AU-719 ULTRA LOW TIM

Sansui Integrated "Straight DC" Stereo Amplifier with Exclusive "Diamond Differential" DC Power Amp and DC Phono Equalizer

Sansui Only hi-fi, everything hi-fi.

Sansui takes care of TIM—and how!

The Sansui method of measuring TIM is one of the most valid and easily-correlatable methods ever presented to the industry. And in the process of discovering this method, we've also learned considerable about TIM and, best of all, how to eliminate it in Sansui AU amplifiers (and receivers). The result, as you are bound to discover as you listen to this equipment, is exceptionally high slew rate and fast rise time, low harmonic distortion, wide frequency range and other superb steady-state response.

This new integrated amplifier, the AU-719, with Sansui-exclusive "Straight DC" feature is typical of the excellence and careful attention to detail you should expect in contemporary stereo. It includes the DD/DC (Diamond Differential DC) power amp and DC phono equalizer—the configuration that guarantees the lowest ever TIM and other distortion of a transient nature. And this easily affordable amp also has special provisions: bypass the flat/tone control amp via the TONE DEFEAT switch, and then the phono equalizer is directly connected to the power amp for still purer reproduction. Power is 90 watts per channel, min. RMS, both channels driven, into 8 ohms from 10 to 20,000Hz with no more than 0.015% total harmonic distortion. All in all, another significant electronics design from Sansui, where it's *all* hi-fi.

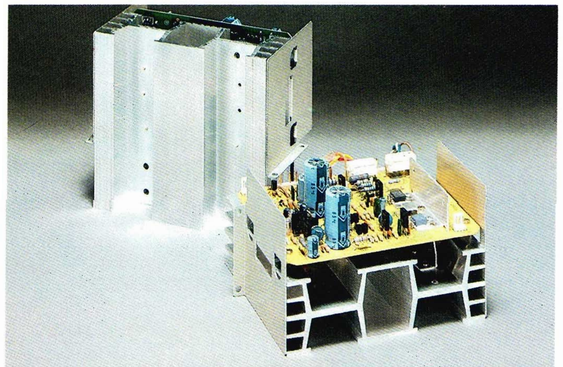
Flawless Diamond Differential DC for Dazzling Performance.

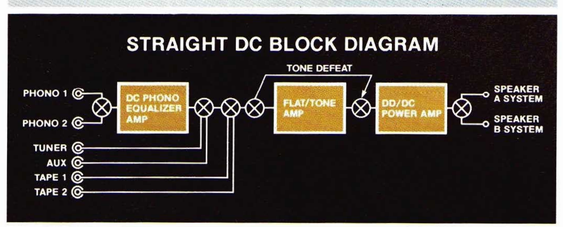
90 Watts per channel into 8 ohms with no more than 0.015% THD!

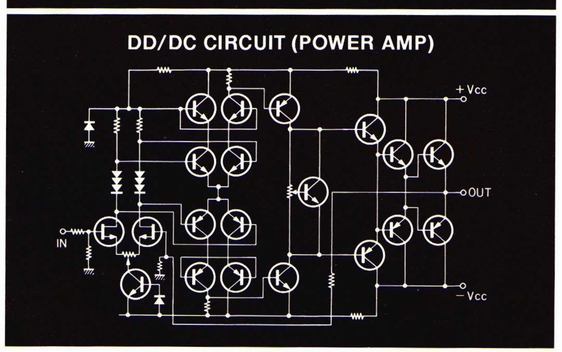
DC Power Amp: "Diamond Differential DC" and a low-noise Dual-FET input.

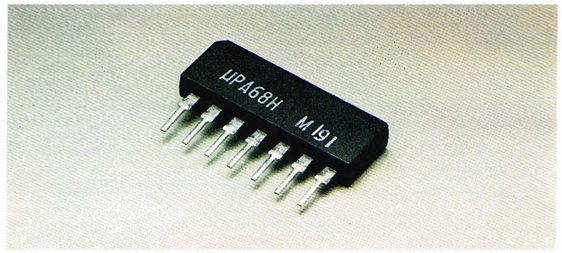
The power amp of the AU-719 is structurally elaborate: an input, formed of a differentially-arranged select low-noise, high-current Dual-FET, with current source; a second stage with our dual-complementary "Diamond Differential DC" circuit with bootstrapping circuit; and a power output of a 3-stage, Darlington-connected OCL SEPP configuration.

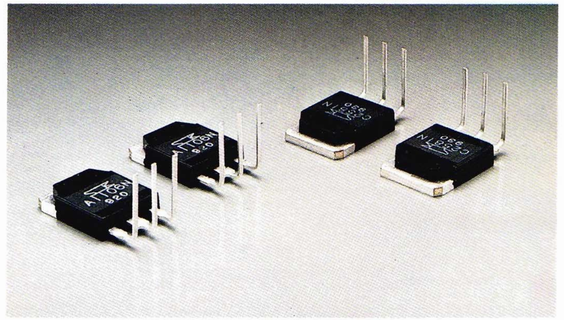
The custom-made power transistors are of a non-magnetic type, chosen for the AU-719 for their superb linearity. The advantages of this advanced circuit design are: (1) symmetrical circuits have improved stability and envelope distortion, and, (2) an ingenious phase compensation technique has helped the power amp achieve a super-wide frequency response of DC (0Hz) to 400,000Hz.









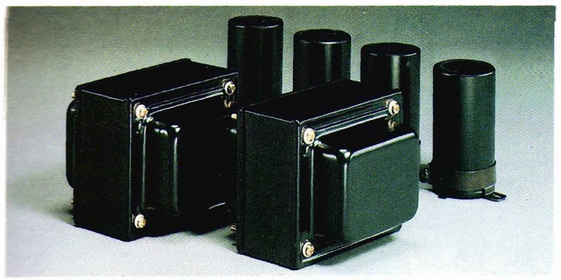


DC Phono Equalizer: First class specifications include 88dB S/N.

There's no capacitor at the input of the DC phono equalizer in the AU-719. This ICL (Input-Capacitorless) construction avoids noise, coloration and phase distortion. Instead, the direct-coupled input is a Dual-FET with high stability in a 2-stage differential configuration. The drive stage is a current-differential push-pull type (Pat. Pend.) followed by a true complementary SEPP (Single-Ended Push-Pull) output. This elaborate equalizer achieves wide dynamic range and low distortion from any record, treating rock, pop, jazz and classics with equal respect. RIAA deviation is nominal at ±0.2dB. Phono overload is 230mV (max.) and the signal-to-noise ratio is an excellent 88dB.

Separate Left/Right Power Supplies: Two transformers reduce crosstalk and envelope distortion.

The AU-719 delivers its full output when required without strain. There are two power transformers and two well-regulated, separated power supply circuits, one for the left and one for the right channel. Transient crosstalk and envelope distortion are thus greatly reduced. And power regulation is without a flaw. Four high-quality capacitors reduce internal impedance across the widest possible range, making reproduction well defined and finely textured.



Defeatable NF Type Tone Control circuit: Phono input is direct connected to the power amp for purer sound.

Precision tone control is another advantage in the new AU-719. It features current-source differential feedback (NF) amplifier and a pair of potentiometers for Bass and Treble each with ±10dB control range. The tone controls themselves have click stops for convenience. Finally, there's a Tone Switch that permits you to bypass the entire tone control circuit for a purely unequalized "flat" response; input signals are sent from the equalizer direct to the DC power amp. And, two turnovers are provided for each of the two control ranges: 300Hz/150Hz for BASS and 6kHz/3kHz for TREBLE.

Twin Power Protection: Dependable and self-restoring.

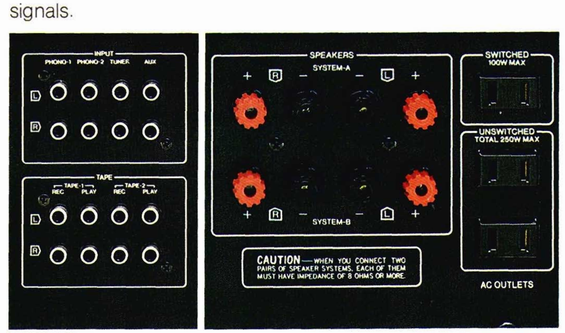
Should the DC balance of the DC power amplifier ever be disturbed, two fail-safe circuits in the AU-719 prevent DC components from flowing into your speakers to damage cones and delicate voice coils:

DC VOLTAGE DETECTION CIRCUIT—It opens a relay to electrically separate your speakers from the output terminals if the voltage at the terminals ever drifts from the balanced zero values.

OVERLOAD CURRENT DETECTION CIRCUIT—If ever a dangerously excessive current is drawn in the output power transistors due to output shorts or other accidents, the speaker output is instantly powered off by a relay to protect the power transistors from breakdown.

And We Have Included...

- TWO-DECK DUBBING/MONITORING—You can dub from one deck to another and even play Phono-1/2 or AUX through your speakers while recording from Tuner on either or both decks—a unique and interesting feature.
- VOLUME CONTROL—Precision attenuator with 32 accurately calibrated steps marked in decibels (dB).
- LOUDNESS—Adds brilliance to highs and richness to lows during low-level reproduction.
- SUBSONIC FILTER—Cuts off harmful super-low frequency signals.



Sansui has perfected exclusive DC circuitry techniques for purer musical performance.

Our "Straight DC" configuration is simple audio arithmetic: Adds nothing, subtracts nothing.

From input to output, the Sansui AU-719 is pure DC, with a DC phono equalizer and a DD/DC power amp. Signals from all but tone control/flat amp go through this "Straight DC" path; nothing is added or subtracted in the amplifying stages and the original signals retain their purity.

The design of these DC amps is far from ordinary. Each has a Dual-FET differential input and a push-pull output. Purer and straighter reproduction can be enjoyed by defeating the tone control/flat amp: a tape or AUX input, or the output from the built-in DC phono equalizer, is then sent directly to the power amp.

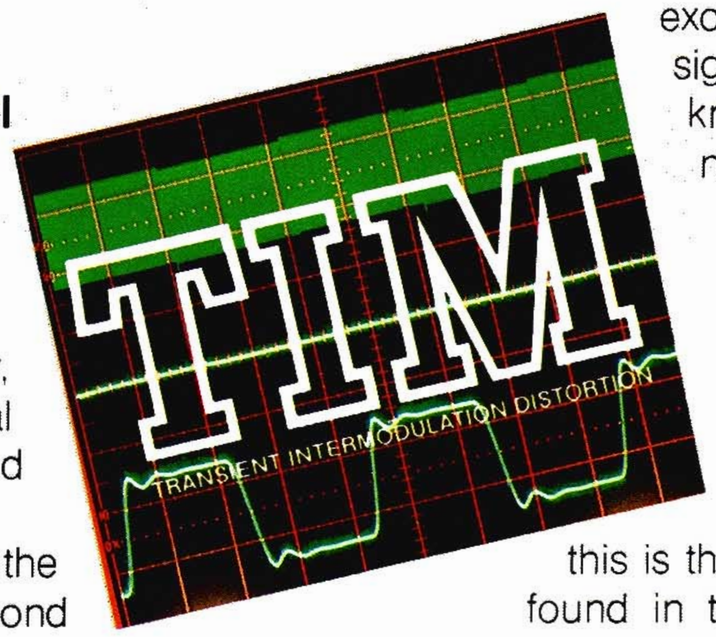
"Diamond Differential DC" circuit configuration in Power amp for low TIM distortion.

The AU-719 offers very, very low-TIM distortion. It's the principal reason your music sounds so clean and realistic at any level, low or loud.

Achieving lower TIM is the result of the Sansui-exclusive "Diamond Differential DC" circuit (Pat. Pend.) used in the power amp of the AU-719. It's essentially a dual-complementary, differentially connected circuit with a team of two differentials arranged in a symmetrical design (resembling a diamond).

Featured is an extraordinary current-driving capability. The circuit therefore responds to musical signals—widely, wildly varying pulses quite unlike predictable, regular test signals—more faithfully and more quickly than any other known circuit.

The result is a very high slew rate (±170V/μSec.), fast rise/fall time (0.5μSec.), lower TIM, and an overall performance far superior to any other DC amp on the market.



How does TIM occur in an amplifier? Unfortunately, all too easily.

Today's amp technology relies heavily on NF (Negative Feedback) to reduce distortion and improve frequency response. There are many advantages to this, but some serious drawbacks as well. Excessive TIM is one.

When a pulsive (i.e. musical) signal is applied to an amplifier employing NF, the amp is severely taxed by a sudden, relatively large current demand. If sufficiently large current is not fed to the circuit, current clipping (or saturation) occurs: TIM (Transient Intermodulation) distortion is the result.

TIM spoils the tonal quality of music more apparently than other types of distortion. The newly-developed Sansui exclusive method of measuring TIM has contributed significantly to better musical reproduction: since we know *why* TIM occurs, and *how* to measure it, we now can—and have—removed it as a threat to fidelity.

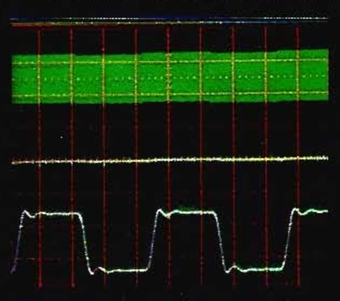
Specifically, our DC technique permits optimum Transient AND Steady-State Response.

The Sansui method of measuring TIM led, quite naturally, to the development of circuitry inside the AU-719 which effectively reduces TIM. As mentioned, this is the Sansui-exclusive "Diamond Differential DC" circuitry found in the power amplifier section.

Transient response (and tonal quality) is improved because the circuit has faster response and a high slew rate. There is always more than enough current to satisfy demand, however sudden. This means the amp does not clip—no matter how fast the input signal rises. It also means that negative feedback is always applied stably.

The results are not short of miraculous: not only is TIM reduced and tonal quality improved, the steady-state response of the amplifier is likewise optimized: the Sansui "Diamond Differential DC" does not compromise THD or frequency response in the slightest; in fact, the AU-719 has a THD of 0.015% a frequency response of *zero* Hz (DC) to 400kHz!

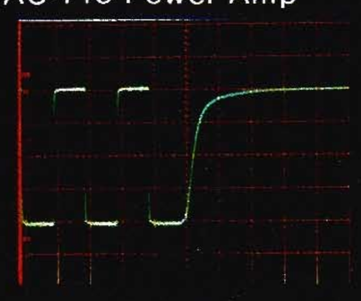
TIM DISTORTION WAVEFORM



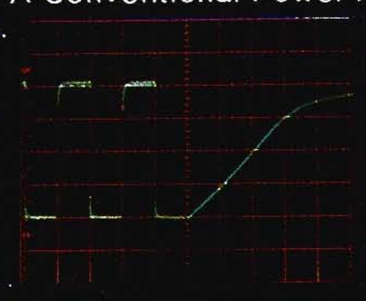
*Plateau-line rectangular output indicates that audible frequencies not contained in the original input are generated inside the amp; TIM distortion is the cause.

SLEW RATE AND RISE TIME OF TWO POWER AMPS

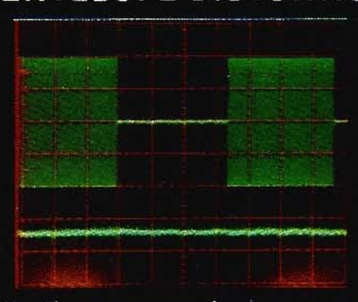
AU-719 Power Amp

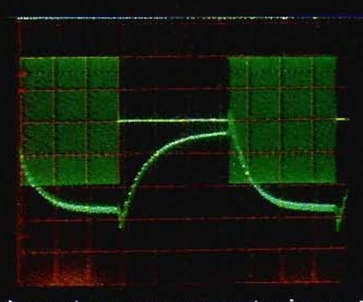


A Conventional Power Amplifier



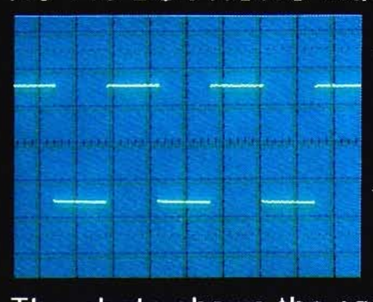
ENVELOPE DISTORTION





In the measuring arrangement, a filter to eliminate tone burst components is set at the output; there should thus be no output. Photo shows, however, that there *is* an output: envelope distortion is generated. There's almost no signal at the output of the AU-719; envelope distortion is insignificant.

SQUARE WAVE RESPONSE OF AU-719 DC PHONO EQUALIZER



The photo shows the square wave input is reproduced without phase shifts.

Specifications

POWER OUTPUT*
Min. RMS, both channels driven, from 10 to 20,000Hz, with no more than 0.015% total harmonic distortion
90 watts per channel into 8 ohms
Min. RMS, both channels driven at 1,000Hz with no more than 0.015% total harmonic distortion
105 watts per channel into 8 ohms

LOAD IMPEDANCE* 8 ohms

TOTAL HARMONIC DISTORTION*
OVERALL (from AUX) less than 0.015% at or below rated min. RMS power output
OVERALL (from AUX) less than 0.0035% at 1kHz, 90W power output

INTERMODULATION DISTORTION (70Hz:7,000Hz=4:1 SMPTE method)
less than 0.015% at or below rated min. RMS power output

DAMPING FACTOR (at 1,000Hz, both channels driven)
110 into 8 ohms

SLEW RATE ±170V/μSec.

RISE TIME 0.5μSec.

FREQUENCY RESPONSE (at 1 watt)
OVERALL (from AUX) DC to 400,000Hz +0dB, −3dB

RIAA CURVE DEVIATION (20 to 20,000Hz)
+0.2dB, −0.2dB

INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)
PHONO 1, 2 2.5mV, 47k ohms
AUX 200mV, 47k ohms

MAXIMUM INPUT CAPABILITY (at 1,000Hz 0.01% T.H.D.)
PHONO 1, 2 230mV RMS

OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)
TAPE REC (PIN) 1, 2 200mV/600 ohms into 47k ohm load

HUM AND NOISE (IHF)
PHONO 88dB
AUX 100dB

CHANNEL SEPARATION (at 1,000Hz)
PHONO 1, 2 65dB
AUX 70dB

CONTROLS
BASS +10dB, −10dB at 50Hz
TREBLE +10dB, −10dB at 15kHz
TONE SELECTORS (turnover frequencies)
BASS 300Hz, 150Hz
TREBLE 6,000Hz, 3,000Hz
LOUDNESS (volume control at −30dB position)
+10dB at 50Hz
+6dB at 10kHz
SUBSONIC FILTER −3dB at 16Hz (6dB/oct.)
AUDIO MUTING −20dB

AC OUTLETS switched max. 100 watts
unswitched total 250 watts

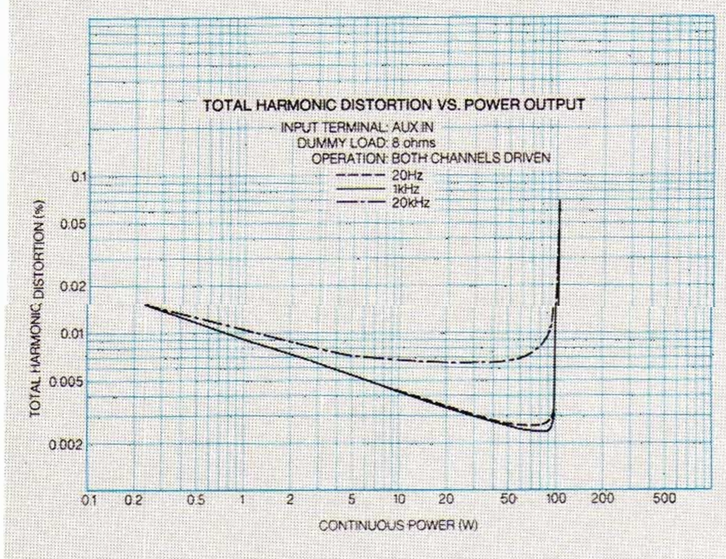
POWER REQUIREMENTS
POWER VOLTAGE 100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION 450 watts

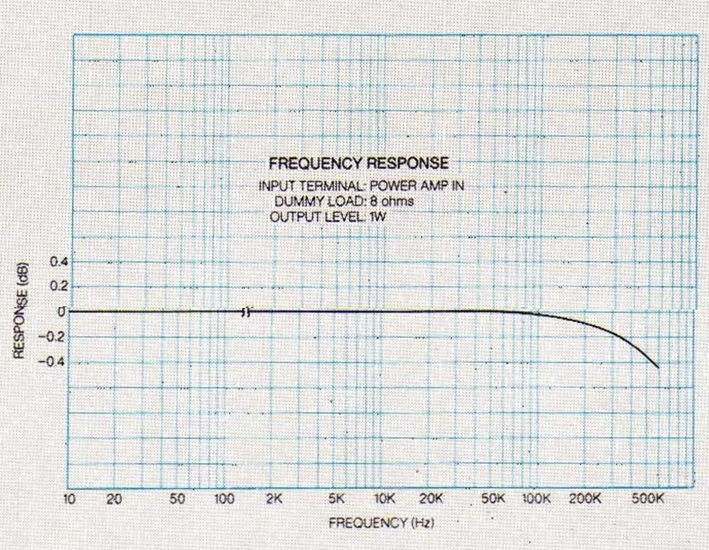
SEMICONDUCTORS 73 Transistors; 31 Diodes;
8 Zener Diodes; 1 SCR; 5 LEDs; 4 FETs

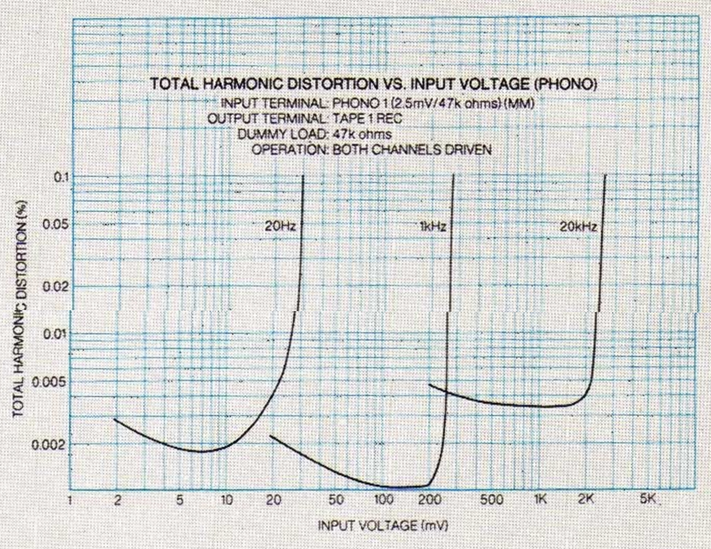
DIMENSIONS 430mm (16 15/16")W
168mm (6 5/8")H
395mm (15 9/16")D
with Rack-mounting Adaptors
482mm (19")W
168mm (6 5/8")H
409mm (16 1/8")D

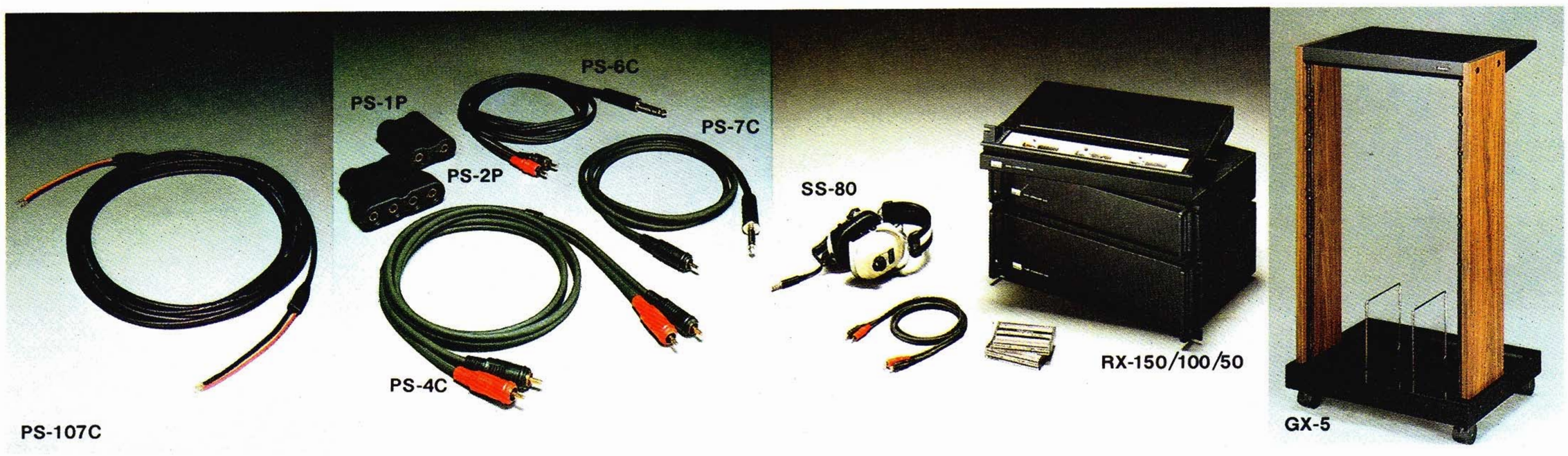
WEIGHT 15.6kg (34.4lbs.) Net
with Rack-mounting Adaptors
16kg (35.3lbs.) Net
17.7kg (39lbs.) Packed

* 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 improvem









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