufactured for United Kingdom market.
   EU ..... Manufactured for European market.
   AS..... Manufactured for Australian market.
   XX..... Standard Version.
   NON MARK ..... Common Parts.

2. Some printed circuit boards are not supplied as the assembled. To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.

3. Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.

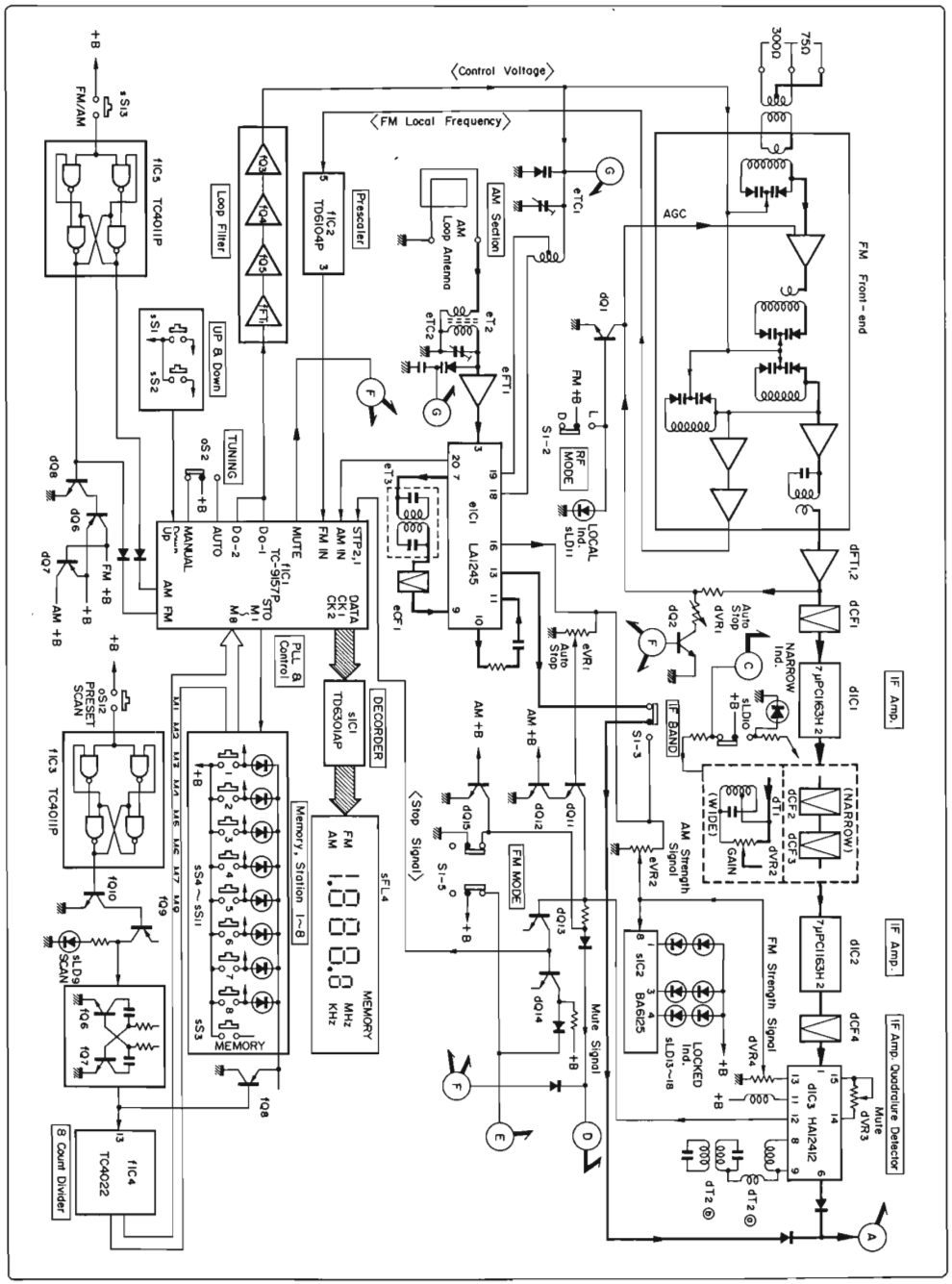
4. Abbreviations in this service manual are as follows.

•Abbreviations List

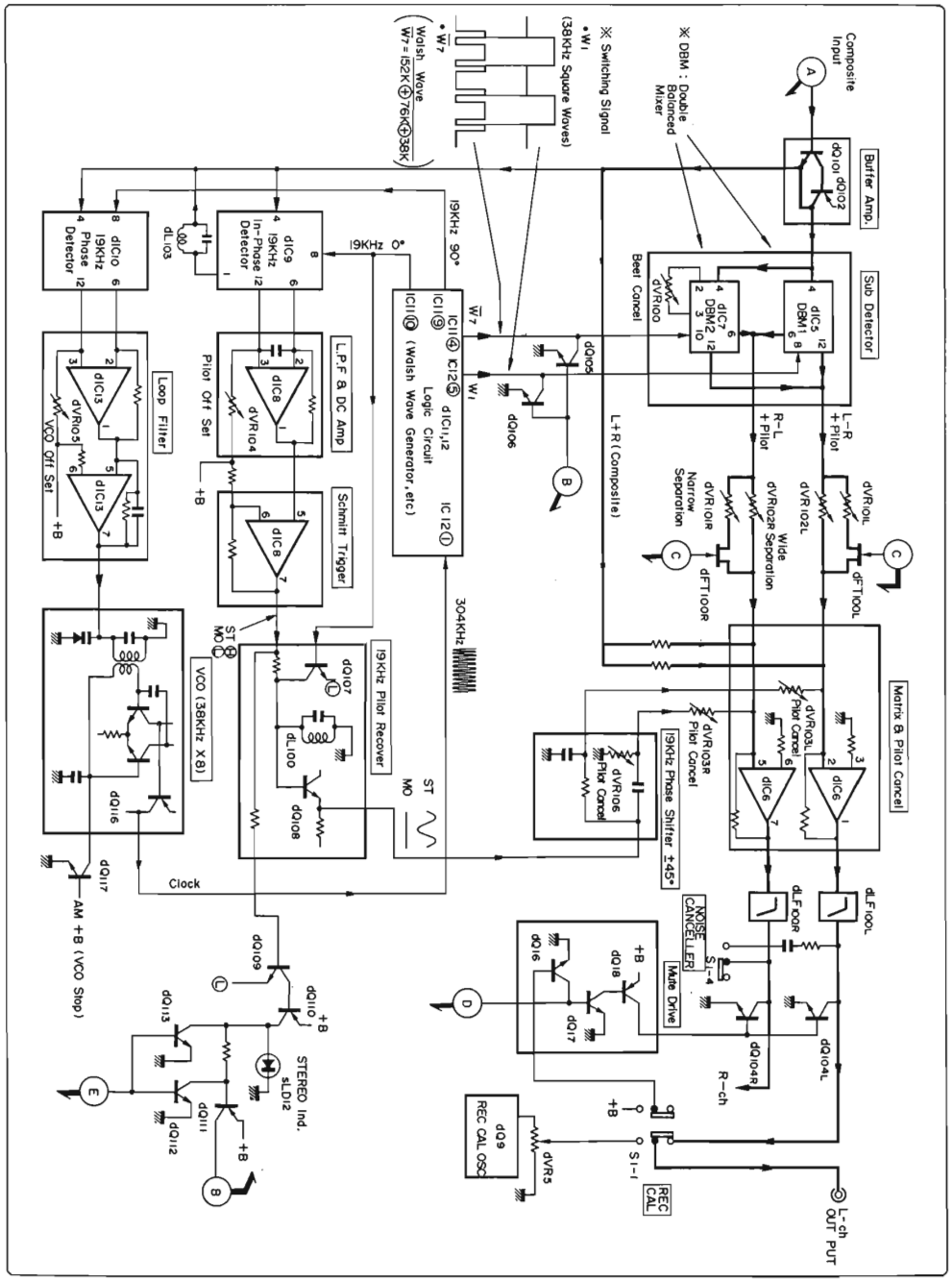
| | | | |
|---|---|---|---|
| C.R. | : Carbon Resistor | E.B. | : Bi-Polar Electrolytic Capacitor |
| S.R. | : Solid Resistor | | |
| Ce.R. | : Cement Resistor | E.B.L. | : Low Leak Bi-Polar Electrolytic Capacitor |
| M.R. | : Metal Film Resistor | | |
| F.R. | : Fusing Resistor | Ta.C. | : Tantalum Capacitor |
| N.I.R. | : Non-Inflammable Resistor | F.C. | : Film Capacitor |
| A.R. | : Array Resistor | M.P. | : Metalized Paper Capacitor |
| C.C. | : Ceramic Capacitor | P.C. | : Polystyrene Capacitor |
| C.T. | : Ceramic Capacitor, Temoerature Compensation | G.C. | : Gimmic Capacitor |
| | | A.C. | : Array Capacitor |
| E.C. | : Electrolytic Capacitor | V.R. | : Variable Resistor |
| E.L. | : Low Leak Electrolytic Capacitor | S.V.R. | : Semi Variable Resistor |
| | | SW. | : Switch |

# 1. BLOCK DIAGRAM

## 1-1. RF, IF & Control Section

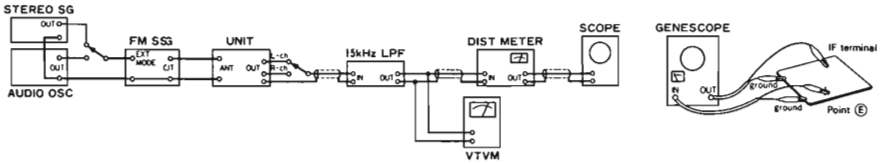



## 1-2. MPX Section



# 2. ADJUSTMENTS

## 2-1. FM Adjustment (See Top View on Page 9 and Parts Location of F-4372 on Page 6)




### 1) FM IF & Reference Frequency Adjustment

**Note:** 1. SELECTOR ..... FM
2. FM MODE ..... MONO
3. IF BAND ..... WIDE
4. RF MODE ..... DX

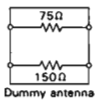
| STEP | SUBJECT | | FEED SIGNAL FROM | FEED SIGNAL TO | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Reference Frequency Adj. | | No Input | — | Between Point Ⓐ (Pin 24 of fIC1) & Earth Freq. Counter | fTC1 (F-4372) | 25 kHz | • Short between Point Ⓑ & Point Ⓒ (Pin 36 & 42 of fIC1) |
| 2. | IF Coil Adj. | | 98MHz ANT Input 20dBf (14.8dB), 1kHz (100% MOD.), FM SSG | ANT termianl 300Ω | Between Point Ⓓ (Pin 13 of dIC3) & Earth DC Volt Meter | IFT Coil (Front-end) & dT1 (F-4372) | Max. DC Volt | |
| | IF Wide Gain Adj. | | Same as above | Same as above | Same as above | — | Read the indication on DC Volt Meter. | IF Band .... NARROW |
| | | | | | | dVR2 (F-4372) | Equal DC Volts of wide band and narrow band. | IF BAND ..... WIDE |
| 3. | Discriminator Coil Adj. In case of using Genescope | 1 | No Input | — | Between TP1 & TP2 (Accross dR34, F-4372) DC Volt Meter | dT2 ⓐ (F-4372) | DC 0V±30mV | • Repeat procedures as stated in subject 1 & 2. |
| | | 2 | Output 50dB, Genescope | IF Terminal (Front-end) & Earth | Between Point Ⓔ (dC27) & Earth | dT2 ⓑ (F-4372) | Steep linearity of S curve. Make symmetrical S curve. | |
| | Discriminator Coil Adj. In case of using Dist meter | 1 | No Input | — | Between TP1 & TP2 (Accross dR34, F-4372) DC Volt Meter | dT2 ⓐ (F-4372) | DC 0V±30mV | • Repeat procedures as stated in subject 1 & 2. |
| | | 2 | 98MHz ANT Input 65dBf (59.8dB), 1kHz (100% MOD.), FM SSG | ANT terminal 300Ω | OUTPUT L-CH or R-CH VTVM & SCOPE | dT2 ⓑ (F-4372) | Min. THD | |
| 4. | LOCKED Level Adj. | | 98MHz ANT Input 35dBf (29.8dB), 1kHz (100% MOD.), FM SSG | Same as above | • LOCKED LED | dVR4 (F-4372) | 6 indicator LED light up. | STEREO / LOCKED |

### • Technical Hint for FM adjustment

There are two kind in indication of FM SSG output attenuator
1. Attenuator with marking o 75Ω open ..... open indication type.
2. Attenuator with marking o 75Ω load or close ..... load or close indication type.

FM SG output level in this FM adjustment are described as open indication type.
To feed FM signal, a dummy antenna circuit as Fig. 2-1 must be connected between FM SG outpu and ANT terminal (300Ω) of the unit.

Fig. 2-1




- The following table shows relations among FM SG attenuator indication (dB), available power ratio (dBf) and antenna terminal voltage (dB/μV) in each indication type.

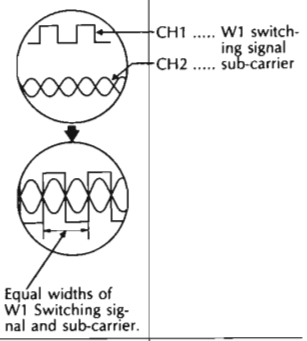
| | FM SG Attenuator Indication | Available Power Ratio | Antenna Terminal Voltage |
|---|---|---|---|
| Open indication type | 0 dB<br>66 dB | —0.8 dBf<br>65.2 dBf | —6 dB/μV<br>60 dB/μV |
| Load or close indication type | 0 dB<br>60 dB | 5.2 dBf<br>65.2 dBf | 0 dB/μV<br>60 dB/μV |

### 2) REC Calibration level Adjustment

| STEP | SUBJECT | FEED SIGNAL FROM | FEED SIGNAL TO | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | Calibration Level Adj. | 98MHz ANT Input 65dBf (59.8dB), MONO 1kHz (100% MOD.) | ANT terminal 300Ω | OUT PUT R or L-CH VTVM & SCOPE | — | Read the indication on VTVM. | REC CAL SW.... OFF |
| | | — | — | Same as above | dVR5 (F-4372) | —4dB from the above reading. | REC CAL SW .... ON |

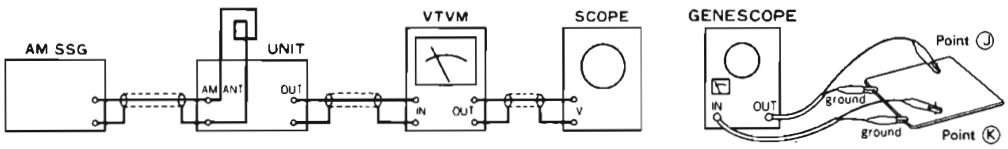
### 3) FM STEREO Adjustment (See Top View on Page 9 & Parts Location F-4375 on Page 7)

**Note:** 1. FM Mode ..... STEREO

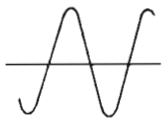
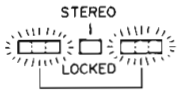
| STEP | SUBJECT | | FEED SIGNAL FROM | FEED SIGNAL TO | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | PLL VCO Free Running Frequency Adj. | 1 | 98MHz ANT Input 65dBf (59.8dB) FM SSG. No. MOD. | ANT terminal 300Ω | Between dTP1 & dTP4 (F-4375) DC Volt Meter | dVR105 (F-4375) | DC 0V±0.05V | |
| | | 2 | Same as above | Same as above | Between dTP3 & Earth (F-4375) Frequency Counter | dL101 (F-4375) | 304.000kHz | |
| 2. | Pilot Offset Adj. | 1 | Same as above | Same as above | Between dTP2 & dTP5 (near dVR104) (F-4375) DC Volt Meter | dVR104 (F-4375) | DC 0V±0.1V | |
| | | 2 | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.), STEREO SG. | Same as above | STEREO Indicator | — | Confirm that STEREO Indicator light up. | |
| 3. | 19kHz Phase Coil Adj. In case of using dual channel oscilloscope | | 98MHz ANT Input 65dBf (59.8dB), FM SSG. 1kHz Sub channels (100% MOD.) STEREO SG. | Same as above | Between Point Ⓕ (R113) & Earth (F-4375) CH1 of Dual channel oscilloscope<br>Between cross-conductor (JW8) & Earth (F-4375) CH2 of Dual channel oscilloscope | dL103 (F-4375) |  | |
| | 19kHz Phase Coil Adj. In case of using VTVM | | 98MHz ANT Input 65 dBf (59.8dB), FM SSG, Pilot 19kHz (9% MOD.), R MODE 10kHz+Pilot (100% MOD.), STEREO SG. | Same as above | OUTPUT L-ch VTVM & SCOPE | dL103 (F-4375) | Min. Indication on VTVM. | |

| STEP | SUBJECT | | FEED SIGNAL FROM | FEED SIGNAL TO | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | Birdie Noise Cancelling Adj. | | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.) STEREO SG. | ANT terminal 300Ω | OUT PUT VTVM & SCOPE | dVR100 (F-4375) | Min. beat noise level | Birdie Noise is generated by interference from modurated side band of alternate station. |
| | | | 115kHz 7~8V, Audio SG. | Between Point Ⓒ (dR102) through 47kohms resistor & Earth | | | | |
| 5. | Pilot Cancelling Adj. | 1 | 98MHz ANT Input 65 dBf (59.8dB), FM SSG. | ANT terminal 300Ω | Between dTP5 (near dIC6) & Earth SCOPE | dVR104 (F-4375) | Min. 19kHz signal level | Pilot 19kHz ..... No Modulation |
| | | 2 | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.), STEREO SG. | Same as above | Same as above | — | Confirm that 19kHz pilot signal indicated on scope. | |
| | | 3 | Same as above | Same as above | Between Point Ⓗ (dR146L) & Earth Audio Spectrum Analizer or Scope through 19kHz band pass filter (B.P.F.) | dL100 dVR103L (F-4375) | Min. 19kHz Pilot signal level | |
| | | 4 | Same as above | Same as above | Between Point Ⓘ (dR146R) & Earth Audio Spectrum Analizer or Scope through 19kHz band pass filter (B.P.F.) | dVR103R dVR106 (F-4375) | Same as above | |
| 6. | Separation Adj. (WIDE band) | 1 | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.) R MODE 1kHz+Pilot (100% MOD.), STEREO SG. | Same as above | OUTPUT R-CH VTVM & SCOPE | — | Read the indication on VTVM. | IF BAND ..... WIDE Confirm R→L-CH |
| | | | | | OUTPUT L-CH VTVM & SCOPE | dVR102L (F-4375) | —34dB from the indication above. | |
| | | 2 | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.), L MODE 1kHz+Pilot (100% MOD.), STEREO SG. | Same as above | OUTPUT L-CH VTVM & SCOPE | — | Read the indication on VTVM | IF BAND ..... WIDE Confrim L→R-CH |
| | | | | | OUTPUT R-CH VTVM & SCOPE | dVR102R (F-4375) | —34dB from the indication above. | After this adjustment, perform STEP4. Birdie Noise Cancelling Adj. |
| 7. | Separation Adj. (NARROW band) | 1 | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.) R MODE 1kHz+Pilot (100% MOD.), STEREO SG. | Same as above | OUTPUT R-CH VTVM & SCOPE | — | Read the indication on VTVM | IF BAND ..... NARROW Confirm R→L-CH |
| | | | | | OUTPUT L-CH VTVM & SCOPE | dVR101L (F-4375) | —34dB from the indication above. | |
| | | 2 | 98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19kHz (9% MOD.), L MODE 1kHz+Pilot (100% MOD.) STEREO SG. | Same as above | OUTPUT L-CH VTVM & SCOPE | — | Read the indication on VTVM | IF BAND ..... NARROW Confirm L→R-CH |
| | | | | | OUTPUT R-CH VTVM & SCOPE | dVR101R (F-4375) | —34dB from the indication above. | After this adjustment, perform STEP4. Birdie Noise Cancelling Adj. |
| 8. | Muting Level Adj. | | 98MHz ANT Input 25dBf (19.8dB), FM SSG, Pilot 19kHz (9% MOD.), L or R MODE 1kHz+Pilot (100% MOD.). STEREO SG. | Same as above | Stereo indicator OUTPUT L-CH or R-CH, VTVM & SCOPE | dVR3 (F-4372) | Stereo indicator turns ON or Output Signal comes out | |
| 9. | Auto Stop Level Adj. | | 98MHz ANT Input 35dBf (29.8dB)~ 40dBf (34.8dB) 1kHz (100% MOD.), FM SSG | Same as above | Digital Display | dVR1 (F-4372) | Turn the tuner to 98MHz by using the automatic search tuning operation. | • Perform the automatic search tuning operation by depressing the TUNING button. |

## 2-2. AM Adjustment (See Top View on Page 9 and Parts Location of F-4372 on Page 6)



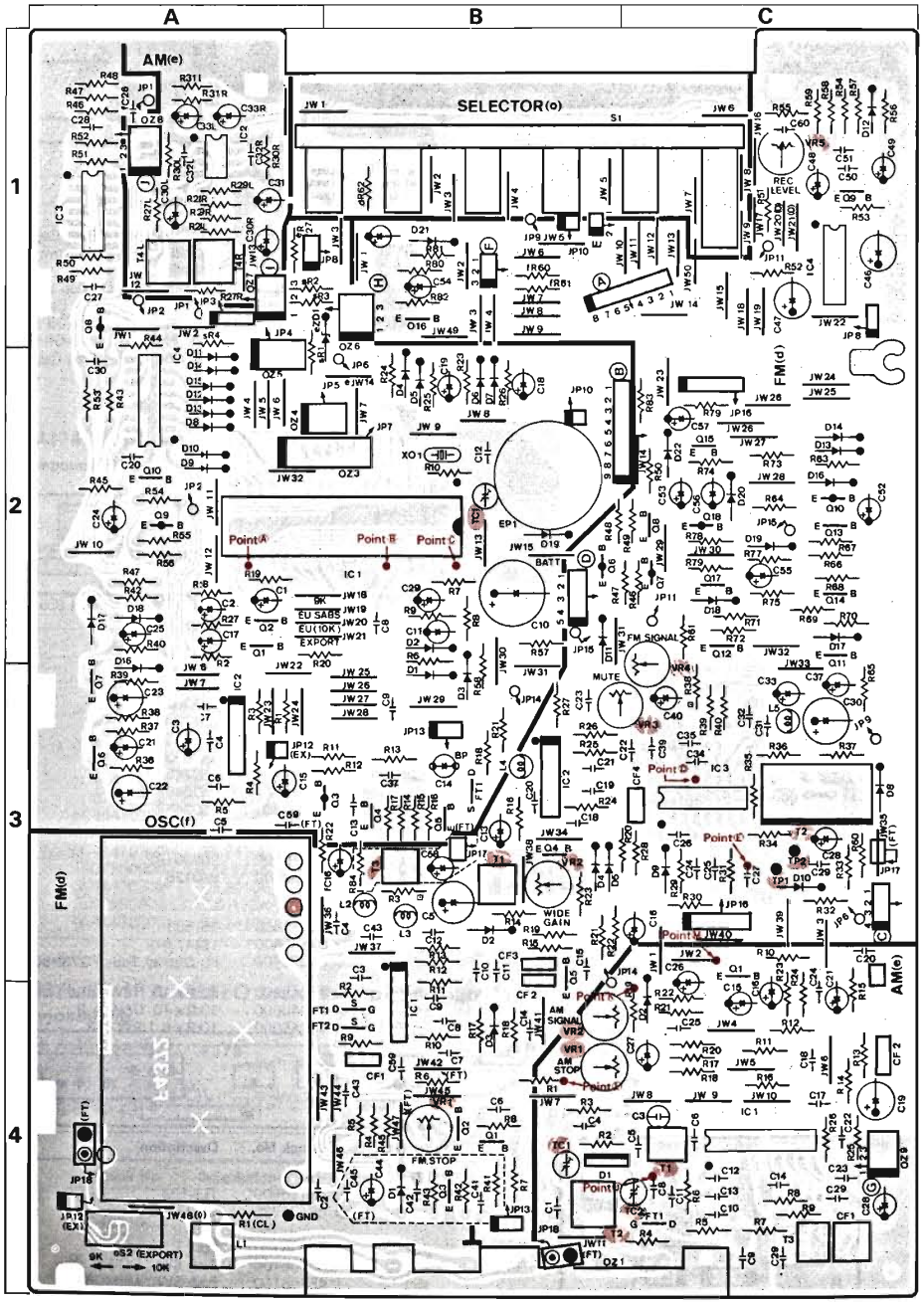

**Note:** 1. SELECTOR..... AM
2. Connect AM loop antenna to AM antenna terminal

| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|---|---|---|---|---|---|---|---|
| | | FROM | TO | | | | |
| 1. | IF Coil Adj. | Genescope Output 60dB | Point Ⓙ (eC8) (F-4372) | Between Point Ⓚ (eR19) & Earth F-4372 | eT3 (F-4372) | Max, Waveform |  |
| 2. | 520kHz (or 522kHz) Tuning Voltage Adj. | No Input | — | Between Point Ⓛ (eR1, F-4372) & Earth DC Volt Meter | eT1 (F-4372) | 1.1V±0.2V | • Repeat procedures as stated in subject 2 & 3. |
| 3. | 1610kHz (or 1611kHz) Tuning Voltage Adj. | No Input | — | Same as above | eTC1 (F-4372) | 19.7V±0.2V | |
| 4. | 600kHz (or 603kHz) RF Adj. | 600kHz (or 603kHz) ANT Input 30dB 400Hz (30% MOD.), AM SSG | ANT terminal | OUTPUT L-CH or R-CH VTVM & SCOPE | eT2 (F-4372) | Max. Output |  |
| 5. | 1400kHz (or 1404kHz) RF Adj. | 1400kHz (or 1404kHz) ANT Input 30dB 400Hz (30% MOD.), AM SSG | Same as above | OUTPUT L-CH or R-CH VTVM & SCOPE | eTC2 (F-4372) | Max. Output | |
| 6. | LOCKED Level Adj. | 1000kHz (or 999kHz) ANT Input 50dB 400Hz (30% MOD.), AM SSG | Same as above | LOCKED LED | eVR2 (F-4372) | 6 Indicator LED light up. |   |
| 7. | Auto Stop Level Adj. | 1000kHz (or 999kHz) ANT Input 65dB 400Hz (30% MOD.), AM SSG | Same as above | Between Point Ⓜ (jW2 F-4372) & Earth DC Volt Meter | eVR1 (F-4372) | 1.1V±0.1V | |

# 3. PARTS LOCATION & PARTS LIST

## 3-1. F-4372 FM, AM Tuner & Synthesizer Control Circuit Board (Stock No. 00759901)

Component Side




Parts List (F-4372)

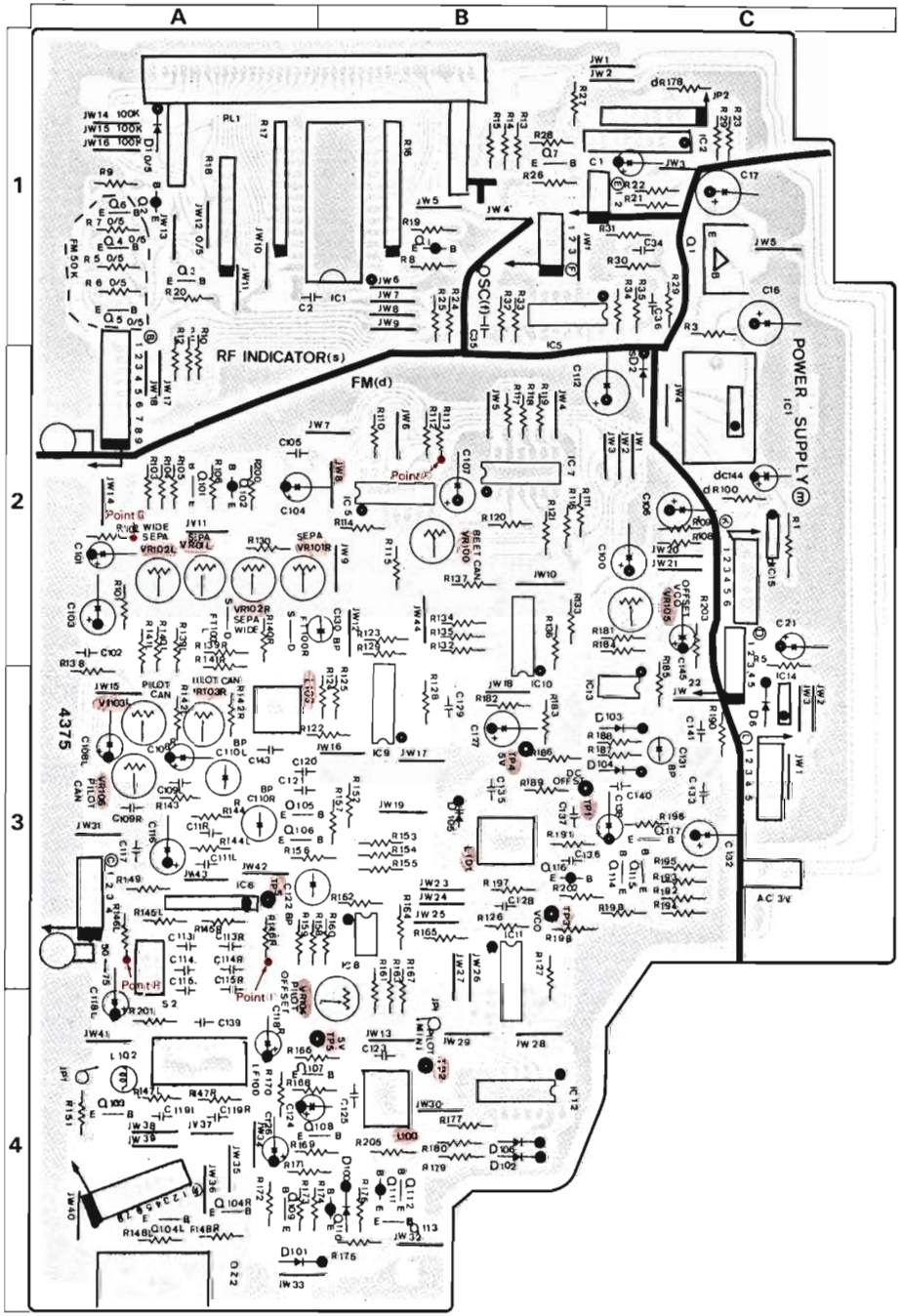
| Parts No. | Stock No. | Description |
|---|---|---|
| | 46725000 | FM Frontend Pack |
| •Transistor | | |
| dQ1 | 46391901 | 2SC2785 |
| dQ2 | 46391901 | 2SC2785 |
| dQ6 | 46367001 | 2SA1115 |
| dQ7 | 46367001 | 2SA1115 |
| dQ8 | 46367101 | 2SC2603 |
| dQ9 | 46391901 | 2SC2785 |
| dQ10 | 46392001 | 2SA1175 |
| dQ11 | 46391901 | 2SC2785 |
| dQ12 | 46391901 | 2SC2785 |
| dQ13 | 46391901 | 2SC2785 |
| dQ14 | 46391901 | 2SC2785 |
| dQ15 | 46391901 | 2SC2785 |
| dQ16 | 46391901 | 2SC2785 |
| dQ17 | 46391901 | 2SC2785 |
| dQ18 | 46392001 | 2SA1175 |
| •FET | | |
| dFT1 | 46724700 | 2SK241-Y |
| | or 46724701 | 2SK241-GR |
| dFT2 | 46724700 | 2SK241-Y |
| | or 46724701 | 2SK241-GR |
| •IC | | |
| dIC1 | 03605400 | μPC1163H |
| dIC2 | 03605400 | μPC1163H |
| dIC3 | 46725900 | HA12412-01 |
| •Diode | | |
| dD1 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD2 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD3 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD4 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD5 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD8 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD9 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD10 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD11 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD12 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD13 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD14 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD16 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD17 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD18 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD19 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD20 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD21 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD22 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dCF1 | 09105100 | Ceramic Filter (SFE10.7MXK-N) |
| dCF2 | 46867100 | Ceramic FILTER (SFE10.7MM RED) |
| dCF3 | 46867100 | Ceramic FILTER (SFE10.7MM RED) |
| dCF4 | 09105100 | Ceramic Filter (SFE10.7MXK-N) |
| dL1 | 46548900 | Balun |
| dL2 | 46174400 | Inductor 3.3μH |
| dL3 | 46175300 | Inductor 100μH |
| dL4 | 46174400 | Inductor 3.3μH |

| Parts No. | Stock No. | Description |
|---|---|---|
| dL5 | 46174400 | Inductor 3.3μH |
| dT1 | 46369500 | FM IF Coil |
| dT2 | 46724600 | FM IF Coil |
| dVR1 | 10351900 | 100kΩ(B) S.V.R., FM auto stop level adj. |
| dVR2 | 10350400 | 330Ω(B) S.V.R., IF wide gain adj. |
| dVR3 | 10351700 | 47kΩ(B) S.V.R., Muting level adj. |
| dVR4 | 10351300 | 10kΩ(B) S.V.R., FM Strenght signal level adj. |
| dVR5 | 10351900 | 100kΩ(B) S.V.R., Rec calibration |
| •Transistor | | |
| eQ1 | 46367301 | 2SC2458 |
| •FET | | |
| eFT1 | 46393000 | 2SK192A-Y |
| | or 46393001 | 2SK192A-GR |
| •IC | | |
| eIC1 | 07237200 | LA1245 |
| •Varistor | | |
| eD1 | 07237300 | KV-1226EF |
| •Diode | | |
| eD2 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| eTC1 | 46095600 | Trimmer Capacitor 20pF |
| eTC2 | 46095600 | Trimmer Capacitor 20pF |
| eCF1 | 46724500 | Ceramic Filter |
| eCF2 | 46578100 | Ceramic Filter |
| eT1 | 46724100 | AM RF Coil |
| eT2 | 46724200 | AM RF Coil |
| eT3 | 46724300 | AM IF Coil |
| eVR1 | 10351700 | 47kΩ(B) S.V.R., AM stop level |
| eVR2 | 10351700 | 47kΩ(B) S.V.R., AM strength signal |
| •Transistor | | |
| fQ1 | 46367301 | 2SC2458 |
| fQ2 | 46367301 | 2SC2458 |
| fQ3 | 46367201 | 2SA1048 |
| fQ4 | 46367301 | 2SC2458 |
| fQ5 | 46367301 | 2SC2458 |
| fQ6 | 46367301 | 2SC2458 |
| fQ7 | 46367301 | 2SC2458 |
| fQ8 | 46367201 | 2SA1048 |
| fQ9 | 46367201 | 2SA1048 |
| fQ10 | 46367301 | 2SC2458 |
| •FET | | |
| fFT1 | 03703001 | 2SK117-Y |
| | or 03703002 | 2SK117-GR |
| •IC | | |
| fIC1 | 46397400 | TC9157P |
| fIC2 | 07225000 | TD6104P |
| fIC3 | 03604100 | TC4011P |
| fIC4 | 46530000 | TC4022BP |
| •Diode | | |
| fD1 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD2 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD3 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD4 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD5 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |

| Parts No. | Stock No. | Description |
|---|---|---|
| fD6 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD7 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD8 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD9 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD10 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD11 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD12 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD13 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD14 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD15 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD16 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD17 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD18 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fD19 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| fC10 | 46151500 | 2200μF 6.3V E.L. |
| fC14 | 08451700 | 1μF 50V E.B. |
| fTC1 | 46095800 | Trimmer Capacitor 45pF |
| | or 46163000 | Trimmer Capacitor 50pF |
| fEP1 | 46255500 | LITHIUM BATTERY CR2430 |
| oS1 | 46725300 | Push SW, REC CAL, RF BAND, IF BAND, NOISE CANCELLER, FM MODE, TUNING |
| oS2 | 46177200 | Slide SW, AM STEP (XX) |

## 3-2. F-4375 MPX Circuit Board (Stock No. 00760201)

Component Side



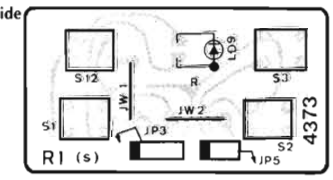

Parts List <F-4375>

| Parts No. | Stock No. | Description |
|---|---|---|
| •Transistor | | |
| dQ101 | 46581701 | 2SC1845 |
| dQ102 | 46581601 | 2SA992 |
| dQ103 | 46540801 | 2SC2878 |
| dQ104 | 46540801 | 2SC2878 |
| dQ105 | 46540801 | 2SC2878 |
| dQ106 | 46540801 | 2SC2878 |
| dQ107 | 46581701 | 2SC1845 |
| dQ108 | 46581701 | 2SC1845 |
| dQ109 | 46581701 | 2SC1845 |
| dQ110 | 46581601 | 2SA992 |
| dQ111 | 46581601 | 2SA992 |
| dQ112 | 46581701 | 2SC1845 |
| dQ113 | 46581701 | 2SC1845 |
| dQ114 | 46581701 | 2SC1845 |
| dQ115 | 46581701 | 2SC1845 |
| dQ116 | 46581601 | 2SA992 |
| dQ117 | 46581701 | 2SC1845 |
| •FET | | |
| dFT100 | 46643700 | 2SK246-Y |
| | or 46643701 | 2SK246-GR |
| | or 46643702 | 2SK246-BL |
| •IC | | |
| dIC5 | 46723700 | NJM1496D |
| dIC6 | 46579100 | M5219L |
| dIC7 | 46723700 | NJM1496D |
| dIC8 | 03607700 | NJM4558D |
| dIC9 | 46723700 | NJM1496D |
| dIC10 | 46723700 | NJM1496D |
| dIC11 | 46465500 | MSM4030RS |
| dIC12 | 03604400 | MSM4520 |
| dIC13 | 03607700 | NJM4558D |
| ⚠ dIC14 | 46359400 | L78N05 |
| ⚠ dIC15 | 46361500 | L78N12 |
| •Diode | | |
| dD100 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD101 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD102 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD103 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dD104 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| •Varactor Diode | | |
| dD105 | 46087800 | FCC66M |
| •Diode | | |
| dD106 | 03117600 | 1S2473T77 |
| | or 46086000 | 1S1588TP-3 |
| dC110 | 08451100 | 22μF 16V E.B. |
| dC122 | 08451700 | 1μF 50V E.B. |
| dC125 | 46695600 | 0.015μF 50V F.C. |
| dC131 | 08451700 | 1μF 50V E.B. |

| Parts No. | Stock No. | Description |
|---|---|---|
| ⚠ dR3 | 08922500 | 47Ω 1/2W N.I.R. |
| ⚠ dR38 | 08922100 | 22Ω 1/2W N.I.R. |
| ⚠ dR100 | 00118000 | 22Ω 1/4W F.R. |
| ⚠ dR101 | 00118000 | 22Ω 1/4W F.R. |
| ⚠ dR149 | 00118000 | 22Ω 1/4W F.R. |
| ⚠ dR190 | 00118000 | 22Ω 1/4W F.R. |
| ⚠ dR203 | 00118000 | 22Ω 1/4W F.R. |
| dLF100 | 46579200 | Low Pass Filter |
| dL100 | 46723500 | AM RF Coil |
| dL102 | 46174400 | Inductor 3.3μH |
| dL101 | 46723400 | AM RF Coil |
| dL103 | 42407201 | FM MPX Coil |
| dVR100 | 10342300 | 2.2kΩ(B) S.V.R., Beet Cancel |
| dVR101 | 10343300 | 100kΩ(B) S.V.R., Narrow Sparation |
| dVR102 | 10342300 | 2.2kΩ(B) S.V.R., Wide Separation |
| dVR103 | 10343100 | 47kΩ(B) S.V.R., Pilot Cancel |
| dVR104 | 10342700 | 10kΩ(B) S.V.R., Pilot Off Set |
| dVR105 | 10342700 | 10kΩ(B) S.V.R., VCO Off Set |
| dVR106 | 10342300 | 2.2kΩ(B) S.V.R., Pilot Cancel |
| •IC | | |
| fIC5 | 03604100 | TC4011P |
| •Transistor | | |
| ⚠ mQ1 | 03083901 | 2SD313AL |
| •IC | | |
| ⚠ mIC1 | 46361600 | L78N15 |
| •Diode | | |
| ⚠ mD6 | 03117600 | 1S73T77 |
| ⚠ | or 46086000 | 1S1588TP-3 |
| | 46725200 | 2P OUTPUT Terminal Board, OUT PUT |
| ⚠ mR1 | 00179000 | 10Ω 1W N.I.R. |
| •Transistor | | |
| sQ1 | 46367201 | 2SA1048 |
| sQ2 | 46367201 | 2SA1048 |
| sQ3 | 46367301 | 2SC2458 |
| sQ4 | 46367301 | 2SC2458 (EU) |
| sQ5 | 46367301 | 2SC2458 (EU) |
| sQ6 | 46367301 | 2SC2458 (EU) |
| sQ7 | 46367301 | 2SC2458 |
| •IC | | |
| sIC1 | 46410100 | TD6301AP |
| sIC2 | 46392500 | BA6125 |
| •Diode | | |
| sD2 | 03111800 | 1S1588 |
| | or 07176400 | 1S2473HS |
| sPL1 | 46526400 | FL. Display Tube FG78H8GR |
| sR16 | 46049600 | 10kΩ×10 1/8W A.R. |
| sR17 | 46049600 | 10kΩ×10 1/8W A.R. |
| sR18 | 46045900 | 10kΩ×8 1/8W A.R. |

## 3-3. F-4373 Tuning SW. Circuit Board

Component Side

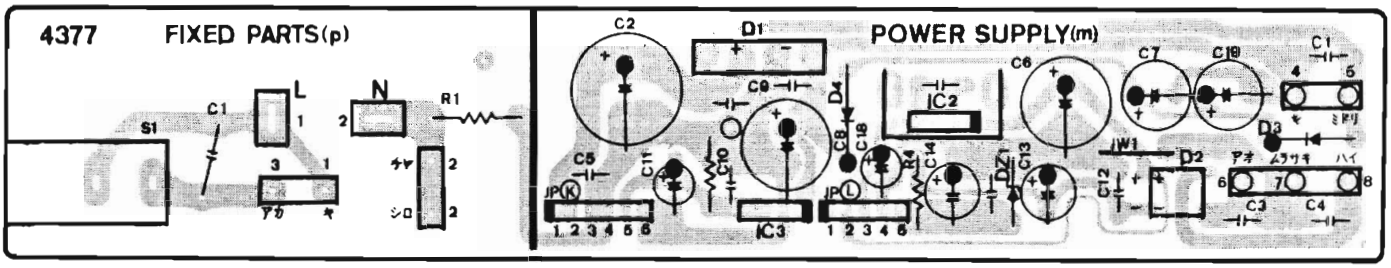



Parts List

| Parts No. | Stock No. | Description |
|---|---|---|
| •LED | | |
| sLD9 | 46176900 | TLS-123 |
| | or 46470200 | SEL2210S |
| sS1 | 46708100 | Push SW., UP |
| sS2 | 46708100 | Push SW., DOWN |
| sS3 | 46708100 | Push SW., MEMORY |
| sS12 | 46708100 | Push SW., RESET SCAN |

## 3-4. F-4377 Power Supply Circuit Board (Stock No. 00760401)

**Component Side**



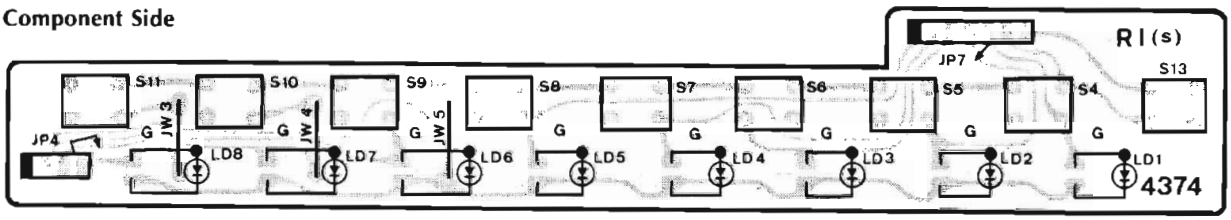

**Parts List**

| Parts No. | Stock No. | Description |
|---|---|---|
| •IC | | |
| ⚠ mIC2 | 46361200 | L78N06 |
| ⚠ mIC3 | 46361800 | L78N24 |
| •Diode | | |
| ⚠ mD1 | 07193300 | UB-152LFF |
| ⚠ mD2 | 46273600 | DBB10-B |
| ⚠ mD3 | 03117700 | 10E-2 |
| ⚠ mD4 | 03117700 | 10E-2 |

| Parts No. | Stock No. | Description |
|---|---|---|
| •Zener Diode | | |
| mDZ1 | 46101500 | 05Z 6.2-X |
| | or 46101600 | 05Z 6.2-Y |
| | or 46101700 | 05Z 6.2-Z |
| mC5 | 46280900 | 0.22μF 50V F.C. |
| ⚠ pC1 | 46425800 | 0.01μF 400V C.C. |
| ⚠ pS1 | 46360300 | Push SW., POWER |

## 3-5. F-4374 Preset Memory Circuit Board

**Component Side**



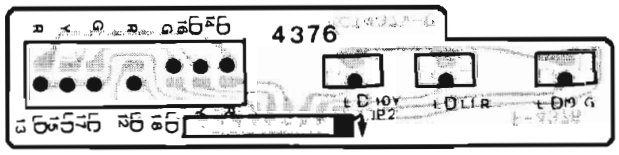

**Parts List**

| Parts No. | Stock No. | Description |
|---|---|---|
| •LED | | |
| sLD1 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD2 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD3 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD4 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD5 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD6 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD7 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |

| Parts No. | Stock No. | Description |
|---|---|---|
| sLD8 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sS4 | 46708100 | Push SW., PRESET STATION 1 |
| sS5 | 46708100 | Push SW., PRESET STATION 2 |
| sS6 | 46708100 | Push SW., PRESET STATION 3 |
| sS7 | 46708100 | Push SW., PRESET STATION 4 |
| sS8 | 46708100 | Push SW., PRESET STATION 5 |
| sS9 | 46708100 | Push SW., PRESET STATION 6 |
| sS10 | 46708100 | Push SW., PRESET STATION 7 |
| sS11 | 46708100 | Push SW., PRESET STATION 8 |
| sS13 | 46708100 | Push SW., FM/AM |

## 3-6. F-4376 RF, IF & STEREO Indicator Circuit Board

**Component Side**



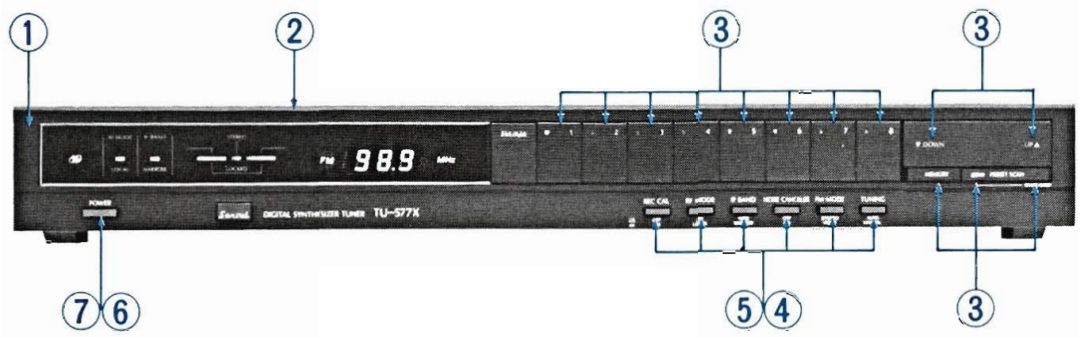

**Parts List**

| Parts No. | Stock No. | Description |
|---|---|---|
| •LED | | |
| sLD10 | 07251000 | TLY-123 |
| sLD11 | 46176900 | TLS-123 |
| | or 46470200 | SEL2210S |
| sLD12 | 46176900 | TLS-123 |
| | or 46470200 | SEL2210S |

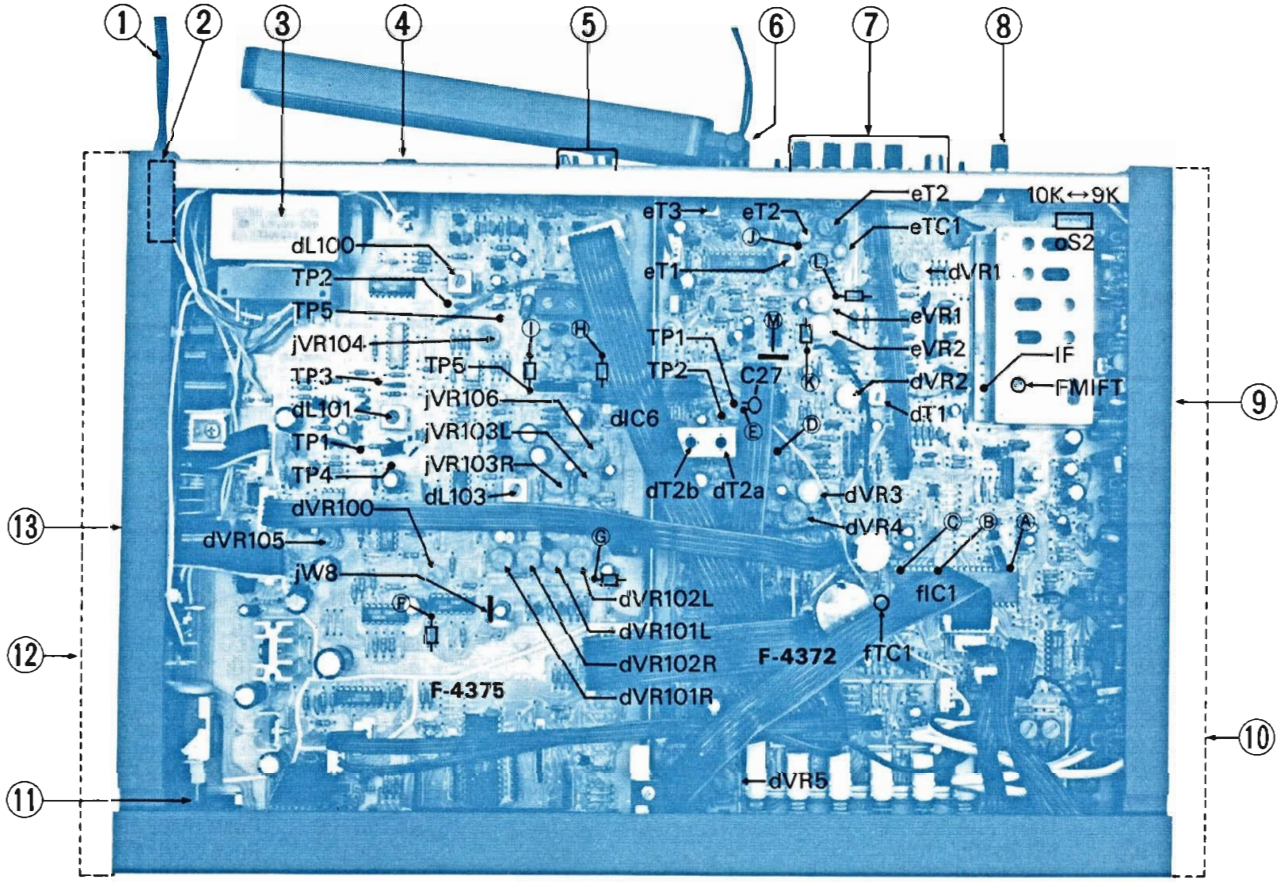
| Parts No. | Stock No. | Description |
|---|---|---|
| sLD13 | 46176900 | TLS-123 |
| | or 46470200 | SEL2210S |
| sLD14 | 46176900 | TLS123 |
| | or 46470200 | SEL2210S |
| sLD15 | 07251000 | TLY-123 |
| sLD16 | 07251000 | TLY-123 |
| sLD17 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD18 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |
| sLD19 | 07250900 | TLG-123A |
| | or 46470300 | SEL2410E |

# 4. OTHER PARTS

## 4-1. Front View




## 4-2. Top View




**Parts List <Front View>**

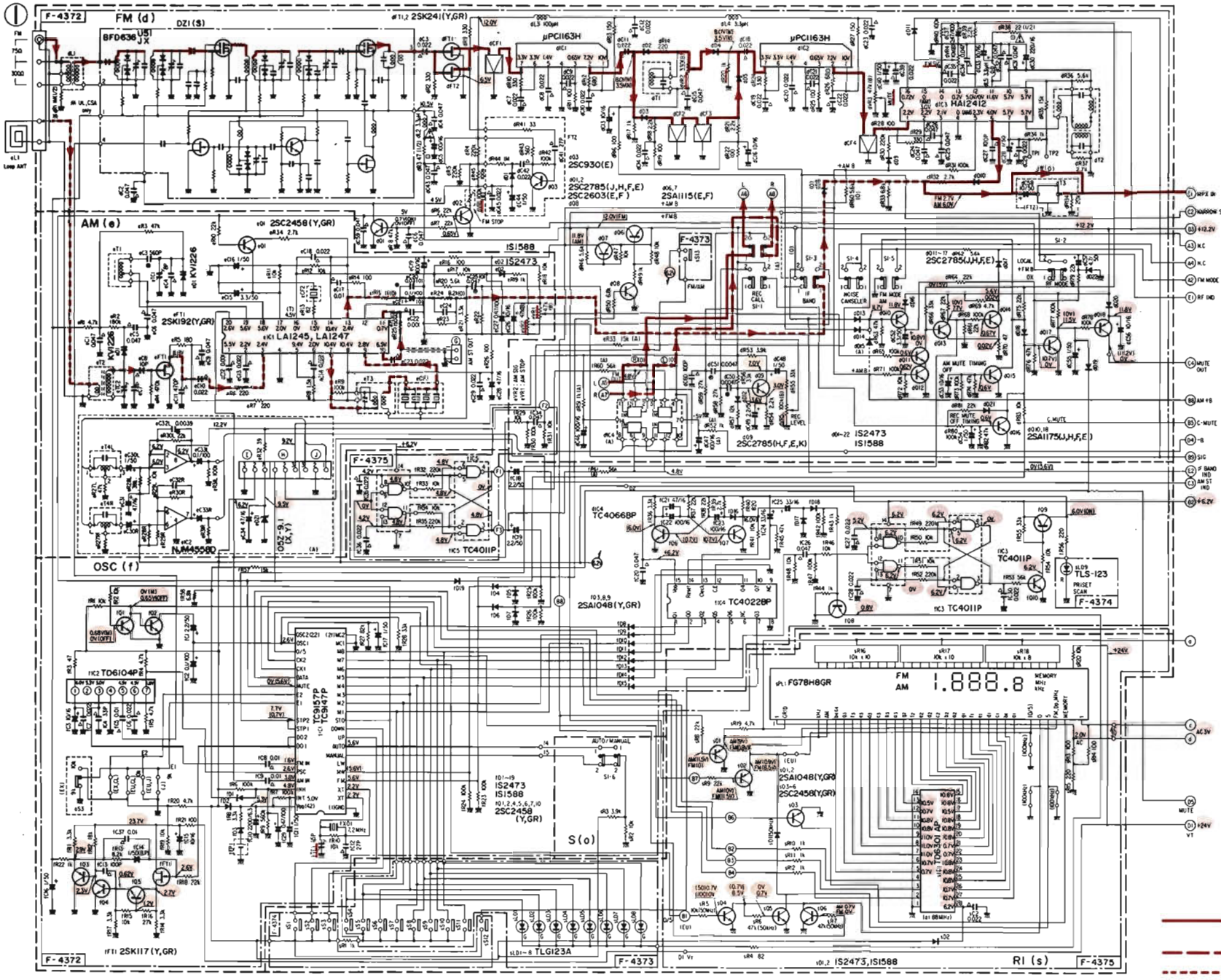
| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 47326000 | Front Panel Ass'y |
| 2 | 47301000 | Bonnet |
| 3 | 46708100 | Push SW., FM/AM, MEMORY, DOWN, UP, PRESET STATION, PRESET SCAN |
| 4 | 47300300 | Knob, REC CAL, RF MODE, IF BAND, TUNING, FM MODE, NOISE CANCELLER |
| 5 | 46725300 | Push SW., REC CAL, RF MODE, IF BAND, TUNING, FM MODE, NOISE CANCELLER |
| 6 | 47324600 | Knob, POWER |
| ⚠ 7 | 46360300 | Push SW., POWER |

**Parts List <Top View>**

| Parts No. | Stock No. | Description |
|---|---|---|
| ⚠ 1 | 38004700 | Power Supply Cord (XX, UL, CSA) |
| ⚠ | 38004500 | Power Supply Cord (EU) |
| 2 | 47168600 | AC Cord Cover |
| ⚠ 3 | 15013801 | Power Transformer (XX) |
| ⚠ | 15013802 | Power Transformer (UL, CSA) |
| ⚠ | 15013805 | Power Transformer (EU) |
| ⚠ 4 | 46364900 | AC OUTLET (XX, UL, CSA) |
| ⚠ | 07204700 | Voltage Selector, (220V/240V) (EU) |
| 5 | 46725200 | 2P OUTPUT Terminal |
| 6 | 07193200 | Antenna Holder |
| 7 | 46725100 | Antenna Terminal |
| 8 | 22301510 | Ground Terminal |
| 9 | 47326600 | Side Panel R Ass'y |
| 10 | 47337700 | Wood Side Panel R Ass'y (TU-S77XW Only) |
| 11 | 47300400 | Joint Shaft |
| 12 | 47337600 | Wood Side Panel L Ass'y (TU-S77XW Only) |
| 13 | 47326400 | Side Panel L Ass'y |

# 5. SCHEMATIC DIAGRAM 5-1. RF, IF & Control Section

*Design and specifications subject to change without notice for improvement.
*La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
*Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.




SYMBOL OF FUNCTION
(d) FM
(e) AM
(f) OSC CONTROL
(o) SELECTOR
(s) RF INDICATOR

SWITCHES
SI-1 : REC CALL — 1. OFF, 2. ON
SI-2 : RF MODE — 1. OFF, 2. ON
SI-3 : IF BAND — 1. WIDE, 2. NARROW
SI-4 : NOISE CANSELER — 1. OFF, 2. ON
SI-5 : FM MODE — 1. STEREO/MUTE ON, 2. MONO/MUTE OFF
SI-6 : TUNING — 1. AUTO, 2. MANUAL
SI1 : UP
SI2 : DOWN ] TUNING
SI3 : MEMORY
SI4~11 : STATION 1~8
SI12 : PRESET SCAN

CAPACITORS
Δ Ceramic
Polystyrene
Film (Mylar)
BP Bi-Polar Electrolytic
Are in pF, Unless otherwise Noted. P: pF

RESISTORS
Ω Non-Inflammable Type

Are in ohms, 1/4 Watts, ± 5% Tolerance
Unless otherwise Noted. k: kΩ, M: MΩ

Each D.C. Voltage shows the nominal
Value in Volts at no input signal

The Voltage parenthesized indicates
the Voltage in Stereo Signal reception

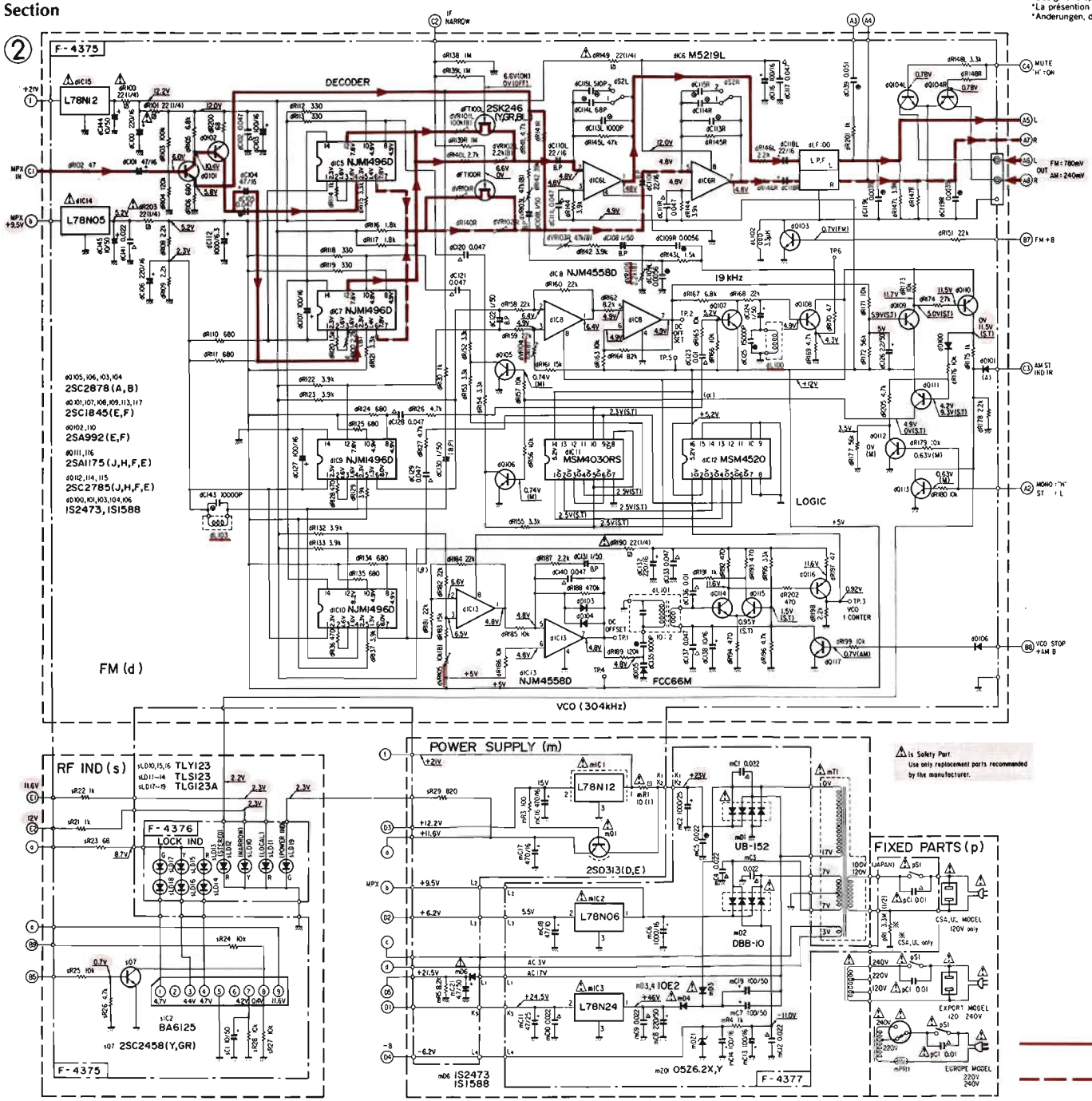
(O) : TU-S77X, TU-S607G
(A) : TU-S77MX

FM Line & L-ch Signal Line
R-ch Signal Line
AM Line

2SA992 2SA1048
2SC1845 2SA1115
2SC2878 2SC2458
2SC2603
2SD313AL 2SA1175
2SC2785
2SK246-BL
2SK246-GR
2SK117-GR
2SK246-Y
μPC1163H
M5219L
2SK192A-GR
2SK241-GR
2SK192A-Y
2SK241-Y
TD6104P
BA6125
HA12412-01
LA1245
MSM4030RS
MSM4520
NJM1496D
NJM4558D
TC4011P
TC40228P
TC9157P
TD6301AP
Dot or Slit or Line
L78N05 DB10-B
L78N06
L78N12
L78N15
L78N24
KV1226
UB-152LFF
05Z6.2X
05Z6.2Y
05Z6.2Z
1S158TP-3
1S2473T77
10E-2
SEL2210S
SEL2410E
TLG-123A
TLS-123

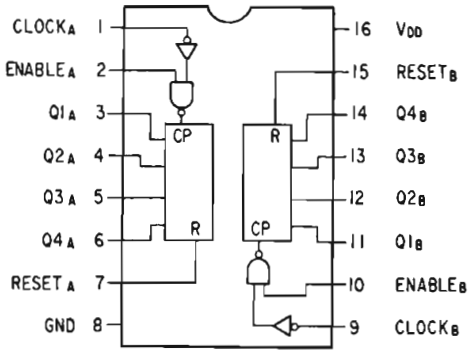
## 5-2. MPX Section

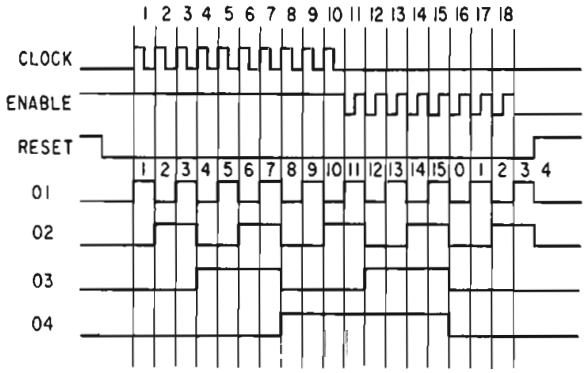
*Design and specifications subject to change without notice for improvement.
*La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
*Anderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



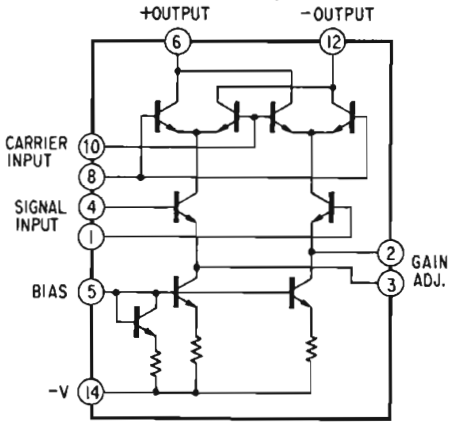

# 6. INTERIOR BLOCK DIAGRAM OF IC

## •MSM4520 (Dual Binary Up Counter IC)

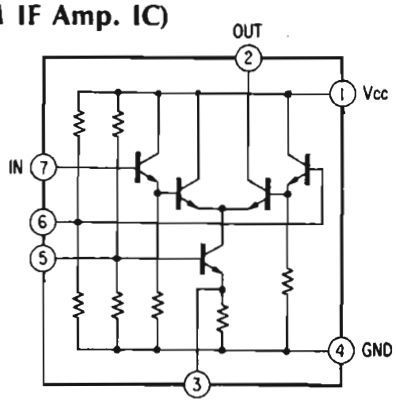


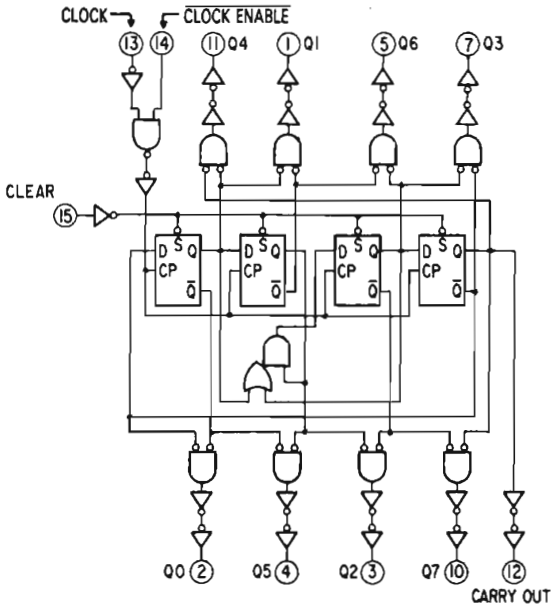

## •NJM1496 (Double Balanced Amp. IC)

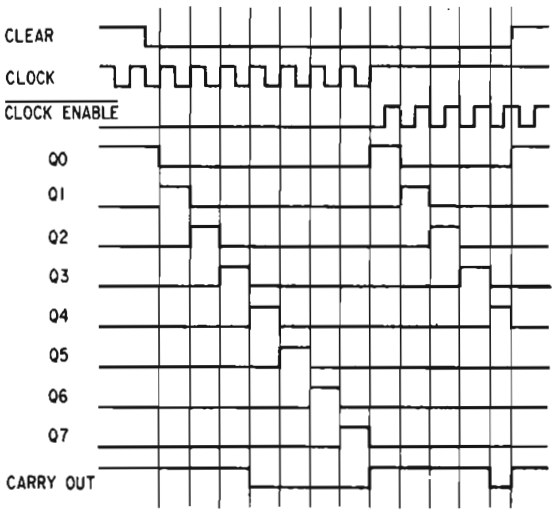



## •μPC1163H (FM IF Amp. IC)

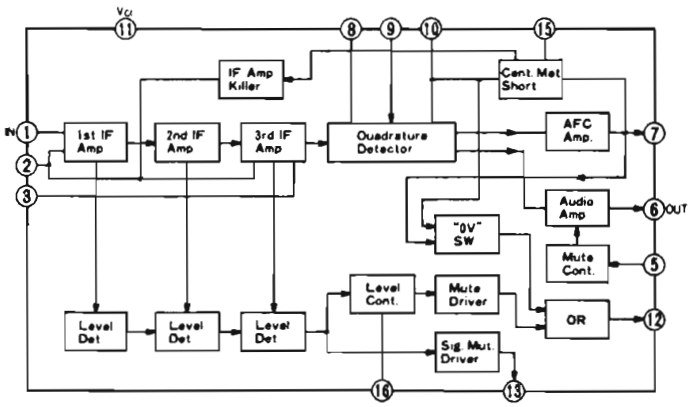



## •TC4022BP (8 Count Divider IC)

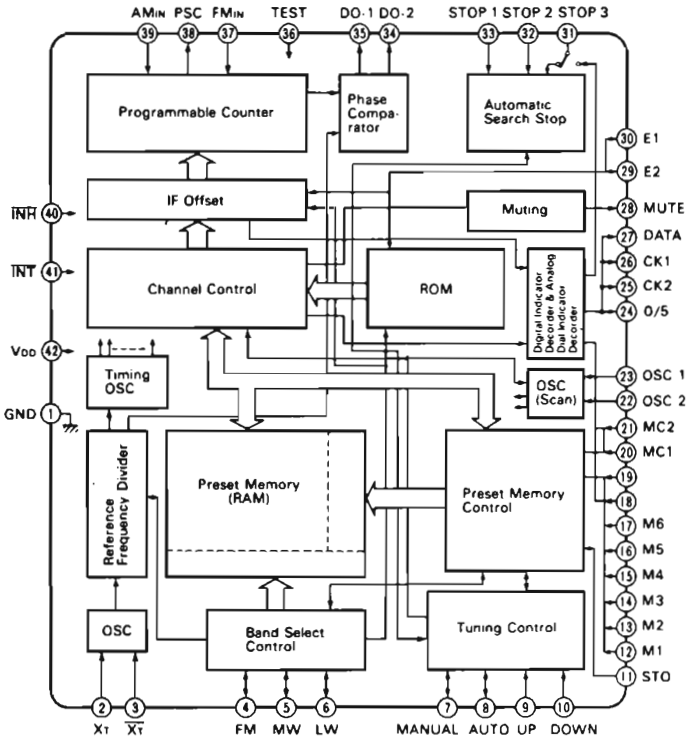


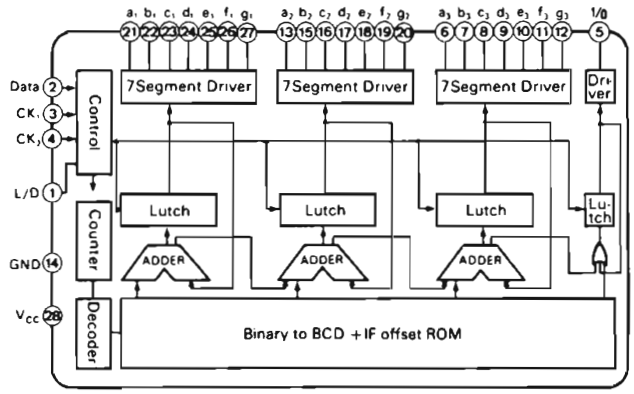

## •HA12412 (FM Detector IC)



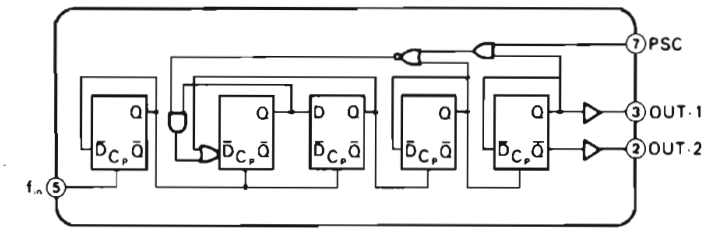
## •TC9157P (PLL & Control IC)



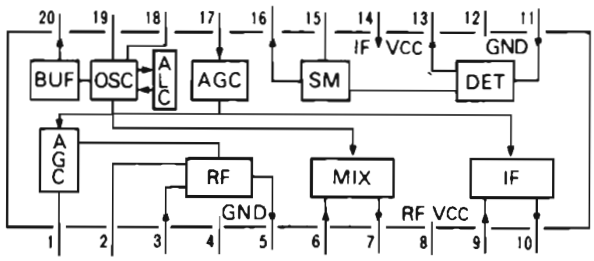

## •TD6301 (7-Segment Decoder IC)



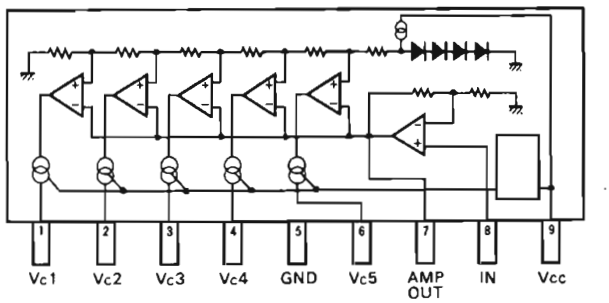

## •TD6104P (Prescaler IC)



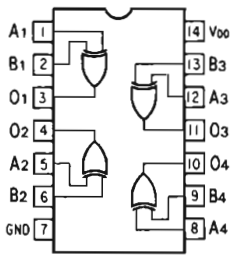

## •LA1245 (AM Tuner IC)




## •BA6125 (L.E.D. Drive IC)




## •MSM4030RS (Quad EXOR IC)




| A | B | OUT |
|---|---|---|
| L | L | L |
| H | L | H |
| L | H | H |
| H | H | L |

# 7. TERMINAL FUNCTION OF TC-9157P, TD6301P & TD6104

## • Terminal Function of LSI-TC9157P

| Pin No. | Pin Name | Functions |
|---|---|---|
| 2,3 | $X_T$ $\overline{X_T}$ | Terminals to connect a quartz oscillator for generating a reference frequency. |
| 4<br>5<br>6 | FM<br>MW<br>LW | Terminals to input a signal for switching FM/MW/LW band. |
| 7<br>8 | MANUAL<br>AUTO | Terminal to input a signal for switching the manual operation to automatic search operation or vice versa in the UP/DOWN tuning mode.<br>"H": Autonatic, "L": Manual |
| 9<br>10 | UP<br>DOWN | Terminals to input a signal from the tuning key.<br>* In manual operation: When the key is kept depressed for 0.3 sec or more in one-step/one-push step feeding, the operation changes to fast forwarding; when the key is released, the operation stops at the next stop. In this case, even if there is a station on the way, the station is neglected.<br>* In automatic search operation: When the key is depressed once, the automatic search operation starts and stops automatically after having selected the desired station. |
| 11 | STO | Terminal to input a signal for storing data in the preset memory unit. Input/output terminal in which a LED driver is provided.<br>* When depressing the STO key, the STO lamp comes on. Next, when any desired memory No. key is depressed, the data on receiving frequency is written into the memory unit and the STO lamp goes off.<br>* When the STO key is depressed and the memory No. key is not depressed, the frequency data is released automatically. |
| 12<br>~<br>17 | M1<br>~<br>M6 | Terminals to input a signal for designating memory address.<br>Input/output terminals in which a LED driver is provided.<br>* Terminals $M_1$ to $M_6$ designate the addresses of FM memory unit in FM receiving and the addresses of AM memory unit in AM receiving.<br>* When depressing the STO key and any desired station key of $M_1$ to $M_6$, the data is written into the memory unit.<br>* When depressing any desired station key of $M_1$ to $M_6$, the data is read out. |
| 22<br><br>23 | OSC 2<br><br>OSC 1 | Terminal to connect a condenser and resistor for the oscillator for determinating the speed of AM automatic search operation.<br>Terminal to connect a condenser and resistor for the oscillator for determinating the speed of FM automatic search operation. |
| 24<br>25<br>26<br>27 | 0/5<br>CK2<br>CK1<br>DATA | Terminals to output the data for displaying the received frequency digitally and a timing signal.<br>The data fed to the driver TD6301P for displaying a static frequency and the timing signal are outputted once only when the frequency is updated in such case as when the power supply is tuned on, the UP/DOWN key is depressed, the automatic scanning operation is made, the data are read out of the memory unit, or FM/AM is switched. In the ordinary receiving state, this terminal is fixed to a "L" level.<br>* 0/5: For displaying 50 kHz during FM receiving in Europe.<br>* Data: Binary coded frequency data and receiving band.<br>* CK-1, CK2: Initialize and transfer clock signals. |

| Pin No. | Pin Name | Functions |
|---|---|---|
| 28 | MUTE | Terminal to output the muting signal. The terminal is kept in "L" level in ordinary state, and in "H" level in muting. |
| 29<br>30 | E2<br>E1 | Terminals to input a signal for selecting destinations of Japan, USA, and Europe.<br>* Inputs of terminals $E_1$ and $E_2$ are read and latched in INH = L state and in FM/AM switching. |

| $E_1$ | $E_2$ | Mode |
|---|---|---|
| 0 | 0 | Japan |
| 1 | 0 | Europe |
| 0 | 1 | USA (MW 9kHz) |
| 1 | 1 | USA (MW 10kHz) |

| Pin No. | Pin Name | Functions |
|---|---|---|
| 31 | STOP 3 | When a IF450 kHz signal is applied to this terminal during automatic search operation, the scanning operation stops. |
| 32 | STOP 2 | Terminal to input a signal for performing the automatic search stop.<br>When a "H" level signal is applied to STOP 1 and this terminal during automatic search operation, the scanning operation stops. |
| 33 | STOP 1 | Terminal to input a signal for slowing the speed of scanning operation.<br>When a "H" level signal is applied to this terminal during automatic search operation, the speed of scanning operation halves. |
| 34<br>35 | $D_0$-2<br>$D_0$-1 | Terminals to output a signal from a phase comparator. These terminals can be used for FM and AM, separately, since the same signal is outputted from the terminals $D_0$-1 and $D_0$-2 at the same time. |
| 36 | TEST | Terminal to input a signal of test mode. Test mode in "H" level. |
| 37 | $FM_{IN}$ | Terminal to input a signal from the FM programmable counter.<br>An amplifier is provided in the input. |
| 38 | PSC | Terminal to output a signal for controlling the Prescaler IC of TD6104P. |
| 39 | $AM_{IN}$ | Terminal to input a signal from the AM programmable counter.<br>An amplifier is provided in the input. |
| 40 | INH | Terminal to input a signal of inhibit. Ordinary operation in "H" level; inhibit operation in "L" level. |
| 41 | INT | Terminal to input an initialize signal. This terminal changes to H level in the ordinary operation and to L level in the initialize operation. |
| 42<br>1 | $V_{DD}$<br>GND | Power supply terminals. 5V ± 0.5V. |

## • Terminal Functions of LSI-TD6301P

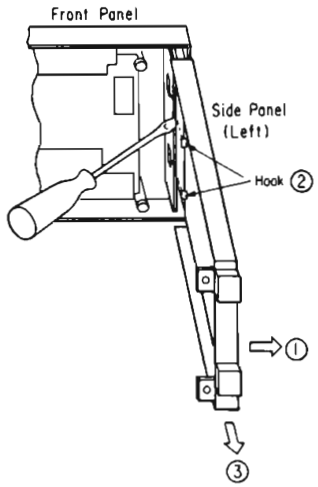
| Pin No. | Pin Name | Description of Function and Operation |
|---|---|---|
| 1 | L/D | Terminal to input a signal for switching the output conditions. The output conditions are switched in accordance with the indicator display (LED, FL, LCD). |
| 2 | Data | Terminal to input the received frequency data. The data are inputted in series from the system controller TC9140. |
| 3, 4 | $CK_1$,<br>$CK_2$ | Terminals to input a timing signal for controlling the input of the received frequency data. The timing signal is transferred together with the data from the system controller TC9140. |
| 5 | 1/0 | Terminal to output a signals for driving the 7-segment display. A digit representing 100MHz in FM receiving and 1000 kHz in AM receiving is displayed. Only one pin is provided because the output is 1 or 0 in FM and AM, respectively. |
| 6 ~ 12 | a3 ~ g3 | Terminal to output a signal for driving the 7-segment display. A digit representing 10 MHz in FM receiving and 100 kHz in AM receiving is displayed. |
| 13, 15 ~ 20 | a2 ~ g2 | Terminals to output a signal for driving the 7-segment display. A digit representing 1 MHz in FM receiving and 10 kHz in AM receiving is displayed. |
| 21 ~ 27 | a1 ~ g1 | Terminal to output a signal for driving the 7-segment display. A digit representing 100 kHz in FM receiving and 1 kHz in AM receiving is displayed. |
| 14, 28 | Vcc.<br>GND | Power supply terminal |

## • Terminal Function of LSI-TD6104P

| Pin No. | Pin Name | Description of Function and Operation |
|---|---|---|
| 2 | OUT-2 | Terminal to output an inversed signal of terminal OUT-1.<br>An additional resistor is necessary because of an open-emitter circuit. This terminal is kept open in the ordinary state. |
| 3 | OUT-1 | Terminal to output a signal obtained by dividing the input signal from the division frequency output terminal fin into 1/30 or 1/32.<br>* Output level: 0.5(V) minimum. |
| 5 | fin | Terminal to input a signal from the FM local oscillator.<br>* Frequency range: 60 ~ 140 MHz<br>* Input level: 75 ~ 300 mVrms |
| 6 | C | Terminal to connect a pass-condenser for the bias circuit.<br>A condenser of 2200 pF is connected between this terminal and ground. |
| 7 | PSC | Terminal to switch the frequency division ratio.<br>Vpsc ≧ 2(V): 1/32<br>Vpsc ≦ 1(V): 1/30 |
| 1 | Vcc | Power supply terminal<br>Vcc = 5V<br>Icc = TYP 5mA, MAX 10mA |
| 4 | GND | Ground |

# 8. SIDE PANEL L(R) REPLACEMENT

1) Remove the bonnet and two screws ⑤a.
2) Shift the position of the side panel L(R) 1.5 cm in the arrow direction ①.
3) Remove F-4377 circuit board.
4) Remove the hooks ② of the side panel from front panel and then pull it to the arrow direction ③ to remove the side panel L(R).




# 9. NOTES

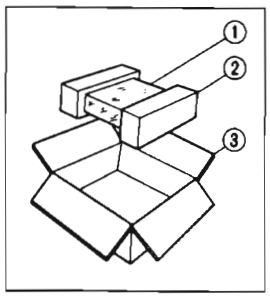
When the user moves to different channel step area on FM or AM, the following arrangements must be performed.

| | Sets Applicable to | Channel Step Frequency | | fIC1 Input Port Level | | Cross Conductor (F-4372) | | | | 9k/10k Switch oS2 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | AM kHz | FM kHz | $E_1$ | $E_2$ | JW18 | JW19 | JW20 | JW21 | |
| I | South Africa | 9k | 50k | L | L | ○ | ○ | — | — | None |
| | Europe | 9k | 50k | H | L | — | ○ | ○ | — | None |
| | America | 9k | 100k | L | H | ○ | — | — | ○ | None |
| | America | 10k | 100k | H | H | — | — | ○ | ○ | None |
| II | Sets which 9k/10k Switch is installed | 9k | 100k | L | H | — | — | — | ○ | 9 kHz |
| | | 10k | 100k | H | H | | | | | 10 kHz |

•**Note:** 1) L = Low Level, H = High Level, ○ = Connect, — = Remove
2) oS2 = AM 9k/10k Switch on F-4372
3) Remove the 9k/10 kHz switch only when a user operates the set (II) in 50 kHz channel step (I)

# 10. PACKING LIST

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 91166930 | Vinyl Bag |
| 2 | 47325700 | Styrofoam Packing |
| 3 | 47324800 | Carton Case (TU-S77X) |
| | 47324700 | Carton Case (TU-S77XW) |




# 11. ACCESSORY LIST

| Stock No. | Description |
|---|---|
| 07233600 | F-type Connector (Male) |
| 46051700 | FM Antenna |
| 46548700 | AM Loop Antenna |
| 07193400 | Pin Plug Cord |
| 46726200 | Operating Instruction |

**Note:** TU-S77XW are models which add wood side panels to TU-S77X.

Sansui

SANSUI ELECTRIC CO., LTD.: 14-1, Izumi 2-chome, Suginami-ku, Tokyo 168 Japan
PHONE: (03) 324-8891/TELEX: 232-2076 (International Division)
SANSUI ELECTRONICS CORPORATION: 1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.
17150 South Margay Ave. Carson, California 90746 U.S.A.
3306 Koapaka St. Honolulu, Hawaii 96819 U.S.A.
SANSUI ELECTRONICS (U.K.) LTD.: Unit 10A, Lyon Industrial Estate, Rockware Avenue, Geenford, Middx UB6, OAA, England
SANSUI ELECTRONICS G.M.B.H.: Pau Ehrich Strasse 8, 6074 Rödermark 2, West Germany

**(SM-110)** Printed in Japan (035620M) <Stock No. 36484200>