SANSUI
SOLID STATE
am/fm-multiplex
STEREO TUNER AMPLIFIER

MODEL-3000A

We take great pride in knowing that you have selected the Sansui Model-3000A Multiplex Stereo Tuner Amplifier, a wise choice that promises you many delightful years of rich stereo enjoyment. Sansui is recognized worldwide for the unsurpassed quality of its products, be it a stereo receiver, speaker system, turntable or headphone set, and takes the greatest efforts to merit and maintain this reputation.
Consequently, not a single detail has been overlooked in bringing Model-3000A to you in perfect operating condition.
It is now up to you to keep it working perfectly. Therefore, we cannot recommend too strongly that you read the contents of this manual carefully before installing or operating Model-3000A.
Get accustomed to the receiver’s many unique design features, controls and operating procedures first. Then you will be better prepared to enjoy the world’s highest standards of sound reproduction to the fullest.

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**Power Switch**
The POWER switch is used to connect and disconnect the power supply. Push, power is on; push again, power is off. It also controls the one of the A.C. OUTLET (marked -○-○-) on the back of the amplifier.

**Headphone Jack**
To monitor a tape or to enjoy private listening through a headset, plug into the HEADPHONE jack. Dynamic stereo headphones are recommended.

**Volume Control**
The VOLUME knob controls the over-all sound level of both channels.

**Speaker Switches**
For use with two sets of speakers. These controls allow a choice between one set (System A) and another (System B). Speaker sets may be installed in the same room, or remotely.
Function Selector
Tuner: For listening to FM or AM broadcasts
Phono: For record players
Tape Head: For use with a tape deck
Aux: For any auxiliary service requiring flat frequency response, such as a crystal phono cartridge, etc.

Band Selector
AM: For listening to AM broadcasts
FM Mono: For listening to monophonic FM broadcasts
FM Auto: For listening to monophonic or stereophonic FM broadcasts automatically
FM Stereo: For listening to stereo FM broadcasts from distant stations.

Tuning knob
For selection of desired FM or AM stations.

Mode Selector
Stereo: The MODE selector in the STEREO position connects the left input to the left channel and the right input to the right channel. To listen to an FM MPX stereo program, stereo records or stereo tape, set to the STEREO position.
Mono: The MODE selector in the MONO position connects either right or left input to both channels. To listen to a monophonic AM or FM program, mono record or mono tape, set to the MONO position.

Muting Switch
The MUTING switch eliminates interstation tuning noise in case of FM reception. It should be used sparingly. When you want to receive a weak FM station, it should be kept off.

Balance Control
The BALANCE control is used to balance volume. Adjust so that equal sound is heard from left and right channels. Turning it to the left accents the left channel by reducing the right channel output, and vice versa.

Dial Scales
The upper scale indicates FM and the lower AM. To select a station, turn the TUNING knob at the right of the dial.
**Power Indicator**
The POWER indicator lights when the POWER button is turned on (depressed).

**Function Indicators**
The left FUNCTION indicator lights green when the FUNCTION selector is set to the PHONO position; the right indicator lights violet when the selector is set to the TAPE HEAD position.

**Protector Indicator**
This amplifier has a special circuit to protect the power transistors against damage. The PROTECTOR indicator will light to warn of trouble in the unit. (*See “Maintenance”—p. 14)

**Tuning Indicator with Built-in FM MPX Stereo Indicator**
The tuning indicator aids in pinpointing a station: when the needle moves closest to the “5” position, the station is correctly tuned. Note that the action of this indicator is substantially independent of the signal strength of the station. The FM MPX STEREO indicator will light orange when a FM MPX station is received. It remains green during the FM mono reception. (*See “Tuning”—p. 16)

**Loudness Control**
This control compensates for an apparent loss of treble and bass at low volume.

**Bass Tone Control**
The BASS tone control is used to boost or cut the low-end response according to taste and listening conditions. To boost, turn clockwise; to cut, turn counterclockwise. It is friction-coupled, dual-concentric; actually two controls. The outer ring controls the bass loudness in the right channel. The inner small knob controls the bass loudness in the left channel. The pair can be used simultaneously or independently, as required.

**Treble Tone Control**
Use the TREBLE control for high-frequencies. Operations is the same as the BASS tone control.
**High Filter**
The HIGH FILTER eliminates or reduces high-frequency interference, such as scratching noise from worn records, radio noise caused by fluorescent lamps and tape hiss.

**Low Filter**
The LOW FILTER eliminates or reduces such low-frequency disturbances as turntable rumble.

**Tape Monitor Switch**
For recording with a 3-head tape recorder, the TAPE MONITOR switch enables you to hear the tape while recording. When the TAPE MONITOR switch is in "ON" position, the recorded tape is heard from the speakers. When not in use, be sure the switch is in the "OFF" position.
Built-in Antenna
AM Ferrite Bar Antenna (Fig. 3)
To adjust the AM ferrite bar antenna for optimum AM reception:
1. Pull the bar out and down in an arc.
2. Loosen screw(s) so that the bar can be freely swung from right to left.
3. Swing the antenna in this plane until optimum reception is obtained. This antenna will perform satisfactorily except in ferroconcrete buildings and in areas remote from broadcasting stations. If the antenna is inadequate for clear AM reception, the installation of an outdoor AM antenna is required.

AM Outdoor Antenna (Fig. 1)
To connect an AM outdoor antenna:
1. Connect the flexible PVC wire (supplied) to the terminal screw marked AM-“A” on the back panel of the amplifier and install it slightly apart from your house as indicated in Fig. 1.
2. Connect a ground wire to the terminal screw marked AM-“E” or terminal GND located in the left-hand corner, behind the ferrite bar antenna on the back panel. (See “Maintenance”-P.14)
3. For safety reasons, be sure to use a lightning arrester.

FM Antenna (Fig. 2)
In urban or high-intensity signal areas, the flexible FM antenna (supplied) is adequate for indoor use. Connect its two leads to the terminals marked FM-“A1 and A2”, and open it to form a “T”. Rotate it until best reception is obtained before fixing it to a wall or a ceiling. Should the signal be too weak for the indoor FM antenna:
1. Switch the Local-Distant Switch to its DIS position, or
2. Install an outdoor antenna designed exclusively for FM reception as indicated in Fig. 2.
NOTE: Optimum FM sensitivity cannot be obtained by lengthening the antenna. The proper height and direction of the antenna determines the best reception.

Listening to Radio Programs
A) AM Broadcasts
1. Set the FUNCTION selector to TUNER. TUNING indicator will light green.
2. Set the BAND selector to AM.
3. Select the desired station by moving the TUNING knob.
4. Leave the MODE selector in MONO or STEREO.
5. Use other controls and switches according to taste and or listening conditions.

B) Monophonic FM Broadcasts
1. Set the FUNCTION selector to TUNER. TUNING indicator will light green.
2. Set the BAND selector to FM MONO or FM AUTO.
3. Select the FM station by moving the TUNING knob and pinpoint the station using the TUNING indicator.
4. Use the MUTING switch if interstation tuning noise is heard.
5. Leave the MODE selector in MONO or STEREO.
6. Use other controls and switches according to taste and or listening conditions.

C) MPX Stereo
1. Set the FUNCTION selector to TUNER.
2. Set the BAND selector to FM AUTO or FM STEREO.
3. Set the MODE selector to STEREO.
4. Select the FM stereo station by moving the TUNING knob and pinpoint the station using the TUNING indicator.

The FM MPX STEREO indicator built into the TUNNIG indicator will change from green to orange when the dial pointer crosses a station broadcasting MPX stereo.

5. Use the MUTING switch if interstation tuning noise is head.

6. Adjust the BALANCE control for equal sound from right and left channels.

7. Use other controls and switches according to taste and or listening conditions.

NOTE:
When the BAND selector is in the FM AUTO position, stereo or mono stations are received automatically. For FM reception it is advisable to set the FUNCTION selector to FM AUTO rather than STEREO. However, it should be set to FM STEREO (or FM MONO) if the station signal is weak.
Connecting Speakers
The Model 3000A is designed to use 4-ohm and 8 to 32-ohm speakers. Before connecting, be sure the IMPEDANCE selector is in the correct position.

To connect a stereo speaker system:
1. Connect (+) of the left speaker to the terminal marked (+) LEFT A SYSTEM on the back panel of the amplifier.
2. Connect (−) of the left speaker to the terminal marked (−) LEFT A SYSTEM.
3. Connect (+) of the right speaker to the terminal marked (+) RIGHT A SYSTEM.
4. Connect (−) of the right speaker to the terminal marked (−) RIGHT A SYSTEM.
5. After connecting, check for short circuit between the (+) and (−) terminals.

To add another speaker system, connect it to the terminals marked B SYSTEM as above. To use a speaker system for monophonic, connect (+) of the speaker to any of the speaker terminals marked (+), and (−) of the speaker to any of the speaker terminals marked (−) on the back panel of the amplifier.

Important:
The speakers of both left and right channels must push the sound waves out together. This is called phasing. If all (+) and (−) connections have been made properly, the phasing will be correct. If, however, the connections have not been properly made, one channel will push while the other pulls, causing sound cancellation at some frequencies or in some listening position. To correct, reverse the phase (+) and (−) of either speaker system, left or right.

Record Player
1. Connect the left output of the player to the input terminal marked “PHONO LEFT CHANNEL” on the back of the amplifier.
2. Connect the right output of the player to the input terminal marked “PHONO RIGHT CHANNEL” on the back of the amplifier.
3. Insert the power-cord plug of the player into the outlet marked “SWITCHED ⬑” on the back of the amplifier, and the player is controlled ON-OFF by the POWER switch on the front panel of the amplifier.

NOTE:
1. There are two types of cartridges, one is crystal element and the other a magnetic circuit. For this amplifier a 2.5 to 10 mV magnetic cartridge is recommended for use. If a crystal cartridge is used, connect the output of the player to the input terminal marked AUX on the back of the amplifier.
2. When using a monophonic player, connect the output of the player to either L or R terminal on the back of the amplifier and then set the MODE switch to the MONO position.

Listening to Records
1. Set the FUNCTION selector to PHONO. The FUNCTION indicator will light green.
2. Set the MODE selector to STEREO or MONO, depending on the type of the record player used.
3. Turn on the record player at the correct speed (rpm).
4. Place the needle on the record.
5. Adjust the BALANCE control for equal sound from right and left channel.
6. Use other controls and switches according to your taste and listening conditions.
NOTE:
1. To play a monophonic record on a stereo record player, follow the same procedures as for a stereo record.
2. To adjust the balance of sound from both channels, play a monophonic record in the same manner as a stereo record and adjust the BALANCE control so that the sound is heard at a point midway between the right and left speakers.
Tape Recorder or Tape Deck

Model 3000A can be used with a tape recorder for recording and playback, and can also play tape recorder with separate recording and playback heads, the tape can be heard while recording.

Tape Recorder with Recording/Playback Connector (One Connection: DIN-Standard)

Connect the recording/playback connector to the five-pin socket marked TAPE RECORDER on the back of the amplifier.

Pin-Jack Tape Recorder

1. FOR RECORDING
   Connect the recording input of the tape recorder to the terminals marked REC. L & R channel for stereo or L or R channel for mono.
2. FOR PLAYBACK
   Connect the playback output of the tape recorder to the terminals marked TAPE MON. L & R channel for stereo or terminal L or R for mono.

For Monitoring with a 3-Head Tape Recorder

Connect the 3-head tape recorder as explained above.

For Playback with a Tape Deck

(Direct Tape Head)

Connect tape deck output to terminals marked TAPE L & R channel for stereo or terminal L or R for mono.

Using a Tape Recorder or a Tape Deck

Recording

1. Set the FUNCTION selector to the program source to be recorded.
2. Set the MODE selector to the STEREO position for stereo recording or the MONO position for monophonic recording.
3. Set the tape recorder for recording.
4. Use the amplifier's controls and switches according to requirements.

Playback

1. a) To use with a tape deck (direct tape head) set the FUNCTION selector to TAPE HEAD. FUNCTION indicator will light violet.
   b) To use with a tape recorder turn on the TAPE MONITOR switch.
2. Set the MODE selector to the STEREO position for stereo playback or the MONO position for mono playback.
3. Set the tape deck or the tape recorder for playback.
4. Use other controls and switches according to your requirements.

Monitoring

To monitor a tape using a 3-head tape recorder, follow the same procedures described in the preceding section.
NOTES:
1. The sound level to be recorded on tape is not controlled by the amplifier knobs.
2. To obtain better recording results, record music, AM or FM programs should not be taped through a microphone placed in front of the speakers, but through the Model 3000A.
3. Before using a tape recorder, be sure to look up the manufacturer’s operating instructions.
4. The TAPE MONITOR switch must be in the OFF position except for use with a tape recorder for monitoring and playback.
5. Connecting a tape recorder can be done by using either a single connection plug or by pinjacks. The single connection plug conforms to German DIN standard specifications, and makes connecting the tape recorder to the amplifier easier because the five-pin plug is used for both recording and playback.
FM MPX Separation
If the channel separation during FM MPX stereo reception is inadequate or excessive, turn the screw marked MPX SEPARATION (located on the rear panel) for natural proportions.
IMPORTANT: Never attempt to adjust this screw without reason: it has been properly adjusted by Sansui prior to shipment.

How to Elimination Radio Noise
AM Reception
Most noise can be eliminated simply by changing the position of the antenna. In areas far from the broadcasting station, in mountainous areas, or in thick-walled buildings, waves are frequently not received well, resulting in unstable reception and increased noise. In such cases, connect the vinyl wire (supplied) to the terminal screw marked AM “A” on the back of the amplifier and stretch it indoors in such a way that the signals come in best. If this does not reduce the noise or increase the amplifier’s sensitivity, an outdoor antenna is required. (See “AM Antenna”p. 7).

FM Reception
Noise during FM reception can usually be attributed to either insufficient antenna input or interference from other electrical appliances. Insufficient antenna input is due to an improperly installed antenna or because the receiver is too far removed from the broadcasting station.

To correct this deficiency, first install the flexible FM antenna (supplied) as described on page 7 until best reception is obtained. If this is not effective, utilize either an indoor or outdoor TV antenna, or, if possible, an outdoor antenna designed exclusively for FM reception. If a TV antenna is used for both TV and FM reception by means of a divider, be sure the TV reception is not affected. Remember, an excessively long antenna may cause, rather eliminate noise.

The sensitivity of an amplifier varies according to the location from and transmitting conditions of FM broadcasting stations. Because of these factors, some stations are better received than others.

Noise Common to Both AM and FM
Outside factors, such as the operation of other electrical appliances, often cause noise common to both AM and FM reception. This type of noise is easily distinguishable from those described above, such as that noise may be heard at certain frequencies or time of day.
To eliminate, attach a noise suppressor to the electrical appliance causing the noise or to the power source of the amplifier.

FM MPX Reception
Noise can sometimes be heard during FM MPX stereo reception which does not accompany FM monophonic reception. This is due to a shorter transmission range for the stereo broadcast and cannot be avoided. It can, however, be reduced or eliminated by flipping the NOISE FILTER to its ON position. In some cases, it can be eliminated by setting the TREBLE control to the “flat” or lower position.
Fuses

Power Fuse

If the unit remains completely dead when the power switch is on (POWER indicator and dial scale remain unlit), the power fuse is probably blown. In this case, remove the power plug from its AC outlet and replace the fuse after finding and eliminating the trouble that caused the fuse to blow.
(Consult the Troubleshooting Section in your Service Manual).

*Use only a glass-tubed 3-ampere fuse.* Never attempt to use a piece of wire or a fuse of a different capacity as a substitute.

![Fuse Picture]

Quick Acting Fuses

If the dial and power indicator light up but the set does not play, it may be the result of a blown quick-acting fuse in the power circuit of the power amplifier.

To replace, remove the power plug from its AC outlet. Then remove the bonnet from Model 3000A and check for the blown fuse. Before replacing, check for the source of trouble that has caused the fuse to blow. (See your Service Manual).

![Quick Acting Fuses Picture]

Protector Indicator

Model-3000A has a special protector circuit, which, combined with an SCR circuit and quick-acting fuses, protects the silicon power transistors from damage if a chance overload occurs. As soon as this circuit is activated, the Protector will light and the amplifier's sound level will be markedly reduced.

As soon as this Indicator lights, push this POWER switch off and find and eliminate the source of trouble.

**IMPORTANT:** The Indicator lamp might light up due to instantaneous overcurrent, rather than because of an internal defect. In this case, push the POWER switch off for about five seconds, then push it on again. If the lamp is illuminated this time, push the POWER switch off immediately and find and eliminate the source of trouble.

Probable cause: a shorted output circuit.

Grounding

Connect one end of either vinyl or enamel wire to the terminal screw marked GND or AM-"E" on the back of the amplifier. Attach a copper plate to the other end and bury it in the earth. When an AM outdoor antenna is used, grounding is necessary. Even when an outdoor antenna is not used, grounding is the best way to avoid hum pickup and to increase the amplifier's S/N ratio.

![Grounding Diagrams]
Hum and Howling
If, when using a tape recorder or record player, unpleasant humming or howling is heard, it is usually a result of the following:
The record player is placed on or near the speaker box causing sound waves to be transmitted from the speaker to the player (howling). To prevent this, place the record player away from the speaker box or put a thick cushion between the two components.
A low buzzing sound will also be produced if adequately thick shieldwire is not used for connections, have not been properly made. Be sure that the shieldwire is properly soldered the pin-plug as illustrated and that the motor and pickup arm of the record player are properly grounded.

Connecting Wire
Be sure to use adequately thick shieldwire when connecting a tape recorder, tape deck, record player or other components to Model 3000A. The use of an ordinary twin lead wire may cause hum or noise. Don’t use shieldwire longer than 7 feet (2 meters). The use of a longer wire leads to greater attenuation at high frequencies.

Connections
Always check to see that leads are connected firmly and properly to their corresponding output or input terminals. If the connections are loose or in touch with other parts, Model 3000A will not perform normally, and may produce undesirable noise. If used in such a way for a long time, it will eventually break down. Always read the manufacturer’s instructions for tape recorder, record player, tape deck, etc. before connecting.

Monophonic Reception of FM Multiplex Stereo Broadcasts
When FM multiplex stereo broadcasts are received monophonically—with the FUNCTION selector in FM MONO position—the sounds from both right and left channels mix into a monophonic reproduction as if tuned to an ordinary monophonic station. Use this method if there is too much noise when receiving FM MPX stereo broadcasts.

AC Outlets
Model 3000A is provided with two AC outlets on the back panel. One is controlled directly by the POWER switch on the front panel, while the other can be used as long as the Model 3000A is plugged to an AC receptacle.
CAUTION: Never use these outlets beyond their rated capacity.

Voltage Selector Plug
Model 3000A can be operated in four different voltages: 100, 117, 220 and 240V. The voltage selector plug has been set in the 117V position in this photo.
To change, pull the plug out, move the arrow head to the proper voltage in your area and re-insert the plug firmly.

**Local/Distant Switch**
This adjusts the tuner to the strength of FM and AM waves. Set it to “DISTANT” if you live in an area where FM and AM signals are weak. If you live near broadcasting stations and there is danger of interference from other stations, set the switch to “LOCAL”.

**Tuning Indicator**
The needle movement in this indicator is not related to the receiver’s sensitivity. In many cases while centering a station, the needle will not move slightly. This is normal and does not mean that the needle or amplifier is malfunctioning. The point to remember is that while the needle scale is designed from 1 to 5, any digit between these numbers may be the best indication given.
CHARACTERISTICS

POWER OUTPUT HARMONIC DISTORTION

PHONO EQUALIZATION ERROR

LOUDNESS CONTROL

FM SEPARATION

TONE CONTROL

FM SEPARATION & DISTORTION

HIGH/LOW CUT FILTER

FM SENSITIVITY
SPECIFICATIONS

AUDIO SECTION
POWER OUTPUT (AT 8Ω LOAD)
   MUSIC POWER (IHFs): 130 watts ±1dB total
   RMS POWER (LEFT/RIGHT): 48/48 watts ±1dB
   RMS STEREO POWER (both channel driven):
      45 watts × 2 ±1dB
HARMONIC DISTORTION: 0.8%
POWER BANDWIDTH (IHFs): 20~40,000Hz
FREQUENCY RESPONSE: 15~30,000Hz ±1.5dB
   at normal listening level

CHANNEL SEPARATION
   PHONO: 50dB
   AUX: 50dB
HUM AND NOISE (IHFs)
   PHONO: 70dB below rated output
   AUX: 75dB below rated output

OUTPUT IMPEDANCE: 4 & 8~32Ω
DAMPING FACTOR (IHFs): 15

INPUT SENSITIVITY (for rated output)
   PHONO (MAG): 2.5 mV
   TAPE HEAD: 1.8 mV
   AUX: 180 mV
   TAPE MONITOR (PIN): 150 mV
   TAPE MONITOR (DIN): 150 mV

RECORDING OUTPUT
   REC OUTPUT (PIN): 150 mV
   REC OUTPUT (DIN): 30 mV

EQUALIZER
   PHONO (MAG): RIAA NF type
   TAPE HEAD: NAB NF type

SWITCHES AND CONTROLS
   BASS CONTROLS: 50Hz ±12dB ~ ±13dB
   TREBLE CONTROLS: 100,000Hz ±12dB ~ ±13dB
   LOUDNESS CONTROL: 50Hz ±10dB, 10,000Hz ±5dB
   LOW FILTER: 50Hz ±10dB
   HIGH FILTER: 10,000Hz ±10dB
   MODE SWITCH: 1. STEREO 2. MONO
   FUNCTION SWITCH: 1. TUNER 2. PHONO
      3. TAPE HEAD 4. AUX
   BAND SELECTOR SWITCH:
      1. AM 2. FM-MONO
      3. FM-AUTO 4. FM-STERO
   SPEAKER SWITCH A, B 1. ON 2. OFF

OTHER SPECIAL FEATURES
   Direct tape monitor, DIN connector, Headphone jack, Protection circuit.

FM SECTION
FREQUENCY RANGE: 88~108MHz
SENSITIVITY: 1.4μV ±3dB (20dB quieting)
USABLE SENSITIVITY (IHFs): 1.8μV ±3dB
IMAGE REJECTION: 65dB at 98MHz
SELECTIVITY: 50dB at 98MHz
SIGNAL TO NOISE RATIO: 65dB
HARMONIC DISTORTION: 1.0%
FREQUENCY RESPONSE: 30~20,000Hz ±2dB

FM-MULTIPLEX SECTION
CHANNEL SEPARATION: 35dB
HARMONIC DISTORTION: 1.0%
FREQUENCY RESPONSE: 40~15,000Hz ±2dB

AM SECTION
FREQUENCY RANGE: 535~1605KHz
USABLE SENSITIVITY (IHFs): 15μV ±3dB at 1MHz
IMAGE REJECTION: 50dB at 1MHz
SELECTIVITY: 20dB at 1MHz

OTHER SPECIAL FEATURES
   Muting, Tuning meter, FM stereo indicator, Heavy fly wheel tuning, Automatic frequency control, AM ferrite bar antenna, Stereo auto, Function (Phono, Tape) indicator, Power indicator, Protector indicator.

TRANSISTORS, DIODES, THERMISTOR AND SCR
TR: 2SA525×2, 2SC372×6, 2SC374×3, 2SA101×2, 2SA102×2, 2SA49×2, 2SB4×2, 2SB324×2,
    2SC756 (2SC696) ×2, 2SC696 (2SC756) ×4,
    2SC458×4, 2SC536×9, 2SC649×2, 2SC693×6,
    2SC650×2, B-170007 (B-170008)
Di: OA91×7, OA79×4, IN60×8, SM150-01×5,
    SWO.50×7, SW-1×8, 1S352M×1
TH: D-22A×1
SCR: V-3128×1

POWER REQUIREMENTS
POWER VOLTAGE: 100, 117, 220, 240 Volts, 50 and 60 cps
POWER CONSUMPTION: 70VA (No signal)
   230VA (Max. power)

DIMENSIONS
WIDTH: 18 3/16" 
HEIGHT: (Excluding rubber stands) 6 4/5" 
DEPT: (Excluding knobs) 15"
WEIGHT: 34 4 lbs
Sansui

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