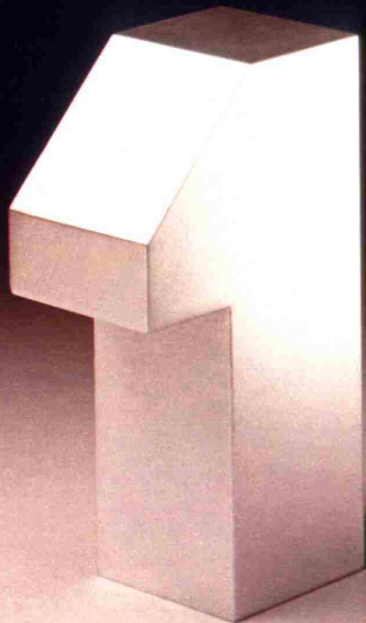




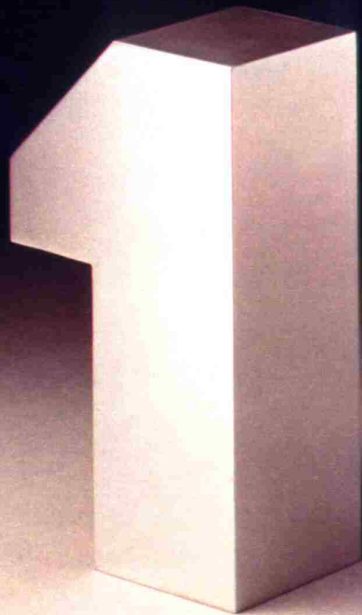
**Ω PIONEER<sup>®</sup>**

HIFI-STEREO 1976/1977



**NUMBER 1 HI-FI  
MANUFACTURER WORLDWIDE**

What's the key to this success? By offering only reliable, high-performance equipment with real features and not simply changes in design or useless gadgets. It's hardly surprising that Pioneer comes out with best-sellers year after year.



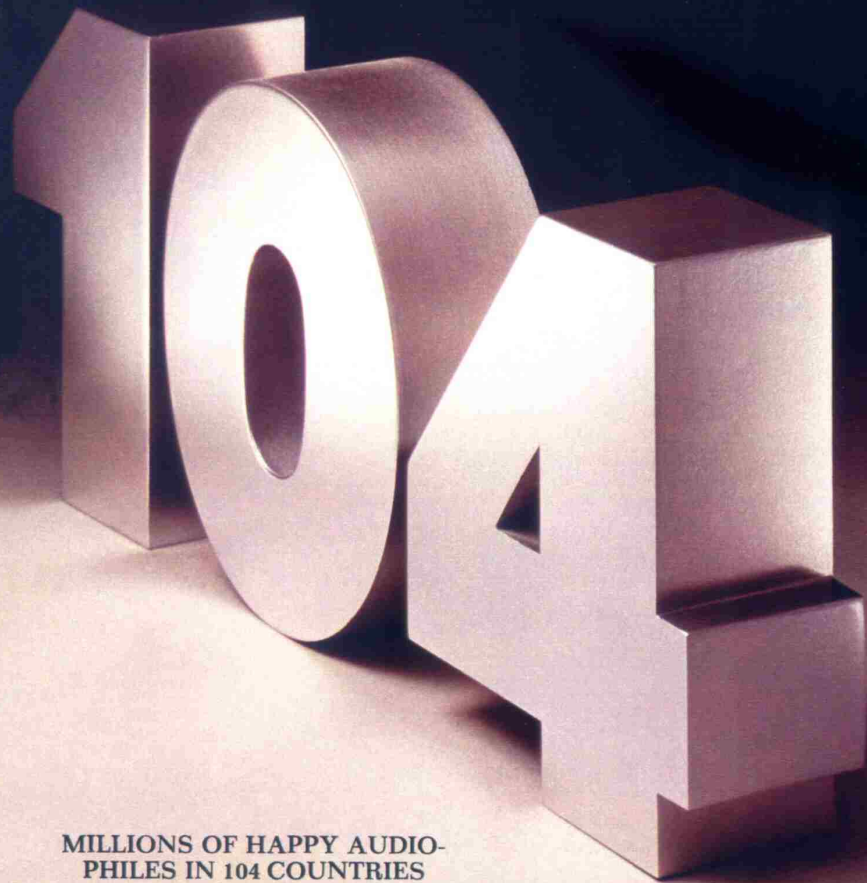
**1 SINGLE ACTIVITY: HI-FI**

Pioneer: everything in Hi-Fi. But only Hi-Fi. If it made transistors, television sets, razors, or washing machines, Pioneer would no longer be what it is: a specialist, the biggest specialist of Hi-Fi in the world.



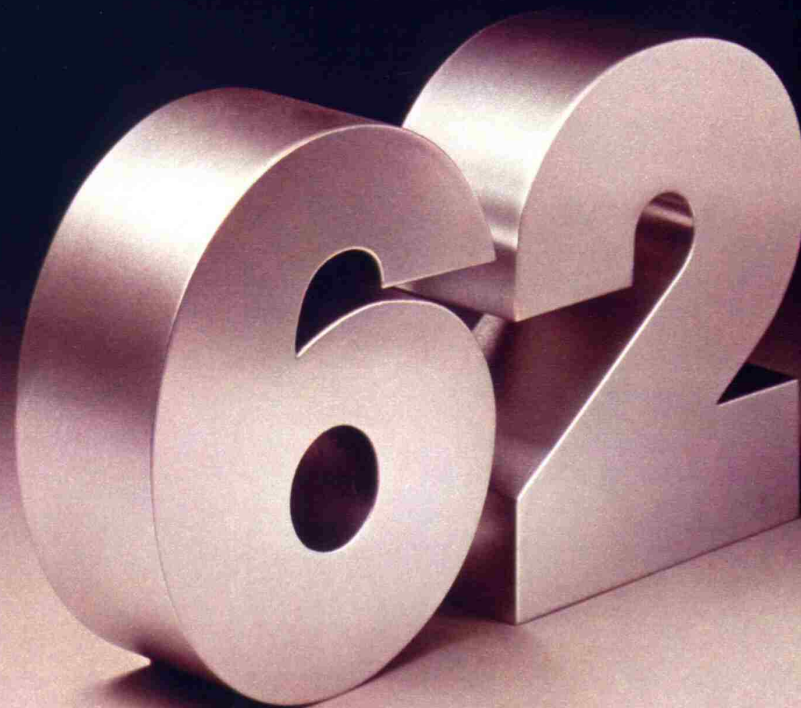
**ALMOST 40 YEARS DEVOTED  
EXCLUSIVELY TO SOUND**

Hi-Fi history can't be separated from Pioneer's. Since the time long ago when Pioneer — an innovator with an aim — was making loudspeakers which would still be respectable today, it has never stopped developing Hi-Fi, adding new enthusiasts on its way forward.

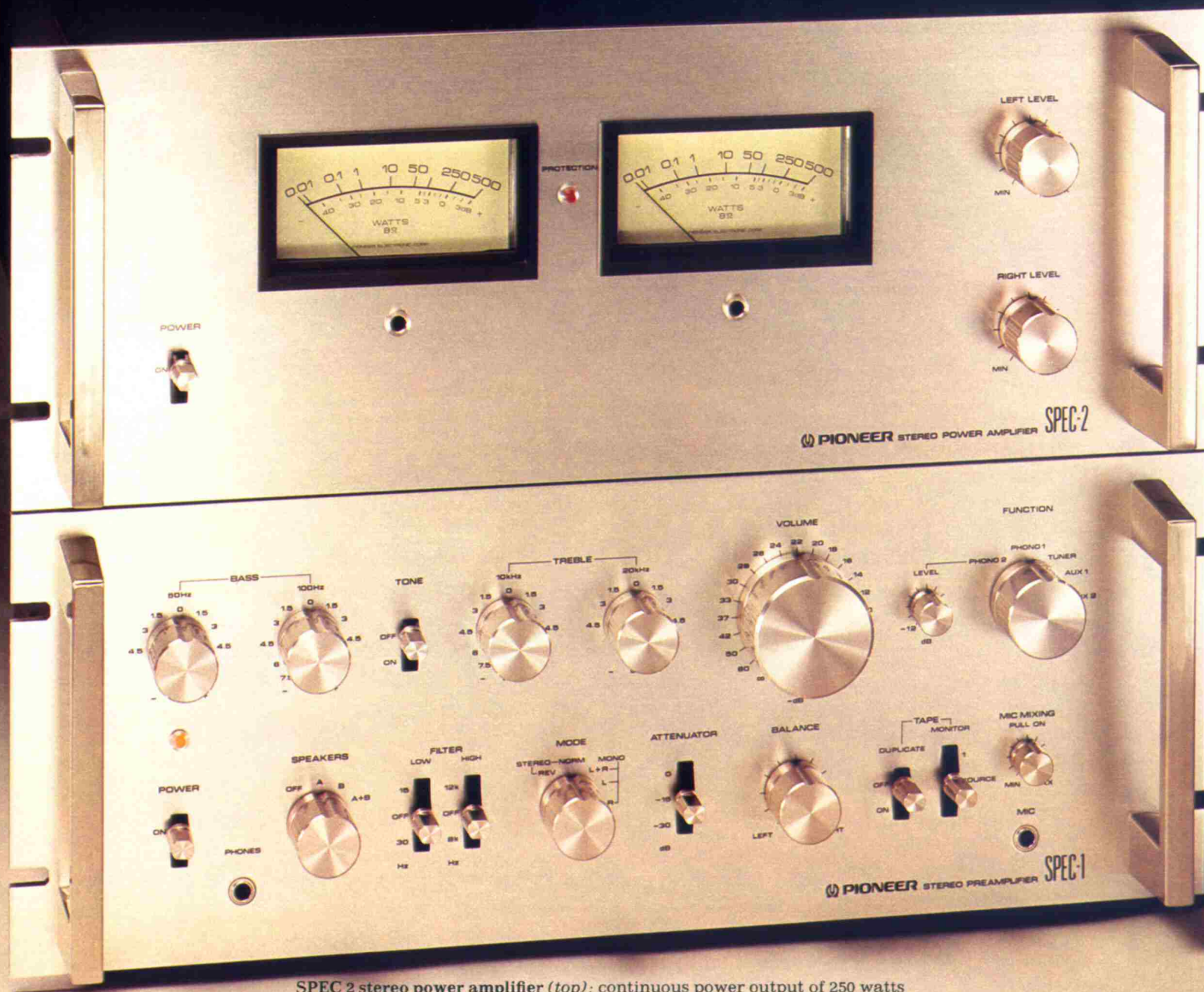


**MILLIONS OF HAPPY AUDIO-  
PHILES IN 104 COUNTRIES**

In Hi-Fi there's only one language,  
perfection. Perfection speaks to  
everyone, everywhere, in the same  
way. You who like music, you too  
will have a Pioneer one day.



**62 MODELS**



**SPEC 2 stereo power amplifier (top):** continuous power output of 250 watts per channel RMS at 8 ohms from 20 Hz to 20 kHz with no more than 0.1% total harmonic distortion. Rack mounting design.

**SPEC 1 stereo preamplifier (bottom):** Latest Pioneer designed state-of-the-art preamplifier with 3 stage direct coupled equalizer amplifier, twin tone controls, attenuator type volume control calibrated in decibels, low and high filters, mic mixing, muting circuit and many other features. Rack mounting design.

## STEREO AMPLIFIERS

The pre-amplifier and amplifier are both the heart and the brains of any hi-fi system.

All the various records, tapes and radio signals are treated by them and amplified to give the speakers that rich and powerful musical flow that signifies Pioneer.

The Pioneer range of amplifiers has no less than 9 different models from  $2 \times 10$  watts to  $2 \times 250$  watts.

Each model has been created with the utmost care and skill, and in each specific range, represents tomorrows technology today.

So how can one choose?

First of all, it must be remembered that a hi-fi amplification system is made up of two distinct parts! The pre-amplifier which includes tone adjustment and balance, and the power amplifier which supplies the power for the speaker system.

Pre-amplifier and power-amplifier are only separated in the high power range. Pioneer's SPEC 1 and SPEC 2, and "Exclusive" C 3 and M 3 are outstanding examples in this category.

### POWER AND MUSIC

With SPEC 1 and 2, C 3 and M 3, Pioneer has created models that satisfy the highest professional standards.

To reach this goal all technical criteria were explored and exploited. First of all, power: it's there, and really there. No less than 150 watts per channel for M 3 (8 ohms) and all of this with a total harmonic distortion of less than 0.1% between 20 Hz and 20 kHz!

All the characteristics one would

expect in such ambitious hi-fi systems have been greatly surpassed: RIAA correction from 30 Hz to 15 kHz at  $\pm 0.2$  dB, less than 0.1% intermodulation distortion, signal to noise ratio of more than 100 dB (M 3) and 110 dB (SPEC 2) and many other astonishing

specifications that you can find at the end of this catalogue.

For specifications as advanced as these, Pioneer had to use the latest and most sophisticated circuits and components: 3 stage direct coupled pre-amplifier with low noise PNP transistors

and SEPP class A circuit for the third stage (SPEC 2), film type resistors and styrol capacitors with low tolerance on RIAA equalizer circuit, ample power transistors and electrolytic condensers on SPEC 2 and M 3, and even more.

### PIONEER INTEGRATED AMPLIFIERS: THE STANDARD

Aside from the "monsters" SPEC 1 and 2, C 3 and M 3, Pioneer engineers have created a complete line of integrated preamplifiers/amplifiers, each of them boasting qualities that differentiate it notably from its competitors. Better musicality, better performance,

technical advancement, a pleasure to use that's Pioneer.

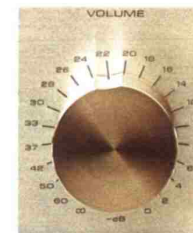


SPEC 1



**Exclusive M 3 stereo power amplifier (top):** Continuous power output of 150 watts per channel RMS at 8 ohms from 20 Hz to 20 kHz with no more than 0.1% total harmonic distortion. Both C 3 and M 3 are housed in a luxurious rosewood finish cabinets.

**Exclusive C 3 stereo preamplifier (bottom):** Unique stereo preamplifier with balanced positive/negative power supply, class A operation SEPP equalizer, precise twin tone controls and filter circuits, and more. Wide number of input sources: 3 tape, 3 AUX, 3 phono, 1 tuner.



Main volume control with 22 contact points calibrated in decibels.



**SA-9900:** State-of-the-art integrated stereo amplifier. Continuous power output of 110 watts per channel RMS at 8 ohms from 20 Hz to 20 kHz with no more than 0.1% total harmonic distortion (T.H.D). Twin tone controls. Attenuator. Low and high filters. Automatic protection circuit. Full complement input and output terminals. Tape to tape dubbing.



**SA-7500 (top):** Integrated stereo amplifier. 40 watts per channel RMS at 8 ohms from 20 Hz to 20 kHz with no more than 0.3% T.H.D. Two step tone controls. Low and high filters. Attenuator. Tape to tape dubbing.

**SA-8500 (middle):** Integrated stereo amplifier. 60 watts per channel RMS at 8 ohms from 20 Hz to 20 kHz with no more than 0.1% T.H.D. Twin tone controls. Low and high filters. Attenuator. Tape to tape dubbing.

**SA-9500 (bottom):** High power integrated stereo amplifier. 80 watts per channel RMS at 8 ohms from 20 Hz to 20 kHz with T.H.D. less than 0.1%. Two step tone controls. Low and high filters. Attenuator. Tape to tape dubbing.



**SA-5300 (top):** Integrated stereo amplifier. 10 watts per channel from 40 Hz to 20 kHz with no more than 0.8% T.H.D. Tape monitor. Loudness. 2 pairs of speakers.

**SA-6300 (middle):** Very good cost/watt/distortion ratio stereo integrated amplifier. 20 watts per channel from 40 Hz to 20 kHz with no more than 0.8% T.H.D. Tape monitor. Loudness. 2 pairs of speakers.

**SA-7300 (bottom):** Medium-power stereo integrated amplifier with stable OCL integrated circuit power section and accurate equalizer. 35 watts per channel from 20 Hz to 20 kHz with no more than 0.3% T.H.D. Tape to tape dubbing. Loudness. Tone defeat. 2 pairs of speakers.

**FROM THE SA-5300 TO THE SA-9900:  
SELECT THE HEART OF YOUR  
STEREO SYSTEM ACCORDING TO  
YOUR NEEDS**

From the preamplifier phono equalizer on, Pioneer norms are very strict. RIAA correction is as precise as  $\pm 0.5$  dB for the SA-5300, and reaches  $\pm 0.2$  dB on the SA-9900.

The sensitivity and the phono overload level makes it possible from the SA-5300 on to obtain excellent dynamic range: 2.5 mV to 150 mV. On more powerful models these figures are improved up to the extraordinary one of 500 mV on the SA-9900.

Tone controls must be easy to use. Pioneer has selected a click-stop contact point system (SA-5300 to SA-7300) and adopted the famous "twin-tone" control (SA-7500 to SA-9900).

Regarding power, it's useless to obtain flattering figures, if the norms of frequency response and distortion aren't rigorous enough. What good is it to listen to a powerful but inaudible sound? This is the reason why Pioneer gives its power figures on the entire audible range from 20 Hz (or 40 Hz) to 20 kHz and at the same time giving the harmonic distortion which is of course always very low (and most of all inaudible): 0.8% (SA-5300 and SA-6300), 0.3% from the SA-7300 on, and 0.1% from the SA-8500!

Finally, one always finds on Pioneer equipment a sufficient quantity of input and output terminals (from 4 input terminals and 2 pairs of speakers on the

SA-5300, to 7 input terminals and 2 pairs of speakers on the SA-9900), monitoring possibilities, headphones jacks, mic jacks (from the SA-7500), loudness controls and muting (from the SA-7500).



*Precise 3 stage direct coupled phono equalizer on SA-7500.*

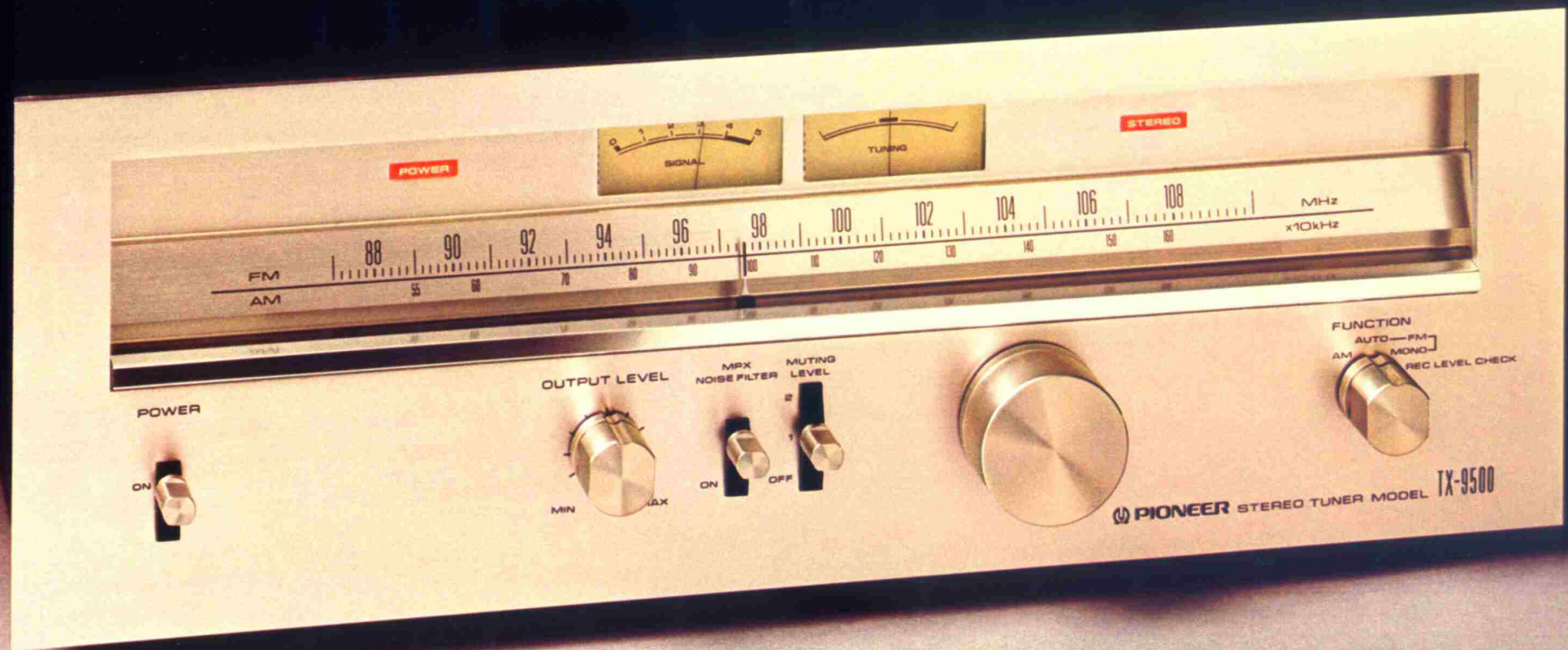
**THE PHYSICAL  
TOUCH OF A  
PIONEER AMPLIFIER**

All of the forgoing would be of little value without an impeccable appearance. Here, too, Pioneer is a master craftsman. To be convinced it is only neces-

sary to look around a Pioneer amplifier, and above all to touch it: this physical sensation of precision and robustness can be conveyed to you only by Pioneer.



*Single tone controls up to SA-7300, different tonal combinations featured on SA-7500 to SA-9900.*



TX-9500: High-grade AM/FM stereo tuner with high sensitivity 5 gang front end, buffer circuit and built-in recording level check signal. Signal to noise ratio: 80 dB. Sensitivity: 1.2  $\mu$ V (DIN), 8.7 dBf (IHF).





**TX-5300 (top):** Highly sensitive and selective stereo AM/FM tuner with integrated circuits. PLL multiplex circuits. Signal to noise ratio: 70 dB. Sensitivity: 1.6  $\mu$ V (DIN), 10.8 dBf (IHF).

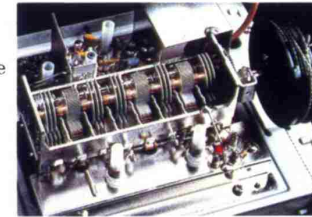
**TX-7500 (bottom):** Functional style stereo AM/FM tuner with twin meters, multiplex noise filter, PLL stereo FM demodulator. Signal to noise ratio: 73 dB. Sensitivity: 1.4  $\mu$ V (DIN), 10.8 dBf (IHF).

## STEREO TUNERS

What should an excellent tuner give you?

Five main points:

- A good sensitivity to catch the weakest signals of distant stations.
- A good selectivity that enables you to select your chosen station without any interference.
- A good stereophonic channel separation.
- A good signal to noise ratio.
- Easy listening due to precise and sensitive tuning controls.



FM front end of TX-9500.

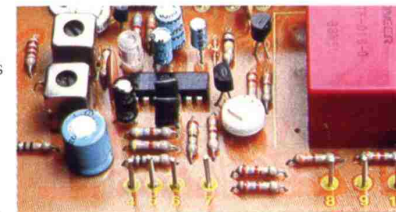
### FOR PERFECT RECEPTION, PIONEER

In a Pioneer tuner's FM front end you always find a frequency linear variable capacitor, which eliminates interference before it can spoil the sound. The radio frequency stage for amplification is equipped with field effect transistors. The result is a very high sensitivity (8.7 dBf on TX-9500, 10.8 dBf on TX-7500 or TX-5300).

The FM IF circuit features phase linear ceramic filters and LSI integrated circuits (equivalent to over 200 semiconductors). The two factors involved in this process are selectivity and capture ratio. The multiplex stereo section involves a PLL system which is much more stable against temperature fluctuation.

### FUNCTIONAL DESIGN

You can't always judge a tuner by its front panel but if a tuner looks ordinary these days the chances are that it will sound ordinary. The Pioneer looks are the tip off to its new concept design, inside and out.



Multiplex circuit of TX-9500.

### HIGH VERSATILITY

Pioneer tuners, from TX-5300 to TX-9500, include a large number of special facilities:

- Built in recording signal level check, to adjust level of recording before the starting of an FM broadcast (on TX-9500).
- FM muting (TX-5300, TX-7500) with 2 steps on TX-9500.
- Multiplex noise filters (TX-7500, TX-9500).
- Scope terminals for precise measurement of tuning.
- Adjustable output level (TX-9500, TX-7500).



SX-1250: AM/FM stereo receiver. 160 watts per channel RMS  
 (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.1%). FM sensitivity: 1.3  $\mu$ V (DIN). 8.7 dBf (IHF).  
 Multipath switch. FM muting. Twin tone controls. Low-cut and high-cut filters.  
 Tape duplication switch. L and R MIC terminals. 5 input terminals.  
 3 pairs of speakers. Separable preamp.

## STEREO RECEIVERS

Because it enables you to enjoy both the joys of records and of the numerous musical programmes broadcast on the air in mono and stereo, the receiver is by far the most convenient piece of hi-fi equipment. It is no coincidence that Pioneer is particularly reputed for this type of equipment, the refinement, performance, and sturdiness of Pioneer receivers is almost legendary.

Ask one of the thousands of audiophiles already equipped with even an old Pioneer receiver and you'll be convinced.

The range of Pioneer receivers is particularly wide. As many as 12 models, including the two quadraphonics, from 2 × 15 watts for the SX-450 up to the extraordinary SX-1250 with a record 2 × 160 watts.

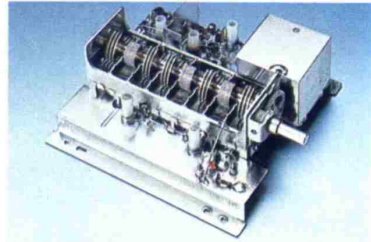
### PIONEER THE UNCOMPROMISING DEMAND OF QUALITY

There is no bottom line in Pioneer and the least powerful, the SX-450 presents a total harmonic distortion of only 0.5%, which reaches 0.1% when you get to the SX-750! As for its sensitivity, it's already 11.2 dBf on the SX-450 and reaches 8.7 dBf on the SX-1250.

To achieve this quality, Pioneer carefully chooses the components and the circuitry so that the quality of each FM, AM, preamp, and amp section is beyond reproach regardless of the model you select.

### FM FRONT END AND FM IF SECTION

The quality of these two sections is decisive for **sensitivity**, enabling you to get stations whose signals are weak or weakened by distance or obstacles and for **selectivity** which rejects undesirable stations. This is why Pioneer uses field-effect transistors (FET and MOS-FET) for the first section and variable capacitors with a minimum of 3 gangs (SX-450 to 650) and up to 5 gangs (SX-1250). Multipath switch ensures accurate antenna mounting for optimum reception (SX-1050 and



FM front end with 5 gang variable capacitor on SX-1250.

SX-1250).

### MULTIPLEX (MPX) CIRCUIT

Its function is to separate the right and left channels from the stereo FM signal. This is a very complex operation and often influenced by temperature and air humidity. The phase lock loop integrated circuits (PLL) automatically control the stability of this separation. They are standard on all Pioneer equipment from the SX-450 to the SX-1250.

### FM MUTING

A built-in muting circuit effectively eliminates irritating pop and interstation noises during tuning and detuning on all Pioneer receivers.



Huge power supply with toroidal core power transformer on SX-1250.

### AM (LONG AND MEDIUM WAVE) RECEPTION

AM reception is often a neglected point on many receivers, and the poor quality of the sound drives you back to FM even when you want to listen to an interesting program on AM. Not on a Pioneer, thanks to the use of LSI (large scale integrated circuits), ceramic filters (SX-450, 550, 650; LX-434, 550) and two or three gang capacitors (SX-750 to 1250).

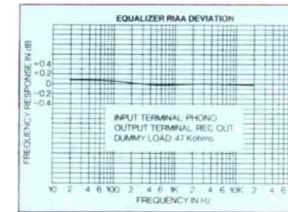
### HIGH CLASS EQUALIZER AND CONTROL PREAMPLIFIER

The quality signal produced by the FM section must be as carefully treated as the signals from the turntable, the tape recorder, or the cassette deck.

For records the direct coupled 3 or 4 stage preamplifier equalizers give an RIAA correction always within  $\pm 0.3$  dB, and input tolerances of 150 mV (SX-450) to 500 mV (SX-1250) assuring good restitution of the high and low frequencies and a good dynamic range.

The control preamp using field effect transistors and integrated circuits (CR type) allows very delicate control.

Starting with the SX-750, there is double effect and twin tone control system.



Equalizer RIAA deviation on SX-1050.

### POWER SUPPLY AND PROTECTION OF POWER AMPLIFIER

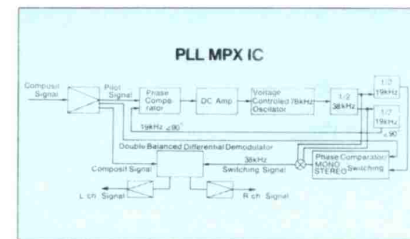
The power of the Pioneer receivers is a real power, always indicated from 20 to 20 000 Hz with the corresponding maximum distortion. Direct coupled PNP, NPN circuits (up to SX-950) and Darlington transistorized circuits (SX-1050, SX-1250) assure this success. So that this power can be supplied, Pioneer chose oversize transformers and electrolytic capacitors to provide all the energy necessary for the lowest frequencies.

### REFINED DESIGN AND OPERATION FEATURES

The presentation of the Pioneer receivers SX-450 to SX-1250 is of a remarkable quality. Pioneer styling is also legendary: touch the button of a Pioneer and compare to others. Such production precision is almost incredible.

Finally, it's the power and the variety of possibilities which will enable you to choose.

Hurry to your Pioneer specialist who will describe everything a Pioneer receiver can do.



PLL MPX integrated circuit.



**SX-950 (top):** AM/FM stereo receiver. 85 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.1%). FM sensitivity: 1.6  $\mu$ V (DIN). 10.3 dBf (IHF). FM muting. Two step tone controls. Low-cut and high-cut filters. Tape duplication switch. 5 input terminals. 3 pairs of speakers. Separable preamp.

**SX-1050 (bottom):** AM/FM stereo receiver. 120 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.1%). FM sensitivity: 1.6  $\mu$ V (DIN). 10.3 dBf (IHF). Multipath switch. FM muting. Twin tone controls. Low-cut and high-cut filters. Tape duplication switch. L and R MIC terminals. 5 input terminals. 3 pairs of speakers. Separable preamp.



**SX-750 (top):** AM/FM stereo receiver. 50 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.1%). FM sensitivity: 1.7  $\mu$ V (DIN). 10.7 dBf (IHF). FM muting. High-cut filter. Tape duplication switch. 5 input terminals. 2 pairs of speakers.

**SX-850 (bottom):** AM/FM stereo receiver. 65 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.1%). FM sensitivity: 1.6  $\mu$ V (DIN). 10.3 dBf (IHF). FM muting. Two step tone controls. Low-cut and high-cut filters. Tape duplication switch. 5 input terminals. 2 pairs of speakers.



**SX-450 (top):** AM/FM stereo receiver. 15 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.5%). FM sensitivity: 1.8  $\mu$ V (DIN). 11.2 dBf (IHF). Tape monitor switch. FM muting. 2 pairs of speakers.

**SX-550 (middle):** AM/FM stereo receiver. 20 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.3%). FM sensitivity: 1.8  $\mu$ V (DIN). 11.2 dBf (IHF). FM muting. Two tape monitors. 2 pairs of speakers.

**SX-650 (bottom):** AM/FM stereo receiver. 35 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.3%). FM sensitivity: 1.7  $\mu$ V (DIN). 10.7 dBf (IHF). FM muting. Two tape monitors. 2 pairs of speakers.



**LX-434 (top):** FM/LW/MW stereo receiver. 15 watts per channel RMS (8 ohms; 40 Hz to 20 kHz; T.H.D. no more than 0.8%). FM sensitivity: 1.3  $\mu$ V (DIN). 10.7 dBf (IHF). FM muting. Tape monitor switch. 2 pairs of speakers.

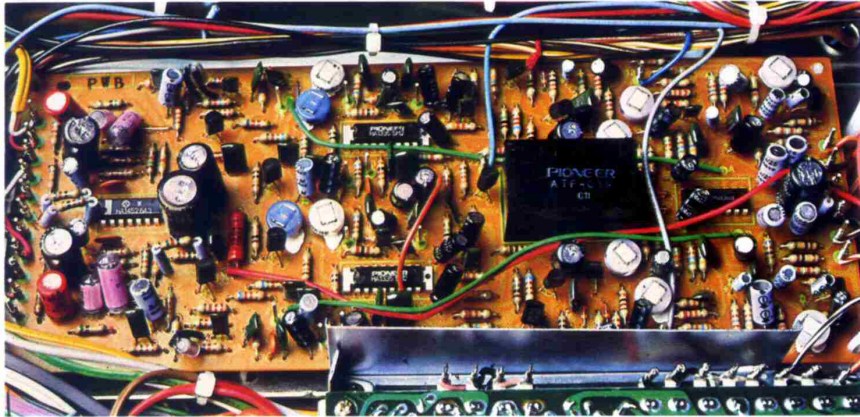
**LX-550 (bottom):** FM/LW/MW stereo receiver. 20 watts per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.3%). FM sensitivity: 1.8  $\mu$ V (DIN). 11.2 dBf (IHF). FM muting. Two tape monitors. 2 pairs of speakers.



**QX-747 A (top):** AM/FM four channel stereo receiver. 20 watts (4 channel), 40 watts (2 channel) per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.5%). CD-4 demodulator. SQ decoder. Regular matrix decoder. Four channel level indicator. FM sensitivity: 1.3  $\mu$ V (DIN). 10.8 dBf (IHF). Power boosting circuit. Two-tape monitor switch.

**QX-949 A (bottom):** AM/FM four channel stereo receiver. 40 watts (4 channel), 60 watts (2 channel) per channel RMS (8 ohms; 20 Hz to 20 kHz; T.H.D. no more than 0.3%). CD-4 demodulator. SQ decoder. Regular matrix decoder. Four channel level indicator. FM sensitivity: 1.2  $\mu$ V (DIN). 10.3 dBf (IHF). Power boosting circuit. High-cut, low-cut filters. Two-tape monitor switch.

## QUADRAPHONIC RECEIVERS



CD-4 demodulator on QX-949 A.

Pioneer has studied the problem of quadrasonic receivers with the aim of enabling you to play every four channel program source available today – and tomorrow, and they have succeeded. It's all four channel in four different ways.

### THE LATEST CD-4 DEMODULATOR

Playing CD-4 records with full fidelity and space expanding four channel realism is easy with the Pioneer QX-747 A and QX-949 A. They have a built in CD-4 demodulator of the latest design, clear sound localisation in the four channels is achieved by simple manipulation of the CD-4 separation controls.



4 channel level indicator on QX-949 A.

decoder help to obtain the very best separation between the front and rear, as well as the left and right channels, essential for the true to life reproduction of sound field when you play an SQ encoded four channel record through either the Pioneer QX-747 A or QX-949 A.

### REGULAR MATRIX (RM) DECODER

The RM position on the four channel mode selector of both Pioneer QX-747 A and QX-949 A is to be used when you play any matrix four channel record other than SQ or wish to

synthesise four channel stereo from a normal stereo disc.

### OTHER FOUR CHANNEL FEATURES

- A four channel level indicator.
- A 4 CH-MPX out terminal is located on the back panel enabling you to hook up an FM four channel adaptor

to receive FM discrete four channel broadcast when they become available in the future.

In addition to this advance quadrasonic performance, the QX-949 A offers excellent FM-AM tuner performance with very wide stereo separation thanks to:

- FM front end with MOS type FET.
- Local oscillator with buffer circuit (QX-949 A).
- Excellent phase linearity and high selectivity.
- High performance multiplex integrated circuit.
- Effective FM muting switch.
- Linear FM dial scale and tuning meter.
- Outstanding AM section.

QX-949 A produce 40 watts per channel at 8 ohms (four channels driven) 20 Hz to 20 000 Hz with no more than 0.3% T.H.D.



MPX out terminal.

### ALL THE POWER YOU NEED FOR A BIG FOUR CHANNEL SOUND

QX-747 A produces 20 watts per channel at 8 ohms (four channels driven) 20 Hz to 20 000 Hz with a total harmonic distortion of 0.5%.



Mode and function selection on QX-747 A.



PL-530; Dual motor automatic direct drive turntable. Hall element DC servomotor. Full-automatic operation. Double float mounting system. S-shaped pipe tonearm.



## TURNTABLES

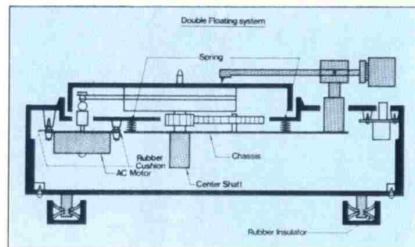
In spite of the astounding progress of reel to reel tapes and especially cassette decks, records remain the number one music media. It's for this reason that none of the leading hi-fi manufacturers can neglect the turntable. A turntable must be of high quality, and Pioneer realise this. Whatever the price a Pioneer turntable represents the highest workmanship, and the least expensive of the range, the PL-112 D possesses characteristics not afforded even by the more expensive competitive counterparts.

### MODERN DRIVE TECHNIQUES

The movement of the turntable must be of the utmost accuracy in order for the tonearm to work efficiently. Pioneer was perhaps the first of the major hi-fi manufacturers to have perfected both of the modern drive techniques: belt drive, with synchronous motor; direct drive, with DC motor.

### BELT DRIVE

Synchronous 4 pole motors are used, their accuracy being independent of mains supply. The power of the motor is transmitted to the platter by a dual diameter capstan and a special polished polyurethane belt. This feature contributes to minimising the wow and flutter to 0.1% on PL-112 D, PL-115 D and PL-117 D turntables.



Double floating system on PL-117 D.

### DIRECT DRIVE

Pioneer was the forerunner of this technique which approaches the ultimate perfection. This year Pioneer has once again moved nearer perfection

in direct drive by using a high torque brushless DC Servomotor which delivers powerful and smooth platter rotation with particular precise speed maintenance and excellent load resistance.

Purely electronic non contact point magnetic pole switchover of the stator coil in the path drive motor is achieved with the use of a Pioneer Hall element.

These features lead to the reduction of wow and flutter to below 0.045% and ensures a signal to noise ratio of more than 68 dB (DIN B) on the PL-510 A and more than 70 dB on the PL-530.



DC servo controlled Hall motor.

### HOWLING FREE, DOUBLE FLOATING SYSTEM FOR SUPERIOR TONAL QUALITY

On all the Pioneer turntable range, a double-float system eliminates external vibrations of all types, including the kind of resonance called "feedback". Turntable and tonearm assemblies are secured to a rigid steel sub-chassis with a rib-reinforced circumference, this sub-chassis in turn is floated on springs from the cabinet itself along with operating mechanism, power transformer (on PL-510 A and PL-530), etc. This design plus newly designed insulators, means that acoustic feedback does not spoil the tonal quality of your records.



Tonearm pivot with anti-skating control.

### AUTOMATIC TURNTABLES?

According to Pioneer, autochangers are the cardinal sin of high-fidelity, being too heavy for the motor and being the cause of damaging frictions to the records.

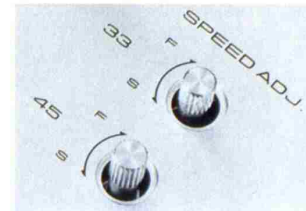
However, certain types of automation can be effective:

- Automatic cueing and return of the tonearm (PL-115 D).
- Automatic cueing and return and "repeat" of the tonearm (PL-177 D, PL-530), because neither of these

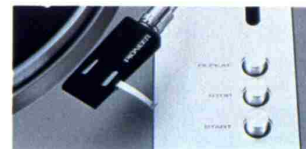
functions cause adverse effects to the trackability of the tonearm.

### NEWLY DEVELOPED S-SHAPED PIPE TONEARM

The high-precision angular contact bearing in the tonearm assembly is the key to the arm's high sensitivity. The S shape of the tubular-pipe arm increases trackability, and contributes to the turntable's professional looks and convenience. In order to maintain tonearm performance at the very highest standards, an anti-skating device, lateral balancer and a direct readout stylus pressure counterweight are provided on all models.



Strobe light facilitates a fine speed adjustment of  $\pm 2\%$  (PL-510 A).



Automatic controls on PL-117 D.



**PL-510 A (left):** Direct drive precision turntable. Hall element DC servomotor. Strobe fine speed adjustment. Double float mounting system. S-shaped tonearm.

**PL-117 D (right):** Full-automatic belt-drive turntable. 4-pole synchronous motor. Double float mounting system. S-shaped pipe tonearm.



PL-115 D (left): Semi-automatic belt-drive turntable. 4-pole synchronous motor.  
Double float mounting system. S-shaped pipe tonearm.

PL-112 D (right): Manual belt-drive turntable. 4-pole synchronous motor.  
Double float mounting system. S-shaped pipe tonearm.



CT-F 2121 (top): Front access stereo cassette deck. Dolby. Independent BIAS and equalization switching. Permalloy heads. Automatic stop. Wow and flutter: no more than 0.12 % (JIS). Frequency response: 30 Hz to 16 kHz (CrO<sub>2</sub>). Signal to noise ratio: 58 dB (Dolby on).

CT-F 9191 (bottom): Front access stereo cassette deck. Vertical double link cassette holding mechanism. 2 motors. "Ferrite Solid" heads. Equalizer and BIAS switches. CrO<sub>2</sub> tape detector and indicator. Solenoid controls. Rewind memory. Peak indicator. Dolby. Mic/line mixing. Wow and flutter: no more than 0.07 % (JIS). Frequency response: 20 Hz to 17 kHz (CrO<sub>2</sub> and FeCr). Signal to noise ratio: more than 62 dB (Dolby on).

## CASSETTE AND OPEN REEL TAPE DECKS

Considerable technical progress and easy to operate facilities are responsible for the development of the tape recorder and, in particular, the cassette recorder.

Today, using a cassette on a real hi-fi recording deck brings you close to the quality of records. Hence, Pioneer's choice: up to a certain price, only cassette decks, since they're as good or even better than the competitive tape recorders in the sample price bracket. Beyond that price, Pioneer offer taperecorders of professional sound recording quality.

### PIONEER CASSETTE DECKS

One of the basic qualities to look for on this type of equipment is the constant speed of the tape. Pioneer's solution is a DC motor (which eliminates main supply's variations) electronically regulated; this solution is standard equipment on all the cassette decks from the CT-3131 A to the prestigious CT-F9191. To ease the work of this motor, the CT-F 9191 and the CT-F 8080 have a second motor responsible for rewinding and fast forward wind. The wow and flutter rates are particularly low: 0.07% for the CT-F 9191 and 0.12% for the CT-F 2121 (JIS).

### THE MIRACLE OF FERRITE HEADS

The width of the gap of the Pioneer ferrite head is micron sized. Polishing is also very important so that the tape contact is perfect with these heads, a frequency response, always better than 30 Hz to 15 kHz (CT-3131 A), is obtained, which reaches 20 Hz to 17 kHz on the CT-F 9191.



Hard and high performance "Ferrite Solid" recording/playback heads on CT-F 9191.



2 channel, 2 track head assembly unit for RT-2022.



2 channel amplifier unit for RT-2022.

### CASSETTE DECKS. VIVE PRACTICALITY!

The cassette is practical but the host of features offered by Pioneer makes it even more so:

- front loading, CT-F 2121 to CT-F 9191,
- vertical cassette with automatic locking CT-F 8080 and CT-F 9191,
- separate input and output controls (CT-F 7070 to CT-F 9191),
- memory touch to find a point on a tape automatically (CT-F 7070 to CT-F 9191 and CT-5151),
- skip function—fast forward wind with sound,
- pause button (on the whole line),
- circuit limiter and peak indicator (CT-F 7070 to CT-F 9191),
- electromagnetic controls (CT-F 8080 and CT-F 9191).

### TAPE RECORDERS

Pioneer has two of very high quality. They have 3 heads (record, playback/monitor, and erase), 3 motors (reels and capstan); 2 tracks with 2 speeds (19 cm/s and 38 cm/s) for the RT-2022; 4 tracks with 2 speeds (9.5 cm/s and 19 cm/s) for the RT-1011 L.

These two machines equipped with electromagnetic controls and separate bias and equalisation allow you to make very high quality recordings. Just look at their technical characteristics: very low wow and flutter (0.10% JIS for the RT-1011 L; 0.04% JIS for the RT-2022); remarkable signal/noise ratio; very wide

frequency responses, etc. (see chart at the end of the catalog).

### RT-2022: AN AMPLIFIER/TAPE DECK COMBINATION OF PROFESSIONAL STANDARDS



Wide range scale level meters and peak level indicator on CT-F 8080.

The advanced tape enthusiasts who desire versatility above all other factors in the choice of an open reel tape system will welcome the multiple professional recording and

playback advantages of the Pioneer RT-2022 tape deck system. Simply by varying the unit combinations of this highly advanced assembly in which the tape transports, plug-in head assembly units, and amplifier units are completely separated, it is possible to tailor the system to a variety of special uses and applications.



Built in Dolby B noise reduction system on all Pioneer cassette deck (except CT-3131 A).



**CT-F 8080:** Front access stereo cassette deck. Vertical double link cassette holding mechanism. 2 motors. CrO<sub>2</sub> tape indicator. "Ferrite Solid" heads. Equalizer and BIAS switches. Solenoid controls. Rewind memory. Peak indicator. Dolby. Wow and flutter: no more than 0.07% (JIS). Frequency response: 20 Hz to 17 kHz (CrO<sub>2</sub>). Signal to noise ratio: 62 dB (Dolby on).



**CT-F 6060 (top):** Front access stereo cassette deck. Wow and flutter: no more than 0.12% (JIS). Frequency response: 40 Hz to 15 kHz (CrO<sub>2</sub>). Signal to noise ratio: more than 62 dB (Dolby on).

**CT-F 7070 (bottom):** Front access stereo cassette deck. Vertical cassette holding. Equalizer and BIAS switch. "Ferrite Solid" heads. CrO<sub>2</sub> tape detector and indicator. Rewind memory. Peak indicator. Dolby. Wow and flutter: no more than 0.07% (JIS). Frequency response: 30 Hz to 17 kHz (CrO<sub>2</sub>). Signal to noise ratio: 62 dB (Dolby on).



CT-3131 A (top): Stereo cassette deck. Auto-stop mechanism. Playback noise filter.  
Wow and flutter: less than 0.13% (JIS).

CT-4141 A (left): Stereo cassette deck. Independent BIAS and equalizer selectors. Dolby  
Skip. Auto-stop mechanism. Wow and flutter: less than 0.13% (JIS).  
Frequency response: 63 Hz to 12 kHz (Dolby on).

CT-5151 (right): Stereo cassette deck. Dolby. Peak level indicator. Level limiter.  
BIAS and equalizer switch. Skip. Rewind memory. Wow and flutter: 0.12% (JIS).  
Frequency response: 63 Hz to 13 kHz (Dolby on).

"Dolby" is a trade mark of Dolby Laboratories Inc.



**RT-2022:**  
Professional open reel tape system.  
2 tracks. 2 channels, 3 motors.  
Capstan drive. 38 cm/sec. and  
19 cm/sec. Wow and flutter: no more  
than 0.04 % (JIS). Signal to noise  
ratio: more than 57 dB. Frequency  
reponse: 30 Hz to 28 kHz ( $\pm 3$  dB at  
38 cm/sec.). Separate read unit.  
Separate record and playback  
amplifier.





**RT-1011 L:**

3 motors. 3 head stereo tape deck.  
4 track. 2 channel recording and play-  
back. 19 cm/sec. and 9.5 cm/sec. Wow  
and flutter: no more than 0.08% (JIS).  
Signal to noise ratio: more than 55 dB.  
Frequency response: 40 Hz to 20 kHz  
( $\pm 3$  dB at 19 cm/sec.). Tape selector.  
Mic/line mixing. Solenoid operated  
controls.



**HPM-100 (left):** 100 watts, 4 way, 4 speaker bass-reflex system with 30 cm carbon-fiber blend woofer and high polymer super-tweeter.

**HPM-60 (right):** 60 watts, 4 way, 4 speaker bass-reflex system with 25 cm carbon-fiber blend woofer and high polymer super-tweeter.



HPM-40: 40 watts, 3 way, 3 speaker bass-reflex system with 25 cm carbon-fiber blend woofer and high polymer super-tweeter.

## LOUDSPEAKER SYSTEMS

Pioneer, the number one speaker manufacturer in the world has several reasons for considering itself an expert in this field.

Pioneer's research and development group have perfected a new measuring system linked directly to the human ear which takes account of impulse response, accumulated spectrum, dynamic distortion and other acoustic phenomena. These continuing studies have made it possible to improve the knowledge of high-fidelity speakers.

As a result Pioneer is introducing an almost completely new range this year which features an improvement of the CSE series due to carbon-fiber blend woofers; and the introduction of the new 3 or 4 way HPM range, equipped with state-of-the-art high polymer piezoelectric supertweeter the current ultimate achievement of Pioneer acoustic research engineers.

### PIONEER'S UNIQUE CARBON-FIBER BLEND WOOFERS

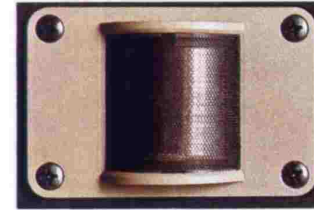
Pioneer's success with its unique cone material called carbon-fiber blend is now well known, and the realistic sound of Pioneer speakers owe much to its use. Because the material is lighter in weight than comparable cone paper type materials, but ideally rigid it responds more truthfully to low frequency impulses.

### HIGH-POLYMER SUPER-TWEETER

There are five outstanding advantages of this unique super-high-frequency driver unit which make it the ideal transducer:

1—Its semicylindrical form covers a wide 180 degrees range, ending conventional tweeter directionality.

- 2—Its ultra-thin, high-polymer film diaphragm vibrates in a "breathing motion" over its entire surface.
- 3—It is effectively damped by elastic materials to prevent the deterioration of its best characteristics and to end excessive harmonic distortion.
- 4—It has a high power handling capability.
- 5—Its sound is crisp, natural and clean.



High-Polymer super-tweeter

### COMPUTER DETERMINED CABINETS AND HIGH EFFICIENCY NETWORKS

Having the best loudspeakers serves no real purpose unless the cabinet design is well planned and incorporates crossover networks of the highest quality.

The crossover network, using metalised paper capacitors and ferrite core coils assure gentle crossover slope of 6 dB per octave.

Pioneer has chosen two different techniques of cabinet design: bass reflex and infinite baffle type. Each technique has been perfected and is chosen to fulfill every specific eventuality: the cabinet itself was designed with the assistance of computers in a scientifically determined structural assembly.

### SPEAKERS TO LIVE WITH

Pioneer has not forgotten that a speaker system is also a piece of furniture. Expensive furniture that you may wish to keep for a long time. The style was purposely chosen to adapt and harmonize with a multitude of decors. Close inspection will reveal the true quality of your Pioneer speakers: not for nothing does Pioneer have the reputation of producing the best finished on the market.



CS-E 731: 100 watts, 3 way, 3 speaker infinite baffle type system with 30 cm carbon-fiber blend woofer, 6.5 cm dome type midrange and 2.5 cm dome type tweeter.



CS-E 531 (left): 80 watts, 3 way, 3 speaker infinite baffle type system with 25 cm carbon-fiber blend woofer, 6.5 cm dome type midrange and 2.5 cm dome type tweeter.

CS-E 421 (right): 60 watts, 2 way, 2 speaker infinite baffle type system with 20 cm carbon-fiber blend midrange-woofer and 2.5 cm dome type tweeter.



**CS-E 321 (left):** 40 watts, 2 way, 2 speaker infinite baffle compact system with 20 cm carbon-fiber blend midrange-woofer and 2.5 cm dome type tweeter.

**CS-515 (right):** 50 watts compact low cost 3 way, 3 speaker high efficiency bass reflex system with 25 cm cone woofer, 12 cm cone midrange, 2.5 cm dome tweeter.



**CS-313 A (left):** 20 watts compact bookshelf 2 way, 2 speaker high efficiency bass reflex system with 20 cm cone type midrange-woofer and 7.7 cm cone type tweeter.

**CS-53 (right):** 40 watts, 2 way, 2 speaker grained wood bass reflex system with 30 cm midrange-woofer and 6.3 cm cone type tweeter.



**SE-700:**  
High polymer piezoelectric stereo headphones with fantastic flat response and low distortion.



**SE-505:**  
2 way electrodynamic stereo headphones with Mylar diaphragms, volume and tone controls.



**SE-500:**  
High polymer piezoelectric stereo headphones.



**SE-255:**  
Electrodynamic stereo headphones with carbon-fiber blend drivers and continuously variable left/right volume controls.



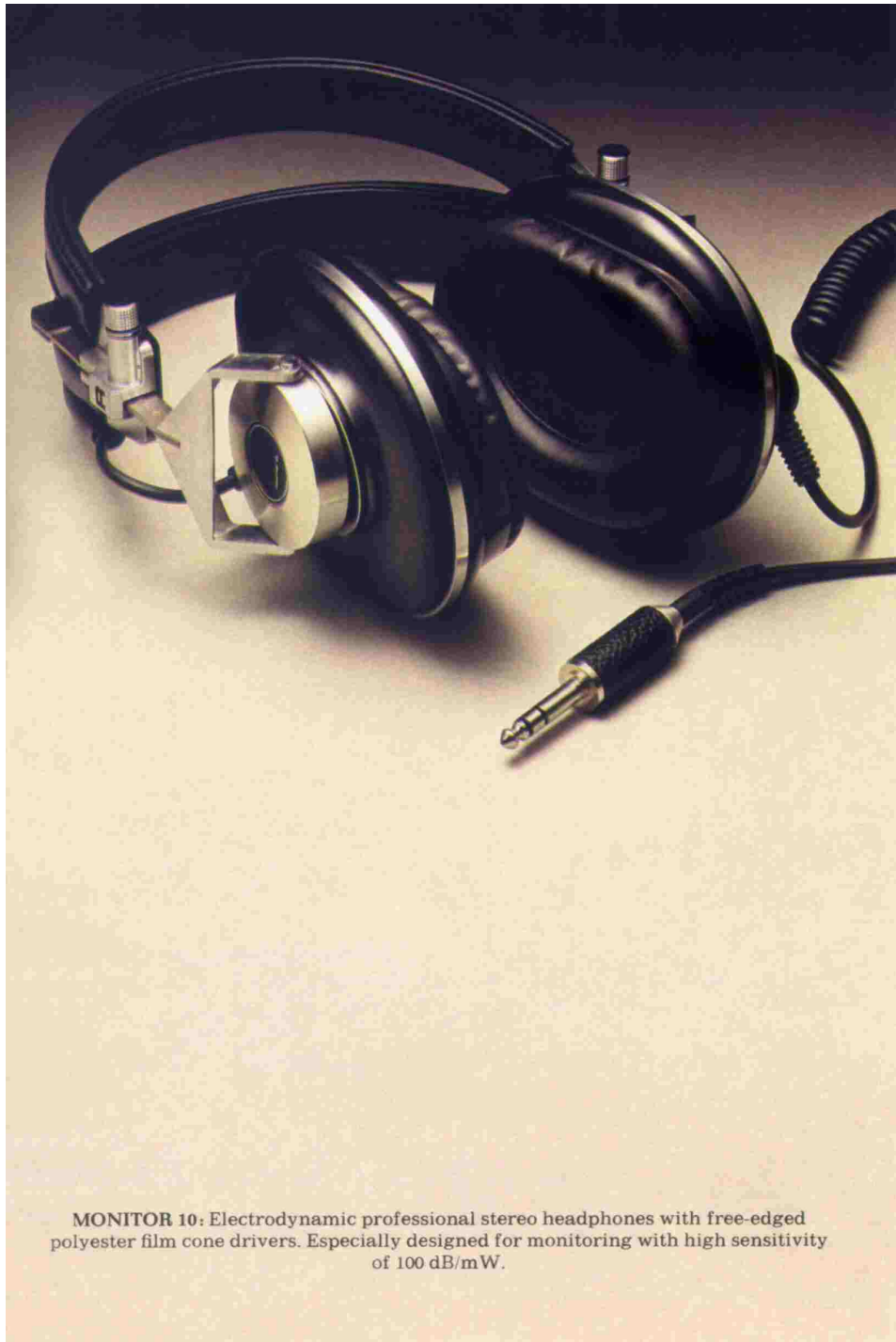
**SE-305:**  
Electrodynamic stereo headphones with Mylar diaphragms.



**SE-205:**  
Value-packed electrodynamic stereo headphones with 70 mm cone type drivers.



**SE-300:**  
High polymer value-packed piezoelectric stereo headphones.



**MONITOR 10:** Electrodynamic professional stereo headphones with free-edged polyester film cone drivers. Especially designed for monitoring with high sensitivity of 100 dB/mW.

## STEREO HEADPHONES

Listening with headphones offers numerous advantages. It's a completely new perception which isolates you from normal everyday noises. Headphones offer you the possibility of listening to music at any hour without causing irritating "noise pollution". Above all, headphones give that personalized musical sensation that not even the most expensive and advanced speakers could give.

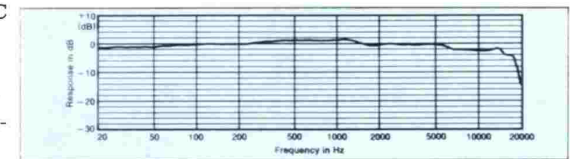
used with your amplifier or receiver without fear of overloading.

### THE WORLD'S FIRST HIGH-POLYMER STEREO HEADPHONES

With SE-700, SE-500 and SE-300, Pioneer is first again. This time with an entirely new concept in high-fidelity stereo headphones. This new concept is

### FIVE ELECTRODYNAMIC HEADPHONES

Pioneer's five electrodynamic headphones offer a high degree of audio comfort. Long and careful studies have resulted in Pioneer being able to produce much lighter cone drivers. Two specific techniques have been employed: carbon-fiber blend (SE-255), and an ultra-light polyester called mylar (SE-305, SE-505 and MONITOR 10). No matter which technique, the result is assured: these electrodynamic headphones (as well as the best selling SE-205) have an excellent transient response, and ensure a crisp, rich, uncolored tonal quality with a full frequency range response.



*Frequency response of SE-300.*

based on an unusual phenomenon of electrophysics called the piezoelectric effect. The transparent tonal response you hear is comparable to that of the electrostatic type, but no matching transformer is required. Look at the near flat response from 20 to 20 000 Hz and you will be convinced that success is repeating itself with Pioneer's introduction of what can be called the second generation of hi-fi stereo headphones.

### MONITOR 10: FOR RELAXED PRIVATE LISTENING AND PROFESSIONAL MONITORING

Pioneer's MONITOR 10 stereo headphones are designed for use in usual private listening circumstances as well as in professional-type tape recording and other monitoring situations. These reasonably-priced stereo headphones feature an unusually high sensitivity (or efficiency) of 100 dB/mW. This means you can connect them directly to your tuner, tape deck or preamplifier. Because they also feature a big 700 mW/per channel, maximum input capacity, the MONITOR 10 headphones may also be



**M-6500:** Compact stereo music centre incorporating a stereo turntable with a tuner, an integrated stereo amplifier and a stereo cassette deck. Tuner, turntable and amplifier similar to M-6000. Cassette deck with full auto stop mechanism, pause lever, tape selector (Normal/Chrome) and tape counter. Wow and flutter, no more than 0.13% (JIS). Frequency response: 30 Hz to 15 kHz (CrO<sub>2</sub> tape).



**M-6000:** Compact stereo music centre incorporating a stereo turntable with a tuner and an integrated stereo amplifier. 12 watts per channel RMS at 8 ohms and 1 kHz with no more than 1.0% total harmonic distortion. Headphones jack. Loudness. FM/MW/LW tuner sections. FM sensitivity: 10.8 dBf (IHF). Auto return and auto cut belt drive turntable. S-shaped tonearm. Anti-skating.





**KH-3500:** Compact stereo music centre incorporating a stereo turntable with a tuner, an integrated stereo amplifier and a front loading stereo cassette decks). 10 watts per channel (8  $\Omega$  - 1 kHz). FM/MW/LW tuner sections. Belt drive auto return turntable. S-shaped tonearm. Anti-skating. Stereo cassette deck: wow and flutter no more than 0.15% (JIS). Tape selector. Tape counter. Pause.

## MUSIC CENTRES

How much do you and your family enjoy good music? Enough to get deeply involved in the expense and technical complexity of separate hi-fi components?

If so Pioneer makes the kind of specialized audio equipment you need. If not, Pioneer also makes the kind of equipment—just as sophisticated in circuitry but a lot simpler to use—that puts great music and dependable performance right at your fingertips. It's the space saving Pioneer M-6500, M-6000 and KH-3500 Music Centres.

### HIGH CLASS TURNTABLE

The three Pioneer Music Centres are equipped with belt drive turntables. They have everything necessary for a precision reading of your favorite records: 4-pole synchronous motor, S-shaped tonearm, direct reading counterweight, anti-skating, hydraulic cueing device.

Their quality is equal to that of any separate turntable. The figures prove it: less than 0.08% wow and flutter in all three models, with a remarkably high signal to noise ratio.

### ELECTRONICS

In this realm as well, Pioneer chose not to cut corners. In the tuner and amplifier you'll discover the same quality technology that characterizes Pioneer's separate components: OCL circuits (amplifiers), PLL circuits (tuners). The result is that the RIAA curve is maintained at  $\pm 0.5$  dB, distortion is minimal, and the tuners sensitiv-

ity allows you to receive all broadcasts without interference on three different wave lengths.

### A MUSICAL UNIVERSE ON CASSETTE TAPES

The KH-3500 and the M-6500 are equipped with cassette tape decks and here as well, Pioneer refused to skimp: both the front-loading model (KH-3500) and the horizontal-loading model (M-6500) are driven by DC Servomotors. Both models have all the required controls.



*M-6500 with a pair of CS-E 321 loudspeakers.*

Finally, the M-6000 has not been equipped with an integrated cassette deck, it is therefore priced significantly lower. Nevertheless, were you to change your mind later on, it will always be possible to add a cassette deck. It's been planned that way.

# SPECIFICATIONS

STEREO AMPLIFIERS	SA-9900	SA-9500	SA-8500	SA-7500	SA-7300	SA-6300	SA-5300
Continuous power each channel driven 8 Ω (DIN) both channels driven at 1 kHz, 4 Ω 1 kHz, 8 Ω 20 Hz—20 kHz, 8 Ω	135 W/ch. 2×120 W 2×120 W 2×110 W	95 W/ch. 2×110 W 2×85 W 2×80 W	70 W/ch. 2×85 W 2×65 W 2×60 W	50 W/ch. 2×50 W 2×45 W 2×40 W	45 W/ch. 2×45 W 2×40 W 2×35 W	25 W/ch. 2×24 W 2×22 W 2×20 W (40 Hz—20 kHz)	14 W/ch. 2×14 W 2×12 W 2×10 W (40 Hz—20 kHz)
Total Harmonic Distortion at rated output power 8 Ω, 1 kHz (DIN)	< 0.1 %	< 0.1 %	< 0.1 %	< 0.3 %	< 0.3 %	< 0.8 %	< 0.8 %
Total intermodulation distortion at rated output power 8 Ω (DIN)	< 0.1 %	< 0.1 %	< 0.1 %	< 0.3 %	< 0.3 %	< 0.8 %	< 0.8 %
Power bandwidth, both channels driven 8 Ω (DIN)	5 Hz—40 kHz (0.1 % HD)	5 Hz—40 kHz (0.1 % HD)	5 Hz—40 kHz (0.1 % HD)	5 Hz—40 kHz (0.3 % HD)	5 Hz—60 kHz (0.3 % HD)	5 Hz—70 kHz (0.8 % HD)	15 Hz—100 kHz (0.8 % HD)
Frequency response at AUX input (DIN)	7 Hz—40 kHz (+0 dB, -1 dB)	7 Hz—40 kHz (+0 dB, -1 dB)	7 Hz—40 kHz (+0 dB, -1 dB)	10 Hz—50 kHz (+0 dB, -1 dB)	10 Hz—50 kHz (+0 dB, -1 dB)	20 Hz—30 kHz (+0.5, -1 dB)	20 Hz—30 kHz (+0.5, -1 dB)
Signal-to-noise ratio for Phono for Tuner, Tape PB, AUX	> 70 dB > 95 dB	> 70 dB > 90 dB	> 70 dB > 90 dB	> 70 dB > 90 dB	> 70 dB > 90 dB	> 70 dB > 85 dB	> 70 dB > 85 dB
Input sensitivity/impedance Phono 1 Phono 2	2.5 mV/50 kΩ 2.5—10 mV/35 kΩ, 50 kΩ, 75 kΩ, 100 kΩ	2.5 mV/50 kΩ 2.5—10 mV/35 kΩ, 50 kΩ, 70 kΩ, 100 kΩ	2.5 mV/50 kΩ 2.5—5 mV/50 kΩ	2.5 mV/50 kΩ 2.5 mV/50 kΩ	2.5 mV/50 kΩ —	2.5 mV/50 kΩ —	2.5 mV/50 kΩ —
Tuner, AUX 1, 2, Tape MIC Input 1, 2	150 mV/50 kΩ 6—24 mV/85 kΩ 1 V/50 kΩ	150 mV/50 kΩ 6—24 mV/85 kΩ 1 V/50 kΩ	150 mV/50 kΩ 7.5—15 mV/85 kΩ 1 V/50 kΩ	150 mV/50 kΩ 7.5 mV/85 kΩ 1 V/50 kΩ	150 mV/50 kΩ — —	150 mV/50 kΩ — —	150 mV/50 kΩ — —
Bass control Sub (50 Hz) Main (100 Hz)	±4.5 dB ±7.5 dB	±10 dB (25, 50, 100 Hz) turnover (100, 200, 400 Hz)	±6 dB ±8 dB	±7 dB (100 Hz)/ ±11 dB (100 Hz) turnover (200 Hz/400 Hz)	— ±9 dB	— +9, -8 dB	— +9, -8 dB
Treble control Sub (20 kHz) Main (10 kHz)	±4.5 dB ±7.5 dB	±10 dB (8, 16, 32 kHz) turnover (2, 4, 8 kHz)	±6 dB ±8 dB	±7 dB (10 kHz)/ ±11 dB (10 kHz) turnover (5 kHz/2.5 kHz)	— +8, -6 dB	— +6, -6 dB	— +6, -6 dB
Low filter High filter	15 Hz, 30 Hz (12 dB/oct) 8 kHz, 12 kHz (12 dB/oct)	15, 30 Hz (12 dB/oct) 8, 12 kHz (12 dB/oct)	30 Hz (12 dB/oct) 8 kHz (12 dB/oct)	30 Hz (6 dB/oct) 8 kHz (6 dB/oct)	15 Hz (6 dB/oct) —	— —	— —
Loudness contour (-40 dB position)	— —	— —	+8.5 dB (100 Hz) +4 dB (10 kHz)	+8.5 dB (100 Hz) +4 dB (10 kHz)	+8 dB (100 Hz) +5.5 dB (10 kHz)	+8 dB (100 Hz) +5 dB (10 kHz)	+8 dB (100 Hz) +5 dB (10 kHz)
Phono overload level Phono 1 Phono 2	500 mV 500 mV—1 V	250 mV 250 mV—500 mV	200 mV 200 mV—400 mV	200 mV 200 mV	200 mV —	150 mV —	150 mV —
Maximum power consumption	890 W	665 W	485 W	375 W	310 W	170 W	120 W
Dimensions (W×H×D) mm	420×165×403	420×165×403	420×150×345	420×150×345	350×125×282	350×125×282	350×125×282
Weight (kg)	20	17.2	11.5	10.9	7.6	6.9	6.4

STEREO AMPLIFIERS
Continuous power Both channels driven at 1 kHz, 4 Ω both channels driven at 1 kHz, 8 Ω 20 Hz—20 kHz, 8 Ω
Total Harmonic Distortion at rated output power 8 Ω, 1 kHz (DIN)
Total intermodulation distortion at rated output power 8 Ω (DIN)
Power bandwidth, both channels driven 8 Ω (DIN)
Frequency response at AUX input (DIN)
Signal-to-noise ratio for Phono for Tuner, Tape PB, AUX
Input sensitivity/impedance Phono 1 Phono 2
Tuner, AUX 1, 2, Tape AUX 3 Input 1, 2
Bass control Sub (50 Hz) Main (100 Hz)
Treble control Sub (20 kHz) Main (10 kHz)
Low filter
High filter
Phono overload level Phono 1 Phono 2
Power consumption rated maximum
Dimensions (W×H×D) mm
Weight (kg)

C3	M3	SPEC 1	SPEC 2
—	2×198 W	—	—
—	2×168 W	—	—
—	2×150 W	—	2×250 W
—	< 0.1 %	—	< 0.1 %
—	< 0.1 %	—	< 0.1 %
—	5 Hz–35 kHz (0.1 % HD)	—	—
10 Hz–90 kHz (+0, –1 dB)	10 Hz–80 kHz (+0, –1 dB)	10 Hz–70 kHz (+0, –0.5 dB)	5 Hz–80 kHz (+0, –1 dB)
—	> 100 dB	—	> 110 dB
> 70 dB	—	> 70 dB	—
> 90 dB	—	> 90 dB	—
2.5 mV/50 kΩ 2.5 mV–10 mV/ 25 kΩ 50 kΩ, 100 kΩ 150 mV/100 kΩ 150 mV–25 V/ 100 kΩ	—	2.5 mV/50 kΩ 2.5 mV–10 mV/50 kΩ	—
—	1 V, 2 V/50 kΩ	—	2 V/50 kΩ
±6 dB ±7.5 dB	—	±4.5 dB ±7.5 dB	—
±6 dB ±7.5 dB	—	±4.5 dB ±7.5 dB	—
15 Hz (12 dB/oct) 30 Hz (18 dB/oct)	8 Hz (6 dB/oct)	15 Hz (12 dB/oct) 30 Hz (12 dB/oct)	—
12 kHz (12 dB/oct) 8 kHz (18 dB/oct)	—	12 kHz (12 dB/oct) 8 kHz (12 dB/oct)	—
700 mV 700 mV–1.4 V	—	500 mV 500 mV–1 V	—
28 W	350 W	17 W	500 W
—	870 W	—	—
468×206×342	468×206×370	480×186.5×365	480×186.5×445
12.5	27	11.2	24.3

STEREO TUNERS	TX-9500	TX-7500	TX-5300		
<b>AUDIO SECTION</b>					
Output level/impedance					
Fixed	650 mV/5 kΩ	650 mV/5 kΩ	750 mV/5 kΩ		
Variable	70 mV–2 V/ 3.5 kΩ	50 mV–1.5 V/ 2.5 kΩ	—		
<b>FM SECTION (87.5–108 MHz)</b>					
Sensitivity (DIN) mono at 26 dB signal-to-noise ratio, 40 kHz, dev. (IHF) mono	1.2 μV 8.7 dBf	1.4 μV 10.8 dBf	1.6 μV 10.8 dBf		
Signal-to-noise ratio (IHF) (stereo) (DIN) signal-to-noise ratio unweighted, 40 kHz, 3.3 nW (stereo)	75 dB 70 dB	68 dB 64 dB	68 dB 63 dB		
Total Harmonic Distortion (DIN) stereo	0.2 %	0.3 %	0.3 %		
Capture ratio	1.0 dB	1.0 dB	1.0 dB		
Selectivity (±400 kHz)	85 dB	80 dB	60 dB		
Frequency response (DIN) (+0.2 dB, –2 dB)	20 Hz–15 kHz	20 Hz–15 kHz	20 Hz–15 kHz		
Stereo separation (1 kHz)	40 dB	40 dB	35 dB		
Image rejection	110 dB	85 dB	60 dB		
Subcarrier suppression	65 dB	65 dB	40 dB		
<b>AM SECTION (525–1605 kHz)</b>					
Sensitivity (IHF)	15 μV/m	15 μV/m	15 μV/m		
Signal-to-noise ratio	50 dB	50 dB	50 dB		
Image rejection	> 65 dB	> 40 dB	> 40 dB		
Selectivity	40 dB	35 dB	35 dB		
Dimensions (W×H×D) mm	420×150×365	420×150×365	350×125×303		
Weight (kg)	9.1	8.0	4.8		
<b>TURNTABLES</b>					
	PL-530	PL-510 A	PL-117 D	PL-115 D	PL-112 D
Motor	brushless DC servo controlled	brushless DC servo controlled	4-pole synchronous	4-pole synchronous	4-pole synchronous
Drive system	direct drive	direct drive	belt drive	belt drive	belt drive
Speeds	33 <sup>1</sup> / <sub>3</sub> , 45 rpm	33 <sup>1</sup> / <sub>3</sub> , 45 rpm	33 <sup>1</sup> / <sub>3</sub> , 45 rpm	33 <sup>1</sup> / <sub>3</sub> , 45 rpm	33 <sup>1</sup> / <sub>3</sub> , 45 rpm
Turntable platter	ϕ 33 cm alloy die-cast	ϕ 31 cm alloy die-cast	ϕ 30 cm alloy die-cast	ϕ 30 cm alloy die-cast	ϕ 30 cm alloy die-cast
Rumble DIN B, weighted	70 dB	> 68 dB	> 63 dB	> 63 dB	> 63 dB
Wow and flutter (DIN)	0.045 %	0.045 %	0.1 %	0.1 %	0.1 %
Usable cartridge weight (gr.)	4–14.5	4–10	4–10	4–10	4–10
Effective arm length (mm)	221	221	221	221	221
Cueing device	up-down autom. † manual	off-on-down	up-on-down autom. † manual	up-down	off-on-down
Dimensions (W×H×D) mm	480×170×390	440×159×362	440×159×362	440×159×362	440×159×362
Weight (kg)	10	8	7	6	6

4-CHANNEL STEREO RECEIVERS	QX-949 A		QX-747 A	
	4-channel	2-channel (power boosting)	4-channel	2-channel (power boosting)
<b>AUDIO SECTION</b>				
Continuous power				
1 kHz, 4 Ω	4×58 W	2×85 W	4×30 W	2×55 W
1 kHz, 8 Ω	4×44 W	2×65 W	4×25 W	2×45 W
20 Hz–20 kHz, 8 Ω	4×40 W	2×60 W	4×20 W	2×40 W
Each channel driven (DIN) 1 kHz, 4 Ω	75 W/ch.	100 W/ch.	45 W/ch.	65 W/ch.
Total Harmonic Distortion at rated output power, 1 kHz, 8 Ω (IHF)	< 0.3 %		< 0.5 %	
Total Harmonic Distortion at 4×50 mW, 8 Ω, 1 kHz (DIN)	< 0.2 %		< 0.2 %	
Power bandwidth, 4 channels driven	7 Hz–40 kHz		7 Hz–40 kHz	
Frequency response at AUX input (DIN)	7 Hz–25 kHz (+0.5 dB, -1 dB)		10 Hz–25 kHz (+0.5 dB, -1 dB)	
Input sensitivity/impedance Phono	2.5 mV/50 kΩ		2.2 mV/50 kΩ	
Tape monitor, Tuner, AUX	150 mV/100 kΩ		140 mV/100 kΩ	
Bass control (100 Hz)	±10 dB		±10 dB	
Treble control (10 kHz)	±10 dB		±10 dB	
<b>CD-4 DEMODULATOR SECTION</b>				
Input sensitivity	2.5 mV		2.5 mV	
Input impedance	100 kΩ		100 kΩ	
Distortion	0.07 %		0.07 %	
Signal-to-noise ratio	> 70 dB		> 70 dB	
Separation 1 kHz, left to right front to rear	50 dB 30 dB		50 dB 30 dB	
Frequency response	20 Hz–15 kHz		20 Hz–15 kHz	
<b>FM SECTION (87.5–108 MHz)</b>				
Sensitivity (IHF) (DIN) 26 dB signal-to-noise ratio, 40 kHz dev.	10.3 dBf 1.2 μV		10.8 dBf 1.3 μV	
Capture ratio	1 dB		1 dB	
Selectivity (±400 kHz)	80 dB		60 dB	
Signal-to-noise ratio (mono)	70 dB		70 dB	
Image rejection	> 85 dB		> 80 dB	
Total Harmonic Distortion (stereo) 1 kHz	< 0.4 %		< 0.4 %	
Stereo separation (1 kHz) (DIN)	> 40 dB		> 40 dB	
Subcarrier suppression	65 dB		65 dB	
<b>MW SECTION (525–1605 kHz)</b>				
Sensitivity (IHF)	15 μV/m		15 μV/m	
Image rejection	> 65 dB		> 45 dB	
IF rejection	> 85 dB		> 55 dB	
Signal-to-noise ratio	50 dB		50 dB	
Power consumption	530 W		340 W	
Dimensions (W×H×D) mm	550×160×440		550×160×420	
Weight (kg)	22.4		19.1	

STEREO RECEIVERS	SX-1250	SX-1050	SX-950	SX-850
<b>AUDIO SECTION</b>				
Continuous power				
Both channels driven at 20 Hz to 20 kHz 4 Ω	2×200 W	2×170 W	2×110 W	2×85 W
20 Hz to 20 kHz 8 Ω	2×160 W	2×120 W	2×85 W	2×65 W
Total Harmonic Distortion at rated output power (DIN) 20 Hz–20 kHz	< 0.1 %	< 0.1 %	< 0.1 %	< 0.1 %
Power bandwidth (DIN) both channels driven 8 Ω	5 Hz–40 kHz	5 Hz–40 kHz	5 Hz–35 kHz	5 Hz–40 kHz
Frequency response at AUX input (DIN)	10 Hz–50 kHz (+0, -1 dB)	10 Hz–50 kHz (+0, -1 dB)	15 Hz–40 kHz (+0, -1 dB)	10 Hz–50 kHz (+0, -1 dB)
Input sensitivity/impedance Phono	2.5 mV/50 kΩ	2.5 mV/50 kΩ	2.5 mV/50 kΩ	2.5 mV/50 kΩ
Microphone	6.5 mV/50 kΩ	6.5 mV/50 kΩ	6.5 mV/50 kΩ	6.5 mV/50 kΩ
Tape monitor, AUX, Tuner	150 mV/50 kΩ	150 mV/50 kΩ	150 mV/50 kΩ	150 mV/50 kΩ
<b>FM SECTION (87.5–108 MHz)</b>				
Sensitivity (DIN) Mono (26 dB S/N)	1.3 μV	1.6 μV	1.6 μV	1.6 μV
Stereo (46 dB S/N)	35 μV	35 μV	44 μV	44 μV
Capture ratio	1 dB	1 dB	1 dB	1 dB
Selectivity (±400 kHz)	83 dB	80 dB	80 dB	80 dB
Signal-to-noise ratio (IHF)	80 dB	78 dB	72 dB	72 dB
Total Harmonic Distortion (stereo) 1 kHz (DIN)	0.2 %	0.25 %	0.3 %	0.3 %
Frequency response (DIN) (+0.2 dB, -2 dB)	30 Hz–15 kHz	30 Hz–15 kHz	30 Hz–15 kHz	30 Hz–15 kHz
Stereo separation (1 kHz)	50 dB	45 dB	40 dB	40 dB
Subcarrier suppression	74 dB	73 dB	62 dB	62 dB
<b>AM SECTION (525–1605 kHz)</b>				
Sensitivity (IHF)	15 μV/m	15 μV/m	15 μV/m	15 μV/m
Selectivity	40 dB	40 dB	40 dB	35 dB
<b>LW SECTION (150–350 kHz)</b>				
Sensitivity	—	—	—	—
Selectivity	—	—	—	—
Dimensions (W×H×D) mm	556×186.5×464.5	526.6×173×453.5	526.6×173×411.5	526.6×173×411.5
Weight (kg)	29.2	23.4	19.1	19.1

STEREO HEADPHONES	SE-700	SE-500	SE-300	MONITOR 10	SE-505	SE-305
Matching impedance	4–16 Ω	4–16 Ω	4–16 Ω	4–16 Ω	4–16 Ω	4–16 Ω
Frequency response (DIN)	20 Hz–20 kHz	20 Hz–20 kHz	20 Hz–20 kHz	20 Hz–20 kHz	20 Hz–20 kHz	20 Hz–20 kHz
Maximum input per channel	30 V	30 V	30 V	700 mW	500 mW	500 mW
Characteristic sound pressure level (DIN)	101.5 dB/3 V	103.5 dB/3 V	103.5 dB/3 V	100 dB/mW	99.4 dB/mW	99.1 dB/mW

SX-750	SX-650	SX-550	SX-450	LX-550	LX-434
2×60 W 2×50 W	2×35 W 2×35 W	2×20 W 2×20 W	2×15 W 2×15 W	2×20 W 2×20 W	2×15 W 2×15 W
< 0.1 %	< 0.3 %	< 0.3 %	< 0.5 %	< 0.3 %	< 0.8 %
5 Hz–50 kHz	5 Hz–50 kHz	5 Hz–50 kHz	7 Hz–70 kHz	5 Hz–50 kHz	10 Hz–70 kHz
10 Hz–50 kHz (+0, -1 dB)	10 Hz–50 kHz (+0, -1 dB)	10 Hz–60 kHz (± 0.5 dB)	20 Hz–60 kHz (± 1 dB)	10 Hz–60 kHz (+0.5, -1 dB)	30 Hz–25 kHz (± 1 dB)
2.5 mV/50 kΩ 5 mV/50 kΩ 150 mV/50 kΩ	2.5 mV/50 kΩ 7 mV/50 kΩ 150 mV/50 kΩ	2.5 mV/50 kΩ 7.5 mV/50 kΩ 150 mV/50 kΩ	2.5 mV/50 kΩ 7.5 mV/50 kΩ 150 mV/50 kΩ	2.5 mV/50 kΩ 7.5 mV/50 kΩ 150 mV/50 kΩ	2.5 mV/50 kΩ 10 mV/90 kΩ 150 mV/80 kΩ
1.7 μV 50 μV	1.7 μV 44 μV	1.8 μV 50 μV	1.8 μV 50 μV	1.8 μV 50 μV	1.3 μV 60 μV
1 dB	1 dB	1 dB	1 dB	1 dB	1 dB
80 dB	60 dB	60 dB	60 dB	60 dB	60 dB
72 dB	70 dB	70 dB	70 dB	70 dB	70 dB
0.3 %	0.3 %	0.3 %	0.3 %	0.3 %	0.4 %
30 Hz–15 kHz	30 Hz–15 kHz	30 Hz–15 kHz	30 Hz–15 kHz	30 Hz–15 kHz	30 Hz–15 kHz
40 dB	40 dB	40 dB	40 dB	40 dB	40 dB
62 dB	62 dB	40 dB	40 dB	40 dB	60 dB
15 μV/m	15 μV/m	15 μV/m	15 μV/m	10 μV/m	10 μV/m
35 dB	35 dB	35 dB	35 dB	50 dB	40 dB
—	—	—	—	40 μV/m	40 μV/m
—	—	—	—	55 dB	45 dB
480×149×371	480×149×371	448×141×307	448×141×307	448×141×307	430×140×347
13.7	13.1	9.4	8.6	9.4	8.1

SE-205	SE-255
4–16 Ω	4–16 Ω
20 Hz–20 kHz	20 Hz–20 kHz
500 mW	500 mW
97.4 dB/mW	100 dB/mW

STEREO HEADPHONES	SE-700	SE-500	SE-300	MONITOR 10	SE-505	SE-305	SE-205	SE-255
Speaker	7 μ piezo-electric high polymer film	6.5 μ high polymer element	6.5 μ high polymer element	5.7 cm dynamic	2-way dynamic 4.5 cm×3.2 cm	4.5 cm dynamic	7 cm dynamic	7 cm dynamic
Net weight (gr.)	375	315	280	530	690	435	450	440
Connecting cable	meshwork cable 3 m with ∅ 6.5 mm 3-P plug	meshwork cable 3 m with ∅ 6.5 mm 3-P plug	meshwork cable 3 m with ∅ 6.5 mm 3-P plug	5 m curled type with 3-P plug	5 m curled type with 3-P plug	5 m curled type with 3-P plug	2.5 m cable with 3-P plug	4 m curled type with 3-P plug

REEL-TO-REEL TAPE DECKS	RT-2022	RT-1011 L
Drive system	3 motor solenoid operation	3 motor solenoid operation
Tape Heads	2 track/2 ch. PB×1 2 track/2 ch. REC×1 2 track/2 ch. Erase×1	4 track/2 ch. PB×1 4 track/2 ch. REC×1 4 track/2 ch. Erase×1
Tape speed	38 cm/sec. 19 cm/sec.	19 cm/sec. 9.5 cm/sec.
Wow and flutter	38 cm/sec. WRMS 19 cm/sec. WRMS 9.5 cm/sec. WRMS	— < 0.08 % < 0.1 %
Frequency response	38 cm/sec. (±3 dB) 19 cm/sec. (±3 dB) 9.5 cm/sec. (±3 dB)	— 30 Hz–28 kHz 40 Hz–20 kHz 40 Hz–12 kHz
Signal-to-noise ratio	> 57 dB	> 55 dB
Total Harmonic Distortion	< 0.8 %	< 1 %
Inputs (sensitivity/impedance)		
MIC	0.11–100 mV/27 kΩ	0.25–80 mV/20 kΩ
Line	34 mV–25 V/100 kΩ	50 mV–25 V/100 kΩ
DIN jack	—	15 mV–1.5 V/1.5 kΩ
Outputs output voltage/impedance (DIN jack)		
Line	—	316 mV/50 kΩ
Headphones	450–900 mV/50 kΩ 64–133 mV/8 Ω	316 mV/50 kΩ 40 mV/8 Ω
Dimensions (W×H×D) mm	460×552×274	428×431×227
Weight (kg)	28.5	18.6

CASSETTE TAPE DECKS	CT-F 9191	CT-F 8080	CT-F 7070	CT-F 6060	CT-F 2121	CT-5151	CT-4141 A
REC/PB Head	1×Ferrite Solid	1×Ferrite Solid	1×Ferrite Solid	1×Perm. Solid	1×Perm. Solid	1×Ferrite Solid	1×Perm. Solid
Erasing Head	1×Ferrite	1×Ferrite	1×Ferrite	1×Ferrite	1×Ferrite	1×Ferrite	1×Ferrite
Recording system	All tape decks have AC BIAS 85 kHz						
Frequency response (REC/playback)							
Standard tape/LH tape	25 Hz–16 kHz (35 Hz–13 kHz, ±3 dB)	20 Hz–16 kHz (30 Hz–15 kHz, ±3 dB)	30 Hz–14 kHz (40 Hz–13 kHz, ±3 dB)	30 Hz–14 kHz (40 Hz–13 kHz, ±3 dB)	30 Hz–13 kHz (40 Hz–11 kHz, ±3 dB)	30 Hz–13 kHz (63 Hz–12 kHz, ±3 dB)	30 Hz–12.5 kHz (63 Hz–10 kHz, ±3 dB)
Chromium Dioxide tape	20 Hz–17 kHz (30 Hz–14 kHz, ±3 dB)	20 Hz–17 kHz (30 Hz–15 kHz, ±3 dB)	30 Hz–17 kHz (40 Hz–15 kHz, ±3 dB)	30 Hz–16 kHz (40 Hz–15 kHz, ±3 dB)	30 Hz–16 kHz (40 Hz–12 kHz, ±3 dB)	30 Hz–16 kHz (63 Hz–13 kHz, ±3 dB)	30 Hz–15 kHz (63 Hz–12 kHz, ±3 dB)
Signal-to-noise ratio, un weighted at max. recording level	52 dB (Dolby off) 62 dB (Dolby on)	> 53 dB (Dolby off) > 63 dB (Dolby on)	> 52 dB (Dolby off) > 62 dB (Dolby on)	> 52 dB (Dolby off) > 62 dB (Dolby on)	48 dB (Dolby off) 58 dB (Dolby on)	48 dB (Dolby off) 58 dB (Dolby on)	48 dB (Dolby off) 58 dB (Dolby on)
Wow and flutter (DIN)	< 0.17 %	< 0.17 %	< 0.19 %	< 0.2 %	< 0.2 %	< 0.2 %	< 0.2 %
INPUTS (sensitivity/impedance)							
MIC	0.22–100 mV/30 kΩ	0.2–100 mV/50 kΩ	0.23–80 mV/23 kΩ	0.3–63 mV/23 kΩ	0.3–60 mV/20 kΩ	0.5–90 mV/20 kΩ	0.5–90 mV/20 kΩ
Line	65 mV–25 V/100 kΩ	60 mV–25 V/100 kΩ	64 mV–25 V/100 kΩ	63 mV–12.6 V/100 kΩ	63 mV–12 V/50 kΩ	50 mV–7 V/300 kΩ	50 mV–7 V/300 kΩ
DIN jack	10 mV/2.2 kΩ	5.5 mV–3.6 V/8.7 kΩ	10 mV–3.6 V/2.2 kΩ	10 mV–2 V/2.2 kΩ	10 mV–2 V/10 kΩ	15 mV–2.2 V/10 kΩ	15 mV–2.2 V/10 kΩ
OUTPUTS (outputvoltage/impedance)							
Line (max.)	530 mV/50 kΩ	660 mV/50 kΩ	800 mV/50 kΩ	700 mV/50 kΩ	450 mV/50 kΩ	450 mV/50 kΩ	450 mV/50 kΩ
DIN jack (max.)	530 mV/50 kΩ	660 mV/50 kΩ	800 mV/50 kΩ	700 mV/50 kΩ	450 mV/50 kΩ	450 mV/50 kΩ	450 mV/50 kΩ
Headphones	40–65 mV/8 Ω	60–98 mV/8 Ω	60–100 mV/8 Ω	50–90 mV/8 Ω	80 mV/8 Ω	50 mV/8 Ω	56 mV/8 Ω
Dimensions (W×H×D) mm	420×197×310	420×165×334	420×150×340	380×150×316	350×142×282	396×96×242	396×96×242
Weight (kg)	13.2	12.8	8.5	7.6	6.6	4.8	4.7

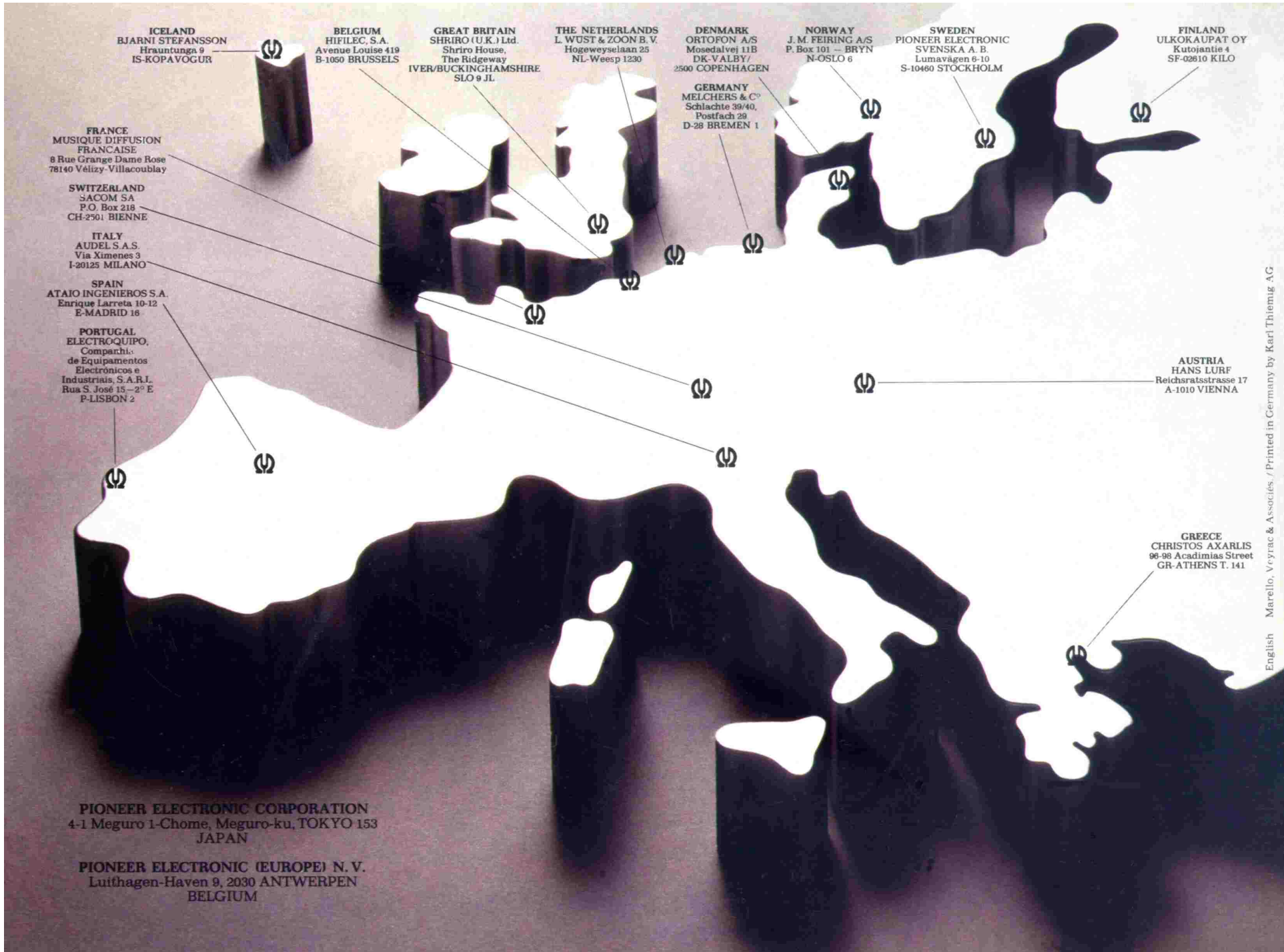
LOUDSPEAKER SYSTEMS	HPM-100	HPM-60	HPM-40	CS-E 731	CS-E 531	CS-E 421	CS-E 321	CS-515	CS-313 A	CS-53
Enclosure type	bass reflex 4-sp., 4-way	bass reflex 4-sp., 4-way	bass reflex 3-sp., 3-way	infinite baffle 3-sp., 3-way	infinite baffle 3-sp., 3-way	infinite baffle 2-sp., 2-way	infinite baffle 2-sp., 2-way	bass reflex 3-sp., 3-way	bass reflex 2-sp., 2-way	bass reflex 2-sp., 2-way
Speakers	woofer midrange tweeter super-tweeter	1×25 cm cone 1×10 cm cone 1×4.5 cm cone high polymer	1×25 cm cone — 1×4.5 cm cone high polymer	1×30 cm cone 1×6.5 cm dome 1×2.5 cm dome	1×25 cm cone 1×6.5 cm dome 1×2.5 cm dome	1×20 cm cone — 1×2.5 cm dome	1×20 cm cone — 1×2.5 cm dome	1×25 cm cone 1×12 cm cone 1×2.5 cm dome	1×20 cm cone — 1×7.7 cm cone	1×30.5 cm cone — 1×8.8 cm cone
Crossover frequency	3000/4000/12 000 Hz	1200/4000/12 000 Hz	4000/10 000 Hz	650/5000 Hz	900/5500 Hz	5000 Hz	4000 Hz	700/5000 Hz	5000 Hz	3000 Hz
Frequency range	30 Hz–25 kHz	35 Hz–25 kHz	35 Hz–25 kHz	35 Hz–20 kHz	35 Hz–20 kHz	35 Hz–20 kHz	45 Hz–20 kHz	35 Hz–20 kHz	50 Hz–20 kHz	45 Hz–20 kHz
Sensitivity (at 1 m)	92.5 dB/W	92.5 dB/W	91 dB/W	89 dB/W	90 dB/W	90 dB/W	88 dB/W	90 dB/W	93 dB/W	100 dB/W
Operating power to get 96 dB SPL at 1 m distance (DIN)	2.1 W	2.1 W	3.2 W	5 W	4 W	4 W	6.5 W	4 W	2 W	0.4 W
Music power (DIN)	100 W	60 W	40 W	100 W	80 W	60 W	40 W	50 W	20 W	40 W
Nominal impedance	8 Ω	8 Ω	8 Ω	8 Ω	8 Ω	8 Ω	4 Ω	8 Ω	8 Ω	8 Ω
Dimensions (W×H×D) mm	390×670×393	350×610×321	325×570×317	380×680×306	330×570×306	260×500×245	240×450×222	345×585×303	270×500×230	420×568×285
Weight (kg)	26.7	17.5	13	19	13.5	8.5	6	16	6.4	13

<b>CT-3131 A</b>
1×Perm. Solid
1×Ferrite
30 Hz—12.5 kHz (63 Hz—10 kHz, ±3 dB)
30 Hz—15 kHz (63 Hz—12 kHz, ±3 dB)
47 dB
< 0.2 %
0.5—90 mV/20 kΩ 50 mV—7 V/300 kΩ 15 mV—2.2 V/10 kΩ
450 mV/50 kΩ 450 mV/50 kΩ 56 mV/8 Ω
396 × 96 × 242
4.4

MUSIC CENTERS	M-6500	M-6000	KH-3500
<b>AMP. SECTION</b>			
Power			
RMS Both channels driven			
1 kHz	4 Ω	2×18 W	2×18 W
	8 Ω	2×12 W	2×12 W
40 Hz—20 kHz	4 Ω	2×15 W	2×15 W
	8 Ω	2×12 W	2×12 W
Music power (DIN)			
	58 W	58 W	34 W
Output impedance			
Speaker	4—16 Ω	4—16 Ω	4—8 Ω
Headphones	low imp.	low imp.	low imp.
Input sensitivity/impedance			
MIC	—	—	0.5 mV/600 Ω
Phono	2.5 mV/50 kΩ	2.5 mV/50 kΩ	—
Tape monitor (DIN)	—	150 mV/50 kΩ	—
AUX	—	—	75 mV/50 kΩ
Frequency response (±0.5 dB)			
	30 Hz—15 kHz	30 Hz—15 kHz	30 Hz—15 kHz
Tone control			
Bass (100 Hz)	+8.5, -10 dB	+8.5, -10 dB	+8, -8 dB
Treble (10 kHz)	+8.5, -9 dB	+8.5, -9 dB	+8, -8 dB
Loudness at -40 dB position			
100 Hz	+8 dB	+8 dB	+10 dB
10 kHz	+5 dB	+5 dB	+5 dB
Power bandwidth			
	10 Hz—70 kHz	10 Hz—70 kHz	30 Hz—40 kHz
Total Harmonic Distortion (at 2×5 W)			
	< 0.1 %	< 0.1 %	< 0.1 %
<b>TUNER SECTION</b>			
<b>FM</b>			
Sensitivity (IHF) mono			
	10.8 dBf	10.8 dBf	13.2 dBf
Signal-to-noise (mono)			
	73 dB	73 dB	55 dB
Stereo separation (at 1 kHz)			
	35 dB	35 dB	35 dB
Capture ratio			
	1.5 dB	1.5 dB	—
Antenna input			
	75 Ω/300 Ω	75 Ω/300 Ω	300 Ω
Selectivity (±400 kHz)			
	60 dB	60 dB	55 dB
Frequency range			
	30 Hz—15 kHz (+0, -3 dB)	30 Hz—15 kHz (+0, -3 dB)	—
<b>MW</b>			
Sensitivity			
	150 μV/m	150 μV/m	160 μV/m
Frequency range			
	525—1605 kHz	525—1605 kHz	525—1605 kHz

MUSIC CENTERS	M-6500	M-6000	KH-3500
<b>LW</b>			
Sensitivity			
	320 μV/m	320 μV/m	500 μV/m
Frequency range			
	150—350 kHz	150—350 kHz	150—350 kHz
<b>TURNTABLE</b>			
Motor			
	4-pole synchr.	4-pole synchr.	4-pole synchr.
Drive system			
	belt drive auto return	belt drive auto return	belt drive auto return
Speeds			
	33 <sup>1</sup> / <sub>3</sub> , 45 rpm	33 <sup>1</sup> / <sub>3</sub> , 45 rpm	33 <sup>1</sup> / <sub>3</sub> , 45 rpm
Wow and flutter (WRMS)			
	< 0.08 %	< 0.08 %	< 0.08 %
Rumble (DIN B)			
	> 63 dB	> 63 dB	> 63 dB
Platter			
	∅ 30 cm al. alloy	∅ 30 cm al. alloy	∅ 30 cm al. alloy
Type arm			
	S-shaped	S-shaped	S-shaped
Cartridge			
	PC 135	PC 135	PC 135
Frequency response			
	10 Hz—25 kHz	10 Hz—25 kHz	10 Hz—25 kHz
<b>SUB FUNCTION</b>			
Anti-skating			
	yes	yes	yes
Oil damped cueing device			
	yes	yes	yes
<b>CASSETTE</b>			
Head			
Recording	permalloy solid	—	permalloy solid
Erasing	ferrite solid	—	ferrite solid
Frequency response			
CrO <sub>2</sub> tape	30 Hz—15 kHz	—	40 Hz—12 kHz
LH tape	30 Hz—12.5 kHz	—	40 Hz—10 kHz
Wow and flutter (WRMS)			
	< 0.13 %	—	< 0.15 %
Signal-to-noise ratio			
	> 47 dB	—	> 45 dB
Fast winding time (C-60)			
	80 sec.	—	—
Tape selector			
	yes	—	yes
Tape counter			
	yes	—	yes
<b>ADDITIONAL FEATURES</b>			
			±95 sec.
Power consumption			
	115 W	115 W	55 W
Power requirements			
	120/220/240 V 50/60 Hz	120/220/240 V 50/60 Hz	120/220/240 V 50/60 Hz
Dimensions (W×H×D) mm			
	590×188×429	590×188×429	510×235×120
Weight (kg)			
	16.4	15.1	13.6

Specifications and design are liable to modification without prior notice



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