



Technics High Fidelity Equipment



Technics

1



Technics

Isolated Loop/Dir IC Logic Control

record pause

monitor

left

face

rose

operation with level (BTL) right level

The customer calls the tune.

Only a few years ago, the world of high fidelity was still dominated by a few specialist makers. The sort of small firms—often making nothing but speakers, amplifiers, or turntables—to which audiophiles traditionally look when putting a system together.

At Matsushita Electric, we believe the customers should call the tune.

Long before hi-fi turned from a fad for the few into a source of pleasure for millions, we were preparing to meet the challenge.

Starting in 1965, we were able to put together some of the finest design teams in the business. Probably because they knew they could use the matchless research facilities which we are able to maintain as Japan's biggest consumer electronics company.

The name we selected for our hi-fi equipment was Technics. Today, as you know if you've already been bitten by the hi-fi bug, that name says state-of-the-art equipment to industry professionals and audio enthusiasts on every continent.

The first Technics success, back in 1969, was also a world first. A sensation when it first appeared, our so-called "direct-drive" turntable was the legendary SP-10. It offered an elegantly simple solution to the problems of rumble and wow and flutter which had kept generations of audio designers awake at nights.

As a matter of fact, the motor used in the SP-10 had been developed years before in one of our research labs. Because it needed no complicated mechanism to get the speed down, our electronically regulated motor could run for months at a time with no variation in speed.

And it is so silent, a reviewer in Gramophone, the leading British audio magazine, defied his readers to close their eyes

and then say if the platter was spinning. He issued this challenge in relation to a budget-priced second generation DD turntable, by the way. In line with our basic policy of making the best design available across the board, the hand-made and expensive SP-10 has been succeeded by a whole family of units offering identical basic specs. at a realistic price. Putting the DD motor into the world's widest turntable range was not the end of its uses. The motor has been successfully scaled-down for use in cassette formats which present a winning blend of minimal wow and flutter and rugged reliability.

The DD motor has also been employed, in its most advanced form, in the "Isolated Loop" tape drive of the award-winning RS-1500US open reel tape deck.

In the same way, the benefits of direct-coupled circuitry were introduced across our entire range of amplifiers, tuners and receivers at a time when the rest of the industry tended to reserve this advanced circuitry for top of the line components.

And analog computer technology, which played a vital role in the development of Technics Linear Phase speakers, also enabled Technics engineers to create the remarkable SH-9090 universal frequency equaliser.

As you can see, the Technics range of components is remarkably wide. Our middle-range equipment frequently boasts performance figures usually found only in expensive models. Our state-of-the-art components are to be found in broadcasting stations all over the world. And our modestly-priced system components have been given a warm welcome from enthusiasts with more musicality than money.

The Professional Series

We build the Professional Series for much the same reason that car makers build race and rally cars. Indeed, the relationship between the Professional Series of Technics components and our budget-priced ones is much the same as that between a racing car and the family runabout which actually contains many race-proved design features.

Car makers discovered half a century ago that the best way to improve the breed was to subject cars and drivers to the cruellest test of all: pitting the best available machines and drivers against each other over the most demanding courses they could find.

For Technics engineers, the Professional Series component provides an opportunity for them to hone their skills. In fact, since all top-class components the world over share the same unvaryingly high manufacturing quality, it is the designer's virtuosity in modifying a circuit, re-positioning a speaker unit in an enclosure or modifying a motor which can make the vital

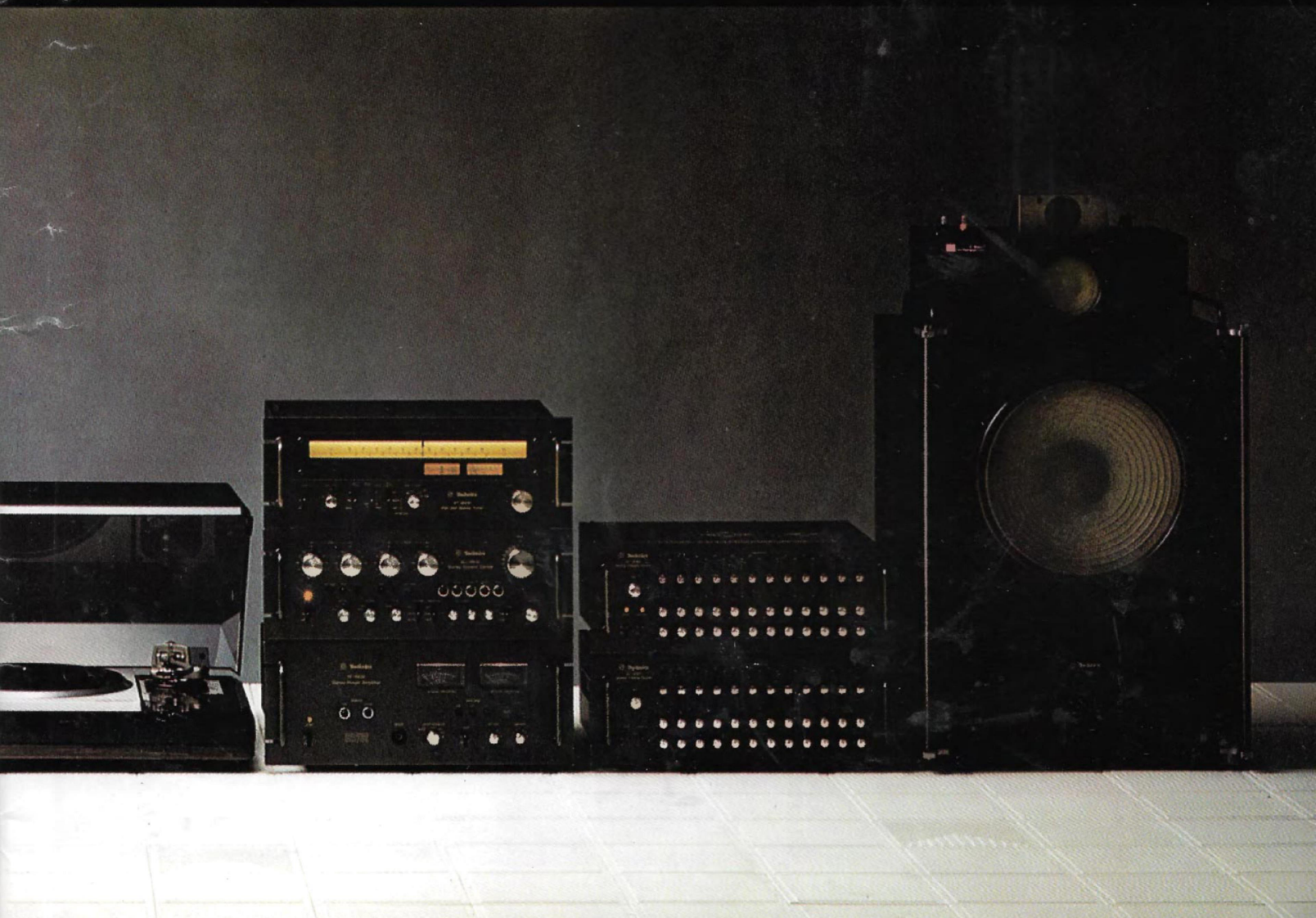


difference between so-so sound and a winning one.

Of course, even at this exalted end of the business where art meets science on level terms, the harsh realities of the market—place cannot be totally ignored. However, since there is no lack of dedicated audiophiles and professional users ready, willing and able to pay the necessarily high price of ultimate performance, the series offers a valuable opportunity of trying out advanced design concepts which, once proved, have a happy way of turning up even in modestly priced components.

Most manufacturers have one or two components in their catalogues which could be said to be “professional” in quality and specs. But of all the really large makers in the world, few if any can boast as wide a range of high-performers as those in the Technics Professional Series.

For 1977, the Pro Series includes tape decks for the first time. One is open-reel, the other cassette. Both, as you can



imagine, are outstandingly good. The RS-1500US open-reel deck was in 1976 hailed by the prestigious Japanese magazine "Stereo Art" as its Best Component of the Year. Among its many features is a sophisticated 3-motor "Isolated Loop" tape drive system with quartz locked speed control.

The RS-9900US cassette deck has a miniature version of the same superb tape drive system. It is also the first cassette deck in the world with amplifier and tape drive sections housed in two separate units.

As well as swelling the ranks of the Professional Series with these two great decks, Technics engineers have been burning the midnight oil these many months past to bring a whole new line of Professional components for 1977.

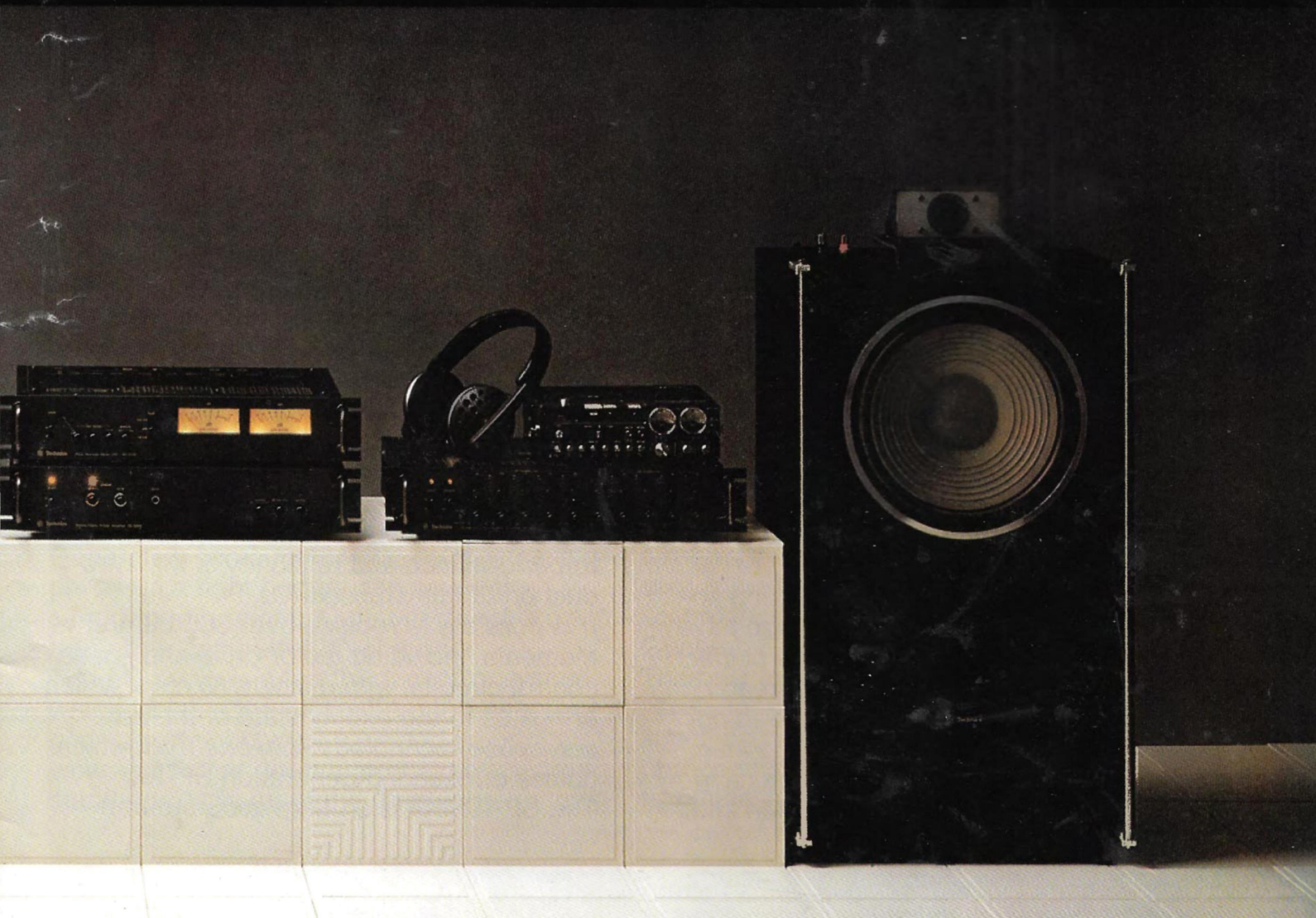
The Pro Series II is built around a slim, European-style power and pre-amplifier combination: the SE-9060 and SU-9070 — with



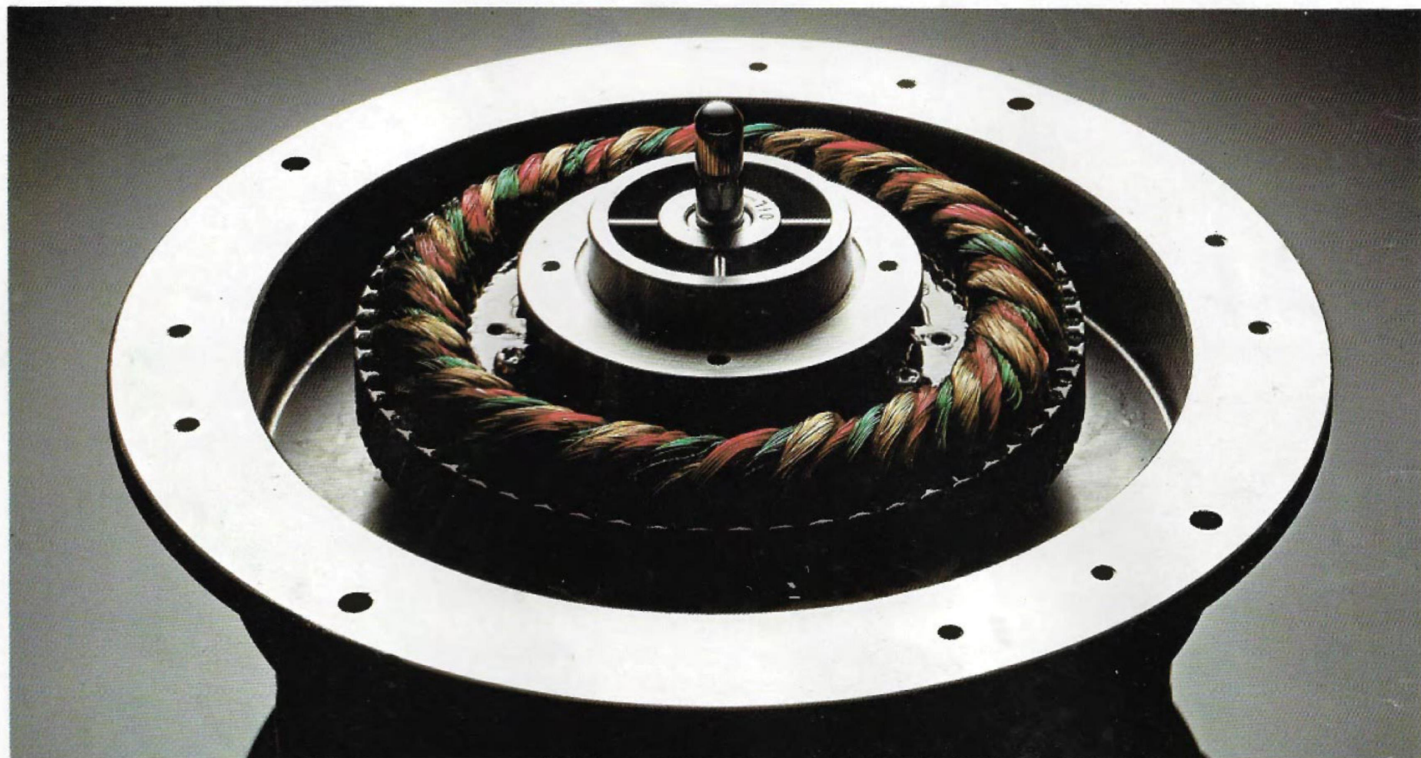
the remarkable distortion figures. Matching components include the SH-9010, a smaller stereo version of the formidable SH-9090 universal frequency equaliser and the SH-9020, a peak/average meter reading unit. Not to mention the ST-9030, a remarkable new tuner, and the RS-686DS portable 3-head stereo cassette deck.

Considered in isolation, each Professional Series component is among the best examples of its kind in the world. Put them together and you have possible the "cleanest" and most versatile high and medium power stereo systems money can buy.

In fact, many of the parameters around which these, our finest Technics units, have been engineered are far in advance of those governing the production of commercial records and pre-recorded tapes.



Turntables



It was in 1969 that Technics introduced the world's first direct-drive turntable. As the experts realised at once, the twin problems of wow and flutter and rumble which had bothered and bewildered audio designers since Edison's day had finally been solved. What's more, the solution, once it had been provided, could be seen to have been staring everybody in the face for years. No wonder almost every turntable maker in the world has since followed our lead and built his turntable around a motor electronically regulated to revolve at the necessary speed without the need for belts, idlers and similar noisy and inefficient devices.

Several of the world's leading broadcasting stations, recording studios and discos depend upon Technics direct-drive turntables. At the heart of every direct-drive unit: An elegantly simple brushless DC motor needing only a tenth of the power of the AC version it replaced. That means less heat, less wear and so longer life.

Our first design had the platter resting on top of the motor. Many current range have the motor rotor integrated with the platter for even better performance and greater reliability. Other improvements due to our on-going design programme include lean, European-style diecast bases which have the advantage of being vibration-free and

non-resonant. In order to avoid the possibility of airborne "howl" from the speakers, some models also have the entire platter-tonearm assembly "floating" within the base. Needless to say, our designers are not introducing innovation either for its own sake or merely for the sake of improved performance. Although improved performance is a consideration at the top end of the range, another equally important question is that of cost/performance. We are proud to say that the latest direct-drive turntables offer the same superb basic specs. as the now legendary SP-10 at a fraction of the cost. As a matter of fact, the SP-10 has been replaced by the SP-10MKII, of which more in a moment. The range—the world's biggest —includes various automatic and semi-automatic turntables and the world's first direct-drive auto-changer. A major factor in the success with which we have been able to lower costs without doing the same thing to performance and reliability is the introduction of miniaturised ICs.

It is possible to replace over 300 different elements, including motor drive and speed control circuits, with a single IC chip. Which brings us to the exotic, state-of-the-art aerospace technology spin-offs from which comes our second-generation SP-10.

The SP-10MKII is an ultra-accurate tran-

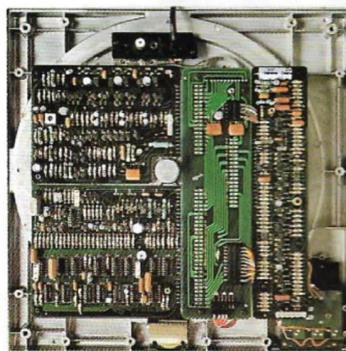
scription deck driven by a phase-locked servo circuit. The oscillation of a quartz crystal, as in the latest chronometers, provides a reference frequency against which the platter's speed is continuously monitored and, if necessary, instantly synchronised.

High torque and perfect control is the keynote of the deck. Rated speed is reached within a fraction of a second ($33\frac{1}{3}$ rpm within 0.25 seconds) despite the heavy-weight platter, and the platter comes to a halt equally fast. At rest, slight braking force remains applied so that ultra-precise cueing becomes extremely easy.

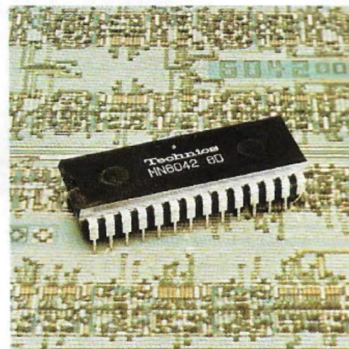
In the case of the SP-10MKII, high torque is something of an understatement. Loaded torque, at 5 kg·cm, enables the chosen playing speed—including 78 rpm—to be constantly maintained even with a theoretical tracking force of 1,000 grammes. Even fluctuations in power voltage or ambient temperature are unable to cause any change in playing speed.

To complement this outstanding turntable, which is primarily of interest for professional use, we have created another, no less outstanding piece of equipment. The EPA-100 is the world's first truly universal tonearm. The arm itself is the first in the world to be constructed of nitrogen-hardened titanium (titanium-nitride), an aerospace spin-off. The EPA-100 is available, together with the SP-10MKII, mounted on a custom-designed plinth (SH-10B3). This arm was named Component of the Year in its category by the same prestigious panel which honoured the Technics RS-1500US last year. For all our variations on the direct-drive theme, Technics engineers have not forgotten the belt-drive turntable. On the contrary, they have considerably improved it. Thanks to the development of the new FG (Frequency Generator) servo motor drive system, audiophiles on a tight budget can now enjoy superb performance. Only our direct-drive turntables can better it—at a price.

The FG servo is a feedback control system which isolates the motor from the effects of changes in supply voltages and so brings wow and flutter down almost to direct-drive standards. Voltage of the quiet, cool-running

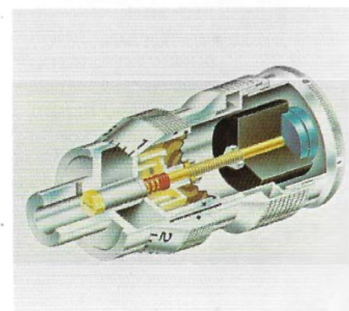
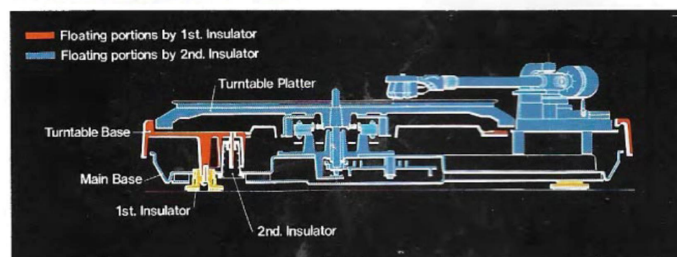


Analog-digital circuitry is responsible for the stable, highly accurate rotation of the SP-10MKII.



The SL-1300MK2 has 4 high density ICs, eliminating over 3000 transistors, resistors and capacitors. The pitch control IC alone (left) replaces 1856 elements.

Double insulation system. The chassis rests on audio-insulated feet and the entire platter/tonearm assembly is "floated" within the non-resonant base.



The counterweight of the EPA-100 is equipped with a built-in variable dynamic damping system. Designed to adjust damping to exactly match the resonance frequency of the arm/cartridge assembly.

DC motor is electronically monitored against a reference control voltage and any necessary adjustments are made instantly in accordance with signals from the Frequency Generator.

The best indication of how well our FG servo units perform is, of course, their specifications. Many of which are the equal of those for some makers' direct-drive turntables!

SL-1000MKII

Turntable System

Although they are, of course, available separately, these three impressive pieces of audio equipment were ideally meant to go together to form perhaps the world's finest turntable system.

SP-10MKII Quartz-Controlled Direct-Drive Turntable

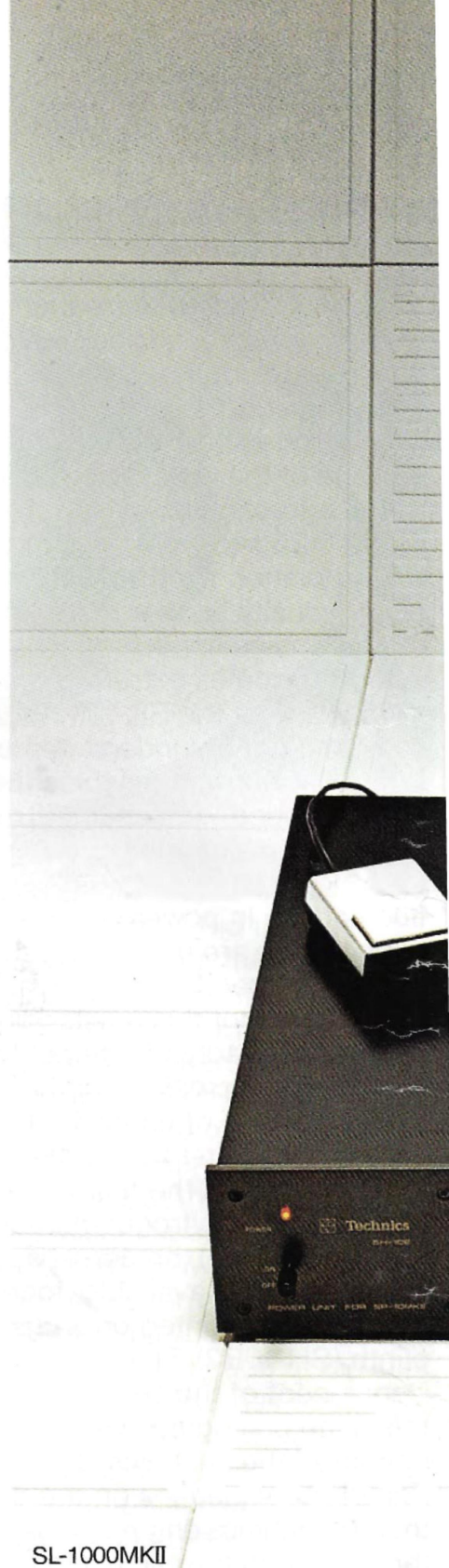
The SP-10MKII is a high quality turntable for professional and semi-professional use. It is a "new generation of turntable" in that the quartz-controlled phase-locked servo circuit maintains extremely constant, drift-free speed. Oscillation of a quartz crystal provides a reference frequency against which turntable speed is constantly monitored and, if necessary, instantly adjusted. Speed drift is reduced to within $\pm 0.002\%$ (playing time of a 30-minute LP side will be accurate within ± 0.036 seconds) regardless of changes in power voltage, ambient temperature and drag load. A theoretical tracking weight of 1,000 grams causes no change in speed. Very high (6kg · cm) motor torque means it takes the platter only 0.25sec (1/12 of a turn) to reach rated 33-1/3 rpm. Set the stylus down on a silent groove between bands, press the start button and the disc will reach playing speed long before the first note is heard. The platter will stop only 0.3 sec after the brake is applied. The same circuitry allows almost instant switching from one speed to another (including 78 rpm). Part of the braking force remains when the turntable is at rest, permitting delicate cueing for disc-to-tape transcribing. The rubber platter mat is electrically conductive to combat build-up of static on the record, while a second rubber sheet under the platter further dampens vibrations. Even the strobe lamp is special. Ordinary lamps are locked to AC power frequency and thus subject to errors caused by power changes. The SP-10MKII uses a quartz-controlled oscillator to switch the flash-on current to the strobe lamp. Therefore power changes cause no errors and only one ring of strobe marking is needed for both 50 and 60Hz.

EPA-100 Universal Tonearm

Specially designed to go with the SP-10MKII, the world's first variable dynamic damping tonearm has many unique features in terms of both design and materials. A built-in damping device inside the counter weight, the world's first, enables resonance frequency peak (Q) of the arm/cartridge to be precisely damped by reference to a direct-readout scale. The gimbal suspension uses unique "Ruby" bearings (three times more efficient than steel ball bearings) and shock-absorbing pivots. Static friction is almost nil and tracking ability is outstanding. Titanium-nitride, is used for the tempered tonearm pipe, another world first. It provides an ideal combination of rigidity and low mass.

SH-10B3 Turntable Base

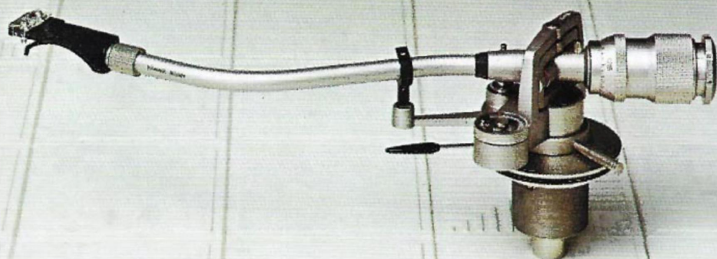
A massive stone block of gleaming black obsidian, mounted on a rubber and rosewood veneered base, provides almost complete isolation against acoustic feedback even at very high volume. The heavy acrylic cover excludes dust and provides additional protection against airborne vibration.



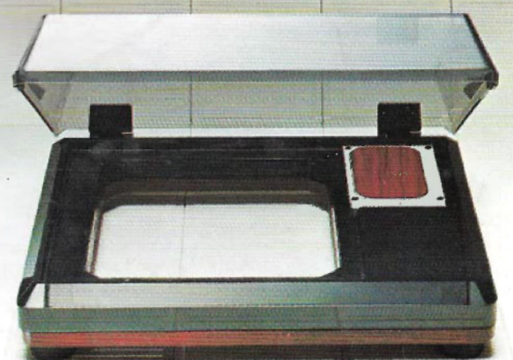
SL-1000MKII



SP-10MKII



EPA-100



SH-10B3

SL-1300MK2 / SL-1400MK2 / SL-1500MK2*

"Quartz" Series Direct-Drive Turntables

Since its introduction a couple of years ago, the Technics SP-10MK II has established itself world-wide as the leading quartz-phase-locked control direct-drive turntable for professional use.

Now, we are proud to announce a new series of turntables boasting the world's first quartz synthesizer pitch control, with digital LED read-out. Naturally, the new turntables offer superb speed accuracy (drift is 0.002% and wow and flutter is 0.025% WRMS) plus tremendous torque. The platter reaches rated speed within

0.7 of a second and holds it rock-steady, even with a theoretical tracking force of 300 grams. Rumble is -73dB (DIN B). But the real breakthrough is in the total pitch control. Each time the appropriate button is lightly pressed, speed is increased or decreased by precisely 0.1%. Giving a total variation of $\pm 9.9\%$. An indication of 5.9% equals one semitone. The feather-touch controls are located on the front of the plinth, so that they are all accessible when the dust-cover is closed. They activate four high-density ICs equivalent to 3,000 discrete

elements. Performance is still further enhanced by a double-insulation system designed to completely eliminate acoustic feedback. Three models are available, each with a sensitive gimbal-suspension tonearm and sharing the same superb basic specs. Both the fully-automatic SL-1300MK2 and the semi-automatic SL-1400MK2 have a sophisticated optical sensing system which raises and returns the tonearm at close of play. The SL-1500MK2 is totally manual.*All available in black (SL-1310MK2, SL-1410MK2, SL-1510MK2)

SL-1310MK2



SL-1410MK2



SL-1510MK2



SL-1300MK2



SL-1400MK2



SL-1500MK2

SL-1600 / SL-1700 / SL-1800

"Floating" Series Direct-Drive Turntables

In the beginning there was the direct-drive turntable. A Technics "first" which revolutionized turntable design when it appeared in 1969.

Then our engineers found a way of integrating motor rotor and platter reducing the number of moving parts from two to one. That's why the units on this page are even slimmer and sleeker than previous models. And even better performers.

Wow and flutter is only 0.025% WRMS. And rumble is -73dB (DIN B). With the

introduction of a "one-chip" IC which replaces 321 servo control elements, "corrective response lag" has been avoided and reliability even further improved.

That left us free to get to grips with the remaining problem of "howl" (mainly caused by vibrations from the speakers). Although it is physically slimmer, the base of these models rests on audio-insulated feet. It is actually heavier for greater rigidity. Last but not least, the entire platter/gimbal suspension tone-

arm assembly is "floated" within the base.

Quite simply, the sum total of these improvements is the difference between a turntable which sounds good and one which sounds great. Three different models are available, each sharing the same superb basic specs. The fully-automatic SL-1600, the semi-automatic SL-1700 and the manual SL-1800.



SL-1600

17 3/4 x 5 x 14 1/2



71
✓

No 2

8.8 K

SL-1700

154
130



SL-1800

SL-1900

✓ 107

B·FG Servo Controlled Direct-Drive Fully Automatic Turntable

Never before has there been a DD turntable with these features at this price. The new "one-chip" IC integrates no fewer than 321 components for absolute reliability. And the new B·FG (back electromotive force frequency generator) servo control means accurate speed at all times. With only one moving part — the platter itself — wow and flutter is 0.03% WRMS and rumble is -73dB DIN B. The high precision fully automatic mechanism provides automatic repeat play up to six times or indefinitely. Start, stop and return and automatic or manual as desired. Sensitive gimbal suspension tonearm has very low tracking error and friction. With anti-skating, variable pitch controls, two way damped cueing lever and illuminated strobe markings, here is truly remarkable value for money. Newly developed monolithic base absorbs vibrations.

no 2 5.



SL-1900

p25

SL-2000

"One-Chip" IC-Controlled Direct-Drive Turntable

For once, audiophiles on a limited budget don't have to settle for second best. The SL-2000 offers a standard of performance which is respectable by any standard - wow and flutter 0.045% WRMS and rumble of -70dB (DIN B). And use of a "one-chip" IC incorporating all servo circuits results in outstanding reliability. Other great value-for-money features include a computer-designed tonearm, special anti-vibration insulating material and audio insulated feet.



SL-2000

SL-110

Direct-Drive Turntable

The SL-110 is ideal for the enthusiast or the studio. Any top-class tonearm can be fitted easily to the wooden base, ready marked with arm mounting guidelines. Our basic direct-drive motor is mounted in an extremely stable, solid diecast aluminium base standing on independent damped pods. Supplied with lift-off acrylic dust cover.



SL-110

SL-150

Direct-Drive Turntable

This is our basic direct-drive unit supplied without tonearm, specially for audiophiles who wish to choose separate component parts. The SL-150 is supplied with a special mounting plate to take the SME arm. Direct-drive performance is guaranteed, with 0.025% WRMS wow-and-flutter, and rumble at -73dB DIN B. There are variable pitch controls and illuminated stroboscope markings.



SL-150

SL-23

✓✓ 76

Belt-Drive Semi-Automatic Turntable

Driven by our exclusive FG (frequency generated) servo controlled motor combined with a new automatic mechanism for auto-return. Integrated circuitry keeps operation stable and increases long-term reliability. Wow-and-flutter is down to 0.05% WRMS and rumble reduced to only -65dB DIN B. Electronic speed switching, pitch controls, illuminated strobe markings. Hinged detachable dust cover and headshell supplied.

3.

90



SL-23

SL-20

Belt-Drive Turntable

A high quality belt-drive turntable with our exclusive FG servo controlled DC motor using integrated circuitry for more stability and greater reliability. Low power consumption means a longer life. Wow-and-flutter is a low 0.05% WRMS. Rumble -65dB DIN B. Compact and slim design. Hinged detachable dust cover and headshell supplied.



SL-20

Moving Magnet Cartridge

These latest National Panasonic cartridges continue a proud tradition which began over 40 years ago when we developed the first crystal pick-up for 78 rpm records. In 1954, we introduced a balanced armature type high fidelity magnetic cartridge. In 1958 came Japan's first moving magnet cartridge, with a stereo version - Japan's first - coming out in the following year. Although they are still quite new in Europe, National Panasonic cartridges have an excellent reputation in Japan, where they have long been best-sellers. Every cartridge comes with its own individual frequency response graph, measured on B&K equipment, and is mounted in a one-piece aluminium diecast headshell. The outstanding performance, for which we have won prizes in Japan, is due mainly to our development of an ultra high energy, disc-shaped samarium cobalt magnet and one-point-suspension low mass cantilever assembly. This ensures excellent linearity, superb channel separation and minimum harmonic and intermodulation distortion. Their unique construction gives the EPC-205C-II series an effective moving mass that's among the lowest of any cartridge, plus outstanding trackability. Performance has been still further improved with the introduction of a new, tapered titanium cantilever which is both light in weight and extremely rigid. The lower-priced EPC-270C-II has a different construction without sacrificing low effective mass. Compliance is comparably high and stability and linearity are both good. A new material has been used for the magnets which are mounted directly onto the cantilever, thus reducing mass and helping to avoid partial vibrations. All four cartridges comfortably meet DIN standards.

EPC-205C-IIS

Stereo phono cartridge—standard type

A standard type with output voltage of 3.5mV (at 5cm/s, 1kHz). Samarium-cobalt magnet is flat disc shaped with unique one-point-suspension construction to allow low effective moving mass to be combined with high output voltage. Titanium cantilever construction gives rigidity for high tracing fidelity. Elliptical naked square diamond stylus.

EPC-205C-IIH

Stereo phono cartridge—high output type

A high S/N ratio MM cartridge with high output voltage of 7mV (5cm/s, 1kHz). This design gives four times higher amplifier power at the same volume setting compared with our standard type. S/N ratio is also better by 6dB, with reduced pick-up of leakage hum. Samarium-cobalt, flat disc shaped magnet, one-point-suspension and tapered titanium-nitride cantilever construction combines rigidity and light weight for excellent performance. Elliptical naked square diamond stylus.

EPC-205C-IIL

Stereo phono cartridge—low impedance type

Extremely low impedance design allows use in any turntable and with any amplifier regardless of their capacitance and impedance characteristics. Output voltage is 2mV (5cm/s, 1kHz). This design also gives very flat frequency response. Samarium-cobalt, flat disc shaped magnet, one-point-suspension and tapered titanium-nitride cantilever construction combines high rigidity with light weight for outstanding performance. Elliptical naked square diamond stylus.

EPC-270C-II

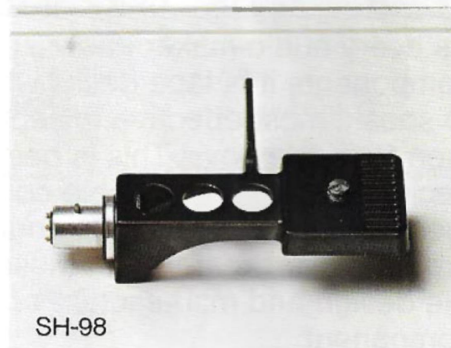
Stereo phono cartridge

Uses new magnetic material (acronym CKS) which eliminates the coupler so lowering overall mass and avoiding unwanted vibrations. Output voltage is 3.2mV (5cm/s, 1kHz). High strength aluminium alloy tube cantilever gives low effective mass. Stylus assembly mass is only 0.8mg for high trackability with elliptical diamond stylus. High compliance suspension assembly has special damper support for extra stability, linearity and accurate tracing.

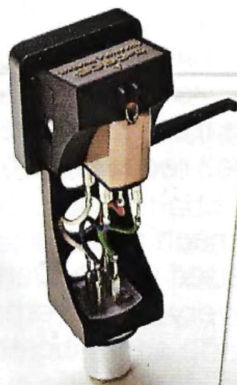
SH-98

Headshell

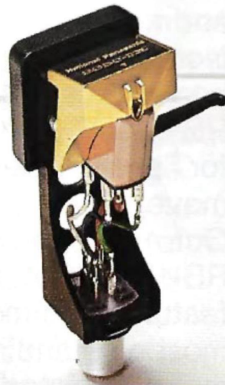
Aluminium diecast universal 4-pin type with built-in stylus overhang adjustment.



National Panasonic



EPC-205C-IIS



EPC-205C-IIH



EPC-205C-IIL



EPC-270C-II

Tape Decks



As every audio maker knows, of all hi-fi components it is tape decks which are, so to speak, most effective in separating the men from the boys! This is because the tape deck presents a formidable combination of mechanical and electronic engineering problems far greater than those involved in the design and manufacture of any other component.

Ideally, in order to meet the incredibly low tolerances to which a tape deck must be engineered, every component part, both mechanical and electronic, should be manufactured in-house by the tape deck maker. Needless to say, this calls for a degree of technical expertise, not to mention financial investment, which few makers are able to cope with.

In the case of Technics, the fact that we have the resources of the vast Matsushita Electric organisation behind us means that we are in a position to make almost all our own components. What's more, the huge range of some 10,000 different products manufactured by our parent company gives Technics engineers and designers the

enormous benefit of cross-fertilisation from many different fields.

In fact, Technics cassette decks have enjoyed from the first a reputation for innovation and long-lasting high performance which is built on the firmest foundation of all: word-of-mouth recommendation from one audiophile to another and excellent reviews in the specialist press.

1977 looks like being the best ever year for Technics tape decks since it sees the introduction of no fewer than three major new models—one each in the open-reel, cassette and new ELCASET formats.

Not to mention a couple of exciting new portable cassette decks—RS-686DS and RS-646DS—offering true hi-fi performance for “bring-it-back-live” recordings on the move.

Our new open-reel machine is the RS-1500US. It is loaded with advanced features in almost every area. Perhaps the most outstanding is the sophisticated 3-DD-motor “Isolated Loop” tape drive system. It also boasts quartz locked speed control. Frequency response extends from

30~30,000Hz, $\pm 3\text{dB}$ and wow and flutter at 38cm/sec. is a mere 0.018% WRMS.

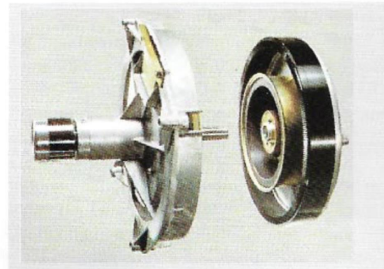
No wonder the leading Japanese audio magazine "Stereo Art" voted the RS-1500US Best Component of the Year.

And the new RS-9900US takes the cassette deck straight into the rarefied upper atmosphere so long exclusively occupied by a handful of the world's finest—and most expensive—open reel machines.

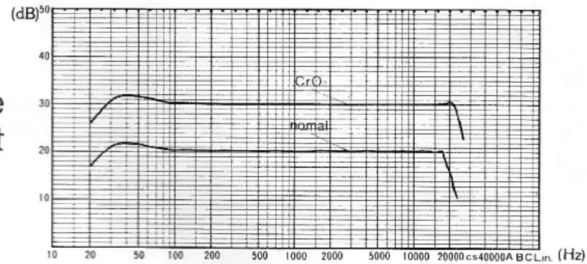
The RS-9900US can out-perform all but the finest open-reelers for the good reason that it has so many design features in common with them. Including three-motor double capstan closed loop tape drive and ultra-flexible calibration controls for equalisation and bias switching to enable every present and future tape formulation to be precisely matched. The unique design—tape transport and amplifier sections are in two separate units—is no gimmick, either. It is the optimum design for longest life and highest efficiency. Last but not least, we come to what many people consider to be the most interesting

tape deck development since the arrival of the compact cassette. When you consider that the compact cassette was originally developed for dictation machines, the modern cassette deck extracts a miraculous amount of music from a slow-running sliver of tape on which four tracks are packed like sardines in a can. Even so, hard-core audiophiles still rightly consider that the physical limits of the cassette give open-reel machines the edge in terms of sound quality. The ELCASET system is a brave attempt to bring you the best of both worlds. The ELCASET is two-and-a-half times bigger than the familiar compact variety. That means it is big enough to hold full-width "open reel" tape and run at twice the speed of a compact cassette. With all the advantages of greater dynamic range and superior track separation which the open reel deck enjoys. Those people thinking of adding tape facility to their systems will be especially keen to give the exciting RS-7500US ELCASET deck a hearing.

In keeping with the Technics policy of passing design innovations down the line, even our moderately-priced decks are equipped with advanced features such as



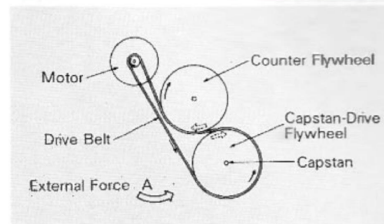
Direct-drive capstan motor for the RS-1500US.



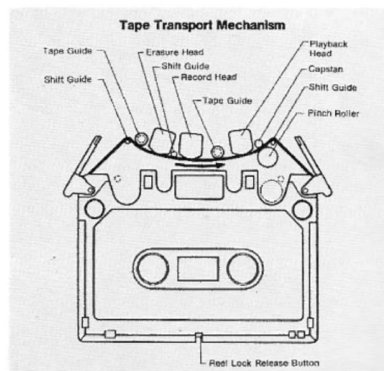
Overall frequency response of the RS-9900US.



The HPF* head with 10-year guarantee.
* Trademark of Matsushita Electric.



Anti-rolling mechanism for the RS-686DS.



Tape transport mechanism of the RS-7500US ELCASET deck.

Dolby* noise reduction, peak check meters, two-motor tape drive and many more. As we said in a recent advertisement, all our decks sound good, but the more you pay the better they sound. And that as we've all learned to our cost sometime or another, is not always the case.

*Trademark of Dolby Laboratories, Inc.

Tape Decks



As every audio maker knows, of all hi-fi components it is tape decks which are, so to speak, most effective in separating the men from the boys! This is because the tape deck presents a formidable combination of mechanical and electronic engineering problems far greater than those involved in the design and manufacture of any other component.

Ideally, in order to meet the incredibly low tolerances to which a tape deck must be engineered, every component part, both mechanical and electronic, should be manufactured in-house by the tape deck maker. Needless to say, this calls for a degree of technical expertise, not to mention financial investment, which few makers are able to cope with.

In the case of Technics, the fact that we have the resources of the vast Matsushita Electric organisation behind us means that we are in a position to make almost all our own components. What's more, the huge range of some 10,000 different products manufactured by our parent company gives Technics engineers and designers the

enormous benefit of cross-fertilisation from many different fields.

In fact, Technics cassette decks have enjoyed from the first a reputation for innovation and long-lasting high performance which is built on the firmest foundation of all: word-of-mouth recommendation from one audiophile to another and excellent reviews in the specialist press.

1977 looks like being the best ever year for Technics tape decks since it sees the introduction of no fewer than three major new models—one each in the open-reel, cassette and new ELCASET formats.

Not to mention a couple of exciting new portable cassette decks—RS-686DS and RS-646DS—offering true hi-fi performance for “bring-it-back-live” recordings on the move.

Our new open-reel machine is the RS-1500US. It is loaded with advanced features in almost every area. Perhaps the most outstanding is the sophisticated 3-DD-motor “Isolated Loop” tape drive system. It also boasts quartz locked speed control. Frequency response extends from

30~30,000Hz, ± 3 dB and wow and flutter at 38cm/sec. is a mere 0.018% WRMS.

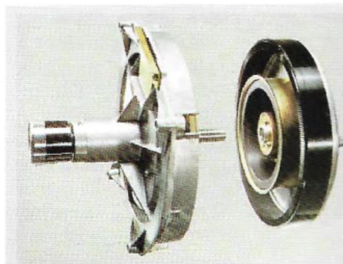
No wonder the leading Japanese audio magazine "Stereo Art" voted the RS-1500US Best Component of the Year.

And the new RS-9900US takes the cassette deck straight into the rarefied upper atmosphere so long exclusively occupied by a handful of the world's finest—and most expensive—open reel machines.

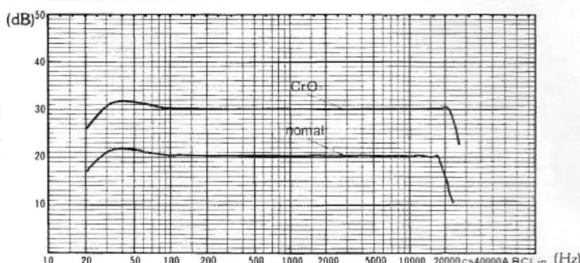
The RS-9900US can out-perform all but the finest open-reelers for the good reason that it has so many design features in common with them. Including three-motor double capstan closed loop tape drive and ultra-flexible calibration controls for equalisation and bias switching to enable every present and future tape formulation to be precisely matched. The unique design—tape transport and amplifier sections are in two separate units—is no gimmick, either. It is the optimum design for longest life and highest efficiency.

Last but not least, we come to what many people consider to be the most interesting tape deck development since the arrival of the compact cassette. When you consider that the compact cassette was originally developed for dictation machines, the modern cassette deck extracts a miraculous amount of music from a slow-running sliver of tape on which four tracks are packed like sardines in a can. Even so, hard-core audiophiles still rightly consider that the physical limits of the cassette give open-reel machines the edge in terms of sound quality. The ELCASET system is a brave attempt to bring you the best of both worlds. The ELCASET is two-and-a-half times bigger than the familiar compact variety. That means it is big enough to hold full-width "open reel" tape and run at twice the speed of a compact cassette. With all the advantages of greater dynamic range and superior track separation which the open reel deck enjoys. Those people thinking of adding tape facility to their systems will be especially keen to give the exciting RS-7500US ELCASET deck a hearing.

In keeping with the Technics policy of passing design innovations down the line, even our moderately-priced decks are equipped with advanced features such as



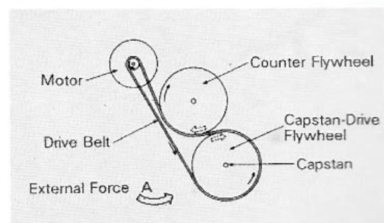
Direct-drive capstan motor for the RS-1500US.



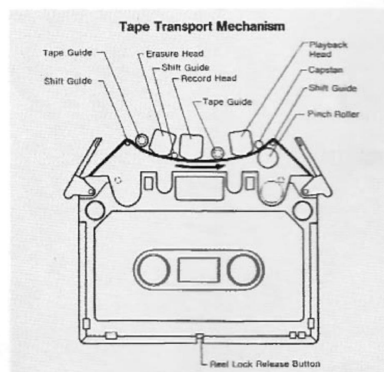
Overall frequency response of the RS-9900US.



The HPF* head with 10-year guarantee.
* Trademark of Matsushita Electric.



Anti-rolling mechanism for the RS-686DS.



Tape transport mechanism of the RS-7500US ELCASET deck.

Dolby* noise reduction, peak check meters, two-motor tape drive and many more. As we said in a recent advertisement, all our decks sound good, but the more you pay the better they sound. And that as we've all learned to our cost sometime or another, is not always the case.

*Trademark of Dolby Laboratories, Inc.

RS-1500US

"Isolated Loop" 3-Direct-Drive-Motor Tape Deck

After reading this necessarily brief description, it will come as no surprise when we say that the RS-1500US was awarded the coveted Component of the Year Award by the prestigious Japanese audio magazine "Stereo Art". Interestingly enough, the superb performance offered by the deck is the result not of a "design breakthrough" but of patient, careful design and the application of a number of ingenious solutions to perennial problems which have resulted in overall excellence and remarkable cost/performance. Needless to say, the RS-1500US is not cheap, but it costs a lot less than you would expect to pay for a true state-of-the-art machine eminently suitable for both professional and semi-professional application.

The deck has a built-in strobe to indicate tape speed, a good indication of its quality. The main reason for the near-zero wow and flutter rating of 0.018% WRMS? An outsize capstan driven by a quartz-controlled direct-drive motor.

Two pinch rollers act upon the capstan, an ingenious design creating an "isolated loop" within which tape tension is low and tape speed is almost perfectly stable. The result is excellent headwrap and the almost total absence of modulation noise.

Frequency response extends from 30 to 30,000Hz ± 3 dB at 38cm/s. Standard head configuration (Super-Permalloy) as the tape travels 4-track playback head, 2-track erase, recording and playback heads.

Playback heads are, of course, switchable. So is the quartz-locked servo circuit, enabling speeds to be varied by a full half tone up and down the musical scale. As with the capstan, the supply and take-up reel motors are direct-drive. Fail-safe electronic controls have enabled our designers to use the potential high torque of the direct-drive motor to the full. Rated speed of 38cm/s is reached half a second after the button is pressed.

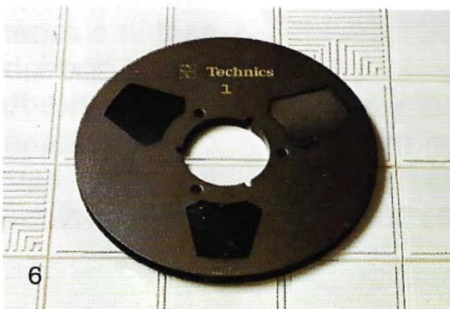
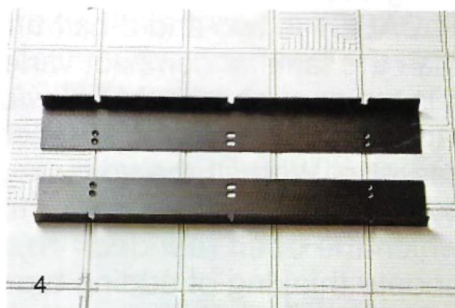
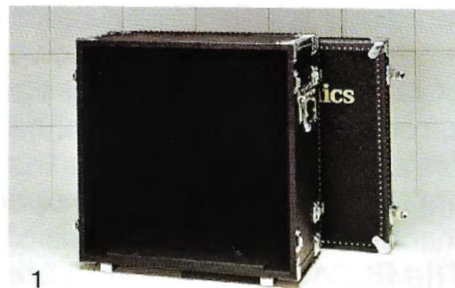
Another pleasant surprise is the way in

which speed remains constant under all conditions. There is no "overshoot" at the beginning of even rewind or fast-wind and the amount of tape on a reel makes not the slightest difference to its speed of rotation. What's more, tape can be switched from one mode to another and speeds can be changed direct without risk of damage to the tape. Naturally, line and mic input amps are separate, the rec eq. amp is a direct-coupled 3-stage design giving a linearity in its dynamics up to 25dB above the 0VU reference voltage.

The RS-1500US has almost 30 front controls, skillfully positioned ready to hand. The deck, with its rare blend of solidity and quick response is a joy to "drive". Among the more unusual controls is a "real time" tape counter indicating elapsed programme time in minutes and seconds. Another useful feature is the "edit dial". By simply rotating this through half a turn tape can be accurately marked or cut for editing without risk of damage to the tape head.

Optional Accessories

- 1 RP-9100 Carrying Case. Light yet securely locking catches. Metal reinforced for long service life.
- 2 RP-9120 Wooden Side Panels
- 3 RP-9110 Dust Cover
- 4 RP-9130 Shelf Brackets. Attach one each side of the deck for mounting in standard 48cm (19 in.) rack.
- 5 RP-9690 Remote Control Unit. For remote control of all tape transport functions. Uses the same feather-touch IC logic system as the deck's own controls.
- 6 RP-10A 26.5cm (10 in.) Empty Reel, RT-10B218 762m blank tape
- 7 RP-086 Battery Adaptor (24 V)





RS-9900US

Stereo Cassette Deck

The RS-9900US is capable of out-performing practically every other cassette deck in the world. And the vast majority of open-reel machines as well. For easier transportation and rack- (or console) mounting, not to mention more efficient dissipation of heat, the electrical and mechanical parts are in two separate units. This leads to longer life and greater operational stability by eliminating any possibility of hum or bias noise interfering with the sensitive amplifier circuitry. The 3-motor, double-capstan, closed-loop drive system is similar to those employed in professional-type open-reel decks. An extended motor shaft doubles as a capstan to pull the tape over the heads, while a second capstan/flywheel — connected to the direct-drive motor by a flexible

belt — pulls the tape from the supply reel. Tape within the "closed loop" stays at constant, relatively low tension. So excellent head wrap is obtained and tape head wear and modulation noise is minimal. Ingenious speed regulation for "fast forward" and "rewind" and full IC logic control of all transport functions avoids tape-stretch. And makes the RS-9900US a joy to handle. Hence the phenomenally low wow and flutter rating of 0.04% WRMS, $\pm 0.1\%$ (DIN). Chrome tape frequency response: 25~20,000Hz ± 3 dB. Separate recording and playback heads make professional-style tape-source monitoring possible. The amplifier has calibration controls to precisely match the electro-magnetic characteristics of any cassette now on the market. And every conceivable future tape

formulation. As well as three-position selector switches for tape, Dolby noise reduction and a built-in oscillator supplying either 400Hz or 8,000Hz signals, the RS-9900US has individual calibrated Dolby level controls for recording and playback. The reproducing amplifier boasts signal-to-noise ratio of 132dB (referenced against input); peak reading level meters of studio accuracy; a calibration oscillator for head azimuth adjustments and, of course, Dolby noise reduction circuitry. Only a company with enormous research and development resources could have produced the RS-9900US. And only Technics could offer such state-of-the-art specifications and unparalleled cost/performance.



RS-9900US

RS-7500US

ELCASET Tape Deck

The new Technics RS-7500US attempts to bring you the best of both worlds. It is even easier to use than an ordinary compact cassette deck and, because the outsize ELCASET* format uses open-reel width tape and plays at open-reel speed, sound quality is on a par with open reel machines. For example — wow and flutter is 0.06% WRMS; maximum output level at 10kHz is almost 15dB higher than levels attainable with cassette tape; and frequency response (Type II, III) is 25~22,000Hz (± 3 dB). ELCASET tapes are available in low-noise, ferrichrome and chrome formulations — Types I, II and III respectively. Switching bias and equalisation from one to the other is completely automatic, and the type in use is shown by a light on the front panel. The RS-7500US has a 3-head format with separate playback, recording and erase heads as in an open-reel machine. Naturally, this means that true off-the-tape monitoring, the surest way to judge a recording in progress, is possible. Again, like in an open-reel design, the tape is presented to fixed tape heads so there is less pos-

sibility of misalignment and distortion. Drop in an ELCASET and the tape is automatically pulled from it and ready for action within one second. The RS-7500US sounds like an open-reel machine for the simple reason that it is carefully engineered like one. Recording and playback amplifier circuits are separate, employing low-noise transistors, FET and metal-film resistors for high S/N ratio and greater reliability. The Super-Permalloy recording head is both sensitive and long-lasting, and a FG (frequency generator) servo-controlled DC motor with electronically monitored speed provides extremely accurate rotation. Mic/line mixing, automatic timer recording and preset playback are provided for. Full auto-stop eliminates any possibility of damaging the tape in any mode and the tape compartment door is oil-damped. A lamp shows the amount of tape on each reel at a glance. Whether you're a tape buff of long standing or just on the point of adding tape to your system, the RS-7500US demands to be heard.



Technics ELCASET have a 60-minute playing/recording time. RT-60XDLC (Type I) is low noise, high-output tape. RT-60EXLC (Type II) is ferrichrome tape. RT-60XALC (Type III) is chrome-type tape.

* ELCASET ← Look for this mark on all products manufactured under the ELCASET



RS-7500US

RS-676USD

Front Loading Cassette Deck with Dolby NR System

Rugged 2-motor tape transport brings wow-and-flutter down to 0.063% WRMS, making the RS-676USD a true rival to open-reel machines. Frequency response, too, when chrome tape is used, extends from 20 ~ 18,000 Hz, rivalling larger machines. And the S/N ratio, using Dolby "in", is a very good 62dB. Even the featherlight electronic solenoid pushbuttons are the same as used on high quality open-reel decks. Other features include a photo-electric auto-stop, our 10-year guaranteed HPF recording/playback head, automatic chrome tape selection, and a Dolby FM switch that can be used for decoding future FM broadcasts. There's also an MPX filter, and a peak check button for distortion-free recording. And the front-loading design means that the RS-676USD can be mounted just like any other component.

RS-678US

Front Loading Cassette Deck with Dolby NR System

Wow and flutter of 0.06% WRMS is produced by the 2-motor tape transport incorporating FG servo DC motor for capstan drive. Dolby NR brings a S/N ratio of 62dB. Separate bias and equalisation selector allow the best recording conditions for any kind of tape, including chrome and ferrichrome tape. Light pressure solenoid pushbuttons allow the use of an electric clock timer for unattended recording and playback. Other features include lock-in pause button, full auto-stop, peak level check meters and our 10-year guaranteed HPF head especially for the new hard tapes. There's also mic. mixing, memory rewind, an output level control, illuminated cassette compartment and removable head cover for easy cleaning.



RS-676USD



RS-678US

RS-671USD

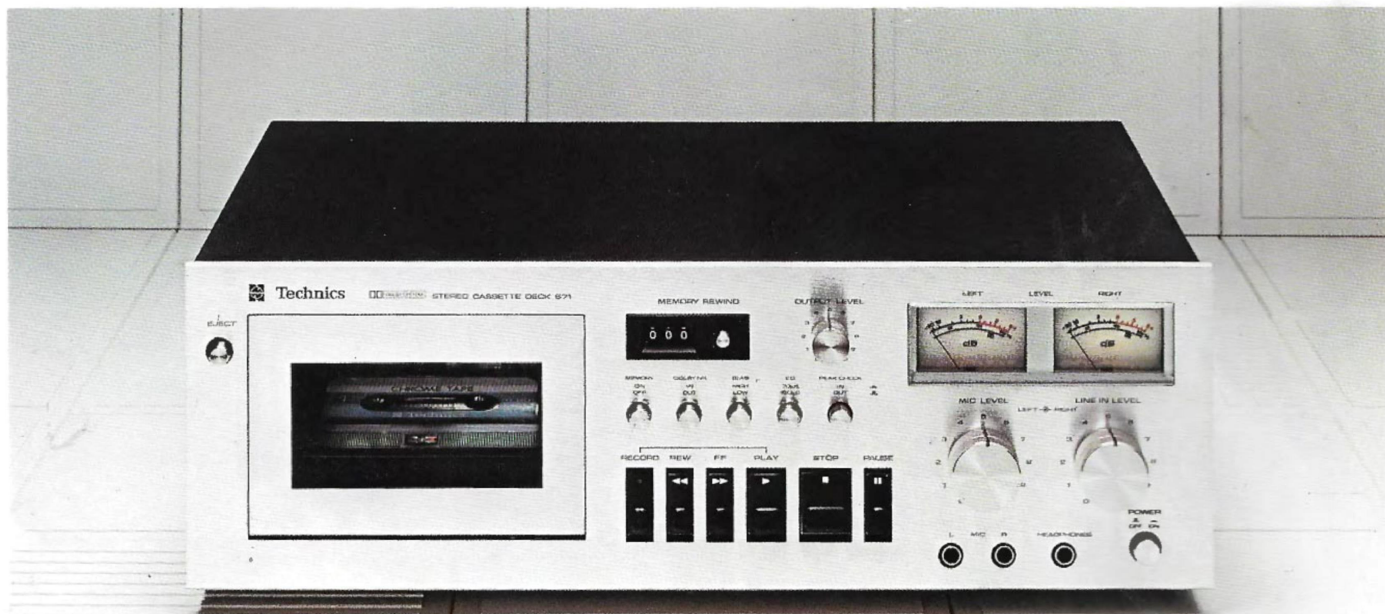
Front Loading Cassette Deck with Dolby NR System

Wow-and-flutter of 0.063% WRMS is produced by the 2-motor transport. Dolby NR brings a S/N ratio of 62dB. Separate bias and equalisation selectors allow the best recording conditions for any kind of tape, including chrome and ferrichrome tape. Light pressure solenoid tape transport controls allow the use of an electric clock timer for unattended recording and playback. Other features include lock-in pause button, full auto-stop, peak level check meters and our 10-year guaranteed HPF head. There's also mic. mixing, memory rewind, an output level control, illuminated cassette compartment and removable head cover for easy cleaning.

RS-640USD

Cassette Deck with Dolby NR System and Tape "End Eye"

A high performance deck at moderate price featuring our exclusive "end eye" pilot light giving about 3 minutes warning to end of tape. With our rugged electronically controlled DC motor, wow-and-flutter is down to 0.07% WRMS. Triple tape selection covers all tape formulations. Our exclusive HPF head, guaranteed for 10 years, and CrO₂ tape provides a wide frequency response. Dolby noise reduction eliminates tape hiss, keeps S/N ratio high. Large VU meters with peak check make ideal recording. Other features include separate MIC, LINE IN level controls for mic. mixing, full auto-stop, memory rewind. The RS-640USD is specially designed for use with a timer. Supplied with acrylic dust cover.



RS-671USD



RS-640USD

RS-676USD

Front Loading Cassette Deck with Dolby NR System

Rugged 2-motor tape transport brings wow-and-flutter down to 0.063% WRMS, making the RS-676USD a true rival to open-reel machines. Frequency response, too, when chrome tape is used, extends from 20 ~ 18,000 Hz, rivalling larger machines. And the S/N ratio, using Dolby "in", is a very good 62dB. Even the featherlight electronic solenoid pushbuttons are the same as used on high quality open-reel decks. Other features include a photo-electric auto-stop, our 10-year guaranteed HPF recording/playback head, automatic chrome tape selection, and a Dolby FM switch that can be used for decoding future FM broadcasts. There's also an MPX filter, and a peak check button for distortion-free recording. And the front-loading design means that the RS-676USD can be mounted just like any other component.

RS-678US

Front Loading Cassette Deck with Dolby NR System

Wow and flutter of 0.06% WRMS is produced by the 2-motor tape transport incorporating FG servo DC motor for capstan drive. Dolby NR brings a S/N ratio of 62dB. Separate bias and equalisation selector allow the best recording conditions for any kind of tape, including chrome and ferrichrome tape. Light pressure solenoid pushbuttons allow the use of an electric clock timer for unattended recording and playback. Other features include lock-in pause button, full auto-stop, peak level check meters and our 10-year guaranteed HPF head especially for the new hard tapes. There's also mic. mixing, memory rewind, an output level control, illuminated cassette compartment and removable head cover for easy cleaning.



RS-676USD



RS-678US

RS-671USD

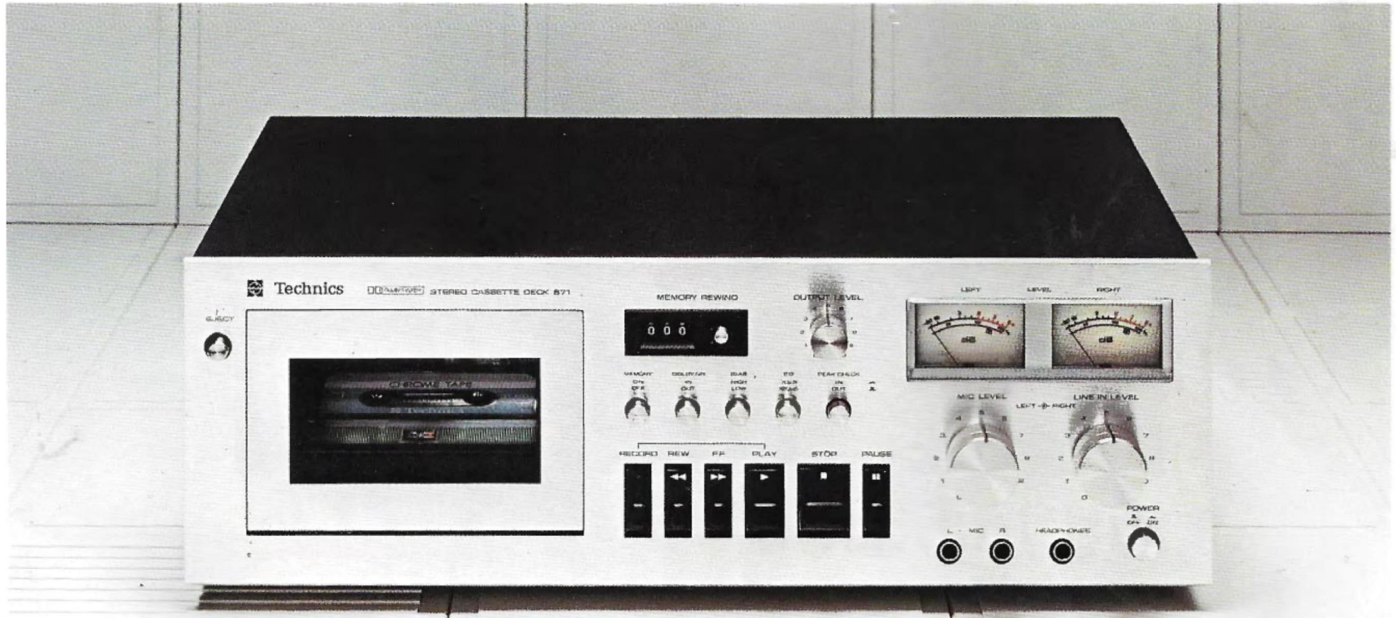
Front Loading Cassette Deck with Dolby NR System

Wow-and-flutter of 0.063% WRMS is produced by the 2-motor transport. Dolby NR brings a S/N ratio of 62dB. Separate bias and equalisation selectors allow the best recording conditions for any kind of tape, including chrome and ferrichrome tape. Light pressure solenoid tape transport controls allow the use of an electric clock timer for unattended recording and playback. Other features include lock-in pause button, full auto-stop, peak level check meters and our 10-year guaranteed HPF head. There's also mic. mixing, memory rewind, an output level control, illuminated cassette compartment and removable head cover for easy cleaning.

RS-640USD

Cassette Deck with Dolby NR System and Tape "End Eye"

A high performance deck at moderate price featuring our exclusive "end eye" pilot light giving about 3 minutes warning to end of tape. With our rugged electronically controlled DC motor, wow-and-flutter is down to 0.07% WRMS. Triple tape selection covers all tape formulations. Our exclusive HPF head, guaranteed for 10 years, and CrO₂ tape provides a wide frequency response. Dolby noise reduction eliminates tape hiss, keeps S/N ratio high. Large VU meters with peak check make ideal recording. Other features include separate MIC, LINE IN level controls for mic. mixing, full auto-stop, memory rewind. The RS-640USD is specially designed for use with a timer. Supplied with acrylic dust cover.



RS-671USD



RS-640USD

RS-630TUS

Front Loading Cassette Deck with Dolby NR System

Features separate bias and equalisation for all tape formulations. With our super-hard HPF head and CrO₂ tape, frequency response reaches a high 16 kHz. Our rugged electronic speed controlled DC motor keeps wow-and-flutter low. With Dolby noise reduction "in", S/N ratio goes up to 60dB. Essential features include extra large peak check meters for optimum recording conditions, separate input/output controls, illuminated sliding cassette panel and auto-stop. There's also a useful timer stand by key. All controls are logically arranged on the front panel for maximum operating convenience. Extra large PLAY and STOP buttons reduce the possibility of operational error. The tape compartment is provided with an illuminated reflex viewing system, making it easy to check on recording or playback progress and the amount of tape remaining.

RS-615US

Front Loading Cassette Deck with Dolby NR System

Features three position selector for normal, chrome and ferrichrome tapes. Long-lasting Super-Permalloy tape head boosts frequency to 16 kHz using CrO₂ tape. Rugged electronic speed controlled DC motor keeps wow and flutter low. S/N ratio reaches 60dB (Dolby "in"). Useful timer stand-by key. Other features include large peak check meters, oil damped cassette compartment door. Mike amp can be switched out to further improve dynamic range and S/N ratio. All knobs, switches and controls are neatly arranged on the front panel, permitting convenient bookshelf installation. Two of the tape transport mode controls (Play and Stop) have been enlarged, thus reducing likelihood of mis-operation. The recording level control is a large 41-stop friction-coupled knob where the simple coupling and de-coupling of the independent left and right controls for simultaneous, or independent adjustments, is very easy.



RS-630TUS



RS-615US

RS-686DS

Portable 3-Head Stereo Cassette Deck

The RS-686DS brings together hi-fi performance — 0.07% WRMS wow and flutter and 50~16,000Hz ±3dB chrome tape frequency response—and portability. The size and weight of a portable radio, the RS-686DS can out-perform many a costly stay-at-home deck. A clever anti-roll mechanism works so well, recordings made with the deck in its shoulder case show not a sign of distortion. The electronically monitored FG servo DC motor is superbly engineered. The 3-head (including an HPF recording/playback head) configuration makes possible real off-the-tape monitoring — a big advantage in field recording. Add 3-stage direct coupled amplifier circuitry, Dolby noise reduction, separate bias and equalisation switching, a low-cut filter to do away with wind noise, and end of tape indication with silent auto-stop. The RS-686DS comes with a carrying strap and AC adaptor.

RS-646DS

Portable Stereo Cassette Deck

The RS-646DS is built to lead a double life. At home, it's a great second cassette deck in your hi-fi system. With a 0.1% WRMS wow and flutter rating and 50~14,000Hz ±3dB chrome tape frequency response. And it delivers the same sparkling performance on the move. Using batteries or your car's cigar lighter as a power outlet. So you're all ready to make professional quality recordings in the field. What's more, even the price sounds good. Quality engineering features include an electronically controlled DC motor, a low distortion high linearity IC-equipped mic/amp, separate bias and equalisation switching, Dolby noise reduction, tape-end indicator and silent shut-off and synchronized input level controls: Last but not least, the RS-646DS has a big 10cm monitor speaker. So you don't have to wait until you get home to find out you didn't press the "record" button!



1



2

- 1 RP-9686 Leather carrying case is an optional accessory. (RS-686DS)
- 2 RP-9646 Heavy duty carrying case is an optional accessory. (RS-646DS)

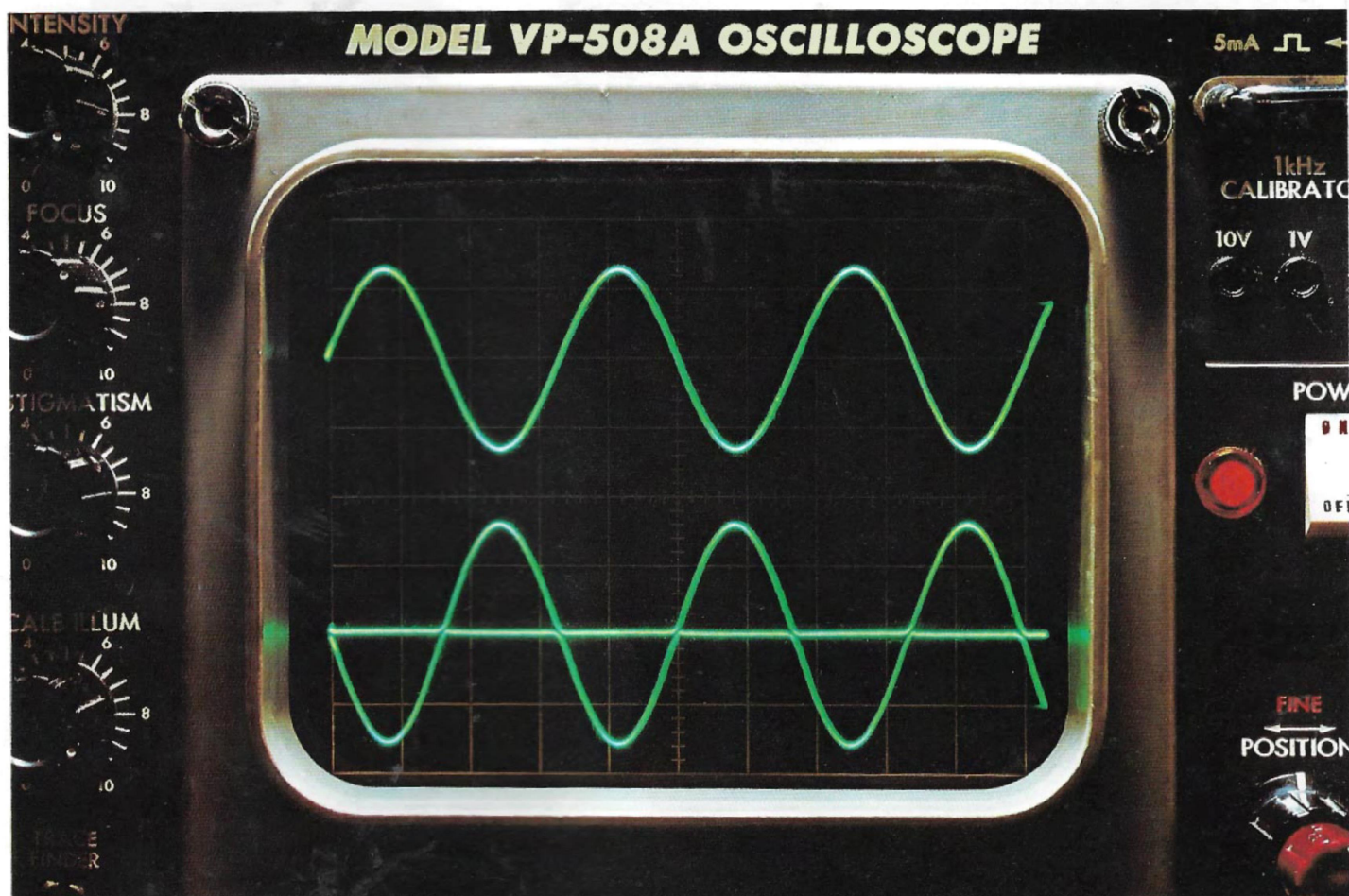


RS-686DS



RS-646DS

Amplifiers, Tuners and Receivers



There is nothing very original about Technics design objectives. Our audio scientists, engineers and designers have exactly the same goal as their colleagues in hi-fi companies all over the world.

In other words, they want to produce reliable, affordable components so distortion-free that input equals output.

Where we part company with other companies in our industry—and hence the rapid emergence of Technics as a world hi-fi brand in a relatively short time—lies in the dedication with which we pursue our aim.

For example, we were one of the first manufacturers to introduce direct-coupling across our whole range. And differential amplification has still further improved Technics output-capacitorless circuitry.

The enviable reputation held by our amplifiers, tuners and receivers, the heart of the hi-fi system, has much to do with the rigorous testing procedures which we adopt. Both prototypes, components and finished products are subjected to the most revealing

possible tests of quality and performance.

As every audiophile knows, the transient conditions under which components are heard in the home are the truest test of performance. Measurements taken against a constant sine-wave signal enable almost any amplifier to log near-perfect specs. The trouble is that sine-wave tests compare to real conditions the way playing with a toy boat in the bath compares with rowing single-handed across the Atlantic!

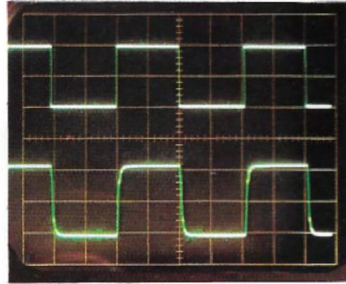
Our engineers found a way of simulating real-life listening conditions in the lab. They evaluate tone bursts and square waves to measure transient performance. Specific benefits of this approach include greatly improved transient cross-talk and self-transient IM distortion factors. But it is their remarkably natural sound (input still doesn't equal output, but we've narrowed the gap considerably!) which is the theme tune of Technics amplifiers, tuners and receivers. Another milestone development was the all-stage independent power supply with

constant voltage, bringing an unprecedented degree of stability and high input level tolerance. The ultimate example of this design policy may be experienced in the SE/SU-9600 power amplifier and stereo control centre. But a similar winning combination of high power and low distortion is to be found even in our budget-priced amplifiers and receivers.

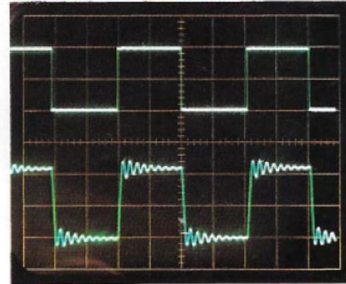
A thorough investigation of soundwave transmission (Technics engineers led the way by using square waves to measure phase delay as an aid to tuner design) resulted in the Flat Group Delay circuitry largely responsible for the marvellously crisp, clear FM sound of Technics in general and the superb ST-9600 in particular.

Once again, in line with the famous Technics policy of bringing the best performance possible to the largest possible number of customers, on-going research has enabled the 1977 range to include exciting new components like the slim SE-9060 power amplifier and SU-9070 pre-amplifier—with a staggeringly low distortion figure.

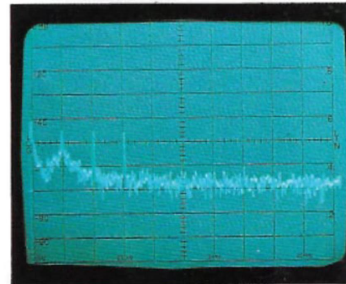
Needless to say, each and every model is carefully engineered and rigorously tested to ensure that wherever in the world they may be, our customers can be sure of unflinching quality and many years of pleasure. Characterised by the clarity and musicality which is the signature tune of Technics amplifiers, tuners and receivers.



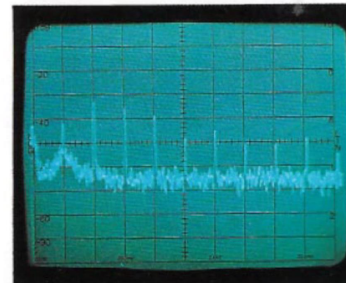
1kHz square wave response. Input (above)/ output. ST-9600



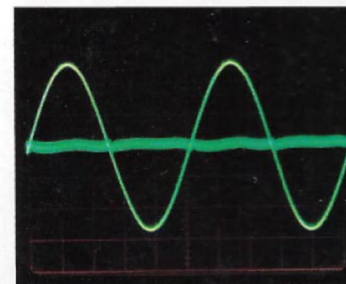
Conventional tuner



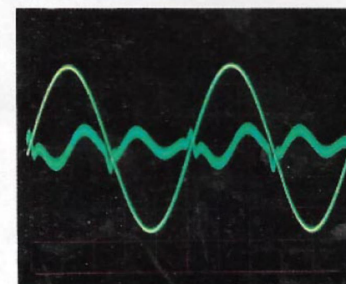
Distortion spectrum at 5kHz, 10 watts output (8 ohms) SE-9060



Conventional amp.



Notching distortion at 5kHz, 10 watts output (8 ohms) SE-9060



Conventional amp.

ST-9600

FM/AM Stereo Tuner

The ST-9600 provides true waveform fidelity for the discriminating listener. Flat frequency response is extended into the 18kHz range by the use of our exclusive 19kHz pilot cancel circuit. Also used are our Flat Group Delay ceramic filters which eliminate time delay differences in the IF stage, and provide cleaner sound. Critical front end circuitry includes an 8-ganged tuning capacitor for FM/AM bands and a 4-pole dual gate MOS FET. Double PLL (Phase Locked Loop) circuitry produces excellent channel separation. Other features include direct recording of FM to tape, a built-in pink noise generator for accurate level adjustments during taping, and precise servo-assisted tuning.

SU-9600

Stereo Control Centre

A fine pre-amplifier with utmost flexibility built-in to every control. Its high quality can be seen in the extremely low distortion and excellent S/N ratio. Innovative design features include switchable cartridge impedance and push-button phono 1 & 2 selection to match inputs to those of any cartridge. Phono 1 sensitivity is fixed with maximum overload input level an unusually high 900mV RMS at 1kHz. Phono 2 is variable, with maximum input setting as high as 1350mV RMS at 1kHz. Tone controls have selectable turnover frequencies. High and low frequency filters and 22-position attenuator-type volume control indicate the SU-9600's quality of engineering. Full tape-to-tape dubbing. All circuits fully protected.

SE-9600

Stereo Power Amplifier

A high performance power amplifier with incredibly low distortion (0.08%) even at maximum output. 110 watts per channel into 8 ohms, 20~20,000 Hz, both channels driven. The stable constant current/constant voltage supply circuit employs high capacity smoothing capacitors for improved transient crosstalk and self-transient IM distortion. Direct-coupled (OCL) circuitry is used throughout with differential amplification, where feasible, linked by an emitter follower for reduced impedance and load. Very wide power bandwidth. Special features include 4-way switching of output impedance, with optimum selection of damping factor for ideal speaker matching. Fast-response professional-type peak level meters have 3-fold range setting. Elaborate protective devices for all circuits and speakers. The large heat sinks have special color-changing marker to warn of excessive heat.



ST-9600



SU-9600



SE-9600

SU-8600

Stereo Integrated Amplifier

A high powered amplifier (73 watts RMS per channel into 8 ohms, 20~20,000 Hz, both channels driven) with transient crosstalk and self-transient IM distortion virtually eliminated by 6-stage independent power supplies. A big transformer and two large smoothing capacitors stabilise the power supply. Differential amplification with emitter follower provides 'clean' power and signal quality. THD is a superb 0.08% across the 40~16,000 Hz bandwidth, with stability ensured by constant-current construction. With new super-quiet phono equaliser S/N ratio reaches 60dB, and maximum input voltage is 200mV at 1kHz. New current-mirror load design in tone control circuits gives higher gain with minimal noise. Two turnover frequencies for bass and treble. Controls include 26-step attenuator-type master volume control, steep cut-off low and high filters. Two-way tape-to-tape dubbing.



SU-8600

SH-9090

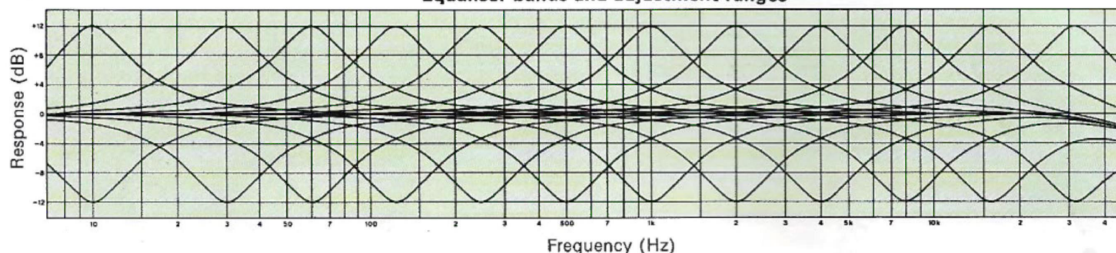
Universal Frequency Equaliser

For professionals, and the amateur with an unlimited budget, gives full control of all frequencies from subsonic to supersonic. Use of double integration band-pass filters, consisting solely of capacitors and resistors as 12 bands, covers approximately the 10 octaves from 10Hz to 32kHz. The bandpass filters were developed through the analog computer technique (world patents pending). They allow infinite variation of filter bandwidths and centre frequencies. Conventional coil bandpass filters only give a single filter

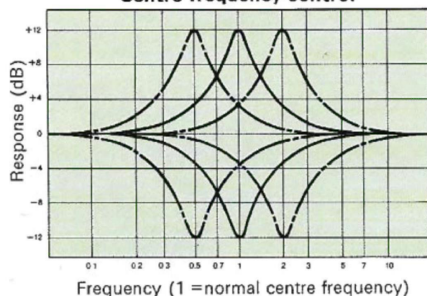
frequency and a fixed filter characteristic. These revolutionary units provide a one octave "swing" through the normal filter frequency with full control of the filter characteristic curve from $Q=0.7$ to 7.0 . Plus a full $\pm 12\text{dB}$ of boost and cut. The S/N ratio and distortion factor are excellent. The SH-9090 allows full compensation for frequency response curves of master tapes and disc-cutting lathes. Frequency response curves of individual components, room resonances and the effect of speaker locations can also be

compensated for. A master level control gives gain or attenuation of $\pm 6\text{dB}$ overall; rotary knobs select filter characteristic 'Q' and vary filter frequency; slide resistor controls give a $\pm 12\text{dB}$ boost/cut. The equaliser is switchable in/out for instant check of effect. The SH-9090 is a giant step towards the ultimate goal of reproducing sound as closely as possible to the original source. (For stereo operation, two units are needed)

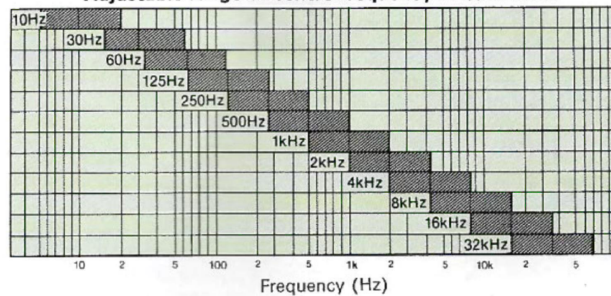
Equaliser bands and adjustment ranges



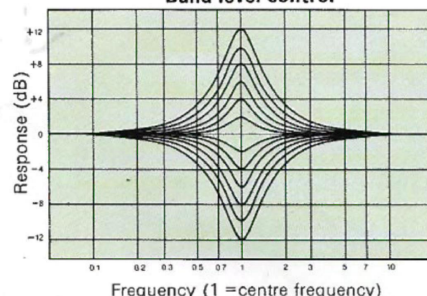
Centre frequency control



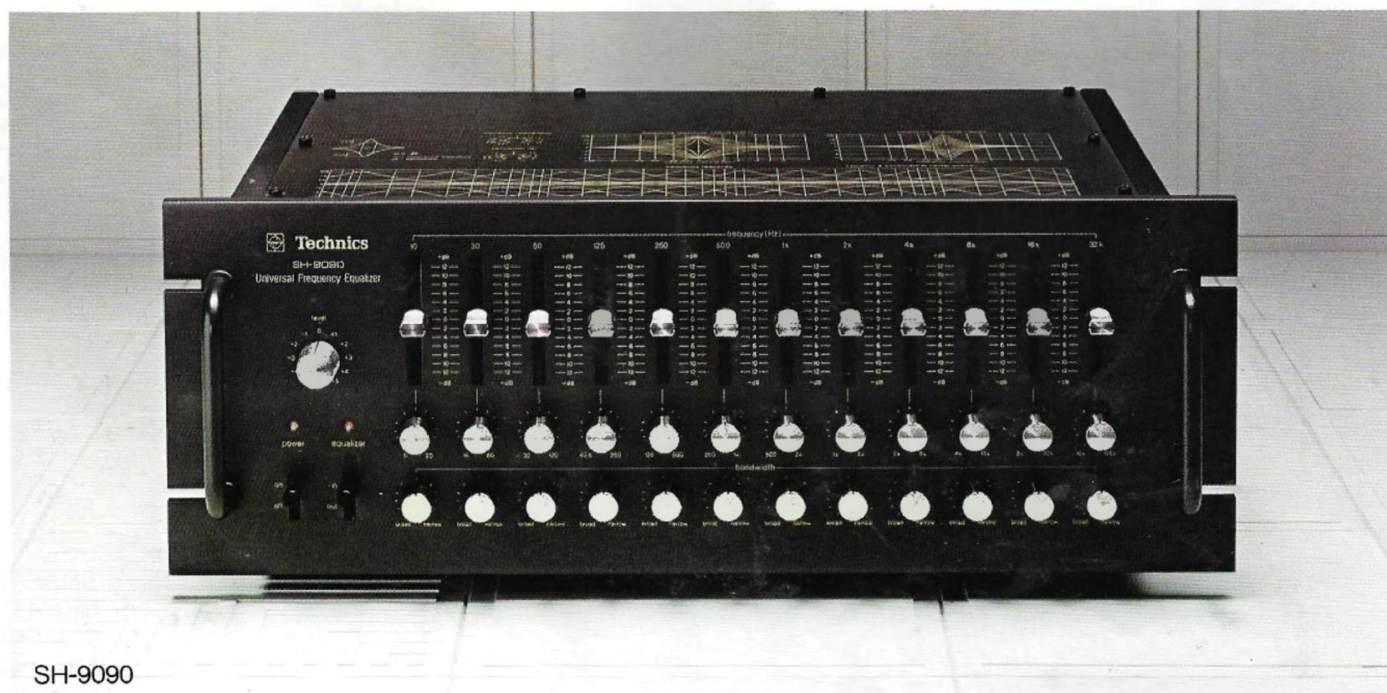
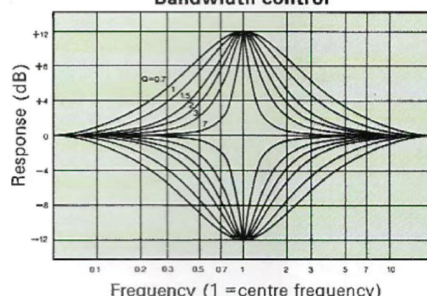
Adjustable range of centre frequency of each band



Band level control



Bandwidth control



SH-9090

ST-9030

FM Stereo Tuner

The ST-9030 FM tuner delivers outstanding waveform fidelity. Servo-locked tuning provides stable, no-drift accuracy. An ideal balance between high selectivity and low distortion is achieved by means of automatic wide and narrow band IF stage switching. The pilot signal cancel circuit of the PLL MPX IC stage, a Technics invention, reduces high frequency distortion. Subcarrier cancellation is provided by the same IC for flat AF response from 20Hz to 18,000Hz with only +0.1dB, -0.5dB deviation. The front end features dual gate MOS FETs in the 2-stage RF amp and balanced mixer plus FM linear frequency 8-ganged variable tuning capacitor. An AND muting circuit cuts narrow band interstation noise. Other outstanding features include automatic hi-blend switching, AC line filter, 75ohm F-type antenna connector, and precise signal strength meter with linear response up to 81dBf.

SU-9070

Stereo DC Pre-Amplifier

The SU-9070 features pre-preamp for MC cartridges. Metallized film capacitors contribute to nearly perfect RIAA characteristics ($\pm 0.2\text{dB}$). At 2.5mV sensitivity, phono S/N ratio is 70dB (88dB IHF, A). The 3-stage direct-coupled equaliser consists of a current mirror loading differential amp using two Technics M47L ultra-low noise transistors, a constant current loaded voltage amp for increased linearity, and a SEPP at the output stage. Built-in subsonic filter stops IM distortion. DC flat amp exhibits little phase shift for waveform fidelity. Maximum input of 380mV (1kHz) allows use of any MM cartridge without clipping. Separate 3-way phono selector and 7-way recording selector. 6-ganged dB graduated volume/balance control. Pre-out/Rec-out external unit switch for universal frequency equaliser. Relay operated muting for both pre-out and rec-out.

SE-9060

Stereo DC Power Amplifier

The SE-9060 is direct-coupled through-out to flatten frequency response and reduce phase shift for improved waveform fidelity. The S/N ratio of 110dB (120dB IHF, A) and THD of 0.0015% at half rated power at 1kHz (0.02% at full rated power 70W+70W RMS, 20~20,000Hz) are results of advanced amp design. Dual FETs in the first stage differential amp give high DC stability. High gain and low distortion are achieved with current mirror loading. Pure ohmic load voltage amp prevents distortion generation. Low switching noise lessens high frequency distortion. Output stage is pure complementary SEPP with new 3-stage Darlington circuit for linearity, lowered output impedance. Stable supply voltage prevents transient distortion. Mono/Stereo switching. Low cut filter and current limiter for circuit and speaker protection.

SH-9010

Stereo Universal Frequency Equaliser

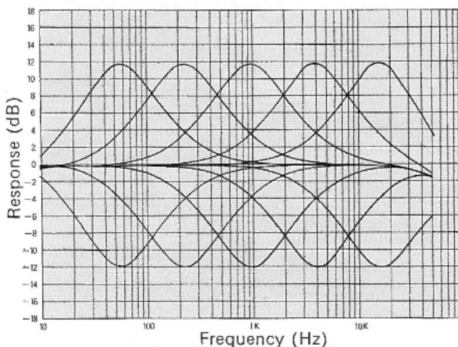
Variable centre frequencies and variable bandwidth ("Q") of each band give control capability not found in conventional universal frequency equalisers. Centre frequency is adjustable over a range of 1.6 octaves for each frequency band. Adjacent frequency ranges overlap by a little over an octave, to allow twice the normal boost or attenuation up to 12dB at five points in the frequency spectrum. Independent controls are provided for each stereo channel. Bandwidth ("Q") is continuously adjustable at each band of each channel from a very gradual to a steep slope giving incomparably precise control. Detent stop in neutral position of each slide pot makes for easier handling. In/Out switch lets you compare before and after effects of equalisation. Two pairs of outputs for multiple recording and monitoring.

SH-9020

Peak/Average Meter Unit

The SH-9020 functions as peak meter, peak hold meter and average meter corresponding to VU meter operation. In the peak mode, attack time is 100 μsec . giving a 0dB reading for even a single 10kHz wave. Decay time is 750msec. The average mode corresponds to VU meter specifications with an attack time of 330msec. and a decay time of 250 msec, 0dB to -20dB. In the peak hold mode the meter gives a reading of the highest peak transient within the programme. By comparing average readings with the peak hold indication, the peak margin of any programme may be determined. Correction circuits provide performance approaching the limits of linearity over a broad range of signal strength. Three inputs for a wide variety of measurement, 2-way sensitivity switch gives a total indicator range of 80dB. Also features On/Off muting circuit, temperature compensation, and 8/6/4ohm impedance adjustment switch to allow for speaker variations.

Equaliser bands and adjustment ranges





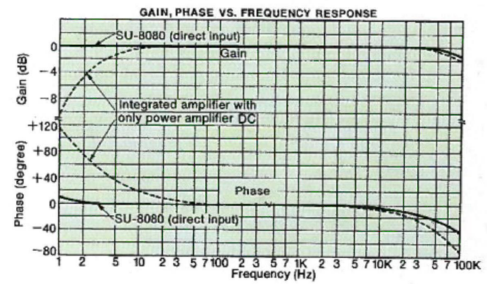
ST-9030
 SU-9070
 SH-9010
 SH-9020
 SE-9060

SU-8080

Stereo Integrated DC Amplifier

In the SU-8080, direct coupling of and between all stages assures faithful amplification of frequencies down to zero Hz to take full advantage of the extremely high waveform fidelity obtainable with DC (direct current) amplification. High level signals (from tuner or tape deck) are entered directly into the power amplifier, avoiding any possibility of colouration by upstream preamp stages. The power amp employs dual transistor differential amplification in its first stage with current mirror loading, a voltage amplifier stage with pure resistance loading, an emitter-follower and darlington power stage. With its regulated/power supply, separate for both channels, the amplifier delivers a stable power output of 72 watts per channel

RMS into 8 ohms, from 20Hz to 20kHz, at no more than 0.02% total harmonic distortion. The phono signal to noise ratio is 70dB. This has been achieved with a new, ultra-low-noise Technics M47L transistor and current mirror loaded differential amplification in the first phono stage plus the use of low noise polyester film capacitors. The phono equalisation stage follows the RIAA curve within $\pm 0.2\text{dB}$, thanks to selected metal film resistors and polypropylene capacitors. Subsonic noise is eliminated at source by a special subsonic filter in the phono equalisation feedback loop. An input impedance selector permits phono input characteristics to be precisely matched to cartridge requirements.



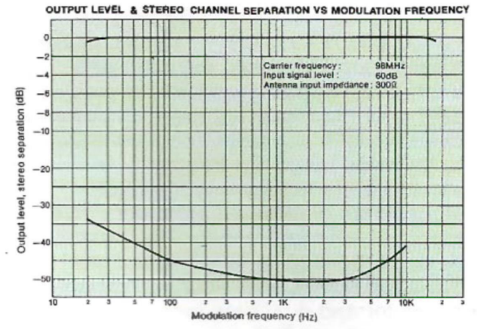
SU-8080

ST-8080

FM/AM Stereo Tuner

The ST-8080 offers lowered intermodulation distortion with high sensitivity. Pilot signal and subcarrier are cut out by precision cancel circuits to maintain flat frequency response from 20Hz to 18,000Hz, +0.2dB, -0.8dB. The high S/N ratio of 70dB and sensitivity of $0.7\mu\text{V}$, 75 ohms are achieved with the help of a 4-ganged capacitor and dual gate junction type FETs in the front end first stage. Four 4-resonator flat group delay ceramic filters in the IF stage contribute to the low total harmonic distortion level of 0.3% (stereo) and a selectivity of 85dB. High gain is pro-

duced by five differential amplifiers incorporated in two ICs. Test signal generator gives accurate recording level settings. Drift-free performance is assured by isolation of oscillator wiring from the circuit board, this eliminating thermal influences. Low-noise transistors in the mixer circuit improve S/N ratio and sound clarity. Phase locked loop FM MPX decoder circuit provides separation of 45dB (1kHz). Two tuning meters are provided: a centre zero tuning meter and a signal strength meter. Separate output level control for tape decks.



ST-8080

ST-7300

FM/AM Stereo Tuner

Features flat frequency response of 20~15,000Hz (+0.2dB, -1.0dB), phase locked loop FM stereo decoder, and built-in test signal generator for precise setting of FM recording level. Chebyshev-characteristic low pass filters contribute to the wide range flat frequency response while attenuating the pilot signal. Five differential amplifiers give high gain and improve limiting characteristics. Sensitivity is 1.0 μ V at \pm 40kHz deviation (75 Ω). The 3-ganged variable capacitor and dual gate junction type FET in the front end first stage plus 2-element flat group delay ceramic filters in the IF stage help attain THD of 0.4%, 65dB S/N ratio and 75dB selectivity. PLL MPX decoder gives clearly defined channel separation. Centre zero tuning meter and signal strength meter with high linear response provide accurate tuning information.

SU-7300

Stereo Integrated Amplifier

41 watts per channel, both channels driven, RMS at 8 ohms, from 20Hz to 20,000Hz with no more than 0.08% THD. Accurate phono equalisation provides \pm 0.3dB deviation from the RIAA (standard) curve. And at 2.5mV sensitivity S/N ratio is 63dB, a result of advanced current mirror load circuit design. Independent tape monitor and recording mode switches. Two-way dubbing gives recording capability between tape decks in either direction. 41-step click-stop volume control for precise, repeatable volume setting. High linearity direct reading power meters with 2-way sensitivity switch. High filter switch, loudness switch and main or remote speaker switch.

SU-7700

Stereo Integrated Amplifier

The SU-7700 provides ample power for most listening situations while holding down THD to 0.08% with 50 watts per channel, RMS at 8 ohms, both channels driven from 20Hz to 20,000Hz. Playback phono equalisation is accurate to \pm 0.2dB of the RIAA curve. Current mirror loading in the equaliser's first stage differential amp contributes to the 63dB S/N ratio at 2.5mV phono sensitivity. Intermodulation distortion is stopped by a subsonic filter in the NF loop of the phono equaliser circuit. Two-way dubbing between tape decks plus separate tape monitor and record mode switches give recording/playback versatility. 41-step click-stop volume control allows repeatable accuracy. "0" tone defeat setting for flat response. Linear, direct reading power meters with sensitivity switch, high filter, and main/and/or remote speaker switch.



ST-7300
SU-7700
SU-7300

SU-7100

Stereo Integrated Amplifier

The SU-7100 has the quality you need for fine sound reproduction. Power is 35 watts per channel from 20Hz to 20,000Hz with only 0.1% total harmonic distortion. The main amp's current mirror loaded first stage differential amp uses PNP pair transistors to achieve undistorted performance. Noise is cut to a minimum in the advanced direct-coupled phono equaliser circuit for a high S/N ratio of 63dB. Placement of the tone control circuit in the NF loop of the power amp contributes to accurate control of frequency response. Tone defeat switches, high filter switch, loudness switch, 41-step click-stop volume control and main or remote speaker switch. Tape monitor switch. Tape monitor switch.



SA-5460

FM/AM Stereo Receiver

High power output (65 watts RMS per channel at 8 ohms), with big power transformer and extra-large smoothing capacitors. Ultra-low 0.1% THD. Direct-coupling throughout with a differential amplifier in the first stage. New low-noise flat response phono equaliser IC gives excellent S/N ratio. FM front end uses our MOS FET for high sensitivity and selectivity. Other advanced tuner circuitry includes Flat Group Delay ceramic filters for FM clarity. And an FM MPX circuit with Phase Locked Loop IC for stability and precise separation. Two tape monitors.

SA-5370

FM/AM Stereo Receiver

48 watts per channel RMS into 8 ohms 20~20,000Hz with no more than 0.1% THD. Discrete component direct-coupled OCL circuitry. Current-mirror loaded differential amplifier for high gain/low distortion. High 65dB S/N ratio phono equaliser. Flat Group Delay ceramic filtered FM section with PLL IC in FM MPX section. Double FM muting. Main/remote speaker selection. Two tape monitors for tape-to-tape dubbing. High and low-cut filters. Loudness control.

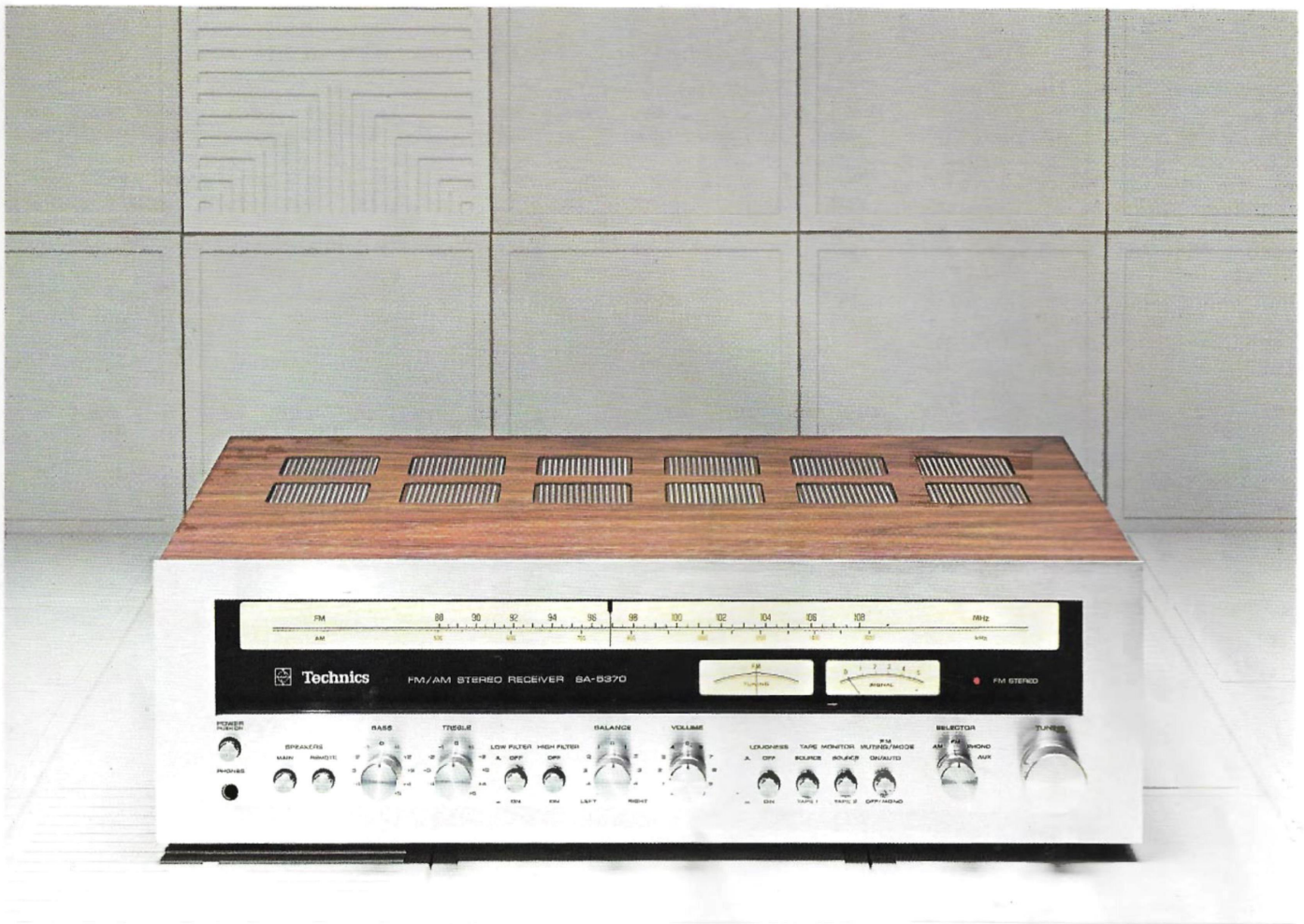
SA-5270

FM/AM Stereo Receiver

35 watts per channel RMS 20~20,000Hz with no more than 0.3% THD. Pure complementary direct-coupled OCL circuitry. Current-mirror loaded differential amplifier for high gain/low distortion. Automatic electronic speaker protection. 65dB S/N ratio phono equaliser. Highly sensitive/selective FM section with IC and Flat Group Delay filters. PLL IC MPX section for low distortion and better channel separation. Two tuning meters. Main/remote speaker selection. Two tape monitor for tape-to-tape dubbing. Loudness switch.



SA-5460



SA-5370



SA-5270

SA-5170

FM/AM Stereo Receiver

25 watts per channel RMS at 8 ohms from 20~20,000Hz with no more than 0.5% THD. Advance direct-coupled OCL circuitry provides solid pure bass tones. Current-mirror loaded differential amplifier for high gain/low distortion. High 65dB S/N ratio phono equaliser. Flat Group Delay ceramic filtered FM section. Dual function tuning/signal strength meter. Tape monitor switch. FM muting/mode switch. Wide linear FM dial scale. Loudness switch.

SA-5070

FM/AM Stereo Receiver

An "economy" receiver with several state-of-the-art features. Large, stable power supply of 15 watts per channel from 40~20,000Hz at 8 ohms with 0.8% THD. Advanced direct-coupled OCL circuitry boosts bass tones. Low-noise IC phono equaliser. Flat Group Delay ceramic filtered FM section. Built-in FM muting circuit. Tape monitor switch. Wide linear FM dial scale.

SA-5160L

FM/MW/LW Stereo Receiver

A high performance receiver in a moderate price bracket. Has a generous power supply (25 watts RMS per channel at 8 ohms) using a big power transformer and large smoothing capacitors for stability and low 0.5% distortion. Direct-coupled throughout. The new low-noise flat response phono equaliser IC gives a wide dynamic range and improves S/N ratio. Tuner section employs our MOS FET in the FM front end for outstanding sensitivity and selectivity. The FM MPX circuit uses a Phase Locked Loop IC for clean separation. Flat Group Delay ceramic filters produce exceptional FM clarity.



SA-5170



SA-5070



SA-5160L

Speaker Systems



Technics Linear Phase speakers are an excellent example of the way we develop a new component. In this case, a radically new component. As in most other industries, audio equipment makers tend not to make uniform progress across the board, but rather to make giant strides forward first in one component category and then in another. Despite the fact that there had been real and considerable improvements in almost every other category, notably amplifiers, turntables and tuners, the loudspeaker system, once one of the strongest links in the audio chain, had become one of the weakest.

The Technics design team realised that the only way to break new ground in speaker design would be to go back to square one. Which is exactly what they did. For a start, it was necessary to design and build their own measuring instruments since none commercially available were sensitive enough. Having armed themselves with the tools to do the job, our engineers embarked upon an ambitious research programme to study how sound travels at different frequencies. They realised that since these physical laws are immutable, the only way to develop a better speaker system would be to achieve

an intimate understanding of the nature of live and reproduced sound and so tailor a speaker system to conform to natural laws with the utmost faithfulness.

Ten minutes in front of an oscilloscope will convince anybody that each musical instrument and human voice, indeed, every sound, creates a waveform which is as individual as a fingerprint.

In accordance with this, a simple yet remorselessly revealing method of measuring loudspeaker performance was developed by our team. First they studied the wave form produced by, say, a live piano performance. At the same time as it was being played, the piano was put on tape. By comparing the "live" waveform and that produced when the same, taped sound was played through different speakers, a precise measure of waveform fidelity could be obtained.

Of course, helpful though it was in assessing performance, this method offered no help in resolving that lack of waveform fidelity which is what separates a bad speaker system from a good one. Eventually, the solution to the problem came with the development of an ingenious measuring instrument using the BBD (Bucket Brigade Device). This enabled

Technics engineers to precisely measure and compensate for natural airborne delays at different frequencies.

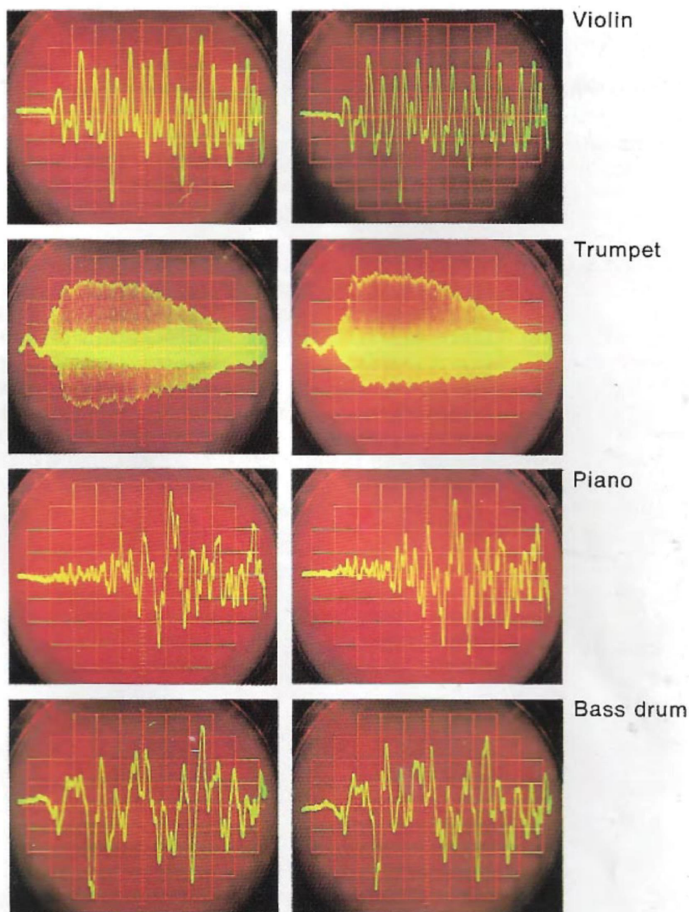
Having developed the instruments, our designers were in much the same position as Christopher Columbus with his compass. They may not be able to say where they would finish up, but at least they knew the direction they were heading in.

As it happened, the BBD "compass" pointed, time and again, back to the tried and tested bass reflex system. After all manner of new materials for speaker cones, magnets and enclosures had been tested and tested again, the bass reflex system emerged as the one which gave most promise of the best means of reproducing the elusive total waveform fidelity we were shooting for.

In fact, previous designs, including ours, had stopped on the verge of discovering the secret of success. The conventional speaker system uses a common baffle board on which every speaker is mounted. But the Technics SB-7000* actually consists of a series of acoustically isolated compartments—one for each speaker in the system—stacked one on top of the other and "staggered" like an ancient Babylonian ziggurat.

Needless to say, since the individual units can be moved in three directions there are literally millions of possible speaker configurations. Fortunately, the BBD was able to provide a quick and easy way of testing them out. So it was only a matter of weeks before the "staggered" format, with the acoustic path lengths equal and the speaker centres vertically aligned to achieve maximum dispersion of the stereo image in the difficult off-centre listening position, was seen and heard to be the best arrangement.

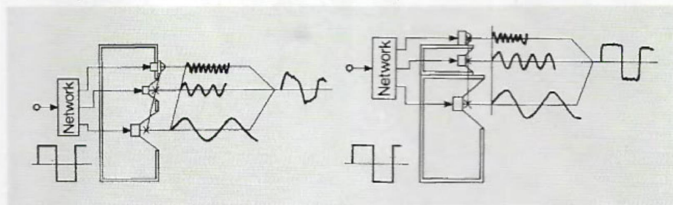
For the SB-7000 a totally new, completely flat crossover network was developed. It is so smooth, mainly due to the exclusive use of passive LCRs using only inductances, resistors and capacitors, you might think only one, magnificent speaker was in use. Despite its hefty price tag, this speaker system has rapidly emerged as a firm favorite with audiophiles in many parts of the world. In the Japanese market, where famous name speakers from all over the world are in fierce competition, it became a best-seller within a matter of months. Once again, the Linear Phase range is being continually widened, in line with our usual policy, to make sparkling Linear Phase performance available to those with neither the money or the space for the incomparable SB-7000.



Live waveforms of musical instruments.

Waveforms reproduced through the SB-7000.

In a conventional speaker system (left) acoustic paths are not equal. Technics Linear Phase speaker units are acoustically isolated and "staggered". So acoustic paths are equal. And square wave performance is improved.



Well received though they have been, it is not our intention to offer only Linear Phase systems. To cater for those whose taste, in terms of both sound and design, runs to something more conventional, we continue to market a wide choice of conventional speaker systems in many power handling and price categories.

With speakers, perhaps more than with any other component, one man's meat is another man's poison. Only a listening test, preferable using a favorite recording, will enable you to decide which speaker system is best for you.

*The SB-7000 was demonstrated to audio industry leaders at a press conference held in Tokyo in March, 1975, to announce the world's first Linear Phase speaker system.

SB-7000

Linear Phase 3-Way Speaker System

Linear phasing with flat frequency response provides true waveform fidelity. The special crossover network is designed for linear phase response overall. Ultra-smooth crossover points result from the use of a passive crossover network using only inductors, capacitors and resistors (LCR). Large 35cm woofer using TC triple-layer with blended aramid fiber has greater effective area with less cone movement for reduced Doppler distortion. 12cm cone type midrange features the same material for reduced partial vibration and upper harmonic distortion. New low distortion tweeter uses strontium-ferrite square magnet. Also new parallel resonant circuits provide ideal level control.

SB-6000

Linear Phase 2-Way Speaker System

The pure, uncoloured sound of our Linear Phase system is modified into a 2-way system with no loss of waveform fidelity. Special crossover network provides overall linear phase response. Smooth crossover junction comes from a passive crossover network using only inductors, capacitors and resistors. Large 30cm woofer uses special aramid fibre blended cone for low distortion. The high efficiency, low distortion dome tweeter is mounted on a diffraction equaliser bracket. Units are staggered for alignment of acoustical centres. Close vertical alignment ensures excellent dispersion and sound image location.

SB-5000

Linear Phase 2-Way Speaker System

The SB-5000 has the same basic design principle as the bigger models, but with reduced proportions and smaller units. Excellent fidelity and super-flat response. Ultra-smooth crossover is assured by crossover network designed specially for linear phase response overall. 25cm woofer uses special aramid fibre blend for reduced partial vibration and low distortion. New edgeless 6cm cone tweeter built for wide range with low distortion. Units are staggered for alignment of acoustical centres. Good dispersion and sound image location come from close vertical alignment.



SB-7000

SB-4500

Linear Phase 2-Way Speaker System

The famous "Linear Phase Sound" is now available to the audiophile with neither the space or the money for our bigger Linear Phase speaker system. Power handling capacity is 75 watts, and the same high-quality materials and careful engineering means that although the SB-4500 can't out-shout its bigger brothers, it speaks just as clearly!



SB-6000



SB-5000



SB-4500

SB-202

Acoustic Suspension 2-Way 2-Speaker System

20cm linear core woofer and 2.5cm titanium diaphragm tweeter, with level control, gives overall frequency response from 45~20,000 Hz. Input power is 40 watts.



SB-202

SB-102

Acoustic Suspension 2-Way 2-Speaker System

Highly compact but with 36 watts input power and 45~20,000 Hz frequency response. Employs a 20cm low distortion woofer and 2.5cm titanium dome diaphragm tweeter.



SB-102

SB-90

Bass Reflex 2-Way 2-Speaker System

A compact, high efficiency bass reflex system with peak input power handling capacity of 36 watts. Uses a 20cm cone low distortion woofer and 6.5cm cone tweeter.



SB-90



SB-30

SB-30

Acoustic Suspension Full Range System

This incredibly tiny speaker can actually handle up to 20 watts input power through its 9cm high-compliance unit wrapped up in acoustic suspension format. Frequency response is good at 50~20,000Hz. Proves that small speakers can have big sound capacity and hi-fi performance.



EAH-300

EAH-300

Stereo Headphones

EAM-30

Ambience Controller

An entirely new headphone design based on waveform fidelity and sound image location. The EAH-300 headphones are ergonomically designed for the most comfortable, fatigue-free fit, especially over long periods of wear. Its natural sound reproduction capability is like a room speaker. The EAM-30 Ambience Controller is a unique separate unit which projects the sound outside the head by employing a special electronic delay unit. It gives the most natural sound reproduction, and provides extra psychological depth to the sound.

Specifications EAH-300

Type	Dynamic
Max. Input power	100mW
Impedance	125Ω
Sensitivity	95dB/mW
Frequency response	20~20,000Hz
Distortion (500Hz, 1mV)	less than 0.3%
Cord length	3m
Net weight (without cord)	260g
Speaker size	3cm



EAM-30

Microphones

RP-3200E

Single Point Stereo Microphone

A specially designed matrix circuit provides very wide separation. Thus, a true stereo effect is possible from only one microphone. Built-in-wind-screen. Suitable for the semi-pro with professional ideas.

RP-3550E

Unidirectional Microphone

Compact unidirectional electret condenser microphone with fixed windscreen. Has an FET that gives super sensitivity. Quick-release connector for easy dismantling. Ample frequency response.

RP-3830E

Unidirectional Microphone

A slimline unidirectional stick mike with removable windscreen. Has a special connector for easy removal of the cord for transportation. Directional characteristics make it very suitable for close-mike and narrow-field uses.

RP-3850E

Unidirectional Microphone

A slimline unidirectional microphone quality engineered to the highest standards. It has a removable wind-screen for close-in recording and delivers extra-wide frequency response. Quick release cannon plug lead and stand clip supplied. Powered by a single penlight battery.



HS-100

HS-100
Hi-Fi Cabinet

Microphones	RP-3200E	RP-3550E	RP-3830E	RP-3850E
Output impedance	600Ω±20%(at 1kHz)	600Ω±20%(at 1kHz)	600Ω±20%(at 1kHz)	600Ω±20%(at 1kHz)
Sensitivity	-72dB(0dB=1V/1μ bar)	-74dB(0dB=1V/1μ bar)	-74dB(0dB=1V/1μ bar)	-72dB(0dB=1V/1μ bar)
Low cut switch	—	—	at 50Hz -8dB	at 50Hz -8dB
Frequency characteristics	50~15,000Hz	50~15,000Hz	50~15,000Hz	20~16,000Hz
PAD switch	—	—	—	-10dB
Inherent noise	35dB SPL	28dB SPL	28dB SPL	28dB SPL
Wind noise	55dB SPL	50dB SPL	50dB SPL	50dB SPL
Maximum sound pressure	120dB SPL	128dB SPL	128dB SPL	128dB SPL
Required battery	UM-3(AA Size) x1	UM-3(AA Size) x1	UM-3(AA Size) x1	UM-3(AA Size) x1
Microphone cable	5mmφ, 5m in length.	5mmφ, 2 conductor shielded, 5m in length. Switchcraft A3F↔Standard phone type plug.	5mmφ, 2 conductor shielded, 5m in length. Switchcraft A3F↔Standard phone type plug.	5mmφ, 2 conductor shielded, 5m in length. Cannon XLR-3-11C↔Standard phone type plug.



RP-3200E

RP-3550E

RP-3830E

RP-3850E

Specifications

Turntables	SP-10MKII for SL-1000MKII
Turntable section	
Type	Quartz-controlled phase-locked direct-drive
Turntable platter	Aluminium diecast, 32cm diameter
Speed	33-1/3, 45 and 78.26 rpm
Motor	Quartz-controlled phase-locked servo DC brushless
Wow and flutter	0.025% WRMS (JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)
Rumble	-50dB (DIN 45539A) -73dB (DIN 45539B)
Build-up time	0.25 sec. (25° rotation) to 33-1/3 rpm
Power consumption	26W
Power supply	110~240V, 50/60Hz
Dimensions (WxHxD)	368.5x102.5x368.5mm
Weight	9.5kg

Tonearm	EPA-100 for SL-1000MKII
Type	Variable dynamic damping universal tonearm
Suspension	Gimbal suspension with precision 20 ruby bearings
Arm pipe	Nitrogen-hardened titanium tubular arm
Effective length	250mm
Total length	322~350mm
Height adjustment range	42~90mm (range of helicoid mount is 6mm)
Overhang	15mm
Lateral tracking error angle	+1.1° at the inner groove. +2.1° at the outer groove
Friction	5mg(lateral, vertical)
Effective mass	22g with a cartridge weighing 6.5g at 1.25g tracking force
Resonance frequency	9.8Hz with a cartridge compliance of 12x10 ⁻⁶ cm/dyne
Resonance Q	Below 5dB(when adjusted optimally)
Damping adjustment	5 selectable positions for cartridge compliance (dynamic, at 100Hz) 4~5: more than 15x10 ⁻⁶ cm/dyne 2~4: 10~15x10 ⁻⁶ cm/dyne, 1~2: 5~10x10 ⁻⁶ cm/dyne
Adjustable tracking force	0~3g
Headshell	9.5g
Pitch of mounting screw	Standard, 12.7mm
Output terminal	φ1.2mm, 4-pin terminal
Cartridge weight range	5~10g(with supplied headshell)
Diameter of arm mount	φ38mm

Turntables	SL-1300MK2/SL-1310MK2	SL-1400MK2/SL-1410MK2	SL-1500MK2/SL-1510MK2
Turntable section			
Type	Quartz-controlled direct-drive, fully-automatic	Quartz-controlled direct-drive, semi-automatic	Quartz-controlled direct-drive
Turntable platter	Aluminium diecast 33cm diameter	Aluminium diecast 33cm diameter	Aluminium diecast 33cm diameter
Speed	33-1/3 and 45 rpm	33-1/3 and 45 rpm	33-1/3 and 45 rpm
Motor	Quartz-controlled phase-locked servo DC brushless	Quartz-controlled phase-locked servo DC brushless	Quartz-controlled phase-locked servo DC brushless
Pitch control range	±9.9%	±9.9%	±9.9%
Wow and flutter	0.025% WRMS(JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.025% WRMS(JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.025% WRMS(JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)
Rumble	-50dB(DIN 45539A) -73dB(DIN 45539B)	-50dB(DIN 45539A) -73dB(DIN 45539B)	-50dB(DIN 45539A) -73dB(DIN 45539B)
Build-up time	0.7sec.(1/4 rotation) to 33-1/3 rpm	0.7sec.(1/4 rotation) to 33-1/3 rpm	0.7sec.(1/4 rotation) to 33-1/3 rpm
Tonearm section			
Type	Static balanced tubular	Static balanced tubular	Static balanced tubular
Stylus pressure control	0~3g, direct reading	0~3g, direct reading	0~3g, direct reading
Cartridge head shell	Universal 4-pin connector	Universal 4-pin connector	Universal 4-pin connector
Effective length	230mm	230mm	230mm
Overhang	15mm	15mm	15mm
Offset angle	21.5°	21.5°	21.5°
General specifications			
Power consumption	13W	13W	13W
Power supply	110~240V, 50/60Hz	110~240V, 50/60Hz	110~240V, 50/60Hz
Dimensions (WxHxD)	453x145x384mm	453x145x384mm	453x145x384mm
Weight	11.8kg	11.8kg	11.5kg

Moving magnet stereo phono cartridges

	EPC-205C-IIS	EPC-205C-IIH	EPC-205C-IIL	EPC-270C-II
Principle	Moving magnet, standard type	Moving magnet, high output type	Moving magnet, low impedance type	Moving magnet
Frequency response	10Hz~25kHz, ±2dB	10Hz~25kHz, ±2dB	10Hz~25kHz, ±2dB	20Hz~25kHz, -3dB 20Hz~15kHz, ±2dB
Output voltage:				
at 1kHz, 5cm/sec, zero-to-peak lateral velocity	3.5mV	7mV	2mV	3.2mV
at 1kHz, 10cm/sec, zero-to-peak lateral velocity (DIN 45500)	7mV	14mV	4mV	6.4mV
Channel separation:				
at 1kHz	≧ 25dB	≧ 25dB	≧ 25dB	≧ 25dB
at 10kHz	≧ 20dB	≧ 20dB	≧ 20dB	≧ 20dB
Channel balance at 1kHz	≦ 1dB	≦ 1dB	≦ 1dB	≦ 1dB
DC resistance	500Ω	500Ω	30Ω	500Ω
Dynamic compliance at 100Hz (CBS STR-100)	12x10 ⁻⁶ cm/dyne	12x10 ⁻⁶ cm/dyne	12x10 ⁻⁶ cm/dyne	10x10 ⁻⁶ cm/dyne
Internal impedance at 1kHz	3.6kΩ	3.6kΩ	250Ω	3.6kΩ
Recommended tracking force	1.25±0.25g	1.25±0.25g	1.25±0.25g	1.75±0.25g
Recommended load impedance	47kΩ~100kΩ	47kΩ~100kΩ	10kΩ~1MΩ	40kΩ~100kΩ
Recommended load capacitance	200pF	200pF	500pF	200pF
Stylus tip	0.2x0.7mil elliptical diamond	0.2x0.7mil elliptical diamond	0.2x0.7mil elliptical diamond	0.3x0.7mil elliptical diamond
Cartridge weight	6.0g	6.5g	6.5g	6.0g
Pitch of mounting screws	Standard	Standard	Standard	Standard
Replacement stylus	EPS-205ED	EPS-205EX	EPS-205EX	EPS-270ED

Turntables	SL-1600	SL-1700	SL-1800	SL-1900
Turntable section				
Type	Direct-drive, fully-automatic,	Direct-drive, semi-automatic	Direct-drive	Direct-drive, fully-automatic
Turntable platter	Aluminium diecast, 33cm diameter	Aluminium diecast 33cm diameter	Aluminium diecast, 33cm diameter	Aluminium diecast, 31cm diameter
Speed	33-1/3 and 45 rpm	33-1/3 and 45 rpm	33-1/3 and 45 rpm	33-1/3 and 45 rpm
Motor	Electronically controlled DC brushless	Electronically controlled DC brushless	Electronically controlled DC brushless	B.F.G. servo DC
Pitch control range	10%	10%	10%	10%
Wow and flutter	0.025% WRMS(JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.025% WRMS(JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.025% WRMS(JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.03% WRMS(JIS C5521) ±0.042% wtd. zero-to-peak (DIN 45507)
Rumble	-50dB(DIN 45539A) -73dB(DIN 45539B)	-50dB(DIN 45539A) -73dB(DIN 45539B)	-50dB(DIN 45539A) -73dB(DIN 45539B)	-50dB(DIN 45539A) -73dB(DIN 45539B)
Build-up time	-	-	-	-
Tonearm section				
Type	Static balanced tubular	Static balanced tubular	Static balanced tubular	Static balanced tubular
Stylus pressure control	0~3g, direct reading	0~3g, direct reading	0~3g, direct reading	0~3g, direct reading
Cartridge head shell	Universal 4-pin connector	Universal 4-pin connector	Universal 4-pin connector	Universal 4-pin connector
Effective length	230mm	230mm	230mm	230mm
Overhang	15mm	15mm	15mm	15mm
Offset angle	21.5°	21.5°	21.5°	21.5°
General specifications				
Power consumption	7W	7W	6W	4.5W
Power supply	110~240V, 50/60Hz	110~240V, 50/60Hz	110~240V, 50/60Hz	110~240V, 50/60Hz
Dimensions (WxHxD)	453x125x369mm	453x125x369mm	453x125x369mm	430x137x334mm
Weight	9.0kg	8.8kg	8.5kg	7.2kg

Open Reel Tape Deck RS-1500US

System	Isolated loop direct drive transport system
Track system	2-track, 2-channel stereo recording/playback and 4-track, 2-channel stereo playback
Tape speed	38cm/s, 19cm/s and 9.5cm/s
Wow and flutter	0.018%(WRMS), ±0.035%(DIN) at 38cm/s 0.03%(WRMS), ±0.06%(DIN) at 19cm/s 0.08%(WRMS), ±0.15%(DIN) at 9.5cm/s
Frequency response: 38cm/s	30~30,000Hz, ±3dB
19cm/s	20~25,000Hz, ±3dB
9.5cm/s	20~15,000Hz, ±3dB
Signal to noise ratio: 38cm/s	60dB
19cm/s	60dB
9.5cm/s	58dB
Total harmonic distortion	Less than 0.8%(peak level)
Channel separation	better than 50dB
Input	MIC: Sensitivity 0.25mV(-72dB)/applicable microphone impedance 200Ω~10kΩ LINE: Sensitivity 60mV(-24dB)/150kΩ THROUGH OUT: Sensitivity 60mV(-24dB)/150kΩ
Output	LINE: Output level 0.55V(OVU)/load impedance 22kΩ over HEADPHONE: Output level 80mV/8Ω
Motor	Quartz controlled phase-locked DC brushless servo direct-drive motor for capstan drive. Two tape tension controlled DC brushless direct-drive motors for reel table drive.
Speed deviation	±0.1% at 38cm/s
Speed fluctuation	0.05% at 38cm/s
Pitch control	±6%(recording and playback)
Fast forward and rewind time	150sec. with 762m tape
Power requirement	AC 110/125/220/240V, 50/60Hz or DC 24V
Power consumption	120W
Dimensions (WxHxD)	456x446x258mm
Weight	25kg

Cassette Decks

RS-9900US

Track system	4-track 2-channel stereo recording and playback
Tape speed	4.8cm/s
Wow and flutter	0.04%(WRMS), ±0.1%(DIN)
Frequency response: Normal tape	20~18,000Hz(DIN) 25~18,000Hz(±3dB)
CrO ₂ tape	20~20,000Hz(DIN) 25~20,000Hz(±3dB)
Signal to noise ratio	Dolby NR OUT: 57dB (signal level=max. recording level) Dolby NR IN: 67dB (above 5kHz)
Harmonic distortion	1.4%(CrO ₂ /Normal tape 160nwb/m 333)
Input	MIC: Sensitivity 0.25mV/applicable microphone impedance 600Ω~20kΩ LINE: Sensitivity 60mV/impedance 150kΩ AUX: Sensitivity 60mV/impedance 150kΩ DIN: Sensitivity 1mV/impedance 10kΩ
Output	LINE/THROUGH OUT/AUX: Output level 0.42V/load impedance 47kΩ over DIN: Output level 0.42V/3.3 kΩ HEADPHONE: Output level 0~900mV/impedance 8~125Ω
Motor	3-motor closed-loop double capstan system. Direct-drive DC brushless capstan motor x 1. DC coreless motor for reel table drive x 2
Head	3-head system HPF head for recording/playback x 2 Double gap ferrite head for erasing x 1
Fast forward and rewind time	Approx. 70sec. with C-60 cassette tape
Power requirement	AC110/125/220/240V, 50/60Hz
Power consumption	48W
Dimensions (WxHxD)	483x193x375mm(Transport unit) 483x173x375mm(Amplifier unit)
Weight	15.0kg(Transport unit) 9.0kg(Amplifier unit)
Optional accessory	-

Trade Descriptions Act 1968. National Panasonic U.K. Ltd. reserves the right to change the design and specifications of goods without notice. Descriptions in this catalogue are correct at the time of going to press but are subject to alternation. Details of any changes will be available on request.

SL-2000	SL-110	SL-150	SL-23	SL-20
Direct-drive	Direct-drive	Direct-drive	Semi-automatic, belt-drive	Manual, belt-drive
Aluminium diecast, 30cm diameter	Aluminium diecast, 35cm diameter	Aluminium diecast, 33cm diameter	Aluminium diecast, 30cm diameter	Aluminium diecast, 30cm diameter
33-1/3 and 45 rpm	33-1/3 and 45 rpm	33-1/3 and 45 rpm	33-1/3 and 45 rpm	33-1/3 and 45 rpm
Ultra-low speed DC brushless	Ultra-low speed DC brushless	Ultra-low speed DC brushless	F.G. servo DC	F.G. servo DC
10%	10%	10%	6%	6%
0.045% WRMS (JIS C5521) ±0.065% wtd. zero-to-peak (DIN 45507)	0.025% WRMS (JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.025% WRMS (JIS C5521) ±0.035% wtd. zero-to-peak (DIN 45507)	0.05% WRMS (JIS C5521) ±0.08% wtd. zero-to-peak (DIN 45507)	0.05% WRMS (JIS C5521) ±0.08% wtd. zero-to-peak (DIN 45507)
-47dB (DIN 45539A) -70dB (DIN 45539B)	-50dB (DIN 45539A) -73dB (DIN 45539B)	-50dB (DIN 45539A) -73dB (DIN 45539B)	-40dB (DIN 45539A) -65dB (DIN 45539B)	-40dB (DIN 45539A) -65dB (DIN 45539B)
-	1/2 rotation to 33/1/3rpm	1/2 rotation to 33-1/3 rpm	-	-
Static balanced tubular	-	-	Static balanced tubular	Static balanced tubular
0~3g, direct reading	-	-	0~4g, direct reading	0~4g, direct reading
Universal 4-pin connector	-	-	Universal 4-pin connector	Universal 4-pin connector
220mm	-	-	220mm	220mm
14mm	-	-	14mm	14mm
22°	-	-	20°	22°
5.5W	4W	6W	3W	2W
110~240V, 50/60Hz	110~240V, 50/60Hz	110~240V, 50/60Hz	220V/240V, 50/60Hz	110~240V, 50/60Hz
430x125x346mm	510x195x390mm	453x139x366mm	428x135x348mm	428x135x348mm
6.1kg	13kg	7.8kg	6.5kg	5kg

RS-7500US(ELCASET)	RS-676USD	RS-678US	RS-671USD
3-head, 4-track 2-channel ELCASET system	4-track 2-channel stereo recording and playback	4-track 2-channel stereo recording and playback	4-track 2-channel stereo recording and playback
9.5cm/s	4.8cm/s	4.8cm/s	4.8cm/s
0.06%(WRMS), ±0.15%(DIN)	0.063%(WRMS), ±0.15%(DIN)	0.06%(WRMS), ±0.15%(DIN)	0.063%(WRMS), ±0.15%(DIN)
Tape type 1: 20~22,000Hz(DIN) 25~20,000Hz(±3dB)	20~16,000Hz 25~14,000Hz(DIN) 30~13,000Hz(±3dB)	20~16,000Hz 25~14,000Hz(DIN) 30~13,000Hz(±3dB)	20~16,000Hz 25~14,000Hz(DIN) 30~13,000Hz(±3dB)
Tape type 2 and 3: 20~25,000Hz(DIN) 25~22,000Hz(±3dB)	20~18,000Hz 25~15,000Hz(DIN) 30~14,000Hz(±3dB)	20~18,000Hz 25~15,000Hz(DIN) 30~14,000Hz(±3dB)	20~18,000Hz 25~15,000Hz(DIN) 30~14,000Hz(±3dB)
60dB (Tape type 1, 315Hz peak level) 63dB (Tape type 2 and 3, 315Hz peak level)	Dolby NR OUT: 52dB (signal level=250nwb/m) Dolby NR IN: 62dB at 10kHz	Dolby NR OUT: 52dB (signal level=250nwb/m) Dolby NR IN: 62dB (above 5kHz)	Dolby NR OUT: 52dB (signal level=250nwb/m) Dolby NR IN: 62dB at 10kHz
0.8%(Tape type 3)	2.0%(DIN)	-	-
MIC: Sensitivity 0.25mV/applicable microphone impedance 400Ω~20kΩ LINE: Sensitivity 60mV/input impedance 100kΩ DIN: Sensitivity 0.25mV/input impedance 2.2kΩ	MIC: Sensitivity 0.3mV/applicable microphone impedance 600Ω~20kΩ LINE: Sensitivity 60mV/110kΩ TUNER: Sensitivity 100mV/75kΩ DIN: Sensitivity 0.3mV/2.2kΩ	MIC: Sensitivity 0.3mV/applicable microphone impedance 600Ω~20kΩ LINE: Sensitivity 60mV/ input impedance 68kΩ DIN: Sensitivity 16mV/ input impedance 2.2kΩ	MIC: Sensitivity 0.3mV/applicable microphone impedance 600Ω~20kΩ LINE: Sensitivity 60mV/68kΩ DIN: Sensitivity 0.3mV/2.2kΩ
LINE: Output level 580mV/ 22kΩ DIN: Output level 580mV/ output impedance 3.3kΩ HEADPHONE: Output level 60mV/8Ω	LINE: Output level 0.42V/ load impedance 50kΩ over DIN: Output level 0.42V/load impedance 50kΩ over HEADPHONE Output level 65mV/8Ω	LINE: Output level 0.42V/ load impedance 50kΩ over DIN: Output level 420mV/ output impedance 2.5kΩ HEADPHONE: Output level 65mV/load impedance 8Ω	LINE: Output level 0.42V/ load impedance 50kΩ over DIN: Output level 0.42V/load impedance 50kΩ over HEADPHONE Output level 65mV/8Ω
F.G. Servo controlled DC motor x 1	2-motor system Electronic speed controlled motor for capstan drive x 1 DC motor for reel table drive x 1	2-motor system F.G. Servo DC motor for capstan drive x 1, DC motor for reel table drive x 1	2-motor system Electronic speed controlled motor for capstan drive x 1 DC motor for reel table drive x 1
3-head system Super-permalloy head for recording/ playback x2 Double-gap ferrite head for erasing x 1	2-head system HPF head for recording/playback x 1 Ferrite head for erasing x 1	2-head system HPF head for recording/playback x 1 Double gap ferrite head for erasing x 1	2-head system HPF head for recording/playback x 1 Ferrite head for erasing x 1
Approx. 90sec. with 60 minutes ELCASET tape	Approx. 80sec. with C-60 cassette tape	Approx. 90sec. with C-60 cassette tape	Approx. 90sec. with C-60 cassette tape
AC 240V, 50Hz	AC 240V, 50Hz	AC 240V, 50Hz	AC 240V, 50Hz
45W	25W	28W	20W
483x253x350mm	410x140x360mm	450x173x341mm	410x140x330mm
14kg	10.5kg	10kg	9.4kg
-	RP-9275A remote control unit	-	-

Cassette Decks	RS-640USD	RS-630TUS	RS-615US
Track system	4-track 2-channel stereo recording and playback	4-track 2-channel stereo recording and playback	4-track 2-channel stereo recording and playback
Tape speed	4.8cm/s	4.8cm/s	4.8cm/s
Wow and flutter	0.07%(WRMS), ±0.15%(DIN)	0.09%(WRMS) ±0.20%(DIN)	0.10%(WRMS), ±0.20%(DIN)
Frequency response: Normal tape	20~15,000Hz 30~13,500Hz(DIN)	20~14,000Hz 30~13,000Hz(DIN)	30~14,000Hz 30~13,000Hz(DIN)
CrO ₂ tape	20~16,000Hz 30~14,500Hz(DIN)	20~16,000Hz 30~14,000Hz(DIN)	30~16,000Hz 30~14,000Hz(DIN)
Signal to noise ratio	Dolby NR OUT: 51dB (signal level=250nwb/m) Dolby NR IN: 61dB (above 5kHz)	Dolby NR OUT: 50dB (signal level=250nwb/m) Dolby NR IN: 60dB (above 5kHz)	Dolby NR OUT: 50dB (signal level=250nwb/m) Dolby NR IN: 60dB (above 5kHz)
Harmonic distortion	—	—	—
Input	MIC: Sensitivity 0.3mV/applicable microphone impedance 600Ω~20kΩ LINE: Sensitivity 60mV/68kΩ DIN: Sensitivity 0.3mV/2.2kΩ	MIC: Sensitivity 0.25mV/applicable microphone impedance 400Ω~20kΩ LINE: Sensitivity 60mV/100kΩ DIN: Sensitivity 0.25mV/2.2kΩ	MIC: Sensitivity 0.25mV/applicable microphone impedance 400Ω~20kΩ LINE: Sensitivity 60mV/100kΩ DIN: Sensitivity 0.34mV/2.2kΩ
Output	LINE/DIN: Output level 0.42V/load impedance 50kΩ over HEADPHONE: Output level 65mV/8Ω	LINE: Output level 0.42V/load impedance 50kΩ over DIN: Output level 0.42V/4.7kΩ HEADPHONE: Output level 65mV/8Ω	LINE: Output level 0.42V/load impedance 50kΩ over DIN: Output level 0.42V/load impedance 3.3kΩ HEADPHONE: 65mV/8Ω
Motor	Electronic speed controlled DC motor	Electronic speed controlled DC motor x 1	Electronic speed controlled DC motor x 1
Head	2-head system HPF head for recording/playback x 1 Ferrite head for erasing x 1	2-head system HPF head for recording/playback x 1 Ferrite head for erasing x 1	2-head system Super permalloy head for recording/playback x 1. Ferrite head for erasing x 1
Fast forward and rewind time	Approx. 130sec. with C-60 cassette tape	Approx. 90sec. with C-60 cassette tape	Approx. 90sec. with C-60 cassette tape
Power requirement	AC 240V 50Hz	AC 240V 50Hz	AC 110/125/220/250V, 50Hz
Power consumption	7W	10W	10W
Dimensions (WxHxD)	432x130x301mm	410x142x321mm	410x140x305mm
Weight	5.8kg	7kg	6.3kg

Receivers (DIN 45500)	SA-5460	SA-5370	SA-5270	SA-5170
Amplifier section				
Continuous power(both ch. driven)				
1kHz 4Ω, 8Ω	2x78W, 2x68W	2x64W, 2x53W	2x44W, 2x38W	2x30W, 2x27W
20Hz~20kHz 4Ω, 8Ω	2x72W, 2x65W	2x56W, 2x48W	2x39W, 2x35W	2x26W, 2x25W
Total harmonic distortion (rated power at 40Hz~16kHz, 4Ω)	0.1%	0.1%	0.3%	0.5%
Power bandwidth (both channels driven at 4Ω)	10Hz~40kHz, -3dB	7Hz~50kHz, -3dB	7Hz~50kHz, -3dB	7Hz~50kHz, -3dB
Frequency response	20Hz~20kHz, ±0.5dB	20Hz~20kHz, ±0.5dB	20Hz~20kHz, ±0.5dB	20Hz~20kHz, ±0.5dB
S/N ratio (rated power)	65dB(Phono), 80dB(Aux)	65dB(Phono), 80dB(Aux)	65dB(Phono), 80dB(Aux)	65dB(Phono), 80dB(Aux)
Input sensitivity & impedance				
Phono	2.5mV/47kΩ	2.5mV/47kΩ	2.5mV/47kΩ	2.5mV/47kΩ
Aux	150mV/33kΩ	150mV/33kΩ	150mV/33kΩ	150mV/33kΩ
Tone control	Bass 50Hz, ±10dB Treble 10kHz, ±10dB	50Hz, ±10dB 10kHz, ±10dB	50Hz, ±10dB 10kHz, ±10dB	50Hz, ±10dB 10kHz, ±10dB
Tape monitor	Playback 180mV/40kΩ(Tape 1) 150mV/35kΩ(Tape 2)	180mV/39kΩ 150mV/33kΩ(Tape 2)	180mV/39kΩ 150mV/33kΩ(Tape 2)	180mV/39kΩ
Rec. out	180mV(Tape 1)150mV(Tape 2)	150mV (Tape 1,2)	150mV (Tape 1,2)	150mV
FM tuner section				
Sensitivity	S/N 30dB, 300Ω 1.8μV S/N 20dB, 75Ω 0.9μV	1.9μV 0.9μV	1.9μV 0.9μV	1.9μV 0.9μV
Total harmonic distortions(stereo)	0.25%	0.3%	0.3%	0.3%
S/N ratio (stereo)	54dB	55dB	55dB	55dB
Frequency response	20Hz~15kHz,+0.2,-0.8dB	20Hz~15kHz,+0.5,-1.5dB	20Hz~15kHz,+1.0,-2.0dB	20Hz~15kHz,+1.0dB,-2.0dB
Selectivity	70dB	70dB	70dB	65dB
Image rejection (98MHz)	53dB	65dB	65dB	65dB
IF rejection (98MHz)	80dB	80dB	80dB	80dB
Capture ratio	1.5dB	1.5dB	1.5dB	1.0dB
Stereo separation (1kHz)	45dB	45dB	45dB	42dB
Leak carrier 19kHz 38kHz	-65dB -75dB	-35dB -45dB	-35dB -45dB	-35dB -45dB
AM tuner section				
Sensitivity	30μV,260μV/m	30μV, 300μV/m	30μV, 300μV/m	30μV, 300μV/m
Selectivity	22dB	30dB	30dB	30dB
General specifications				
Power consumption	500W	450W	400W	300W
Power supply (AC)	110~240V	110~240V	110~240V	110~240V
Dimensions (WxHxD)	500x150x420mm	450x142x330mm	420x142x295mm	420x142x295mm
Weight	14kg	10.5kg	8.0kg	7.4kg

RS-686DS

4-track 2-channel stereo recording and playback

4.8cm/s

0.07%(WRMS), ±0.18%(DIN)

40~14,000Hz(DIN)
50~14,000Hz(±3dB)40~16,000Hz(DIN)
50~16,000Hz(±3dB)Dolby NR OUT: 56dB
(signal level=max. recording level)
Dolby NR IN: 66dB (above 5kHz)MIC: Sensitivity 0.25mV/applicable
microphone impedance 400Ω~10kΩ
LINE: Sensitivity 60mV/ input impedance 100kΩLINE: Output level 0.42V/load impedance 22kΩ over
HEADPHONE: Output level 65mV/ 8Ω~125Ω
EARPHONE: Output level 65mV/ 8Ω(monaural)
Monitor Speaker: Output power 0.2W(monaural)F.G. Servo controlled
DC motor x 13-head system HPF head for recording/playback x1
Permalloy head for recording monitor x1
Double-gap ferrite head for erasing x1Approx. 80sec. with C-60
cassette tapeDC 9V, six R-14 size batteries
AC 110/125/220/240V, 50/60Hz
with AC adaptor RP-997(Accessory included)

12W

243x77x200mm

2.8kg(without batteries)

RS-646DS

4-track 2-channel stereo recording and playback

4.8cm/s

0.10%(WRMS), ±0.20%(DHN)

40~14,000Hz(DIN)
50~14,000Hz(±3dB)40~14,000Hz(DIN)
50~14,000Hz(±3dB)Dolby NR OUT: 56dB
(signal level=max. recording level)
Dolby NR IN: 66dB (above 5kHz)MIC: Sensitivity 0.25mV/applicable
microphone impedance 400Ω~10kΩ
LINE: Sensitivity 60mV/ input impedance 47kΩ
DIN: Sensitivity 16mV/2.7kΩLINE: Output level 0.42V/load impedance 50kΩ over
DIN: Output level 0.42V/1kΩ
HEADPHONE: Output level 65mV/ load impedance 8Ω
Monitor Speaker: Output power 0.8W(monaural)Electronic speed controlled
DC motor x 12-head system
Super Permalloy head for recording/playback x1
Double-gap ferrite head for erasing x1Approx. 130sec. with C-60
cassette tapeDC 12V, eight R-20 size batteries
AC 240V, 50Hz

10W

363x106x280mm

5.0kg(without batteries)

Cassette Decks

Track system

Tape speed

Wow and flutter

Frequency response: Normal tape

CrO₂ tape

Signal to noise ratio

Harmonic distortion

Input

Output

Motor

Head

Fast forward and rewind time

Power requirement

Power consumption

Dimensions (WxHxD)

Weight

SA-5070**SA-5160L**2x20W, 2x18W
2x18W, 2x15W(40Hz~20kHz) 2x26W, 2x25W(30Hz~20kHz)

0.3%

0.5%

50Hz~30kHz, -3dB 7Hz~40kHz, -3dB

20Hz~20kHz, ±0.8dB 20Hz~20kHz, ±0.5dB

55dB(Phono), 78dB(Aux) 65dB(Phono), 75dB(Aux)

2.5mV/47kΩ 2.5mV/47kΩ

150mV/27kΩ 150mV/40kΩ

50Hz, ±10dB 50Hz, ±13dB

10kHz, ±10dB 10kHz, ±12dB

180mV/33kΩ 180mV/47kΩ

50mV 180mV

2.5μV 1.8μV

10μV 0.9μV

0.35% 0.3%

55dB 54dB

20Hz~15kHz, +1.0, -2.0dB 20Hz~13kHz, ±1dB

50dB 70dB

55dB 53dB

80dB 80dB

1.5dB 1.5dB

42dB 42dB

-35dB -45dB -37dB -48dB

30μV, 300μV/m 30μV, 300μV/m

30dB 22dB(MW), 27dB(LW)

210W 260W

220/240V 110~240V

420x142x294mm 420x142x355mm

5.5kg 7.5kg

Universal Frequency Equaliser**SH-9090****SH-9010**

Output Voltage: rated maximum	1V 7V	1V 5V
Total harmonic distortion	0.05% (rated output voltage)	0.02% (rated output voltage)
Input sensitivity & impedance	1V/50kΩ	1V/47kΩ
Frequency response	10Hz~30kHz, +0, -0.5dB 3Hz~80kHz, +0, -3dB	10Hz~20kHz, +0, -0.2dB 10Hz~70kHz, +0, -3dB
Signal-to-noise ratio	90dB(IHF A)	83dB(DIN)
Master level control	-6dB~0dB~+6dB (continuously variable)	
Band level control	-12dB~0dB~+12dB (continuously variable)	-12dB~0dB~+12dB (continuously variable)
Centre frequency control	-1oct~0~+1oct. (continuously variable)	-1.6oct~0~+1.6oct. (continuously variable)
Bandwidth control	Q=0.7~7 (continuously variable)	Q=0.7~7 (continuously variable)
Centre frequency	10Hz, 30Hz, 60Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz, 32kHz (12 points)	60Hz, 240Hz, 1kHz, 4kHz, 16kHz (5 points x2)
Power consumption	40W	8W
Power supply(AC)	110~240V, 50/60Hz	110~240V, 50/60Hz
Dimensions (W x H x D)	450x173x375mm	450x92x364mm
Weight	9.2kg	6.0kg

Peak/Average Meter Unit SH-9020

Input sensitivity & impedance	source 1, 2: 20dBm(7.75V)/47kΩ (sensitivity 0dB) 0dBm (0.775V)/47kΩ (sensitivity +20dB). source 3: 100W(8Ω, 6Ω, 4Ω)/10kΩ (sensitivity 0dB) 1W(8Ω, 6Ω, 4Ω)/10kΩ (sensitivity +20dB)
Sensitivity selector	0dB, +20dB
Frequency response	10Hz~20kHz, ±1.5dB (+10dB ~ -40dB) 10Hz~10kHz, ±3dB (less than -40dB)
Attack time	100μsec. (peak, peak hold) 330msec. (average)
Recovery time	750msec. (peak, 0dB→-20dB) 250msec. (average, 0dB→-20dB) more than 25min. (peak hold: 0dB→-3dB)
Meter range	+10dB~-50dB
Indication accuracy	0dB ±1.5dB (source 1.2dB~0dB indication) 0dB ±2dB (source 3dB~0dB indication)
Power consumption	12W
Power supply (AC)	110~240V, 50/60Hz
Dimensions (W x H x D)	450x92x378mm
Weight	5.5kg

Integrated Amplifiers (DIN 45500)		SU-8600	SU-8080	SU-7700	SU-7300
Amplifier section					
Continuous power (both ch. driven)					
1kHz	4Ω, 8Ω	2x85W, 2x76W	2x92W, 2x74W	2x70W, 2x53W	2x55W, 2x43W
20Hz~20kHz	4Ω, 8Ω	2x80W, 2x73W	2x90W, 2x72W	2x60W, 2x50W	2x48W, 2x41W
Total harmonic distortion		0.08%	0.02%	0.08%	0.08%
Intermodulation distortion (rated power)					
at 250Hz, 8,000Hz=4:1 4Ω		0.08%	0.05%	0.08%	0.08%
Power bandwidth (both ch. driven at 4Ω)		5Hz~50kHz, -3dB	5Hz~40kHz, -3dB	8Hz~55kHz, -3dB	8Hz~55kHz, -3dB
Frequency response					
		20Hz~20kHz, ±0.3dB	20Hz~20kHz, +0dB -0.1dB	20Hz~20kHz, ±0.5dB 10Hz~40kHz, -1dB	20Hz~20kHz, ±0.5dB 15Hz~40kHz, -1dB
S/N ratio rated power		60dB (Phono 1, 2)	70dB	63dB	63dB
Aux		85dB	92dB	83dB	83dB
50mW power output		55dB (Phono 1, 2)	60dB	53dB	53dB
Aux		55dB	62dB	53dB	53dB
Damping factor		4Ω, 8Ω	25, 50	35, 70	25, 50
Input sensitivity & impedance		1V/47kΩ	1V/47kΩ	-	-
Main in Phono		2.0mV/47kΩ (Phono 1, 2)	2.5mV/47kΩ (Phono 1, 2)	2.5mV/47kΩ	2.5mV/47kΩ
Tuner, Aux		150mV/47kΩ	200mV/35kΩ	150mV/47kΩ	150mV/47kΩ
Tape deck (PLAYBACK)		150mV/47kΩ	200mV/35kΩ	180mV/47kΩ (Tape 1)	180mV/47kΩ (Tape 1)
Tape deck (REC/PLAY input)		(Tape 1, 2) 150mV/47kΩ	(Tape 1, 2) 200mV/35kΩ	150mV/47kΩ (Tape 2)	150mV/47kΩ (Tape 2)
Phono maximum input voltage (1kHz, RMS)		200mV	280mV	150mV	150mV
Tone control		Bass Treble	50Hz, ±12dB 20kHz, ±12dB	50Hz, ±12dB 20kHz, ±12dB	50Hz, ±12dB 20kHz, ±12dB
Filters		Low High	30Hz, -12dB/oct. 8kHz, -12dB/oct.	30Hz, -12dB/oct. 10kHz, -6dB/oct.	- 8kHz, -6dB/oct.
Output voltage					
PRE OUT		rated max.	1V 8V	1V 9V	- -
Tape deck (REC OUT)			150mV (Tape 1, 2)	200mV (Tape 1, 2)	150mV (Tape 1, 2)
Tape deck (REC/PLAY output)			30mV (Tape 1)	30mV (Tape 1)	30mV (Tape 1)
General specifications					
Power consumption		700W	490W	450W	400W
Power supply		110~240V	110~240V	110~240V	110~240V
Dimensions (W x H x D)		450x173x352mm	450x140x371mm	410x139x334mm	410x139x334mm
Weight		12.7kg	14.0kg	9.7kg	8.9kg

Amplifiers		SU/SE-9600	SU-9070/SE-9060
(Power amplifier)		(SE-9600)	(SE-9060)
Continuous power (both ch. driven)			
1kHz	4Ω, 8Ω	2x165W, 2x110W	2x100W, 2x75W, 1x200W (mono, 8Ω)
20Hz~20kHz	4Ω, 8Ω	2x165W, 2x110W	2x90W, 2x70W, 1x180W (mono, 8Ω)
Total harmonic distortion		0.08%	0.02%
Power bandwidth		5Hz~60kHz, -3dB	5Hz~50kHz, -3dB
Frequency response			
		5Hz~150kHz, +0dB -3dB	20Hz~20kHz, +0dB -0.05dB DC~100kHz, +0dB -1dB
Damping factor		50, 5, 1.5, 0.5(4Ω) 100, 10, 3, 1 (8Ω)	50(4Ω), 100(8Ω)
Input sensitivity & impedance		1V/40kΩ	1V/47kΩ
(Pre-amplifier)			
Output voltage & impedance		rated max.	
		1V/600Ω 12V/600Ω	1V/600Ω 20V/600Ω
Input sensitivity & impedance			
Phono 1		2mV/25, 50, 100kΩ	2.5mV/47kΩ(Phono MM 1, 2)
Phono 2		1~3mV/25, 50, 100kΩ	60μV/47Ω(Phono MC)
Tuner		100mV/50kΩ	150mV/47kΩ
AUX 1 & 2		100mV/50kΩ	150mV/47kΩ
Phono max. input voltage			
Phono 1		900mV	380mV(Phono MM)
Phono 2		450~1350mV	9mV(Phono MC)
Total harmonic distortion		0.02%	0.003%(Phono MM, Tuner, Aux)
S/N ratio (rated power)			
Phono 1		73dB	88dB(Phono MM)
Phono 2		69~76dB	72dB(Phono MC)
AUX 1 & 2		95dB	106dB
Frequency response			
Phono		RIAA ±0.3dB	RIAA ±0.2dB
AUX 1 & 2		2Hz~100kHz, +0dB, -3dB	20Hz~20kHz, +0dB, -0.05dB DC~100kHz, +0dB -1dB
Tape monitor			
playback		100mV/50kΩ	150mV/47kΩ
Rec. out		100mV/600Ω	150mV
Tone control			
Bass		50Hz, ±12.5dB	-
Treble		20kHz, ±12.5dB	-
Turnover frequency			
Bass		125Hz, 500Hz	-
Treble		2kHz, 8kHz	-
Low filter		15Hz, 30Hz, -18dB/oct.	20Hz, -12dB/oct.(EQ subsonic)
High filter		10kHz, 15kHz, -18dB/oct.	-
Muting		-20dB	-20dB
General specifications			
Power consumption		17W(SU) 960W(SE)	30W(SU-9070), 650W(SE-9060)
Power supply(AC)		110~240V	120V, 220~240V,
Dimensions(W x H x D)		450x173x375mm(SU) 450x193x426mm(SE)	450x92x369mm(SU-9070) 450x92x376mm(SE-9060)
Weight		10.5kg(SU), 23.6kg(SE)	7.0kg(SU-9070), 12.0kg(SE-9060)

SU-7100	Tuners (DIN 45500)	ST-9600	ST-9030	ST-8080	ST-7300
	FM tuner section				
Antenna terminals		300Ω(balanced) 75Ω(unbalanced)	75Ω(unbalanced)	300Ω(balanced), 75Ω(unbalanced)	300Ω(balanced) 75Ω(unbalanced)
Frequency range		88~108MHz	88~108MHz	88~108MHz	88~108MHz
Sensitivity	S/N 30dB, 300Ω (±40kHz deviation)	1.8μV 1.4μV 0.9μV 0.7μV	— — 1.2μV 1.0μV	1.8μV 1.4μV 0.9μV 0.7μV	2.0μV 1.5μV 1.4μV 1.0μV
S/N ratio	MONO (±40kHz deviation)	75dB —	75dB —	70dB —	69dB 65dB
Frequency response		20Hz~18kHz, +0.2dB -0.8dB	20Hz~18kHz, +0.1dB -0.5dB	20Hz~18kHz, +0.2dB -0.8dB	20Hz~15kHz, +0.2dB -1.0dB
Alternative channel selectivity (400kHz)		85dB	25dB(WIDE), 90dB(NARROW)	85dB	75dB
Capture ratio		1.0dB	0.8dB(WIDE), 2.0dB(NARROW)	1.0dB	1.0dB
Total harmonic distortion	MONO STEREO	0.15% 0.25%	0.08%(WIDE), 0.15%(NARROW) 0.08%(WIDE), 0.3%(NARROW)	0.15% 0.3%	0.2% 0.4%
Image rejection at 98MHz		95dB	135dB	85dB	55dB
IF rejection at 98MHz		105dB	135dB	100dB	82dB
Spurious response rejection at 98MHz		100dB	135dB	95dB	80dB
AM suppression		55dB	58dB(WIDE), 40dB(NARROW)	55dB	55dB
Stereo separation	1kHz 10kHz	45dB 35dB	50dB(WIDE), 40dB(WIDE), 30dB(NARROW)	45dB 35dB	45dB 35dB
Leak carrier (19kHz)		-65dB	-60dB(VARIABLE) -65dB(FIXED)	-60dB(VARIABLE), -65dB(FIXED)	-60dB
Limiting point		1.2μV	1.0μV	1.2μV	1.2μV
Bandwidth	IF amplifier FM demodulator	250kHz 820kHz	300kHz(WIDE), 200kHz(NARROW) 1.5MHz	250kHz 820kHz	200kHz 820kHz
	AM tuner section				
Frequency range		525~1605kHz	—	525~1605kHz	525~1605kHz
Sensitivity		30μV	—	30μV	30μV
Selectivity		25dB	—	25dB	20dB
Image rejection		80dB	—	45dB	45dB
IF rejection		85dB	—	40dB	40dB
	General specifications				
Output voltage	VARIABLE FIXED	0.077~1.55V 0.6V	0~1.5V 0.7V	0~1.4V 0.6V	— 0.5V
Power consumption		25W	27W	14W	11W
Power supply (AC)		110~240V, 50/60Hz	110~240V, 50/60Hz	110~240V, 50/60Hz	110~240V, 50/60Hz
Dimensions (WxHxD)		450x173x362mm	450x92x370mm	450x140x367mm	410x139x317mm
Weight		8.7kg	7.4kg	8.4kg	5.1kg

Speaker Systems	SB-7000	SB-6000	SB-5000	SB-4500
Configuration	3-way 3-speaker bass reflex	2-way 2-speaker bass reflex	2-way 2-speaker bass reflex	2-way 2-speaker bass reflex
Speaker unit:	woofer mid-range tweeter	30cm cone — 3.2cm dome	25cm cone — 6cm cone	25cm cone — 6cm cone
Input impedance	6Ω	6Ω	8Ω	6Ω
Peak input power	150W*	100W*	75W*	75W*
Output level	93dB/W (1m)	93dB/W(1m)	93.5dB/W (1m)	92.5dB/W (1m)
Frequency response	—	—	—	—
Crossover frequency	—	—	—	—
Crossover network	—	—	—	—
External dimensions (WxHxD)	480x845x410mm	425x846x340mm	350x717x323mm	350x631x325mm
Net weight	36kg	28kg	16kg	14.5kg

Speaker Systems	SB-202	SB-102	SB-90	SB-30
Configuration	2-way acoustic suspension	2-way acoustic suspension	2-way bass reflex	Full range, acoustic suspension
Speaker unit:	woofer mid-range tweeter	20cm TC cone — 2.5cm titanium dome	20cm cone — 6.5cm cone	9cm full range cone — —
Input impedance	8Ω	8Ω	8Ω	8Ω
Peak input power	40W(Max.)	36W (Max.)	36W	20W (Max.)
Output level	90dB/W (1m)	90dB/W (1m)	93dB/W (1m)	86dB/W (1m)
Frequency response	45Hz~20kHz	45Hz~20kHz	—	50Hz~20kHz
Crossover frequency	4kHz	4kHz	—	—
Crossover network	12dB/oct.	12dB/oct.	—	—
External dimensions (WxHxD)	280x490x257mm	254x455x213mm	254x455x213mm	103x181x127mm
Net weight	10kg	7kg	7kg	1.5kg

* The maximum instantaneous peak powers quoted are for a voice-coil temperature rise to not greater than 80°C, which corresponds to the conditions of measurement.



National Panasonic (U.K.) Ltd.

Sales Promotion Dept.: 107-109 Whitby Road, Slough, Berks. SL1 3DR Tel. Slough 27516
Northern trade sales and distribution: Skelton Grange Road, Leeds LS10 1RZ
Southern trade sales and distribution: 308-318 Bath Road, West Slough, Berks SL1 6JB



MODEL

RECOMMENDED
RETAIL (inc. VAT)

NOTES

SUGGESTED SYSTEMS

System 1

SL 22/EPC 270 CII
SA 5070
RS 615
SB 90 (pair) 457.70

System 2

SL 1900/EPC 205 CII
SA 5170
RS 630
SB 102 (pair) 613.70

System 3

SL 1800/EPC 205 CII
RS 615
ST 7300
SU 7300
SB 4500 (pair) 755.65

System 4

SL 1600/EPC 205 CII
RS 671
ST 7300
SU 7700
SB 5000 (pair) 980.65

System 5

SL 1510/EPC 205 CII
ST 8080
SU 8080
SB 6000 (pair) 1195.70

System 6

SL 1310 Mark II/EPC 205 CII
SU 9070
SE 9060
ST 9030
SH 9020
SH 9010
SB 7000 (pair) 2405.55

Head Office:

National Panasonic (U.K.) Ltd.
107-109 WHITBY ROAD, SLOUGH, BERKS. SL1 3DR.
TELEPHONE: SLOUGH 27516 TELEX: 848761

Southern Sales Office

Midlands Sales Office

National Panasonic (U.K.) Ltd.
308-318 BATH ROAD, SLOUGH. SL3 6JB
TELEPHONE: SLOUGH 34522 TELEX: 847652

Northern Sales Office

National Panasonic (U.K.) Ltd.

SKELTON GRANGE ROAD, STOURTON, LEEDS. LS10 1RZ
TELEPHONE: LEEDS 702541 TELEX: 557689



Recommended
Retail Price List

15th September 1977

Technics

High fidelity audio equipment

MODEL	RECOMMENDED RETAIL (inc. VAT)
RECEIVERS	
SA 5070	129.95
SA 5170	164.95
SA 5160 L	184.95
SA 5270	219.95
SA 5370	269.95
SA 5460	349.95
AMPLIFIERS	
SU 7100	104.95
SU 7300	134.95
SU 7700	169.95
SU 8080	269.95
SU 8600	319.95
TUNERS	
ST 7300	119.95
ST 8080	199.95
ST 9600	319.95
TURNTABLES (Excluding Cartridge)	
SL 20	62.95
SL 22	74.95
SL 23	89.95
SL 2000	99.95
SL 1900	124.95
SL 1800	134.95
SL 1700	154.95
SL 1600	174.95
SL 150	129.95
SL 110	224.95
SL 1500 Mark II	239.95
SL 1510 Mark II	239.95
SL 1400 Mark II	269.95
SL 1410 Mark II	269.95
SL 1300 Mark II	299.95
SL 1310 Mark II	299.95
HI-FI CABINETS	
HS 100	
HS 200	

MODEL	RECOMMENDED RETAIL (inc. VAT)
DOLBY CASSETTE DECKS	
RS 615	129.95
RS 630	157.95
RS 640 (Perspex Cover Inc.)	209.95
RS 646	209.95
RS 671	239.95
RS 676	309.95
RS 678	299.95
SPEAKERS (Each)	
SB 30	26.95
SB 90	49.95
SB 102	59.95
SB 202	79.95
SB 4500 Linear Phase	94.95
SB 5000 Linear Phase	114.95
SB 6000 Linear Phase	219.95
SB 7000 Linear Phase	349.95
ACCESSORIES	
EPC 205C IIS/L/H Magnetic Cartridge	45.95
EPC 270C II Magnetic Cartridge	22.95
EAH 300 Stereo Headphones	43.95
RP 9275 Remote Control Unit for RS 676	27.95
RP 9690 Remote Control Unit for RS 1500/RS 9900	44.95
RP 3200E Electret Condenser Microphone (Stereo)	43.95
RP 3550E Electret Condenser Microphone (Mono)	37.95
RP 3830E Electret Condenser Microphone (Mono)	51.95
RP 3850E Electret Condenser Microphone (Mono)	65.95
RP 9100	149.95
RP 9110	24.95
RP 9120	24.95
RP 9130	11.95
RP 086	59.95
RP 10A	7.95
RP 9646 Carrying case for RS 646	14.95
RP 9686 Carrying case for RS 686	54.95
RT 60 XDLC Low Noise Elcaset Tape	4.95
RT 60 EXLC Ferrichrome Elcaset Tape	7.95
RT 60 XALC Chrome Bias/Eq Elcaset Tape	7.95

MODEL	RECOMMENDED RETAIL (inc. VAT)
PROFESSIONAL SERIES	
ELECTRONICS	
SU 9600	449.95
SE 9600	619.95
SH 9090	474.95
SLIMLINE RANGE	
SU 9070	289.95
SE 9060	289.95
ST 9030	289.95
SH 9020	199.95
SH 9010	289.95
SH 999 (System Cabinet)	
TURNTABLE (Instant Start)	
SP 10 Mark II	529.95
EPA 100 Pick-up Arm	239.95
SH 10B3 Plinth	239.95
TAPE DECKS	
RS 686 Portable Cassette Deck	399.95
RS 1500 Open Reel	899.95
RS 7500 Elcaset	379.95
RS 9900 Two Part Cassette Deck	999.95

E & OE This list supersedes all previous issues. 77/9

"TRADE DESCRIPTIONS ACT 1968

National Panasonic (UK) Ltd., reserves the right to change the design and specifications of goods without notice. Prices in this list are correct at the time of going to press but are subject to alteration. Details of any changes will be available on request."