SANSUI AU317/217/117

Low-Distortion Stereo Integrated Amplifiers

Only hi-fi, everything hi-fi.

Sansui

The AU-317, together with the SR-333 turntable, TU-217 FM/AM tuner, AX-7 audio consolette and SC-1110 stereo cassette deck, neatly mounted in the EIA-standard Sansui GX-5 Audio Rack.

AU-117

AU-217

AU-317

AU317

"DC" Power Amp Circuitry & Precision Equalizer Help End Phase Shift and Lessen Distortion

You could almost say that "Less is More" in the all-new AU-317 from Sansui. By eliminating all capacitors in the ultra-advanced "DC" power amp section, its circuitry is less complicated and its performance more musical.

Economy was not our main objective in stripping the AU-317 of over-elaborate circuits. But you'll find that this low-distortion, high-caliber stereo integrated amplifier more than holds its own against many of its much higher priced competitors.

Pure power output is a respectable 50 watts per channel, min. RMS, both channels driven, into 8 ohms from 20 to 20,000Hz, with no more than 0.03% total harmonic and intermodulation distortion. Frequency response extends from zero Hertz (DC) to an incredible 200kHz (+0, −2.5dB). Transient response is dramatically improved, while TIM (Transient Intermodulation) distortion is drastically reduced.

There are six transistors *in each channel* in the precison phono equalizer to make it one of the cleanest you can buy on the consumer market, especially at this attractive and practical price.

Space-age electronics have shown that an amplifier needn't be mammoth in size to deliver marvelous performance. You'll appreciate the compact size and clean lines of the AU-317, and its smart looking Sansui matte black finish. Most of all, you'll appreciate the fact that such a musical component for such a sensible price could only have been created by Sansui, where it's *all* hi-fi.

"DC" POWER AMP DESIGN

Here's a power amplifier section that is direct coupled straight through from input to output. Our "DC" configuration eliminates *all* capacitors in the circuit path *and* in the negative feedback loop. Now there's no more trouble with capacitor-caused phase shift at *any* frequency. Among other benefits, the one most noticeable is much cleaner, definite localization of reproduced sound images in the stereo sound field.

Another benefit is improved closed-loop response after the application of negative feedback. Thus frequency response is expanded to an incredible zero Hertz (DC) to 200kHz, with lower distortion and much improved circuit stability.

When you apply musical signals with varying amplitudes and complex frequency components, the AU-317 responds with less TIM distortion than a component with capacitors in its feedback network. All musical nuances are faithfully reproduced with astonishing clarity.

The respectable 50 watts per channel RMS power is obtained from a Darlington-arranged power output, preceded by a current differential push-pull driver (Sansui Pat. Pend.) with current mirror circuit. Sansui has applied for a patent on this ultra-advanced circuitry, by the way. Ahead of the driver is a transistor differential, preceded by an input which itself is a differential with dual-FET construction. Rarely will you find such well-built, brilliantly designed power circuitry in an integrated amplifier in this price range.

Twin Power Protection

A DC Voltage Detection Circuit with high-sensitivity relay, and an Overload Current Detection Circuit to monitor ASO (Area of Safe Operation) of output transistors provide complete power protection.

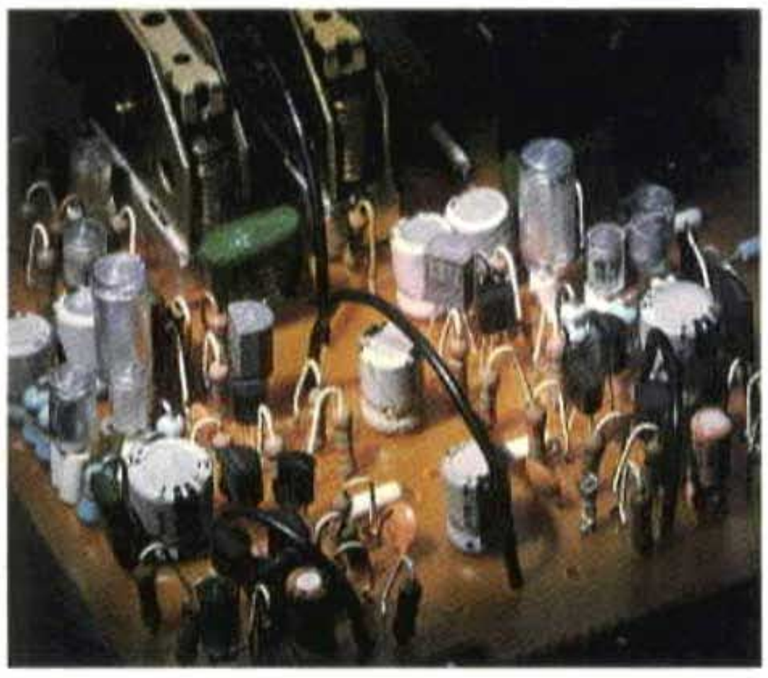
ADVANCED PREAMP DESIGN

Low-Distortion Phono Equalizer

The precision phono equalizer in the Sansui AU-317 is built with particular care to improve open-loop response and reduce TIM. To avoid hum pickup, the circuit is fully shielded and located on the side of the chassis farthest from the power supply.

Low distortion and a high signal-to-noise ratio are assured with the use of no fewer than six transistors *per channel*. The circuit design has a differential low-noise-transistor input with a constant current source, and a Class-A emitter-follower buffer amp.

To assure unclipped peaks and accurate RIAA equalization, Sansui engineers gave this circuit a 200mV RMS maximum phono overload (2.5mV input, 1kHz). RIAA deviation anywhere between 20 and 20,000Hz is ±0.2dB. Well-regulated high dual voltage supplies and carefully selected parts help account for such excellent specifications.



NF Tone Controls

The AU-317 permits smooth and natural tone adjustment with low distortion thanks to its NF type tone control circuit featuring a 4-transistor configuration with a differential input with constant current source. Both BASS and TREBLE control pots have 11 click stops each for easy use. Unique to an intergrated amp in this price range is the TONE DEFEAT switch, bypassing the tone controls when you want an instant "flat" response.

High and Phono Subsonic Filters

Switch in the subsonic filter to eliminate inaudible but harmful subsonic frequencies that modulate audio frequencies to produce intermodulation distortion while playing, for instance, warped records. Response is 3dB down at 13Hz with a −6dB/oct. slope so that musical content is never affected. Use and advantages of the High Filter are explained in the copy for the AU-217/117, opposite pages.

Precision Volume Pot

The master volume potentiometer on the AU-317 is a precision attenuator type with dB calibrations and useful click stops. Low gang error and smooth, continuous attenuation from 0dB to infinite are among its advantages.

Mic Mixing with Control

Public Address versatility with capabilities to accept either microphone or electric guitar inputs. The mic mixing input on the front panel has its own level control to aid in mixing external sources with any program material.

Separable Pre/Power Amps

U-shaped jumper bars electrically join the power amplifier and preamplifier sections of the AU-317. Removing these allows you to "patch in" a graphic equalizer, noise reduction unit or other components or to build a bi-amp system.

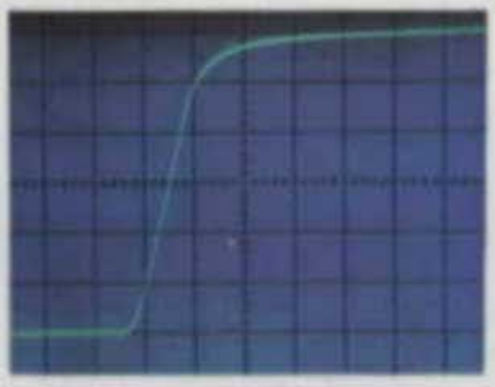
Low-Impedance Supply

No energy dry up, ever. Two 10,000μF capacitors and a large power transformer with well-regulated current to supply all major circuits. Low-impedance design assures low-distortion reproduction with distinct sound-image localization.

Other Features

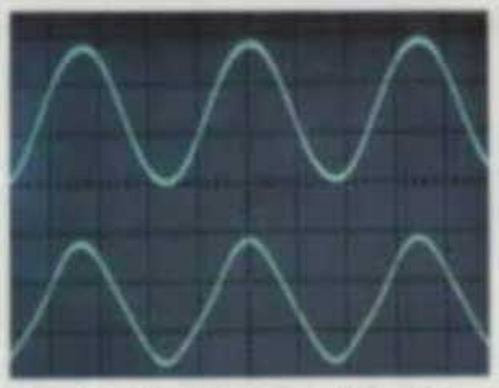
- Loudness Switch
- Tape Monitor Switch
- Balance Control
- Speakers: A, B, A+B
- Stereo Headphone Jack
- LED Power-On Indicator
- AC Outlets—Switched/Unswitched, 200 watts each, maximum.
- Rack Mounting Brackets
- Low-Profile Design
- Recommended Matching TU-217 FM/AM Tuner in distinctive Sansui matte black finish.

20kHz Slew Rate Waveform



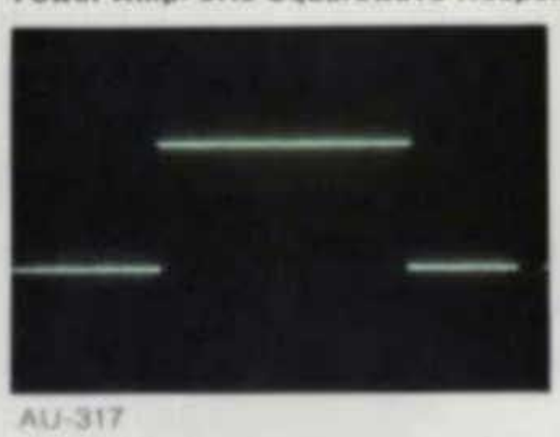
(10V/Div., 1μsec./Div.)
Sansui's AU-317has the high slew rate of 40V/μsec. Translated into performance, it means superb transient response and distinct sound image reproduction of all musical inputs.

4MHz Sinewave Output Forms



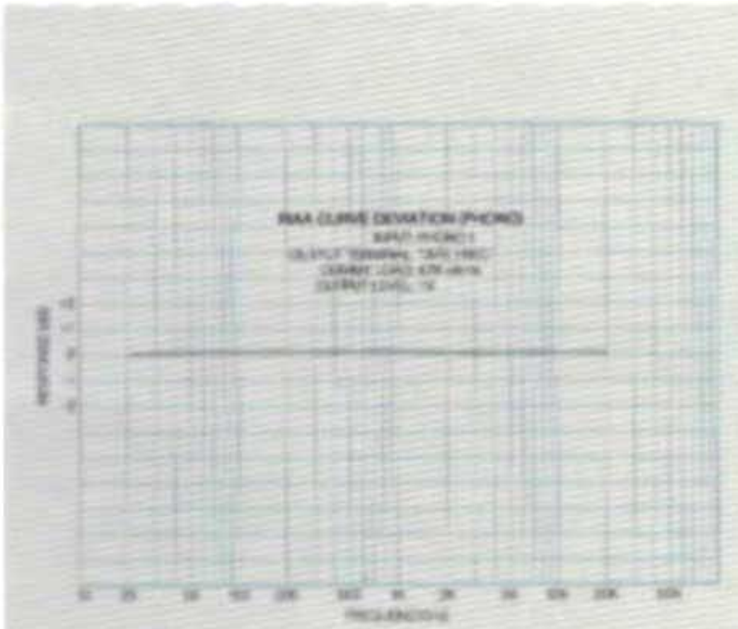
The two traces above show the output waveforms of two power amps—the new AU-317 with superb high-frequency response and a conventional amp with mediocre high-frequency response. Note that the former (upper trace) exhibits no attenuation of output levels and very little distortion, while the latter (lower trace) shows attenuated output levels, increased phase shifts and therefore increased distortion.

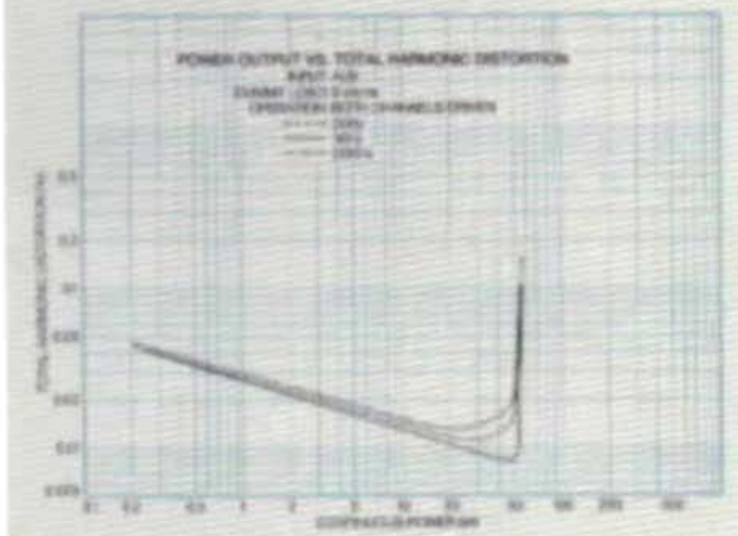
Power Amp: 5Hz Squarewave Response

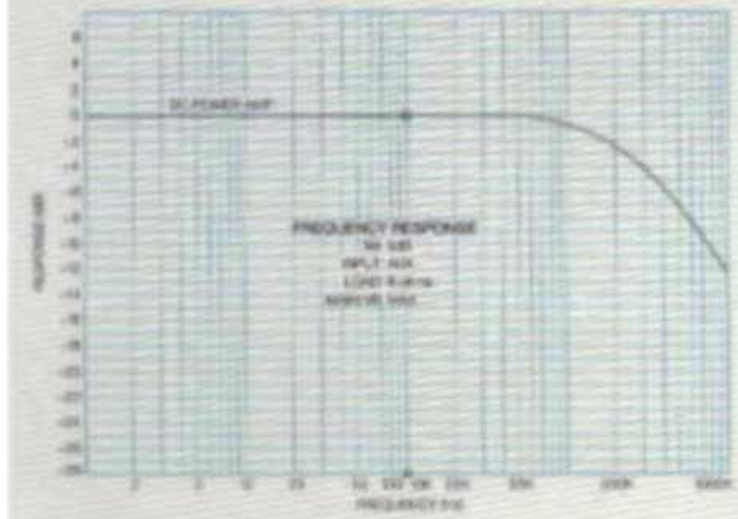


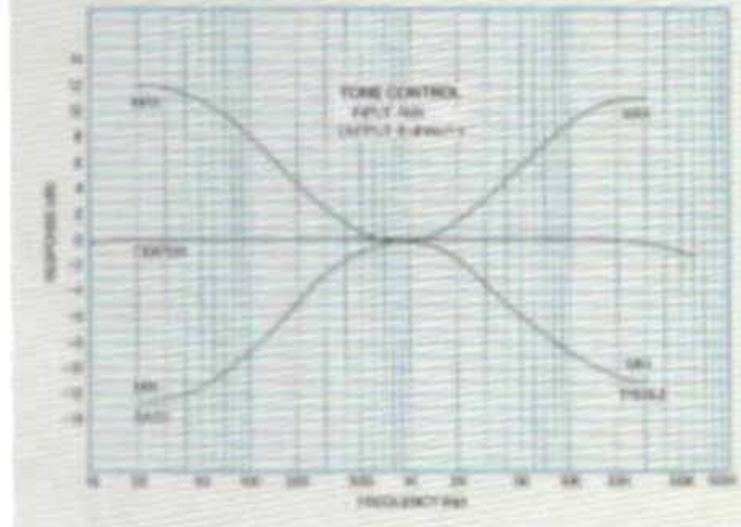
AU-317

Power Amp of a Conventional Integrated Amp









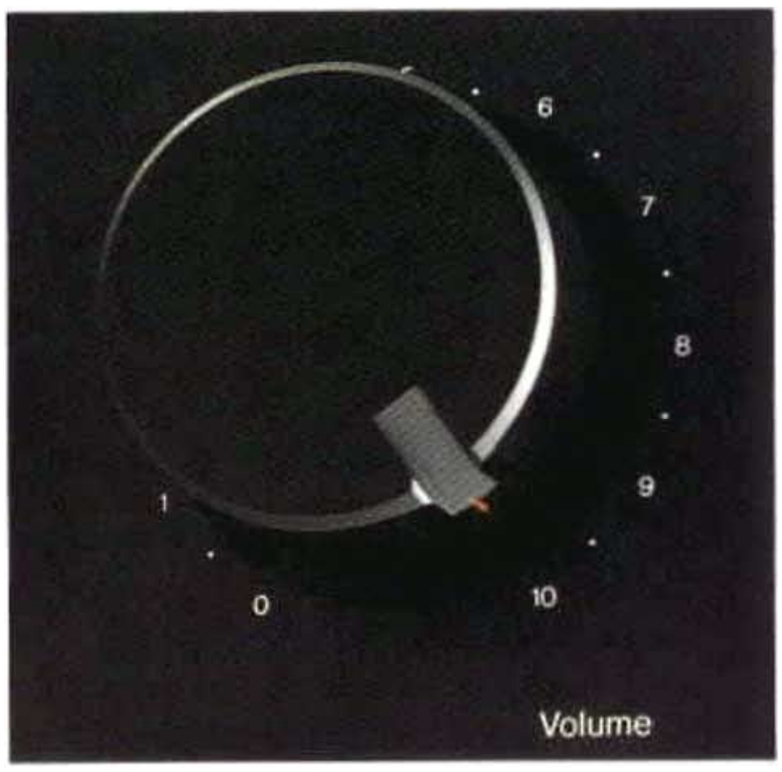
AU217/117

High Fidelity Reproduction Up to Full Volume Setting

The AU-217 and AU-117 share with all other new Sansui AUs, whatever their prices, the advantages of having advanced power amps. Transient, transparent musicality and superb sound-image localization in the stereo field are the highlights of their performance capabilities.

Since musical material is comprised of constantly-varying, highly complex signals—as opposed to repetitive, fixed-amplitude test signals—Sansui has a firm policy of thoroughly using musical inputs during the development of our components. This policy assures strictly hi-fi performance under realistic conditions. To handle such inputs with all musical nuances intact, even when very high peaks are encountered in the signal, our new AUs feature fast transient response, thanks to the extreme care with which they are built.

Ask your hi-fi dealer to let you "A/B" the Sansui models against any other stereo intergrated amps in the same power/price range. Boost the volume controls on the AU-217/117 and the rival amp toward full volume. You'll notice that the rival amp sounds distorted and harsh. The Sansui amps, on the other hand, sound clear and clean. This experiment demonstrates that to our ears the Sansui AU-217/117 sound much, much more powerful than rival amps in the same power/price range. We believe that an amp should retain its musicality even at its full volume setting. One audition will demonstrate the audible difference in the latest, most attractively-priced AUs from Sansui, where it's *all* hi-fi.



CLEAN, LOW-DISTORTION POWER

The AU-217 delivers 30 watts per channel, min. RMS, both channels driven, into 8 ohms from 20 to 20,000Hz, with no more than 0.06% total harmonic distortion. The lower-priced AU-117, when measured under the same conditions, delivers 15 watts per channel, min. RMS, with no more than 0.17% total harmonic distortion.

Circuit configuration in the AU-217 is a differential input with constant current source, followed by a current differential push-pull driver (Sansui Pat. Pend.) and, finally, a Darlington-arranged power output. In the AU-117 this is modified with the use of a differential input followed by an emitter-follower driver and a Darlington-arranged power output.

In the driver circuit in the AU-217, which is a Sansui exclusive, the advantages include low open-loop distortion and stability against voltage and thermal changes. The Darlington-arranged power output, used in both the AU-217 and AU-117, has a low output impedance and features low distortion.

RATED WATTS AVAILABLE ON DEMAND

As mentioned, Sansui uses *musical* inputs, not only steady-state test signals, to test the AU prototypes. Design refinements are made after repeated auditions to ensure musicality. While your own ears can certainly tell the difference, you might like to know that we have improved the sound by lowering TIM (Transient Intermodulation) distortion, reducing crosstalk and giving the AUs excellent transient response.

As a result, the rated watts on both AU-217 and 117 models—30 watts and 15 watts respectively—are guaranteed to be fully available on demand. What all this means can be understood by the following illustration.

Suppose there's a competitive amp with 30 watts RMS power which has the same specifications as does the AU-217, and see how it fares with the Sansui AU-217. Set the volume controls on at both amps at maximum position, feed both amps with a clipping level signal. A connected oscilloscope will show clipped waveforms from both amps. Yet when a heavily-modulated musical signal is applied, the AU-217 still sounds clean and clear, while the rival amp sounds distorted and harsh. The reasons lie in the fact that the former has far reduced transient intermodulation distortion than the latter.

VERSATILE PREAMP SECTION

Precision Phono Equalizer

One of the most critical tasks required of a phono equalizer is precision. If phono signals are "colored" in the equalizer, no tone controls or other devices can ever restore them to proper "flat" response. This is why we've used only the finest available parts to give the phono equalizers in the AU-217 and AU-117 the ability to stay within ±0.5dB of the RIAA equalization curve over the entire 30 to 15,000Hz spectrum.

Both models use PNP-transistor inputs, followed by a low-noise NPN-transistor direct-coupled amp, fed with dual voltages from the power supply. High overload of 180mV for the AU-217 and 150mV for the AU-117, together with accurate RIAA equalization, let you enjoy dynamic, unclipped record reproduction even at full-power operation.

BASS/TREBLE NF Controls

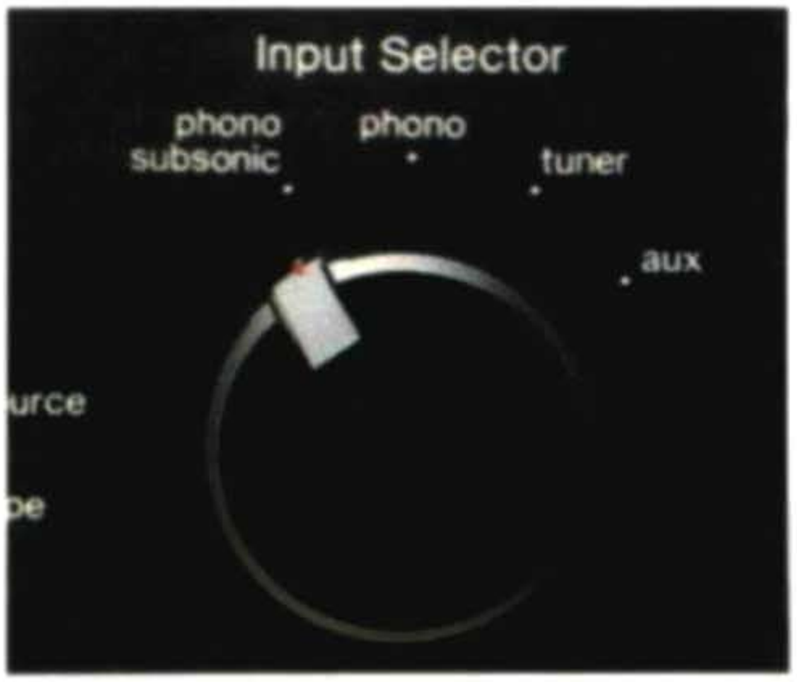
The tone control circuit in the AU-217 and 117 is located in the NF (Negative Feedback) network of the elaborate, low-distortion power amp. This configuration features low distortion and high signal to noise, because all inputs—AUX, TUNER, and TAPE—are sent direct to the power amp. (Phono equalizer output also goes direct to the power amp.)

The BASS/TREBLE controls themselves have click stops for smooth and accurate use. BASS has a range of ±12dB at 50Hz; TREBLE is ±11dB at 15kHz.

Effective High and Subsonic Filters

Scratchy records, hiss noise from tapes and any other high-frequecy noise is eliminated effectively without harming musical content since the High Filter on all three new AU models in this brochure feature a sharp cut-off response of −6dB/oct. with a 3dB attenuation at 7kHz. If your phono cartridge has a high "Q" factor or resonance

in the low frequencies, or if you want to play warped records without causing subsonic intermodulation, use the Subsonic Filter on the AU-217 (and AU-317).



Loudness Switch

The human hearing mechanism becomes insensitive to the high and low ends of the audible spectrum as the level or volume of a sound decreases. When listening to music at low levels, switch in the Loudness circuit on your new AU - it boosts the lows and highs just enough to restore "flat" reproduction across the entire frequency range.

Rugged Power Supply

Large transformers and electrolytic capacitors form the newly-designed power supplies in both models. The capacitors in the AU-217 are each 6,800μF; for the AU-117 they are 4,700μF. These powerful supplies are located as far as possible from the phono equalizers to avoid hum pickup, and assure accurate reproduction of musical input.

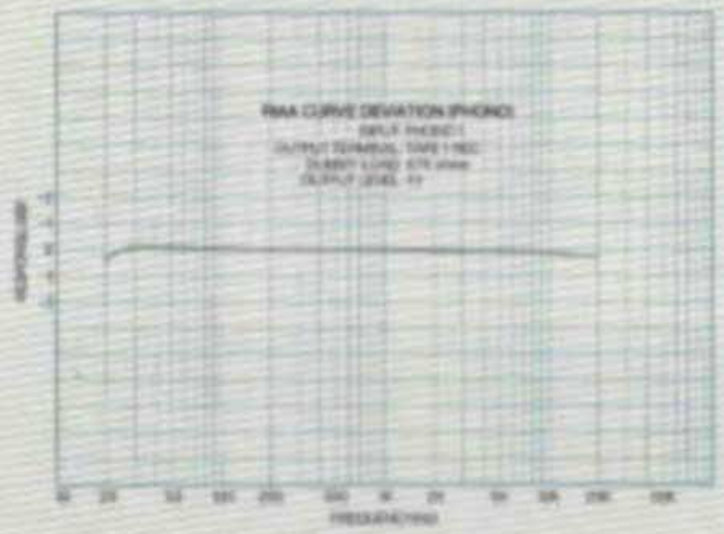
LOW-PROFILE DESIGN

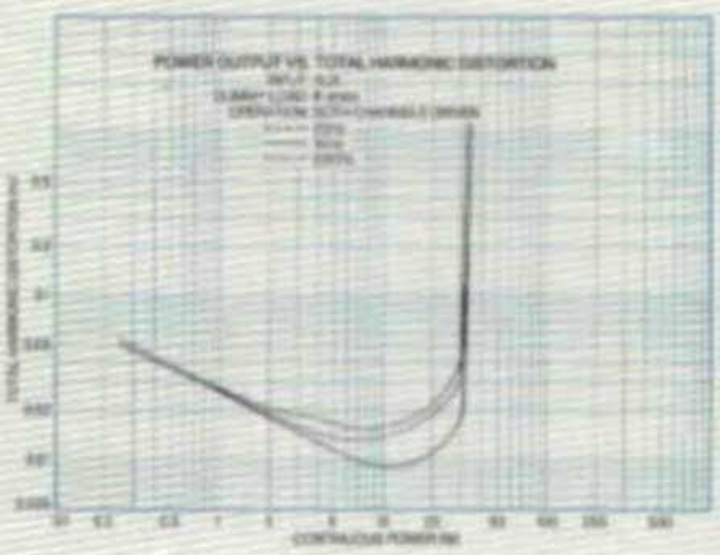
The smart new looks of the Sansui AUs are practical, too. Each component is designed to fit neatly into a standard EIA equipment rack (such as the Sansui GX-5) along with your Sansui cassette deck, the AX-7 Mixing Amplifier or the matching TU-217 FM/AM Tuner.

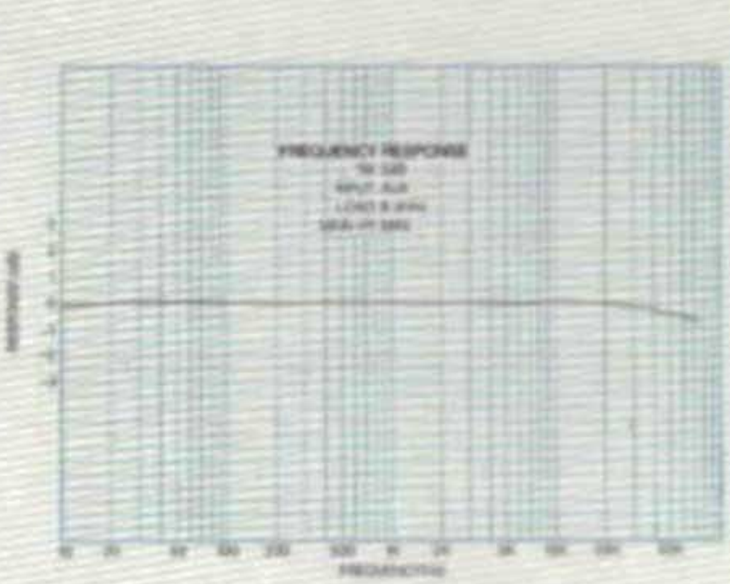
Other Features

- Left/Right Balance with Center Click
- Tape Monitor Switch
- Stereo Headphone Jack
- Large, One-Touch Speaker Terminals
- AC Outlets – Switched and Unswitched, 200 watts each, maximum

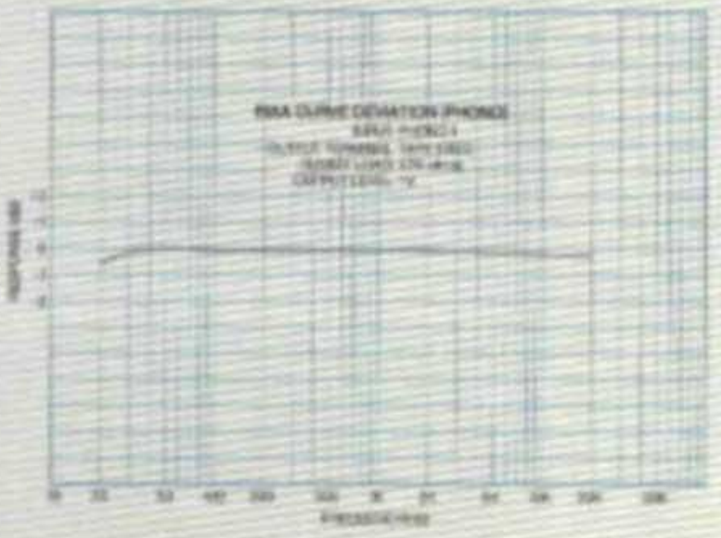
AU-217

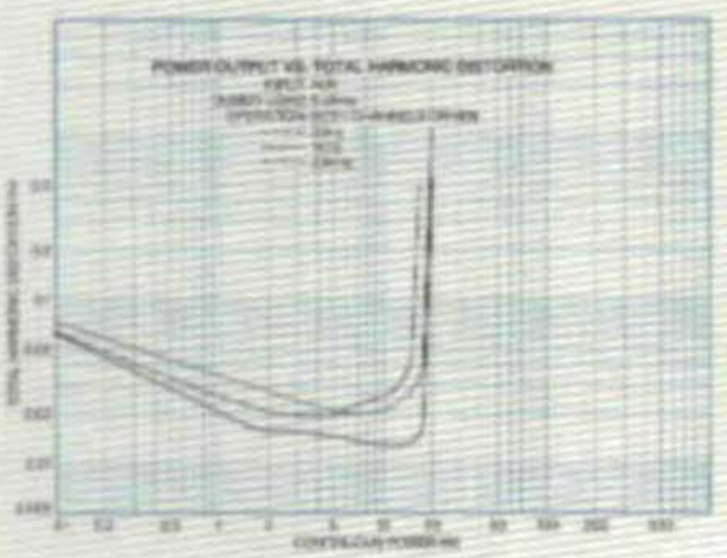


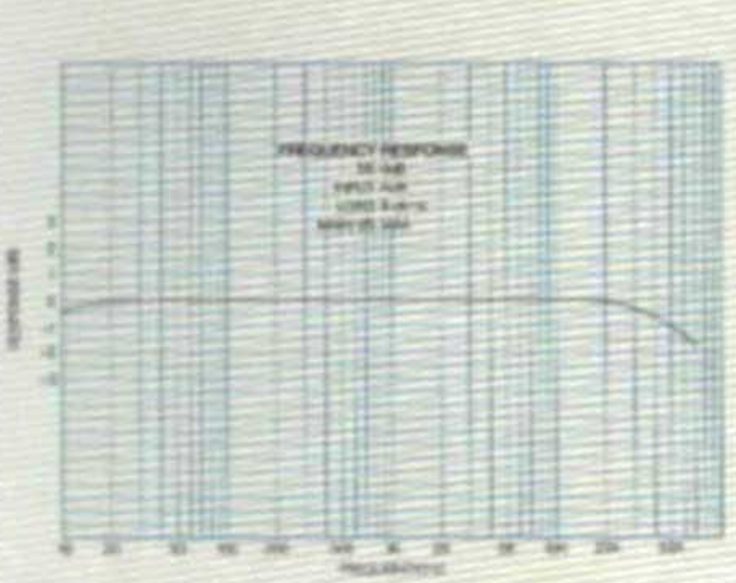




AU-117







SPECIFICATIONS

AU-317

POWER OUTPUT*
Min. RMS, both channels driven, from 20 to 20,000Hz, with no more than 0.03% total harmonic distortion
50 watts per channel into 8 ohms
Min. RMS, both channels driven, at 1,000Hz, with no more than 0.03% total harmonic distortion
72 watts per channel into 4 ohms
52 watts per channel into 8 ohms

LOAD IMPEDANCE* 8 ohms
TOTAL HARMONIC DISTORTION*
less than 0.03% at or below rated min. RMS power output
INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
less than 0.03% at or below rated min. RMS power output
DAMPING FACTOR
(at 1,000Hz, both channels driven)
70 into 8 ohms
RISE TIME 1.4μSec
SLEW RATE 40V/μSec
FREQUENCY RESPONSE (at 1 watt)
OVERALL (from AUX)
5 to 70,000Hz+0dB, −1.8dB
POWER AMP IN DC to 200,000Hz
+0dB, −2.5dB
RIAA CURVE DEVIATION (20 to 20,000Hz)
+0.2dB, −0.2dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)
PHONO 2.5mV, 47k ohms
AUX 150mV, 47k ohms
MIC 20mV, 47k ohms
MAIN 1V, 47k ohms
MAXIMUM INPUT CAPABILITY
(at 1,000Hz 0.008% T.H.D.)
PHONO 200mV RMS
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)
TAPE REC (PIN) 150mV into 47k-ohm load/ 600 ohms
PREAMPLIFIER OUTPUT
1V into 47k-ohm load/ 3.6k ohms
MAXIMUM PREAMPLIFIER OUTPUT
(at 0.03% T.H.D.) 9V into 47k-ohm load/ 3.6k ohms
HUM AND NOISE
PHONO 77dB
AUX 100dB
CHANNEL SEPARATION (at 1,000Hz)
PHONO 65dB
AUX 73dB
CONTROLS
BASS +11dB, −11dB at 50Hz
TREBLE +10dB, −10dB at 15kHz
FILTERS
SUBSONIC −3dB at 13Hz (6dB/oct.)
HIGH −3dB at 7kHz (6dB/oct.)
LOUDNESS (volume control at −30dB position)
+9dB at 50Hz
+7dB at 10kHz
AC OUTLETS switched max. 200 watts
unswitched total 200 watts
POWER REQUIREMENTS
POWER VOLTAGE 100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION
215 watts
SEMICONDUCTORS 51 Transistors; 25 Diodes; 2 FETs
DIMENSIONS 430mm (16 5/16")W
110mm (4 3/8")H
340mm (13 3/8")D
with Rack-mounting Adaptors
482mm (19")W
110mm (4 3/8")H
347mm (13 11/16")D
WEIGHT 9.5kg (20.9lbs.) Net
with Rack-mounting Adaptors
9.7kg (21.4lbs.) Net
11kg (24.3lbs.) Packed

AU-217

POWER OUTPUT*
Min. RMS, both channels driven, from 20 to 20,000Hz, with no more than 0.06% total harmonic distortion
30 watts per channel into 8 ohms
Min. RMS, both channels driven, at 1,000Hz, with no more than 0.06% total harmonic distortion
37 watts per channel into 4 ohms
34 watts per channel into 8 ohms

LOAD IMPEDANCE* 8 ohms
TOTAL HARMONIC DISTORTION*
less than 0.06% at or below rated min. RMS power output
INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
less than 0.06% at or below rated min. RMS power output
DAMPING FACTOR
(at 1,000Hz, both channels driven)
80 into 8 ohms
FREQUENCY RESPONSE (at 1 watts)
OVERALL (from AUX)
10 to 50,000Hz
+0.5dB, −1.5dB
RIAA CURVE DEVIATION (30 to 15,000Hz)
+0.5dB, −0.5dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)
PHONO 2.5mV, 47k ohms
AUX 150mV, 47k ohms
MAXIMUM INPUT CAPABILITY
(at 1,000Hz 0.05% T.H.D.)
PHONO 180mV RMS
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)
TAPE REC (PIN) 150mV into 47k-ohm load/ 300 ohms
HUM AND NOISE
PHONO 76dB
AUX 94dB
CHANNEL SEPARATION (at 1,000Hz)
PHONO 65dB
AUX 68dB
CONTROLS
BASS +12dB, −12dB at 50Hz
TREBLE +11dB, −11dB at 15kHz
FILTERS
SUBSONIC −3dB at 13Hz (6dB/oct.)
HIGH −3dB at 7kHz (6dB/oct.)
LOUDNESS (volume control at −30dB position)
+8dB at 50Hz
+6dB at 10kHz
AC OUTLETS switched max. 200 watts
unswitched total 200 watts
POWER REQUIREMENTS
POWER VOLTAGE 100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION
145 watts
SEMICONDUCTORS 30 Transistors; 21 Diodes
DIMENSIONS 430mm (16 5/16")W
110mm (4 3/8")H
340mm (13 3/8")D
with Rack-mounting Adaptors
482mm (19")W
110mm (4 3/8")H
347mm (13 11/16")D
WEIGHT 8.4kg (18.5lbs.) Net
with Rack-mounting Adaptors
8.6kg (19lbs.) Net
9.8kg (21.6lbs.) Packed

AU-117

POWER OUTPUT*
Min. RMS, both channels driven, from 20 to 20,000Hz, with no more than 0.17% total harmonic distortion
15 watts per channel into 8 ohms
Min. RMS, both channels driven, at 1,000Hz, with no more than 0.17% total harmonic distortion
20 watts per channel into 4 ohms
18 watts per channel into 8 ohms

LOAD IMPEDANCE* 8 ohms
TOTAL HARMONIC DISTORTION*
less than 0.17% at or below rated min. RMS power output
INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
less than 0.17% at or below rated min. RMS power output
DAMPING FACTOR
(at 1,000Hz, both channels driven)
50 into 8 ohms
FREQUENCY RESPONSE (at 1 watt)
OVERALL (from AUX)
10 to 40,000Hz
+0.5dB, −2dB
RIAA CURVE DEVIATION (30 to 15,000Hz)
+0.5dB, −0.5dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)
PHONO 2.5mV, 47k ohms
AUX 150mV, 47k ohms
MAXIMUM INPUT CAPABILITY
(at 1,000Hz 0.2% T.H.D.)
PHONO 150mV
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)
TAPE REC (PIN) 150mV into 47k-ohm load/ 300 ohms
HUM AND NOISE
PHONO 76dB
AUX 94dB
CHANNEL SEPARATION (at 1,000Hz)
PHONO 65dB
AUX 68dB
CONTROLS
BASS +12dB, −12dB at 50Hz
TREBLE +11dB, −11dB at 15kHz
FILTER
HIGH −3dB at 7kHz (6dB/oct.)
LOUDNESS (volume control at −30dB position)
+8dB at 50Hz
+6dB at 10kHz
AC OUTLETS switched max. 200 watts
unswitched total 200 watts
POWER REQUIREMENTS
POWER VOLTAGE 100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION
82 watts
SEMICONDUCTORS 25 Transistors, 7 Diodes, 1 Zener Diode, 1 LED
DIMENSIONS 430mm (16 5/16")W
110mm (4 3/8")H
340mm (13 3/8")D
with Rack-mounting Adaptors
482mm (19")W
110mm (4 3/8")H
347mm (13 11/16")D
WEIGHT 6.4kg (14.1lbs.) Net
with Rack-mounting Adaptors
6.6kg (14.6lbs.) Net
7.8kg (17.2lbs.) Packed

*Power specifications measured pursuant to U.S. Federal Trade Commission trade regulation on power output claims for amplifiers.
- For European models, some specifications might change to comply with local safety regulations and standards
- Design and specifications subject to change without notice for improvements.

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