

SERVICE MANUAL

AM/FM STEREO TUNER

SANSUI TU-S5



Sansui

SANSUI ELECTRIC CO., LTD.

• SPECIFICATIONS

FM Section

| | |
|---|--|
| Tuning range | 88 to 108MHz |
| Usable sensitivity | |
| Mono IHF | 10.5dBf (1.8 μ V: T100) |
| DIN | 0.9 μ V |
| 50dB quieting sensitivity | |
| Mono | 14.5dBf |
| Stereo | 36.5dBf |
| Signal to noise ratio at 65dBf | |
| Mono | 84dB |
| Stereo | 75dB |
| Distortion at 65dBf | |
| Mono | less than 0.06% at 100Hz less than 0.06% at 1,000Hz less than 0.06% at 6,000Hz |
| Stereo | less than 0.07% at 100Hz less than 0.07% at 1,000Hz less than 0.07% at 6,000Hz |
| Alternate channel selectivity (at 300kHz) | 40dB |
| Capture ratio | 1.0dB |
| Image response ratio | 50dB (at 98MHz) |
| Spurious response ratio | 75dB (at 98MHz) |
| | 75dB (at 98MHz) |
| Stereo separation | 38dB at 100Hz 50dB at 1,000Hz 33dB at 10,000Hz |
| Frequency response | |
| Stereo | 30 to 15,000Hz +0.3dB, -1.0dB |
| Antenna input impedance | |
| | 300 ohms balanced 75 ohms unbalanced |

AM Section

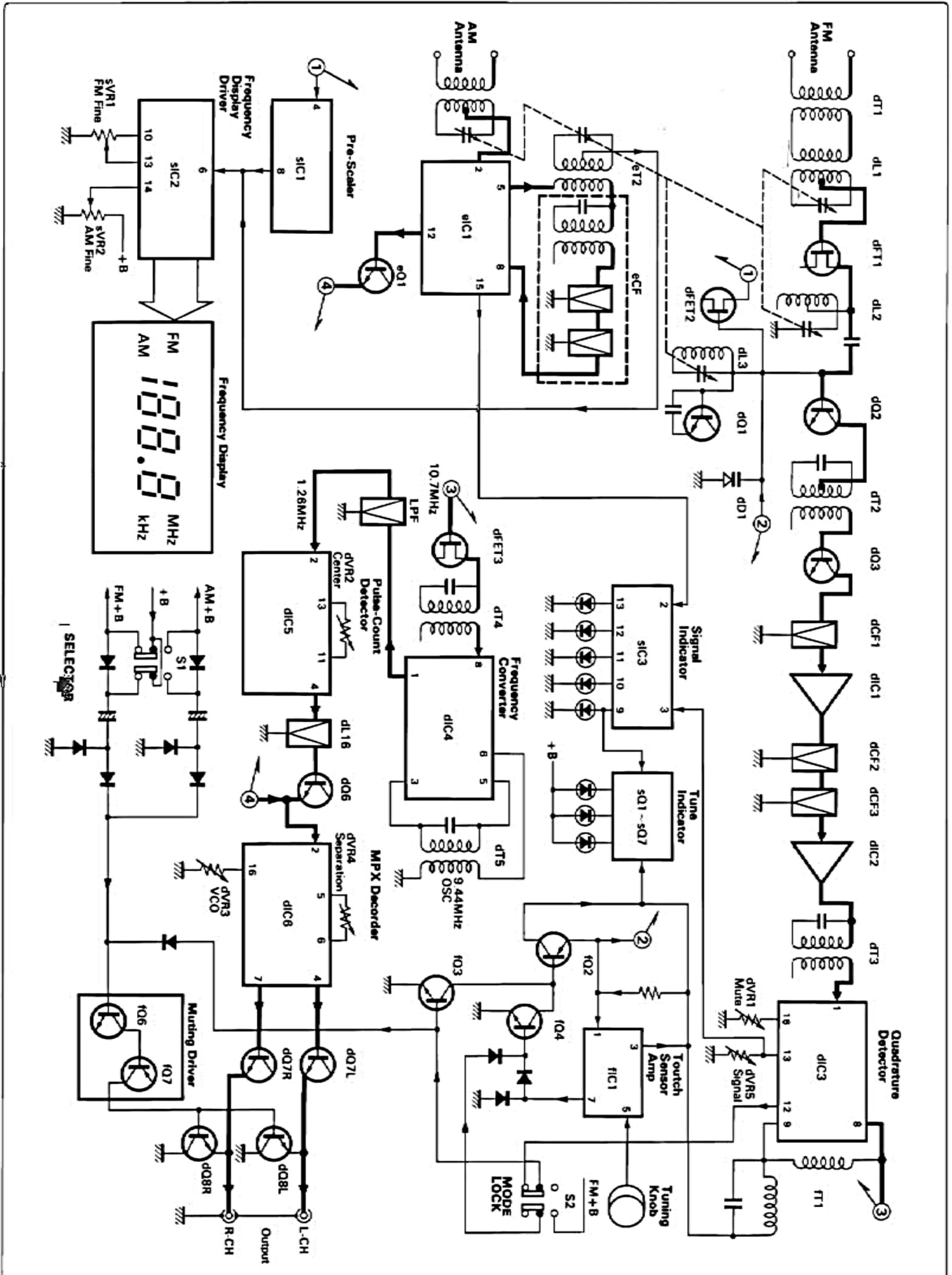
| | |
|--|------------------|
| Tuning range | 530 to 1,600kHz |
| Usable sensitivity | 56dB/m |
| Selectivity (\pm 9kHz) | 35dB |
| Signal to noise ratio | 46dB |
| Distortion (at 30% Modulation, 80dB/m) | |
| | less than 0.6% |
| Image response ratio | 45dB at 1,000kHz |
| IF response ratio | 35dB at 1,000kHz |

Others

| | |
|------------------------------|--|
| Output voltage and impedance | |
| OUTPUT | 0.5V/2.2 kilohms |
| Power requirements | 120, 220, 240V (50/60Hz) |
| For U.S.A. and Canada | |
| | 120V (60Hz) |
| Power consumption | 14W |
| Dimensions | 430mm (16-15/16") W 83mm (3-5/16") H 324mm (12-13/16") D |
| Using rack mounting adaptors | |
| | 480mm (18-15/16") W 83mm (3-5/16") H 324mm (12-13/16") D |
| Weight | |
| Silver panel type | 4.2kg (9.3lbs) net 5.1kg (11.2lbs) packed |
| Black panel type | 4.3kg (9.5lbs) net 5.2kg (11.5lbs) packed |

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

1. BLOCK DIAGRAM



2. OPERATIONS

There are many specifications to decide what is excellent Tuner. In specifications, both Signal to Noise Ratio (S/N) and Distortion can be the most important factors.

On conventional Tuner, RF and IF amplifier circuits occupy large factor to secure high S/N and low distortion. This means that these circuits must be all highly graded, and it concerns cost-up.

Sansui TU-S5 adopts new Pulse-count Detecting circuit. The adoption of this circuit minimizes the influence which RF and IF amplifier circuits exercise S/N and distortion. The values of these two specifications are mostly decided by the Pulse-count Detecting circuit. Therefore, even midium graded Tuner can prove high S/N and low distortion as high graded Tuner has.

The Pulse-count Detecting circuit comprises a frequency converter and a pulse-count detector.

The reason why the frequency converter is adopted to the pulse-count detector, is as follows.

The specifications of the pulse-count detector are decided by rise time and stability of pulse width, of generated pulse by one-shot multivibrator in the pulse-count detector. Therefore, if an input frequency to the multivibrator is too high, it is impossible to obtain high S/N and low distortion. To avoid this problem, the input frequency must be converted to a lower frequency which the multivibrator is able to follow it.

The followings are the circuit operations of the pulse-count detecting circuit on TU-S5.

1. Frequency converter (M51672P)

Frequency converter IC, M51672P has a differential amplifier and a balanced mixer as Fig. 2-1. The differential amplifier works as a local oscillator by connecting an external OSC coil, and the output signal of the local oscillator is supplied to the balanced mixer. This signal and IF signal from IF amplifier are mixed together in the balanced mixer, and this mixed signal is outputted to a low-pass filter. Then frequency conversion is completed after required frequency signal from the pulse-count detector is selected by the low-pass filter.

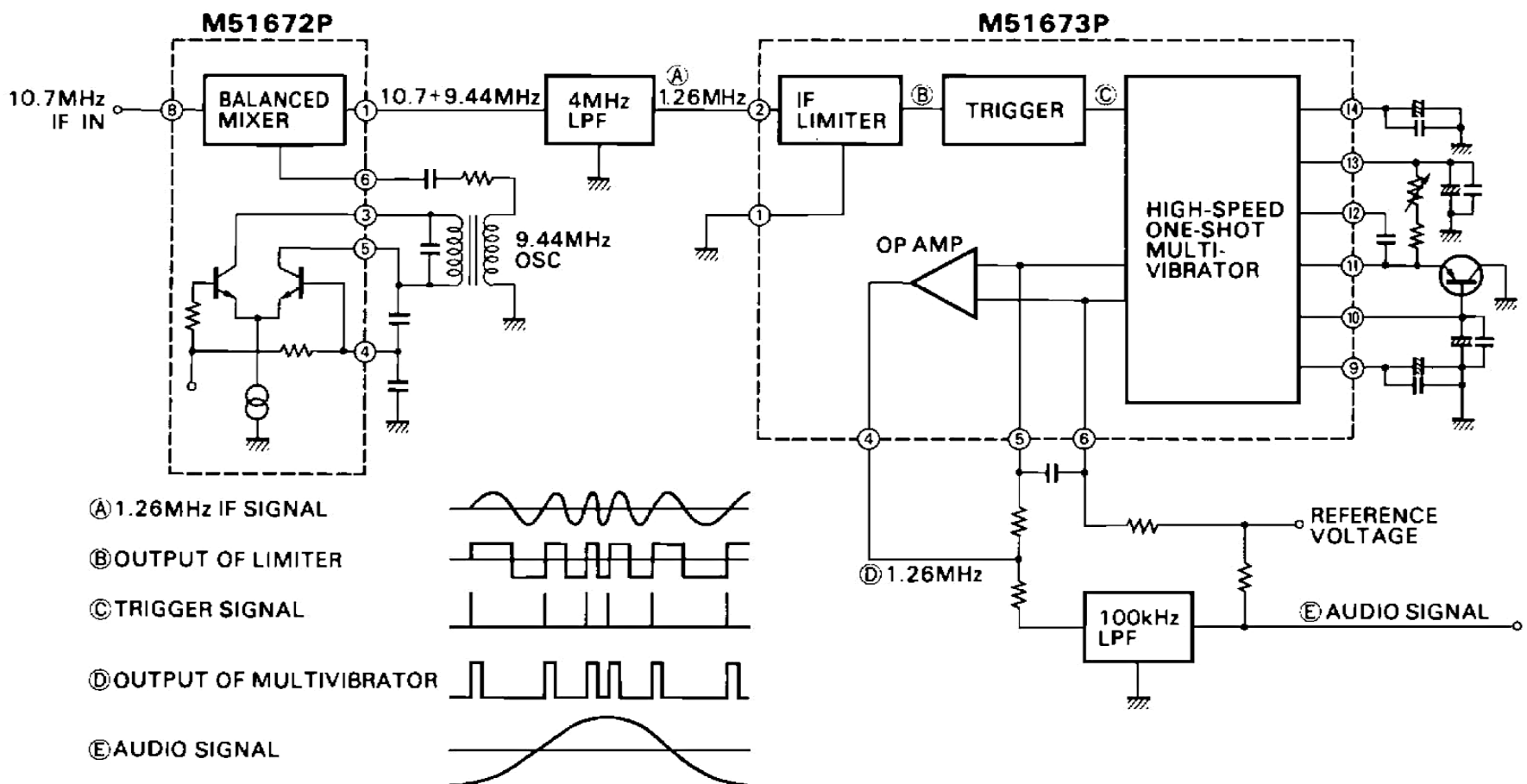
The frequency of the local oscillator is 9.44 MHz. And by mixing 10.7 MHz IF with it, two frequencies of $10.7 \text{ MHz} \pm 9.44 \text{ MHz}$ are outputted from the balanced mixer. However, only 1.26 MHz frequency is selected by the low-pass filter of which the cut-off frequency is 4 MHz, and applied to the pulse-count detector as 2nd IF.

2. Pulse-count Detector (M51673P)

Pulse-count detector IC, M51673P consists of a IF limiter, a trigger circuit and a high-speed one-shot multivibrator as Fig. 2-1.

The 2nd IF signal converted by the frequency converter is inputted first to the IF limiter, and limited its level to near square wave. Next it is converted to trigger pulse by the trigger circuit. By this trigger pulse, the one-shot multivibrator generates pulse signal which has equal pulse-width, and frequency corresponding to 2nd IF. Then it is passed through a low-pass filter of which the cut-off frequency is 100 kHz, and only audio signal comes out from the filter.

Fig. 2-1

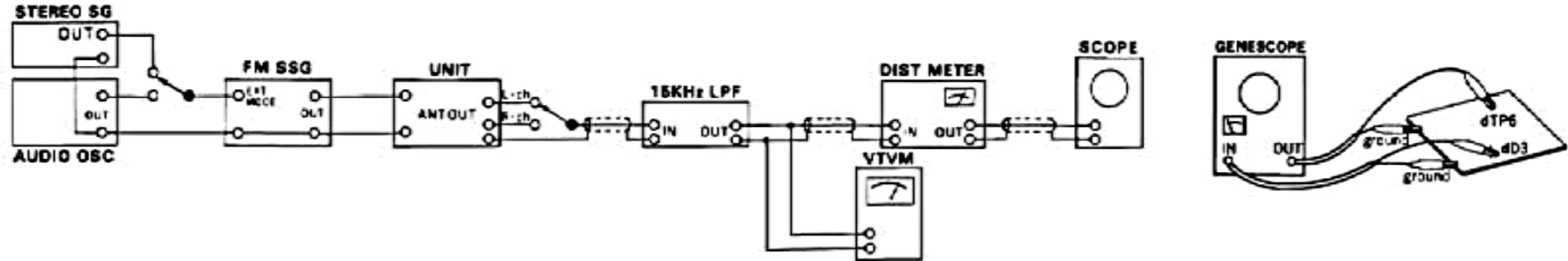


3. ADJUSTMENTS

3-1. FM Adjustment (See Parts Location on Page 4 & 5)

1) FM IF, RF Adjustment and Dial Calibration

Note: 1. Selector FM 2. FM Mode MONO



| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|------------------------|---|----------------------|--|------------------------|--|---|
| | | FROM | TO | | | | |
| 1. | Frequency Display Adj. | 98MHz ANT Input 65dBf (59.8dB) No MOD. FM SSG | ANT Terminal 300Ω | Frequency Display | sVR1 (F-3514) | No Blinking of the 2nd digit from right. | sTP1 has to be grounded on this adjustment. |
| 2. | IF Coil Adj. | Output 60dB Genescope | dTP6 (F-3513) | Cathode terminal of dD3 (F-3513) | dT2 (F-3513) | Max. Waveform | |
| 3. | Detector Adj. | 98MHz ANT Input 65dBf (59.8dB) No MOD. FM SSG | ANT Terminal 300Ω | dTP1 (F-3513) Scope | dT4 (F-3513) | Max. Output | |
| | | | | dTP1 (F-3513) Frequency Counter | dT5 (F-3513) | 1.260MHz | |
| | | | | dTP2 (F-3513) DC Volt Meter | dVR2 (F-3513) | Half of Pin No. 7 voltage (dIC5) | |
| 4. | Dial Calibration | 106MHz ANT Input: 65dBf (59.8dB) 1kHz (100% MOD.) FM SSG | Same as above | Dial Pointer | Tuning Knob | 106MHz | Repeat the adjustment a few times. |
| | | | | Frequency Display | dTC3 (F-3513) | 106.0MHz | |
| | | 90MHz ANT Input 65dBf (59.8dB) 1kHz (100% MOD.) FM SSG | Same as above | Dial Pointer | Tuning Knob | 90.0MHz | |
| | | | | Frequency Display | dL3 | 90.0MHz | |
| 5. | RF Adj. | 106MHz ANT Input: 65dBf (59.8dB) 1kHz (100% MOD.) FM SSG | Same as above | Output L-CH or R-CH VTVM & Scope | dTC1, dTC2 (F-3513) | Max. Output | Repeat the adjustment a few times. |
| | | | | Output L-CH or R-CH VTVM & Scope | dL1, dL2 (F-3513) | Max. Output | |
| 6. | Tuning LED Adj. | No Input | — | Between dTP4 & dTP5 (F-3513) DC Volt Meter | FT1 (F-3513) | 0V | |
| 7. | Signal Indicator Adj. | 98MHz ANT Input 55dBf (49.8dB) 1kHz (100% MOD.) FM SSG | ANT Terminal 300Ω | Signal Indicator | dVR5 (F-3513) | 5 LEDs come on. | |
| 8. | Muting Level Adj. | 98MHz ANT Input 15dBf (9.8dB) 1kHz (100% MOD.) FM SSG | Same as above | Output L-CH or R-CH VTVM & Scope | dVR1 (F-3513) | Rising Point | |

| •Abbreviations | | |
|------------------------------|-------------|--|
| Equipment | | Others |
| AM FM Generator Oscilloscope | Genescope | Antenna ANT. |
| AM Standard Signal Generator | AM SSG | Modulation MOD. |
| FM Standard Signal Generator | FM SSG | Total Harmonic Distortion T.H.D. |
| FM Stereo Generator | Stereo SG | |
| Oscilloscope | Scope | |
| Audio Oscillator | Audio Osc. | |
| Distortion Meter | Dist. Meter | |

2) FM STEREO Adjustment

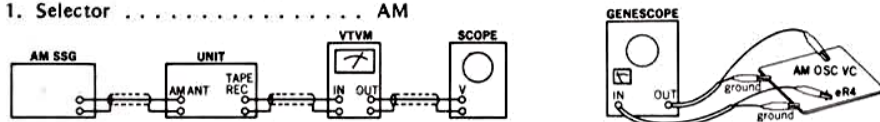
1) FM Mode AUTO

| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|--------------------|---|-------------------|---------------------------------------|--------------------------|-----------------|--|
| | | FROM | TO | | | | |
| 1. | PLL VCO Adj. | 98MHz ANT Input 60dB (54.8dB) No MOD. FM SSG | ANT Terminal 300Ω | dTP3 (F-3513) Frequency Counter | dVR3 (F-3513) | 76kHz ± 150Hz | |
| 2. | Discriminator Adj. | 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 Dist. Meter, VTVM & Scope | dT2 & dT3 | Min. Distortion | Before adjustment, turn dVR4 fully counter-clockwise. |
| 3. | Separation Adj. | Same as above | Same as above | Same as above | — | — | Read the indication on VTVM. |
| | | 98MHz ANT Input 65dBf (59.8dB) FM SSG Pilot 19kHz (9% MOD.) R MODE 1kHz + Pilot (100% MOD.) Stereo SG | Same as above | Same as above | OUTPUT R-CH VTVM & Scope | dVR4 | -50dB from above reading. |
| | | | | Same as above | — | — | Confirm the input is less than -45dB from above reading. |

3-2. AM Adjustment (See Parts Location on Page 4 & 5)

1) AM IF Adjustment and Dial Calibration

Note: 1. Selector AM



| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|------------------------|--|---------------------------------------|----------------------------------|---|----------------------------|---|
| | | FROM | TO | | | | |
| 1. | Frequency Display Adj. | 950kHz ANT Input 60dB (400Hz (30% MOD.) AM SSG | ANT Terminal | Frequency Display | sVR2 (F-3514) | No blinking of 1kHz digit. | Before adjustment, perform the setting procedure under mentioned. |
| 2. | IF Coil Adj. | Output 70dB Genescope | Terminal of AM OSC variable capacitor | eR4 (F-3513) | eCF1 (F-3513) | Symmetrical waveform | |
| | | | | | eL2 (F-3513) | Max. waveform | |
| 3. | Dial Calibration | 1400kHz ANT Input 60dB 400Hz (30% MOD.) AM SSG | ANT Terminal | Frequency Dial | Tuning Knob | 1400kHz | Repeat the adjustment a few times. |
| | | | | Frequency Display | Trimmer capacitor of OSC variable capacitor | 1400kHz | |
| | | 600kHz ANT Input 60dB 400Hz (30% MOD.) AM SSG | Same as above | Frequency Dial | Tuning Knob | 600kHz | |
| | | | | Frequency Display | eT2 (F-3513) | 600kHz | |
| 4. | RF Adj. | 1400kHz ANT Input 30dB 400Hz (30% MOD.) AM SSG | Same as above | OUTPUT L-CH or R-CH VTVM & Scope | Trimmer capacitor of RF Amp. variable capacitor | Max. Output | Repeat the adjustment a few times. |
| | | 600kHz ANT Input 30dB 400Hz (30% MOD.) AM SSG | Same as above | Same as above | eT1 (F-3513) | Max. Output | |

SETTING PROCEDURE for AM Adjustment Step 1

1. Connect sTP1 and sTP3 to the ground separately.
2. Connect sTP2 and sTP3 together.

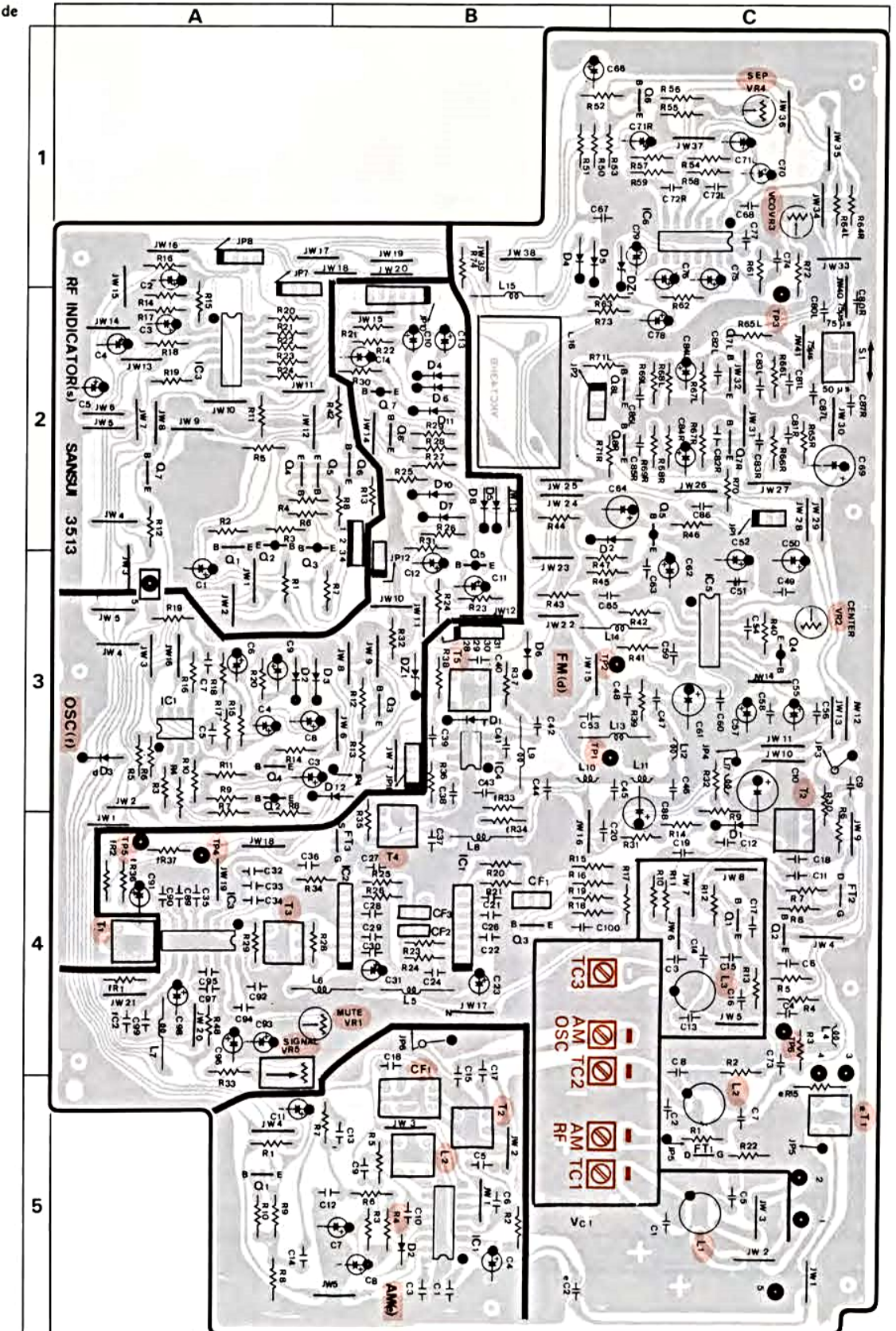
3. Remove the connection between sTP3 and ground.
4. Then perform the AM Adjustment Step 1.

4. PARTS LOCATION & PARTS LIST

4-1. F-3513 Tuner Circuit Board (Stock No. 00642301)

•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 appended previously to Sansui Manual.

Component Side

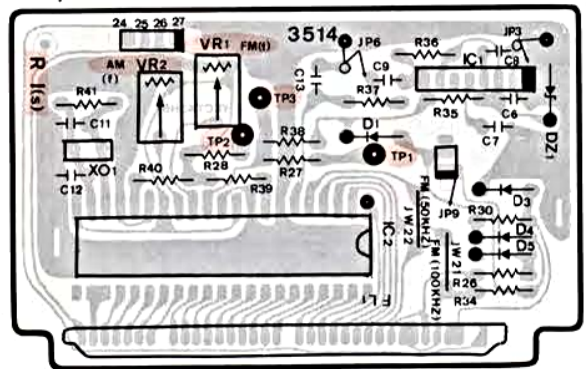


Parts List <F-3513>

| Parts No. | Stock No. | Description | Parts No. | Stock No. | Description | Parts No. | Stock No. | Description |
|--------------|-------------|---------------------------------|-------------|-----------|--|--------------|-----------|-------------|
| ●Transistor | | | dL13~15 | 07250300 | 2.2μH Peaking Coil | fQ4 | 03059501 | 2SC945 |
| dQ1 | 03069501 | 2SC668 | dL16 | 07251500 | Low Pass Filter BL-12BR | fQ5 | 07194801 | 2SC1815 |
| dQ2 | 03063401 | 2SC1674 | dL17 | 49001400 | 1μH Inductor | | 03068301 | 2SC2320 |
| dQ3 | 03069501 | 2SC668 | dT1 | 07203000 | Balun | | 07197001 | 2SA733A |
| dQ4 | 03063401 | 2SC1674 | dT2~4 | 42359300 | FM IF Coil | | 03012701 | 2SA999 |
| dQ5 | 03010901 | 2SA992 | dT5 | 07251400 | FM OSC Coil | fQ6 | 03059501 | 2SC945 |
| dQ6 | 07299001 | 2SA970 | dVR1 | 10351700 | Semi Variable Resistor 47kΩ (B), Muting adj. | | 07194801 | 2SC1815 |
| dQ7 | 03030901 | 2SA992 | dVR2 | 10351000 | Semi Variable Resistor 3.3kΩ (B), Center adj. | | 03068301 | 2SC2320 |
| dQ8 | 03059501 | 2SC945 | dVR3 | 10342500 | Semi Variable Resistor 4.7kΩ (B), VCO adj. | ●IC | 07194701 | 2SA1015 |
| ●FET | | | dVR4 | 07241900 | Semi Variable Resistor 1MΩ (B), Separation adj. | fIC1 | 03607700 | NJM4558D |
| dFT1 | 03703700, 1 | 2SK120-1, 2 | dVR5 | 07241500 | Semi Variable Resistor 50kΩ (B), Signal meter adj. | ●Diode | 07194701 | 2SA1015 |
| dFT2 | 03703700, 1 | 2SK120-1, 2 | dS1 | 07251100 | Slide Switch, De-emphasis | fD1~12 | 03111600 | 1S2473D |
| dFT3 | 03703700, 1 | 2SK120-1, 2 | ●Transistor | | | ●Zener Diode | | |
| ●IC | | | eQ1 | 03059501 | 2SC945 | fZD1 | 07178500 | RD5.1E-B |
| dIC1 | 03605400 | μPC1163H | | 07194801 | 2SC1815 | fT1 | 46077600 | FM IF Coil |
| dIC2 | 03605400 | μPC1163H | ●IC | | | ●Diode | | |
| dIC3 | 46052600 | μPC1208 | eIC1 | 03603900 | HA1197 | mD3 | 03117700 | 10E-2 |
| dIC4 | 07229100 | M51672P | | 03608000 | LA1240 | ●Transistor | | |
| dIC5 | 07229200 | M51673P | eQ1 | 03059501 | 2SC945 | sQ1 | 03059501 | 2SC945 |
| dIC6 | 07299400 | HA12016 | | 07194801 | 2SC1815 | | 07194801 | 2SC1815 |
| ●Diode | | | ●Diode | | | sQ2 | 03068301 | 2SC2320 |
| dD1 | 07299300 | 1S2236 | eD2 | 03401500 | Varistor MV12 | | 07197001 | 2SA733A |
| dD2~6 | 03111600 | 1S2473D | eCF1 | 07250500 | 455 kHz Ceramic Filter | sQ3 | 03012701 | 2SA999 |
| ●Zener Diode | | | eT1 | 46085900 | AM RF Coil | | 07197001 | 2SA733A |
| dZD1 | 07178500 | RD5.1E-B | eT2 | 42205900 | AM OSC Coil | sQ4 | 07194701 | 2SA1015 |
| dVC1 | 07271200 | FM/AM Variable Capacitor | eL2 | 42306200 | AM IF Coil | | 03012701 | 2SA999 |
| dCF1~3 | 07200400 | Ceramic Filter SFE10.7 MLH-Z | ●Transistor | | | sQ5 | 03059501 | 2SC945 |
| dL1 | 42007200 | FM RF Coil | fQ2 | 07197001 | 2SA733A | | 07194801 | 2SC1815 |
| dL2 | 42103400 | FM RF Coil | | 07194701 | 2SA1015 | sQ6 | 03059501 | 2SC945 |
| dL3 | 42204000 | FM OSC Coil | fQ3 | 03059501 | 2SC945 | | 07194801 | 2SC1815 |
| dL4 | 49001400 | 1μH Inductor | | 03012701 | 2SA999 | sQ7 | 03059501 | 2SC945 |
| dL5~9 | 07250300 | 2.2μH Peaking Coil | | 07194801 | 2SC1815 | | 07194801 | 2SC1815 |
| dL10 | 07251300 | 91μH Inductor | | 03068301 | 2SC2320 | ●Diode | | |
| dL11, 12 | 07251200 | 120μH Inductor | | 03068301 | 2SC2320 | sD1~5 | 03111600 | 1S2473D |

4-2. F-3514 Digitally Display Circuit Board

Component Side (Stock No. 00642401)

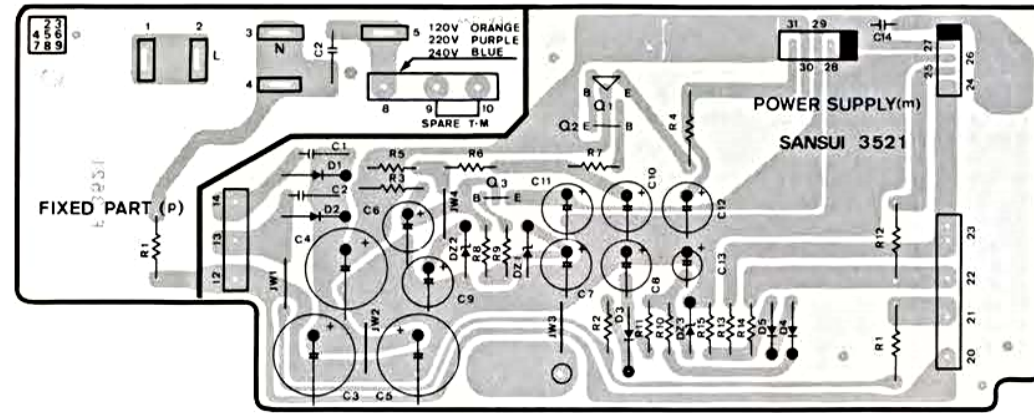


Parts List

| Parts No. | Stock No. | Description |
|--------------|-----------|--|
| ●IC | | |
| sIC1 | 07233200 | M54459L |
| sIC2 | 07205100 | LC7258 |
| sXO1 | 07225300 | Quartz Element |
| ●Zener Diode | | |
| sZD1 | 07178500 | RD5.1E-B |
| sFL1 | 07235300 | FL Tube FIP7B8S |
| sVR1 | 07241300 | Semi Variable Resistor 10kΩ (B), FM fine adj. |
| sVR2 | 07241300 | Semi Variable Resistor 10kΩ (B), AM fine adj. |

4-3. F-3521 Power Supply Circuit Board (Stock No. 00643001)

Component Side



Parts List

| Parts No. | Stock No. | Description | Parts No. | Stock No. | Description |
|-------------|-----------|-------------|--------------|-----------|------------------|
| ●Transistor | | | ●Diode | | |
| mQ1 | 03083901 | 2SD313AL | mD1, 2 | 03117700 | 10E-2 |
| mQ2 | 03059501 | 2SC945 | mD4, 5 | 07176400 | 1S2473HS |
| | 07194801 | 2SC1815 | ●Zener Diode | | |
| | 03068301 | 2SC2320 | mZD1, 3 | 07179700 | RD9.1E-B |
| mQ3 | 03059501 | 2SC945 | mZD2 | 07180700 | RD15E-B |
| | 07194801 | 2SC1815 | mR1 | 00184300 | 68Ω 1W N.I.R. |
| | 03068301 | 2SC2320 | pC2 | 08302100 | 4700pF 125V C.C. |

●Note: The circuit board, F-3515, F-3516, F-3518, F-3520 are not supplied as the assembled. However, the individual parts on the circuit board are provided by orders.

4-4. F-3515 Selector Switch Board

| Parts No. | Stock No. | Description |
|-----------|-------------|-----------------------|
| ●Diode | | |
| dD7 | 03117700 | 10E-2 |
| eD1 | 03111600 | 1S2473D |
| oS1 | 46077900, 1 | Push Switch, selector |

4-6. F-3518 Lock Indicator Board

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------|
| fLD1 | 46085200 | LED LD-702 |

4-7. F-3520 Power Switch Board

| Parts No. | Stock No. | Description |
|-----------|-----------|------------------|
| pC1 | 08302100 | 4700pF 125V C.C. |
| pS1 | 46085800 | Power Switch |

4-5. F-3516 LED Indicator Board

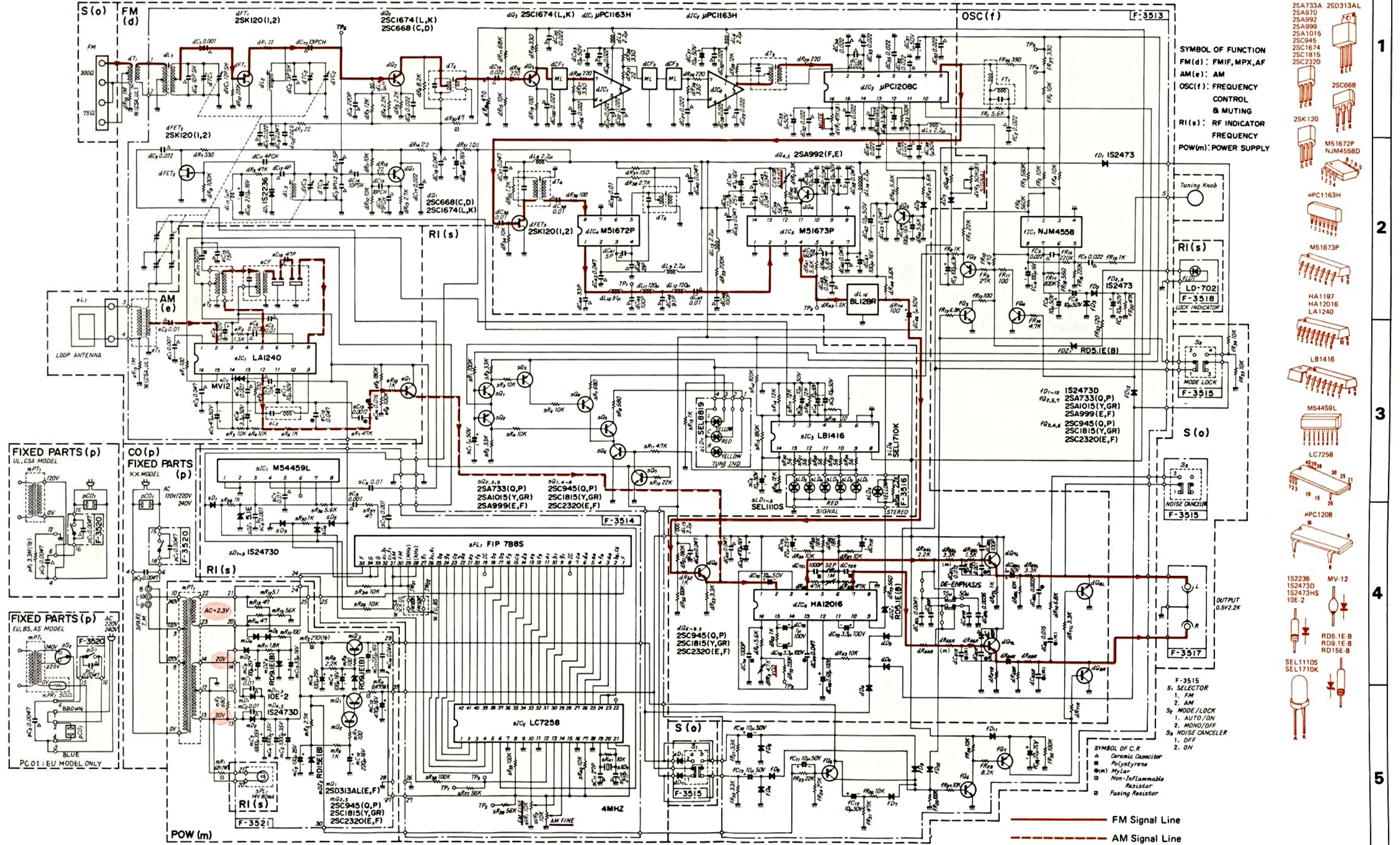
| Parts No. | Stock No. | Description |
|-----------|-----------|---------------|
| | 07581800 | 5P LED Holder |
| | 07581900 | 1P LED Holder |
| ●IC | | |
| sIC3 | 03611600 | LB1416 |
| sLD1~5 | 03193700 | LED SEL1110S |
| sLD6 | 07246200 | LED SEL1710K |

● Abbreviations

| | | | |
|--------|---|-------|--|
| C.R. | Carbon Resistor | E.L. | Low Leak Electrolytic Capacitor |
| S.R. | Solid Resistor | E.B. | Bi-Polar Electrolytic Capacitor |
| Ce.R. | Cement Resistor | E.BL. | Low Leak Bi-Polar Electrolytic Capacitor |
| M.R. | Metal Film Resistor | Ta.C. | Tantalum Capacitor |
| F.R. | Fusing Resistor | F.C. | Film Capacitor |
| N.I.R. | Non-Inflammable Resistor | M.P. | Metalized Paper Capacitor |
| C.C. | Ceramic Capacitor | P.C. | Polystyrene Capacitor |
| C.T. | Ceramic Capacitor, Temperature Compensation | G.C. | Gimmic Capacitor |
| E.C. | Electrolytic Capacitor | | |

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

5. SCHEMATIC DIAGRAM

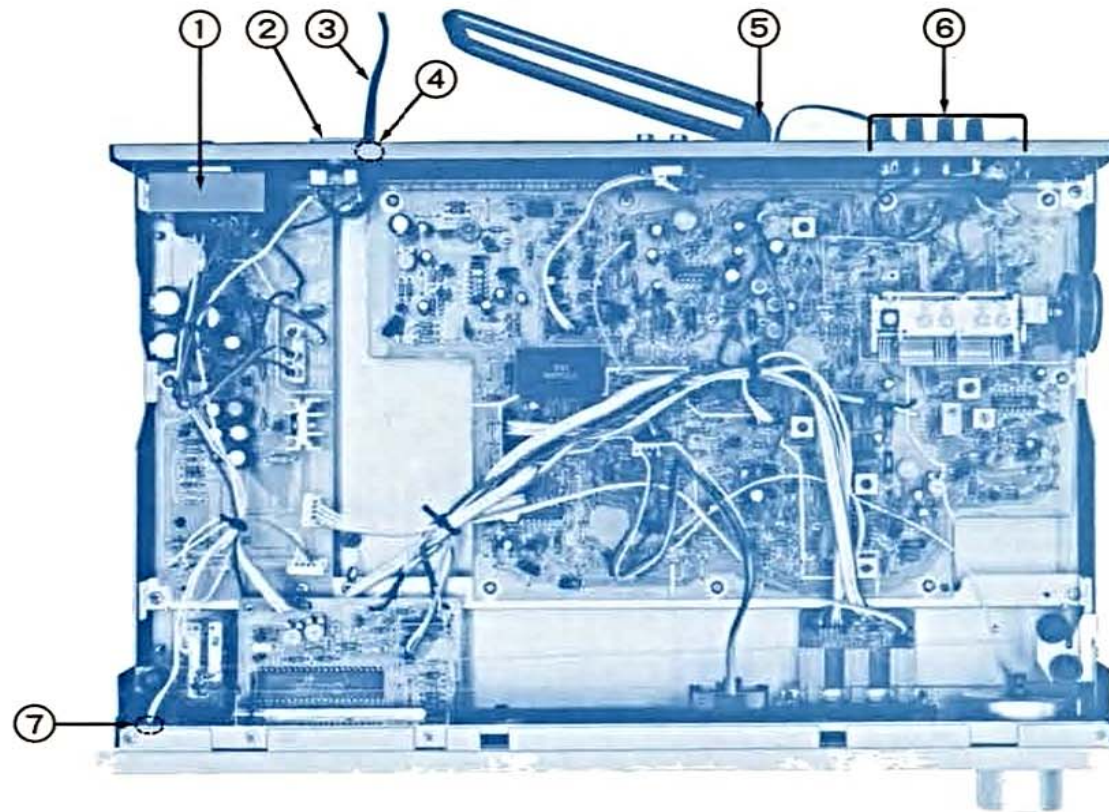


6. OTHER PARTS

6-1. Front View



6-2. Top View



Parts List <Front View>

| Parts No. | Stock No. | Description |
|--------------------|-----------|--------------------------------|
| ●Silver Model Only | | |
| 1 | 07755600 | Front Panel Ass'y |
| 2 | 07562310 | Bonnet |
| 3 | 07753200 | Dial Window |
| 7 | 07778800 | Tuning Knob |
| 10 | 07553900 | Push Knob Ass'y, selector etc. |
| 13 | 53195000 | Push Knob, power |
| 14 | 59560800 | Push Knob Guide, power |
| ●Black Model Only | | |
| 1 | 07755700 | Front Panel Ass'y |
| 2 | 07715600 | Bonnet |
| 3 | 07753300 | Dial Window |
| 7 | 07738400 | Tuning Knob |
| 10 | 07554100 | Push Knob Ass'y, selector etc. |
| 13 | 53196500 | Push Knob, power |
| 14 | 59560900 | Push Knob Guide, power |
| ●Common Parts | | |
| 4 | 07755800 | Masking Plate Ass'y |
| 5 | 07753100 | Dial Scale |

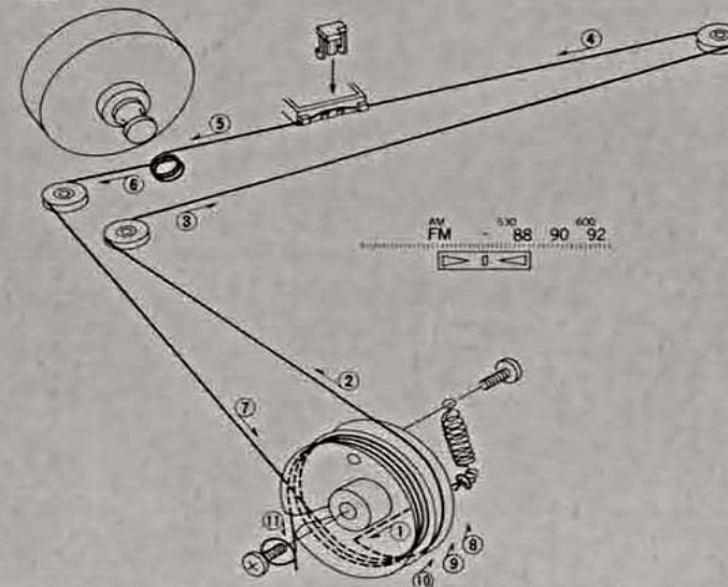
| Parts No. | Stock No. | Description |
|-----------|-----------|------------------------------|
| 6 | 07752710 | Tuning Unit |
| 8 | 50485300 | Masking Sheet, tuning knob |
| 9 | 07662900 | Leg |
| 11 | 07752800 | Signal Indicator Window |
| 12 | 07753000 | Signal Indicator Plate Ass'y |

Parts List <Top View>

| Parts No. | Stock No. | Description |
|-----------|-----------|----------------------------|
| 1 | 15003601 | Power Transformer |
| 2 | 07189600 | AC Outlet |
| 3 | 38004700 | Power Cord |
| 4 | 39106000 | Strain Relief |
| 5 | 07193200 | Loop Antenna Holder |
| 6 | 22104000 | Antenna Terminal |
| 7 | 07267600 | Illumination Lamp 14V 80mA |

7. THREADING OF DIAL CORD

Fig. 7-1

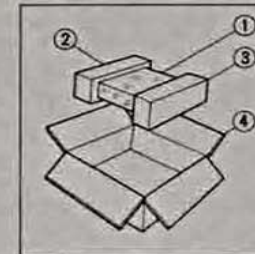


1. Knot one end of dial cord to spring of dial pulley.
2. Turn the dial pulley fully counterclockwise to open the variable capacitor.
3. Thread the dial cord in numerical order from 1 to 11 as Fig. 7-1.
4. Tie the other end of the dial cord to pulley fixing screw in trying to put enough tension to the dial cord.
5. After tighten the screw, lock both knots of the dial cord with paint.

Dial Pulley Stock No. 07759600
 Dial Cord (0.5mm) Stock No. 60360500

9. PACKING LIST

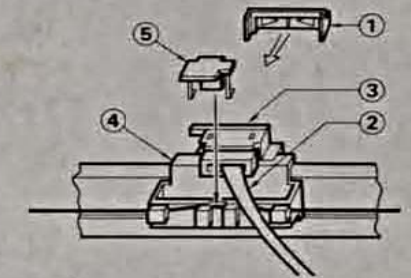
| Part No. | Stock No. | Description |
|----------|-----------|----------------------------|
| 1 | 91167610 | Vinyl Bag |
| 2 | 07561900 | Styrofoam Packing (Left) |
| 3 | 07562000 | Styrofoam Packing (Right) |
| 4 | 07755900 | Carton Case (Silver Model) |
| | 07756000 | Carton Case (Black Model) |



8. ATTACHMENT OF DIAL POINTER

1. Close the variable capacitor completely.
2. Set the dial pointer to the start point, the line at the left end of the dial scale. (Fig. 7-1)
3. Hook the dial cord on the dial pointer, and fix it with clip.
4. Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

| Parts No. | Stock No. | Description |
|-----------|-----------|---------------------------|
| 1 | 07647810 | Dial Pointer Cap |
| 2 | 07264700 | Tuning Indicator LED |
| 3 | 07654700 | Wire Holder |
| 4 | 07654810 | Dial Pointer Holder |
| 5 | 07654600 | Clip, dial pointer holder |



10. ACCESSORY LIST

| Stock No. | Description |
|-----------|---|
| 07198900 | AM Loop Antenna |
| 07563000 | Loop Antenna Holder |
| 46051700 | FM Antenna |
| 07193400 | Pin to Pin Cord |
| 07756100 | Operating Instruction |
| 07726700 | Rack Mount Adaptor (each) (Black Model Only) |



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(SM1-18)

Printed in Japan (710830M) (Stock No. 36458500)