

# SANSUI TU999

# SANSUI AU999



**ALL-NEW AM/FM SOLID STATE STEREO TUNER** Here it is, the Sansui "someday" machine. Engineered and styled for the future. The new advanced audio enthusiasts meant when they talked about "someday." The all-new Sansui TU-999 AM/FM Stereo Tuner. "Someday" people said a tuner would come along with advances like an FM front-end that combines a linear 4-gang capacitor and three FETs for extraordinary sensitivity. That's us. The TU-999. A tuner that employs such technical innovations as three ICs, a crystal filter and a block filter

to attain an ideal IF characteristic. That's us. A tuner with an FM AGC changeover switch, both 75- and 300-ohm antenna inputs, a wide dial linear FM scale and two output terminals. Someday, they said somebody will come out with a tuner like that. Hey! That's us. You're talking about our TU-999, designed for complete compatibility with the equally advanced AU-999 solid state Control Amplifier, but certain to improve the performance of any quality stereo system. (Wood case available at extra cost)

Sansui



**ALL-NEW SOLID STATE CONTROL AMPLIFIER** Perhaps we should say the solid state Control Amplifier. Because knowledgeable audio enthusiasts will take one look at this and agree that there's never been anything quite like it. Certainly not as far as power bandwidth goes—because in the AU-999 it goes from 10 to 30,000Hz. And certainly not as far as low distortion goes—both total harmonic and inter-modulation distortion are minimized at a mere 0.4% or less. Not with total power at an unprecedented 180 watts and continuous power a solid 70/70 watts at 4Ω. Plus, all stages are direct coupled in the power amplifier section, with all the blessings that such advanced engineering

brings. And look at all the great new news in that preamplifier section. A frequency response of 20 to 70,000Hz -0.5dB, -1.5dB; a distortion factor of less than 0.1% at rated output voltage, and very impressive Signal to Noise ratios. The Control Amplifier also offers a proliferation of features like Triple Tone Control, separately useable pre- and main amplifier sections, the capability of accommodating up to three sets of speaker systems and two tape decks (or recorders), a stereo balance check and two phono input circuits. (Wood case available at extra cost)

Sansui



# AU999

**AB Direct Coupled Power Amplifier:** This Sansui innovation ensures minimal distortion even through extremely low frequencies. Output capacitors are done away with. Instead the AU 999 employs a two-stage differential amplifier with all stages direct-coupled. Consequently, negative feedback is uniformly applied down through the DC range, reducing the amplifier's intermodulation distortion to an unprecedentedly low level. The direct coupled amplifier also results in an exceptionally smooth and flat frequency response that extends to very low frequencies.



**High Power Output:** The AU 999 is able to achieve low distortion at all levels despite a high music power output of 180 watts at 4Ω (or 140 watts at 8Ω) and continuous power of 70 watts per channel at 4Ω (or 50 watts at 8Ω). Both total harmonic distortion and intermodulation distortion are limited to less than 0.4%. The AU 999's power bandwidth stretches from 10 to 30,000Hz, ensuring that sound is reproduced with ample reserve power from very low to very high frequencies.

**PNP Transistorized Preamplifier:** The AU 999 utilizes PNP transistors throughout, transistors which produce far less noise than the conventional NPN transistors common to most preamplifiers. The overall result is a dramatic reduction in noise levels.

**Improved Mylar Capacitor Circuitry:** Sansui dispensed the use of electrolytic coupling capacitors between each stage wherever possible, and where they are absolutely necessary, has raised circuit impedance and employed mylar capacitors. And where those measures proved impossible, Sansui utilized mylar capacitors in parallel for improved frequency response at high frequencies. The extensive use of direct coupled circuitry is easily appreciated by the human ear, though not readily detected by scientific measurements.

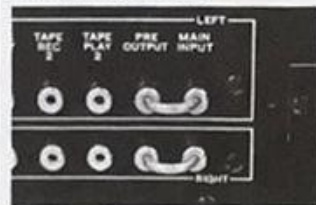


**Triple Tone Control:** Aware that variable equalizers are needed to achieve truly accurate reproduction, Sansui has incorporated a Triple Tone Control system in the AU 999 which makes use of a midrange tone control circuit in addition to the conventional bass and treble circuits. By permitting control of bass and treble in steps of 2dB each and of midrange in steps of 1dB each, it provides for a more accurate compensation of room acoustics and program source irregularities.



**Tone Selectors Provided:** A Tone Selector provided for each of the three controls of the Triple Tone Control permits either canceling a particular tone control circuit or selecting the appropriate control frequency between two frequencies. The result is more accurate and versatile tone control.

**Separable Pre- and Main Amplifier Sections:** The AU 999 is designed so that its preamplifier and power amplifier sections can be utilized separately, to achieve an advanced electronic crossover stereo system. The superior performance of both sections can be more fully exploited in this manner. In addition, the preamplifier section can be used as a control amplifier in professional tape recording.



**Connects Three Sets of Speaker Systems:** The AU 999 accommodates up to three sets of speaker systems and enables comparisons to be made between an electronic crossover stereo system and a conventional system. The operator can select either system "A" alone, system "B" alone, system "A" and "B" simultaneously, or system "C" alone. The latter permits the insertion of an electronic crossover unit between the preamplifier and main amplifier so that each speaker unit is driven separately. Then by moving the selector switch, the operator can readily compare the usual full range speaker systems "A" and "B" with system "C". But system "C" can also be operated for regular full-range reproduction just like systems "A" and "B".



**Tape Deck Versatility:** The AU 999 permits two tape decks to record simultaneously, or for one to monitor while the other is recording. In addition, a newly designed TAPE TO TAPE REPRINT switch makes it possible to copy the tape on one tape deck by using the other and vice versa. And while all this is going on, a phonograph record, an FM broadcast or other program source can be heard through the speaker systems.

**Stereo Balance Check Circuit:** To facilitate accurate adjustment of the balance between the two stereo channels, a stereo balance check circuit is provided. Tune in a monophonic program and place the switch in the TEST position. Sound disappears if the two stereo channels are properly balanced.



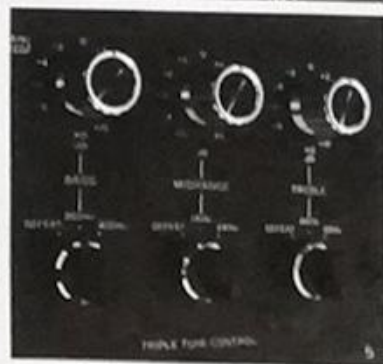
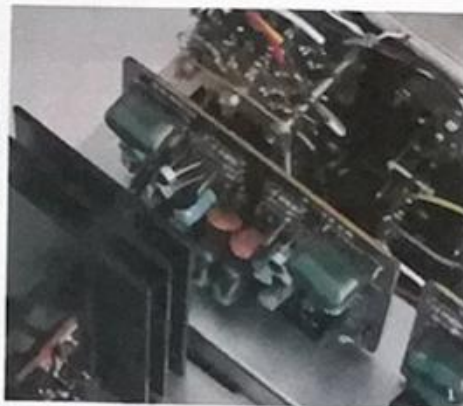
**1) SUPER HUSHNESS** There's a kind of hush to the AU 999 that can't be achieved with any other preamplifier, because we went to the expense of equipping it with exceptionally low noise PNP transistors.

**2) POWER PLUS FROM DIRECT-COUPLED AMPLIFIER** This is the direct coupled power plant that supplies all that musical muscle: 180 watts music power and 70/70 watts continuous power at 4Ω. Direct coupled from its first stage right through the speakers. THD and intermodulation distortion are both kept at 0.4% or less.

**3) REMARKABLE VERSATILITY** No fewer than three sets of speaker systems can be connected to the AU 999 and it also permits comparisons to be made between electronic crossover and conventional stereo systems.

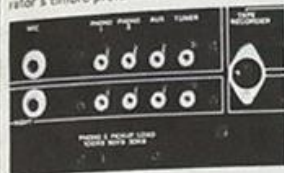
**4) UNUSUAL TAPING TALENT** The AU 999 permits two tape decks to record simultaneously, one of which can be monitored in the process. And a new TAPE TO TAPE REPRINT switch adds to the overall capability.

**5) TRIPLE TONE CONTROLS & TONE SELECTORS** The AU 999's elaborate controls include one Tone Selector for each of the triple tone control circuits, permitting the operator to cancel a particular circuit or choose an appropriate frequency.





**Two-Phone Input Circuits:** One of the AU-999's phono input circuits has an input impedance of 50 k $\Omega$ . The input impedance of the other can be varied between 30 k $\Omega$ , 50 k $\Omega$  and 100 k $\Omega$  to suit the optimum load resistance of the cartridge or the operator's timbre preference.



**Level Adjusters for Phono and AUX Circuits:** The input levels of the Phono 1, Phono 2 and AUX circuits can be easily matched by turning the LEVEL ADJUST controls on the rear of the unit. This eliminates the need for adjusting volume control every time the SOURCE SELECTOR is turned to a different position.



**Complete Speaker Protection:** The AU-999 is a vigilant protector of your valuable speaker systems. Equipped with an all-electronic DC detecting speaker protection circuit, a special ripple filter, another special circuit to eliminate the pop noise when the power is turned on, and an automatic DC balance stabilizing circuit, it effectively bars damaging Direct Current access to speaker systems.

**Accessory Circuits:** The AU-999 is also equipped with all the other accessory circuits demanded of an advanced integrated amplifier. These include: DIN connection for simple tape deck connection. High and low filter circuits with sharp cut-off characteristics.



Program source indicator which illuminates MIC, Phono 1, Phono 2, AUX and Tuner indicator lamps.



Lever switch type tuner input selector.



Microphone input jacks which accept standard plugs. Headphone jack. Versatile mode selector effecting the choice of STEREO-NORMAL, REVERSE, MONO L, R and L+R. One-touch type speaker output terminals which offer foolproof safety and connections. Muting switch for quick attenuation of 20dB over the entire reproduced range without resorting to the volume control.

#### SPECIFICATIONS

##### POWER AMPLIFIER SECTION

<b>MUSIC POWER (IHF)</b>	180W at 4 $\Omega$ 140W at 8 $\Omega$
<b>CONTINUOUS POWER</b>	70/70W at 4 $\Omega$ 50/50W at 8 $\Omega$
<b>TOTAL HARMONIC DISTORTION:</b>	less than 0.4% at rated output
<b>INTERMODULATION DISTORTION (60Hz / 7,000Hz = 4:1 SMPTE)</b>	less than 0.4% at rated output
<b>POWER BANDWIDTH (IHF):</b>	10-30,000Hz at 8 $\Omega$
<b>FREQUENCY RESPONSE (at normal listening level):</b>	5-100,000Hz $\pm$ 1dB

##### CHANNEL SEPARATION (at 1,000Hz, rated output):

<b>HUM AND NOISE (IHF):</b>	better than 50dB
<b>INPUT SENSITIVITY:</b>	better than 100dB
<b>INPUT IMPEDANCE:</b>	1V for rated output 50k $\Omega$
<b>LOAD IMPEDANCE:</b>	4-16 $\Omega$
<b>DAMPING FACTOR:</b>	45 at 8 $\Omega$ load

##### PREAMPLIFIER SECTION

<b>OUTPUT VOLTAGE:</b>	
<b>MAXIMUM OUTPUT VOLTAGE:</b>	5V
<b>RATED OUTPUT VOLTAGE:</b>	1V
<b>TOTAL HARMONIC DISTORTION:</b>	less than 0.1% at rated output voltage

<b>FREQUENCY RESPONSE:</b>	20-70,000Hz $\pm$ 0.5dB -1.5dB
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##### HUM AND NOISE (IHF):

<b>PHONO 1, 2</b>	better than 80dB
<b>MIC</b>	better than 80dB
<b>TUNER AND AUX</b>	better than 85dB

##### INPUT SENSITIVITY (at 1,000Hz, rated output voltage):

<b>PHONO 1</b>	2mV (50k $\Omega$ )
<b>PHONO 2</b>	2mV (30k, 50k, 100k $\Omega$ )
<b>MIC</b>	3mV (50k $\Omega$ )
<b>TUNER</b>	200mV (50k $\Omega$ )
<b>AUX</b>	200mV (50k $\Omega$ )
<b>TAPE MON (pin)</b>	200mV (50k $\Omega$ )
<b>TAPE RECORDER (DIN)</b>	200mV (50k $\Omega$ )

##### RECORDING OUTPUT:

<b>TAPE REC (pin)</b>	200mV
<b>TAPE RECORDER (DIN)</b>	30mV

##### EQUALIZER: PHONO, MIC NF type

<b>LOW FILTER</b>	-20dB at 20Hz (12dB/oct., NF type)
<b>HIGH FILTER</b>	-18dB at 20,000Hz (12dB/oct., NF type)
<b>MUTING</b>	-20dB
<b>MODE</b>	STEREO-REV/STEREO-NORM / MONO-L+R / MONO-L / MONO-R

<b>TREBLE</b>	+12dB, -8dB at 20Hz +5dB, -5dB at 1,000Hz or 2,000Hz +12dB, -8dB at 20,000Hz
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<b>TONE SELECTOR:</b>	
<b>BASS</b>	DEFEAT, 200Hz, 400Hz
<b>MIDRANGE</b>	DEFEAT, 1,000Hz, 2,000Hz
<b>TREBLE</b>	DEFEAT, 6,000Hz, 3,000Hz

<b>SWITCHES:</b>	
<b>LOW FILTER</b>	-20dB at 20Hz (12dB/oct., NF type)
<b>HIGH FILTER</b>	-18dB at 20,000Hz (12dB/oct., NF type)
<b>MUTING</b>	-20dB
<b>MODE</b>	STEREO-REV/STEREO-NORM / MONO-L+R / MONO-L / MONO-R

<b>SOURCE SELECTOR</b>	MIC / PHONO 1 / PHONO 2 / AUX
<b>TUNER SELECTOR</b>	OFF / ON
<b>TAPE MONITOR</b>	PLAYBACK DECK 1 / SOURCE / PLAYBACK DECK 2

<b>TAPE TO TAPE REPRINT</b>	DECK 1 to 2 / SOURCE RECORD / DECK 2 to 1 OFF / SYSTEM A / SYSTEM B / SYSTEM A+B / SYSTEM C (PRE- and MAIN SEPARATED) NORMAL / TEST
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<b>SPEAKER SELECTOR</b>	DECK 1 to 2 / SOURCE RECORD / DECK 2 to 1 OFF / SYSTEM A / SYSTEM B / SYSTEM A+B / SYSTEM C (PRE- and MAIN SEPARATED) NORMAL / TEST
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<b>BALANCE CHECK</b>	NORMAL / TEST
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<b>OTHER FEATURES:</b>	5-pin DIN socket for tape recorder, Headphone jack, Input level adjuster for PHONO 1, PHONO 2 and AUX, One-touch clip type speaker terminals, Source selector indicator
<b>SEMICONDUCTORS:</b>	Transistors-41 Diodes-8
<b>POWER REQUIREMENTS:</b>	
<b>POWER VOLTAGE</b>	100, 110, 117, 127, 220, 230, 240 and 250V, 50/60Hz
<b>POWER CONSUMPTION</b>	463VA (max. signal) 155mm(6 1/4" H) x 460mm (18 1/2" W) x 298mm (11 3/4" D) 17.5kg (38.5 lbs.)

<b>DIMENSIONS:</b>	155mm(6 1/4" H) x 460mm (18 1/2" W) x 298mm (11 3/4" D)
<b>WEIGHT:</b>	17.5kg (38.5 lbs.)

# TU999

**FM IF Amplifier:** By adopting three ICs, a crystal filter and a block filter, the TU-999 achieves an ideal IF characteristic far beyond what is possible through the use of a single crystal filter. The result is a greatly improved distortion factor, and equally better stereo separation and phase characteristics at high frequencies when the tuner is receiving stereo signals.



**Advanced FM Frontend:** Three low noise MOS FETs are employed for the two RF stages and the mixer stage. Combined with a 4-gang variable capacitor, they ensure an exceptional sensitivity figure of 1.8 $\mu$ V (IHF), and result in a substantially improved intermodulation distortion factor as well as enhanced image and S/N ratios. Exceptionally steady hi fi FM stereo reception even in remote areas is now a reality.



**Double Meters Improve Tuning:** A pair of meters aid in achieving precision tuning of FM signals with the TU-999. One indicates the strength of the signal being tuned in, the other facilitates center-of-the-channel tuning. Together they make tuning more precise and more distortion-free than ever before.

**IC Type Filter for Reduced Distortion:** The TU-999 adopts an LC type filter for the multiplex carrier leak filter. Endowed with a sharp cutoff characteristic, this filter completely prevents carrier leakage so that heat interference and consequent intermodulation distortion have been drastically reduced.



**FM AGC Changeover Switch:** This feature permits precise control of the FM AGC circuit for LOCAL, NORMAL and DISTANT stations to ensure quality, distortion free FM reception regardless of how close or how



far away broadcasting stations might be. It also results in a very significant improvement in the S/N ratio when tuning to distant signals.



**Stereo Only Switch:** In addition to the Mode Selector which governs the choice of AM, FM, FM AUTO and FM STEREO modes, a Stereo Only Switch has been provided to permit tuning in FM stereo broadcasts exclusively.

**Wide Dial and FM Linear Scale:** The TU-999 features a horizontal wide dial and a frequency linear dial scale for the FM band where frequencies can be read out in steps of 200kHz. Tuning is easier and more precise.

**Two Output Terminals:** One of the TU-999's outputs is an amplifier output terminal for controlling output level between 0 and 2 volts with a Level Adjustor. The other is a recording output terminal whose level is fixed at 0.4 volts.

**300 $\Omega$  and 75 $\Omega$  Antenna Input Terminals:** Of the TU-999's two FM antenna input terminals, one is for a 300 balanced antenna while the other accepts a 75  $\Omega$  unbalanced coaxial cable antenna suitable for long distance reception or for reception in noise-filled areas.

**Muting Level Adjustor:** This special adjuster has been provided to control the working level of the muting circuit. It permits optimum muting action in different areas.

**High Sensitivity AM Tuner Section:** A large ferrite bar antenna and a 3-gang variable capacitor are employed in the AM tuner section to achieve a high sensitivity figure. The section also has exceptional capability in squelching interference.

#### Other Features:

- FM Stereo Indicator
- AM/FM Selector Indicator
- FM MPX Noise Canceller
- FM Muting Switch
- Automatic FM Stereo/Mono Switching
- 50ns/75 $\mu$ s FM De-emphasis Changeover Switch
- Illuminating Dial with Self-lighting Pointer

#### SPECIFICATIONS

<b>FM SECTION:</b>	
<b>TUNING RANGE:</b>	88-108MHz
<b>SENSITIVITY:</b>	
20dB quieting)	1.4 $\mu$ V
(IHF)	1.8 $\mu$ V
<b>TOTAL HARMONIC DISTORTION:</b>	less than 0.3% (mono) less than 0.2% (stereo)

<b>SIGNAL TO NOISE RATIO:</b>	better than 85dB
<b>SELECTIVITY:</b>	better than 70dB
<b>CAPTURE RATIO (IHF):</b>	1.5dB
<b>IMAGE FREQUENCY REJECTION:</b>	better than 30dB

<b>IF REJECTION:</b>	better than 100dB
<b>SPURIOUS RESPONSE REJECTION:</b>	better than 100dB
<b>STEREO SEPARATION:</b>	better than 38dB at 400Hz

<b>SPURIOUS RADIATION:</b>	less than 34dB
<b>ANTENNA INPUT IMPEDANCE:</b>	300 $\Omega$ balanced, 75 $\Omega$ unbalanced

<b>AM SECTION:</b>	
<b>TUNING RANGE:</b>	535-1,605kHz
<b>SENSITIVITY:</b>	
(bar antenna)	150 $\mu$ V at 1,000kHz
(IHF)	90 $\mu$ V at 1,000kHz
<b>IMAGE FREQUENCY REJECTION:</b>	better than 80dB at 1,000kHz

<b>SELECTIVITY:</b>	better than 20dB at 1,000kHz
<b>OUTPUT:</b>	
<b>RATED OUTPUT VOLTAGE:</b>	0-2V
<b>TAPE REC</b>	0.4V

<b>COMPONENTS:</b>	
<b>FM MUTING LEVEL</b>	OUTPUT LEVEL
<b>SWITCHES:</b>	
<b>FM MUTING</b>	ON / OFF
<b>MPX NOISE CANCELER</b>	OFF / ON
<b>FM AGC</b>	DISTANT / NORMAL / LOCAL

<b>SELECTOR</b>	AM / FM MDNO / FM AUTO / FM STEREO
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<b>SEMICONDUCTORS:</b>	Transistors-32, FET-3, IC-3, Zener Diodes-2, Diodes-22
<b>POWER REQUIREMENTS:</b>	
<b>POWER VOLTAGE</b>	100, 110, 117, 127, 220, 230, 240 and 250V, 50/60Hz

<b>POWER CONSUMPTION</b>	19VA
<b>DIMENSIONS:</b>	155mm(6 1/4" H) x 435mm (17 1/2" W) x 316mm (12 3/4" D)
<b>WEIGHT:</b>	10.1kg (22 lbs.)