Sony Hi-Fi

Systems Hi-Fi: Music Centres: Hi-Fi Separates: Cassette Decks: Reel to Reel: Speakers

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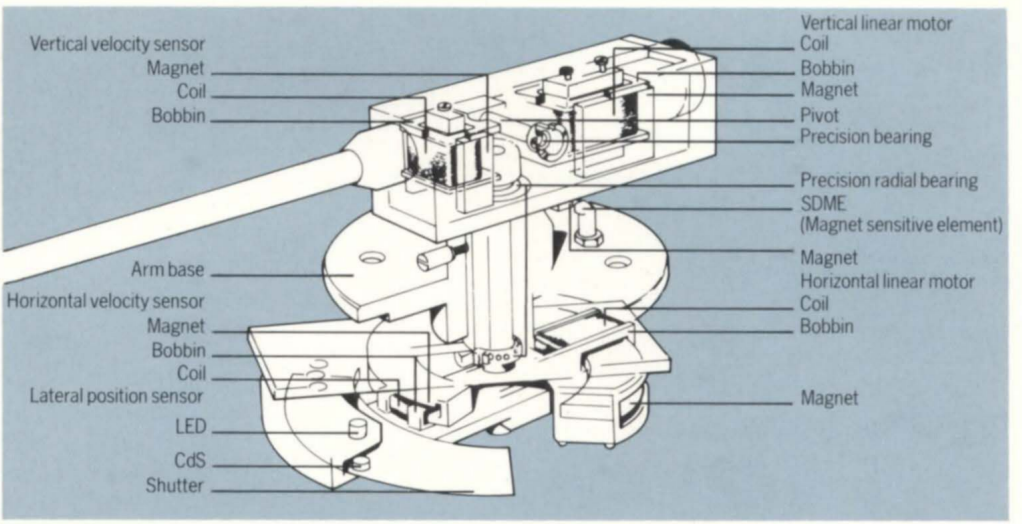


DIRECT DRIVE

Sony direct drive turntables utilise BSL motors which are capable of rotating at 33⅓ and 45 r.p.m. with high torque and accurate speed. This enables direct coupling of the turntable platter to the motor spindle eliminating belts and idlers thus reducing wow and flutter.

BIO-TRACER

The bio-tracer system incorporates electronic sensors coupled through a microprocessor and linked to linear motors, which, by monitoring the movement of the tonearm maintain a constant pickup force on the record groove. This reduces resonance and vibration to a degree that is exactly tailored to the characteristics of the cartridge and record being used.

CRYSTAL LOCK

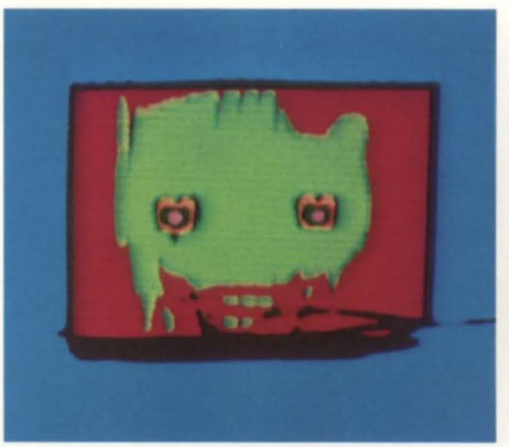
To ensure exact turntable speed the crystal lock system uses a precise quartz crystal as a reference to which speed is compared and adjusted as necessary.

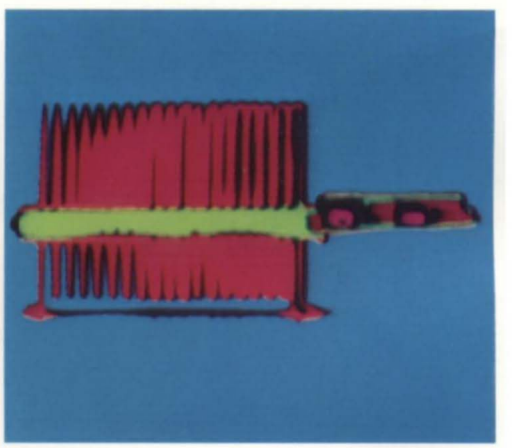
PULSE LOCKED POWER SUPPLY

The pulse locked power supply provides precise power regulation within the amplifier. This enables optimum performance under the most demanding musical passages.

PULSE WIDTH MODULATION

P.W.M. amplifiers use digital technology eliminating crossover problems inherent in conventional amplifiers whilst reducing the size and weight associated with high power output.



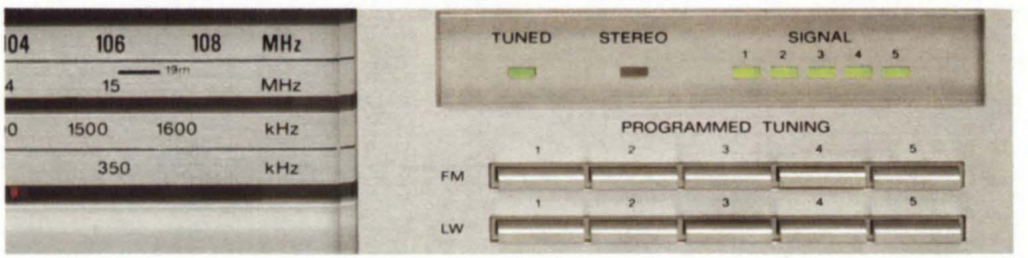


THERMODYNAMIC COOLING

Thermodynamic cooling utilises a heat pipe which conducts heat almost 200 times faster than conventional heat sinks.
This ensures that sensitive components are not adversely affected by temperature. The design of an amplifier can then be optimised for maximum sound quality and not compromised by consideration of heat dissipation.

SYNTHESISED VHF

Synthesised VHF prevents station mistuning and drift by locking the desired signal to a precise quartz crystal reference.



ONE TOUCH PROGRAMME SENSOR

This unique system combines all the convenience of conventional presets with the advantage of a visual display of station location. Once programmed the desired station can be selected at the touch of a button.

RANDOM MUSIC SENSOR

R.M.S. enables playback of up to 15 tracks in any order selected by the user.

AUTOMATIC MUSIC SENSOR

A.M.S. enables automatic search and play of a desired passage by bypassing unwanted tracks.

DOLBY

When music is recorded and played back through the Dolby system, tape hiss is significantly reduced without affecting frequency response.

LED/LCD METERS

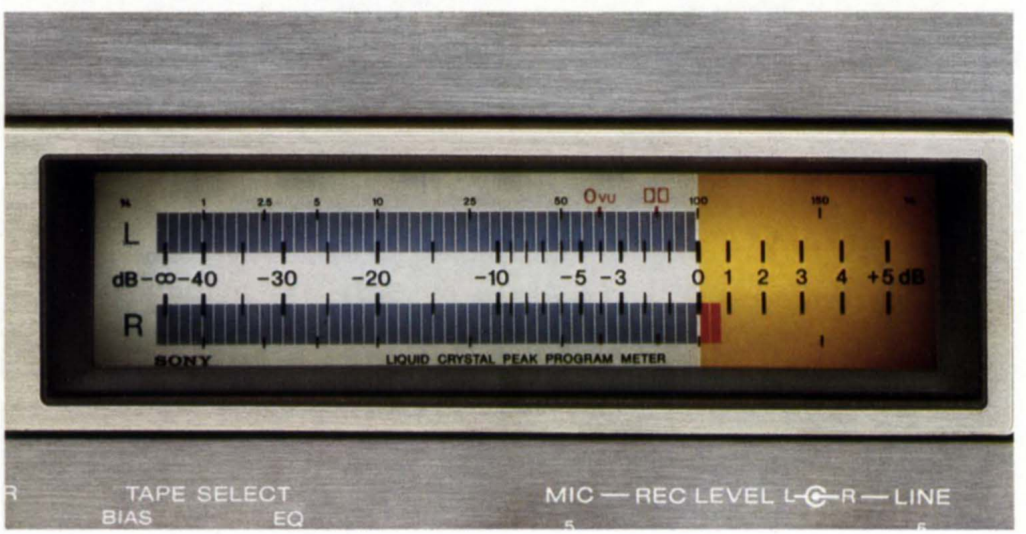
Conventional VU meters are unable to register peaks of short duration. Sony LED/LCD multi-segment meters enable simple accurate adjustment of the record level to obtain maximum performance from the tape.

FERRITE AND FERRITE HEAD

The F & F head provides up to 200 times longer life than conventional heads with improved tape to head contact and lower distortion.

SENDUST AND FERRITE HEAD

The S & F head combines the reliability and benefits of the F & F head with a considerably improved high frequency performance.



AUTO SPACE RECORD MUTE

When selected Auto space record mute creates a four second blank on the tape and then automatically pauses the machine, particularly convenient when building up a programme from a number of sources.

METAL TAPE

Metal tape is a new type of recording tape, which when used on a machine with metal tape facility, gives an improved frequency response and signal to noise ratio previously not obtainable on cassette recorders.

Music Centres

For those who want hi-fi sound without the inconvenience of having three or four separate units to be connected together, here is Sony's range of music centres.

There are six models for you to choose from. They share technical features usually found only on hi-fi separates with performance to match, and they have all been designed to be very straightforward to operate.

Each has a fully automatic turntable which is quick and easy to operate. One model, the HMK 9000, can even be operated using a cordless remote control unit.

Equally the cassette sections have been designed by Sony to give you the quality of performance that you require. The Dolby noise reduction system is incorporated in most of the machines. It minimises the tape hiss that so often used to detract from cassette performance, and to enable you to get the very best out of your tape, bias and equalisation controls have been fitted. For tape protection and added convenience an auto shut-off mechanism is standard.

On many of Sony's music centres you'll see a digital timer allowing you to set the machine to record programmes you might otherwise have missed.

Whatever music centre you require you should be able to find one that meets your needs. They're all illustrated over the next few pages together with detailed descriptions of their own special features.

At the top of the range is the HMK 9000. As well as the features already described it has a number of features that really do qualify it as top-quality hi-fi. For instance, the LED recording meters. They display recording levels as vivid bars of light that give the most accurate and sensitive readings at every instant. Conventional VU meters cannot register sudden sharp peaks in recording levels. Sony's LED's respond instantaneously. The cassette section also features a metal tape position for the ultimate in recording quality when you use Sony's newly developed metal tape.

The turntable section is no less impressive. A direct drive unit that is powered by Sony's revolutionary new brushless and slotless DC motor. It's not only extremely accurate but also exceptionally reliable. Coupled with the quartz lock system, this ensures that the record platter rotates at constant speed and distortions like wow and flutter are kept to a minimum.

The remote "commander" controls any of the HMK 9000's functions by an invisible beam of infra-red light. it clips neatly into place on the front of the machine when not in use and automatically recharges, ready for the next commands.

The recommended speakers for HMK 9000 are SSE50 or SSE70.

The detachable and rechargeable remote commander illustrated right.

Illustrated far right is the cassette unit of the HMK 9000.

HMK 9000 (Illustrated below)

HMK 44/MUSIC CENTRE (Right)

25 watts rms per channel (1 kHz, 8ohms).

VHF, MW, LW.

6 Preset VHF stations.

Fully automatic belt drive turntable.

Dolby NR system.

Separate 3 position bias and equalisation.

Digital clock for timer recording.

Recommended speakers SS E30(W).

HMK 11/MUSIC CENTRE

35 watts per channel (music power).

VHF, MW, LW, SW.

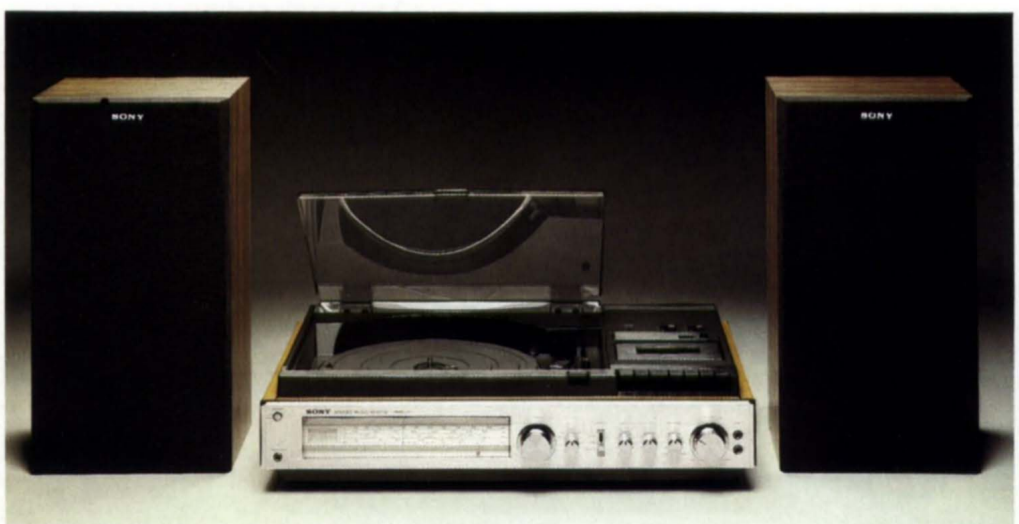
Fully automatic belt drive turntable.

"Sony hiss noise reduction" system.

2 position tape select switch.

Soft eject.

Speakers and stereo microphone supplied.



HMK 33B/MUSIC CENTRE

50 watts per channel (music power).

VHF, MW, LW, SW.

Programme sensor on VHF and LW.

Fully automatic belt drive turntable.

Dolby NR system.

3 position tape select.

Soft eject.

Speakers and stereo microphone supplied.

Also available HMK 33 with silver finish front panel.

HMK 80B/MUSIC CENTRE

35 watts rms per channel (1 kHz, 8 ohms).

VHF, MW, LW, SW.

5 preset VHF stations.

Fully automatic direct drive turntable.

Dolby NR system.

3 position tape switch.

Stereo headphones and microphone supplied.

Also available HMK 80 with silver finish front panel.

Recommended speakers for HMK 80/80B SS 85.

HMK 7000/MUSIC CENTRE (Below)

30 watts per channel (20 Hz–20 kHz, 8 ohms).

3 waveband radio VHF, MW, LW.

One touch programme sensors on VHF and MW. Programme sensor cursors illuminate when "on station."

Fully automatic direct drive turntable.

Dolby NR system.

Separate 4 position bias and equalisation including metal tape position.

Twin fast reacting LED display recording meters.

Digital clock for timer recording.

Recommended speakers: SS E50 or SS E70.

Systems Hi-fi

With Sony Systems hi-fi there's no need to spend hours picking and choosing between a bewildering variety of separate pieces. Sony have done the job for you, combining amplifiers, tuners or receivers, turntables, cassette decks and speaker systems that fit perfectly together.

Sony's ten new systems put together performance-matched high quality hi-fi models that meet your needs. Each one has up-to-the minute features that give the best quality reproduction as well as ease of operation to enable you to get the best out of your system for your money.

Take the LED peak Programme Meters. They clearly display power output and recording levels that give you accurate and sensitive readings at every instant of operation.

Sony also create this 'light' touch when it comes to the system's controls.

Most units feature the one-touch programme sensor that allows you to select up to ten stations at the touch of a button.

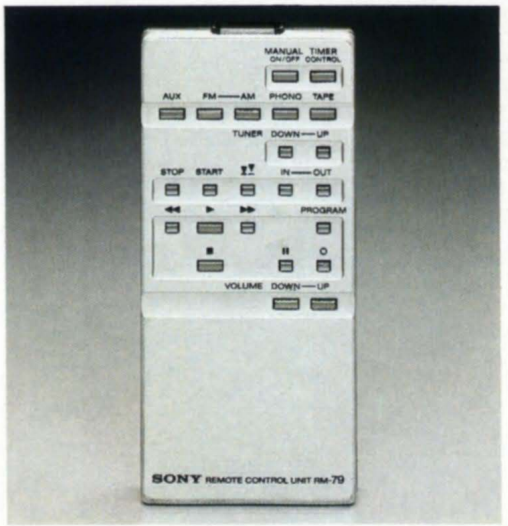
Naturally all the cassette decks featured in the range use the Dolby noise reduction system to minimise tape hiss, and to enable you to get the best out of your tape, bias and equalisation controls are provided.

Sony have developed a revolutionary new type of motor to power both the cassette decks and turntables. As you can imagine variations in speed cause distortions in the sound produced, technically known as wow and flutter. The new brushless and slotless motor together with servo speed sensing mechanisms ensures constant speed, reducing these distortions to a minimum.

You'll see over the next few pages that Sony have put together a really wide range of hi-fi systems so that whatever you require, you should be able to find the system that fits your needs.

The Z600 (illustrated opposite) enables you to choose your programme from the comfort of your armchair, using the Sony infra-red remote "Commander." Listen to your favourite record or radio station, or playback cassettes by the simple touch of a button, it couldn't be easier.

For the more technically minded, the direct drive turntable is fully automatic with crystal lock employing an electronically controlled tone arm. The tuner has full FM synthesis with digital and analog frequency display, whilst the cassette deck has feather touch controls with LED level indicators. All feed into the amplifier giving 60 r.m.s./ channel, again using LED's for power output display. The equipment is housed in a vertical, walnut finished cabinet with fitted glass door.



SYSTEM Z 600 (Below)

PS636	Full automatic, crystal lock, direct drive turntable with electric controlled tone arm.
TA636	60 watts output per channel. LED indicators.
ST636	Full synthesised FM with digital and analog frequency identification.
TCU60	Dolby cassette deck with feather touch operation and 16 segment LED record level indicators.
SU636	Purpose built rack with vertical 12" storage and smoked glass door.
SSE50	Recommended 3 way loud-speakers.
PT79	Timer.
RM79	Remote commander. (Illustrated left.)

SYSTEM Z 200

PS212A	Semi automatic direct drive turntable with cartridge.
TA212A	20W x 2 stereo amplifier with twin power meters.
ST212AL	4 waveband tuner.
TCU2	Dolby cassette deck, 3 position tape selector, auto shut off.
SU214	Purpose built rack with vertical 12" disc storage.
SSE20	Recommended two way loudspeakers.

SYSTEM Z 250

PS333	Fully automatic, direct drive turntable with cartridge.
TA333	25W x 2 stereo amplifier with LED power meters.
ST333L	4 waveband tuner with one touch programme sensors.
TCU30	Dolby cassette deck with 16 segment LED record meters.
SU434	Purpose built rack with vertical 12" disc storage.
SSE30	Recommended 2 way loudspeakers.
PT59	Optional timer.

SYSTEM Z 400

PS333	Fully automatic direct drive turntable with cartridge.
TA535	40W x 2 amplifier with two stage LED power meter.
ST333L	4 waveband tuner with one touch programme sensors.
TCU30	Dolby cassette deck with 16 segment LED record meters.
SU434	Purpose built rack with vertical 12" disc storage.
SSE50	Recommended 3 way loudspeakers.
PT59	Optional timer.

SYSTEM A

PST15	Semi automatic direct drive turntable with cartridge.
TA F30	30W x 2 slimline amplifier with LED power meters.
STA30L	Slimline 3 waveband tuner with 5 segment LED signal level meter.
TC K35	Dolby cassette deck with auto play mechanism.
SSE30	Recommended 2 way loudspeakers.

SYSTEMS A, B & C (illustrated right)

SUL10/15	Choice of vertical or horizontal racks: SUL10 vertical rack, SUL15 horizontal cabinet.

SYSTEM ZR 200

PS212A	Semi automatic direct drive turntable with cartridge.
STR232L	20W x 2 stereo receiver with 3 wavebands.
TCU2	Dolby cassette deck with 3 position tape selector, auto shut off.
SU213	Purpose built rack with vertical 12" disc storage.
SSE20	Recommended two way loudspeakers.

SYSTEM ZR 250

PS333	Fully automatic, direct drive turntable with cartridge.
STR333L	25W x 2 stereo receiver with 4 wavebands and one touch programme sensors.
TCU30	Dolby cassette deck with 16 segment record meters.
SU333	Purpose built rack with vertical disc storage.
SSE30	Recommended 2 way loudspeakers.
PT59	Optional timer (not illustrated).

SYSTEM ZR 400

PS333	Fully automatic direct drive turntable with cartridge.
STR434L	40W x 2 stereo receiver 4 wavebands with digital frequency readout and one touch programme sensors.
TCU30	Dolby cassette deck with 16 segment LED record meters.
SU333	Purpose built rack with vertical disc storage.
SSE50	Recommended 3 way loudspeakers.
PT59	Optional timer (not illustrated).

SYSTEM B

PST15	Semi automatic direct drive turntable with cartridge.
TAF40	50W x 2 slimline amplifier with LED power meters.
STA30L	Slimline 3 waveband tuner with 5 segment LED signal level meter.
TCK35	Dolby cassette deck with auto play.
SSE50	Recommended 3 way loudspeakers.

SYSTEM C

PSX35	Fully automatic, direct drive crystal lock turntable with cartridge and with full front panel operation.
TAF40	50W x 2 slimline amplifier with LED power meters.
STJ60	Slimline VHF tuner with 8 electronic pre-sets, crystal lock and memory scan.
TCK45	Dolby cassette deck with 16 segment LED record level meters and auto play facility.
SSE50	Recommended 3 way loudspeakers.

Direct Drive Turntables

For most people a turntable is the key component of a hi-fi system. So you need to be sure that the turntable that you buy does not compromise the quality of the rest of your hi-fi.

There are two important aspects to turntable quality. The first is speed stability. How constant is the rotation speed of the record platter? Does the speed vary and create distortion in the sound produced, distortion known as 'wow and flutter'? The second is whether the turntable generates any unnecessary noise that can spoil your enjoyment of your hi-fi system. The major cause of this is the mechanical vibration of the motor that can produce a low pitched sound called 'rumble'. Sony turntables have been designed with these two requirements in mind to give you the quality that Sony aim for with all their hi-fi equipment.

Each turntable in the Sony range is powered by an extremely accurate and reliable direct drive motor. By mounting the record platter on the end of the motor shaft, the platter is directly driven. Contrast this with other systems which use high speed motors harnessed to the platter by a belt or idler. Because a direct drive motor rotates much more slowly, it produces less vibration, hence less rumble.

What's more, because the motor directly drives the platter, speed variations can be kept to a minimum. For the technical, our specification tables at the back of this brochure will bear witness to this.

Not just content with the benefits of direct drive, Sony have taken hi-fi standards one stage further. Sony engineers have developed a revolutionary new motor – the brushless and slotless (BSL) DC servo motor. It rotates very smoothly, and with few mechanical parts, it's also exceptionally reliable.

Constant speed is maintained by a servo speed sensing mechanism that electronically detects and corrects any speed variations. Many turntables utilise the crystal lock system to provide the servo with a stable unvarying reference. This expertise gives you a turntable of exceptional quality, whatever choice you make from the Sony range.

Quality that is married to the highest standards of convenience.

For example all have controls positioned so they can be operated with the transparent dust cover closed.

In every way when you buy a Sony turntable you can be confident that your hi-fi system will appreciate its quality and so will you.

The very top of the range the PS B80 (illustrated opposite) is one of the most technically sophisticated turntables in the world today. It features a micro-processor controlled arm. The internal computer will automatically maintain the bias, and tracking force. It also senses the size of the record and has a memory that allows you to select the passage you want to hear and will repeat if required.

PS B80 (Illustrated below)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PS T15/DIRECT DRIVE TURNTABLE

Semi-automatic direct drive turntable with linear BSL motor for stable speed, low wow and flutter and a high S/N ratio.

Magnedisc servo system for accurate speed sensing.

Easy to use semi-automatic system: the reject button can be used with the dust cover closed.

Aluminium die-cast platter with illuminated stroboscope.

Cartridge supplied.

PS 212A/DIRECT DRIVE TURNTABLE

Semi-automatic direct drive turntable with a BSL motor.

Magnedisc servo system for accurate speed sensing.

Controls can be operated with the dust cover closed.

Illuminated stroboscope to check turntable speed.

Pitch control.

Cartridge supplied.

PS 333/DIRECT DRIVE TURNTABLE

Full automatic direct drive turntable with a BSL motor.

Magnedisc servo system for accurate speed sensing.

Controls can be operated with the dust cover closed.

Universal static balance type tonearm with bias adjustment.

Illuminated stroboscope to check turntable speed.

Cartridge supplied.

PS X40/DIRECT DRIVE TURNTABLE

Fully automatic crystal lock direct drive turntable.

High torque BSL, DC servo motor ensures low wow and flutter.

All major functions can be operated with the dust cover closed.

Recommended cartridge XL45 (not supplied).

PS X60/DIRECT DRIVE TURNTABLE

Fully automatic crystal lock direct drive turntable.

High torque (1 kg, c.m.) BSL, DC servo motor ensures low wow and flutter.

Precision arm with adjustable height.

Ultra rigid IEC head shell connector.

Recommended cartridges XL45, XL55, XL55-PRO (not supplied).

PS X70/DIRECT DRIVE TURNTABLE

Fully automatic crystal lock direct drive turntable.

The whole system can be operated manually from front control buttons.

Long span tonearm driven by its own FG servo motor for automatic operation.

Automatic muting system.

Recommended cartridges XL45, XL55, XL55-PRO (not supplied).

PS X35/DIRECT DRIVE TURNTABLE

Full automatic direct drive turntable with a BSL linear motor.

The crystal lock system in conjunction with a specially developed servo IC ensures stable and accurate speed, as well as a high degree of reliability.

The accurate speed sensing provided by the magnedisc servo system ensures that the crystal lock system operates at its full potential.

High torque (500 gm/cm) BSL, DC servo controlled motor which ensures low wow and flutter, yet enables the turntable to reach full speed within half a revolution.

All major functions, such as power on/off, start/stop, repeat, speed changing and arm raising or lowering can be operated with the dust cover closed.

Cartridge supplied.

LED speed display.

Amplifiers, Tuners, Receivers and Cassievers

The heart of your hi-fi system is the amplifier. Quality of sound reproduction will depend directly upon the amplifier you choose.

Whatever amplifier you need to complement your other hi-fi components you should be able to find one in the following section that will meet your requirements.

Whether it be a TA 212A or the powerful and sophisticated TA F40 – (illustrated on facing page), they will give you the benefits of Sony Technology. Benefits that give Sony amplifiers a quality and reputation second to none.

Throughout the new Sony range of tuners and receivers you'll find many features that used to be reserved for the most expensive models in the range.

All have been developed with two thoughts in mind; high performance coupled with the greatest convenience of operation.

Some features you'll find on many of the models in the range are synthesised tuning, to lock onto the station you want to hear, and digital frequency readout, displaying precise station frequency. You'll see both on the ST J60 illustrated opposite.

Some models incorporate one-touch programme sensors to allow you to select your favourite station at the touch of a button.

Sony Cassievers use the same technology and features you'll find on Sony amplifiers, tuners and cassette decks but combined in one convenient package.

ST J60, TA F40

Precise Compo

New technological advances in electronics have made possible Sony's Precise Compo Hi-Fi.

Hi-Fi that is not only technically superb but also uses the latest techniques of miniaturisation.

Sony call it 'Human Engineering. Real hi-fi that can fit easily and unobstrusively into your home.

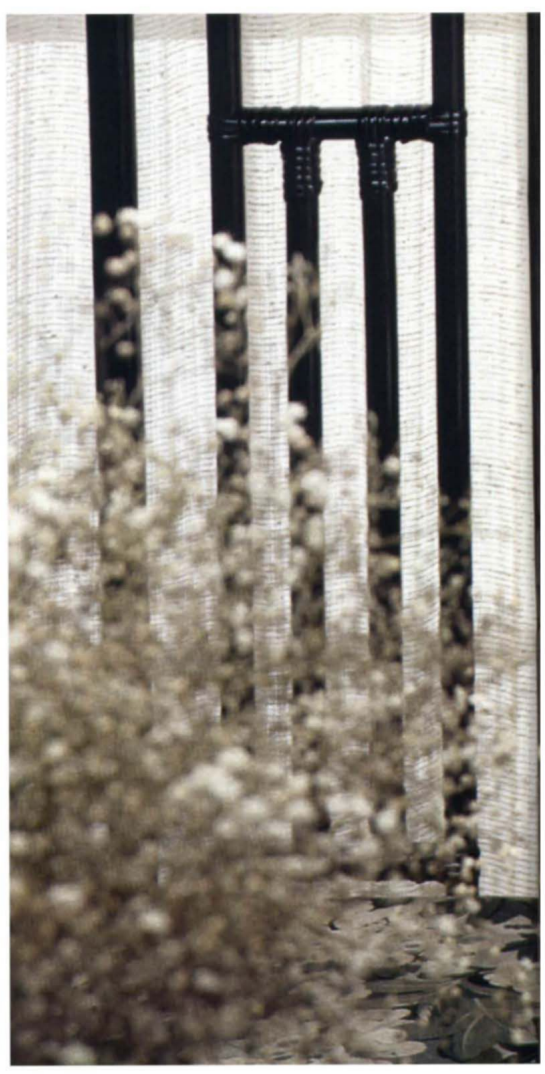
Extensive use of microcomponents has given Sony the ability to develop the models you see illustrated on the facing page. Each unit, the turntable, the amplifier and the tuner, is far smaller than you might have expected but this miniaturisation does not mean that Sony have compromised on any aspect, far from it. Each has the most sophisticated features with comparable performance and specification.

The Precise Compo tuner, the ST P7J, features synthesised tuning for the most accurate reception and has 8 electronic FM preselected positions that enable you to find your favourite stations at the touch of a button. A non volatile memory hold all stations even when the mains is disconnected.

The amplifier, the TA P7F, though small, delivers a surprising 50 watts per channel. Credit for this is largely due to its fast reacting thermodynamic cooling system. Equally it can cope with sudden loud passages of music, the Pulse Locked Power Supply takes care of that.

The turntable incorporates quartz locked, direct drive technology powered by Sony's new BSL motor with the magnedisc servo system.

So, all in all, Sony's Precise Compo may be small in size but its big in every way.



TA P7F, ST P7J and PS P7X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TA 212A/AMPLIFIER

20 watts per channel (1 kHz,).

Twin power meters, calibrated in rms watts, to indicate the power level supplied to each speaker.

Built-in loudness control to boost high and low frequencies for listening at low levels.

Headphone socket.

ST 212AL/TUNER

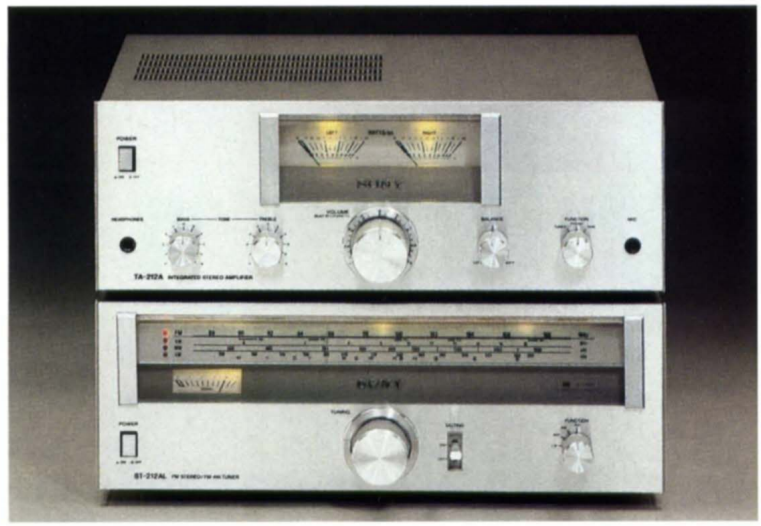
Four wavebands: VHF, MW, LW, SW.

Large, wide dial scale for easy tuning.

Indicator lights for each of the four wavebands plus stereo tuning indicator light.

Muting switch to remove inter-station noise on VHF.

Signal strength meter for accurate tuning.



TA 333/AMPLIFIER

25 watts per channel (20 Hz–20 kHz).

LED power display which shows the level of the musical source, and responds instantaneously to changes in output level.

Microphone mixing facility.

Connections for two pairs of speakers.

Two pairs of speakers can be used.

ST 333L/TUNER

Four wavebands: VHF, MW, LW, SW.

One touch programme sensor. A new system featuring the convenience of pre-sets with the advantages of a dial scale

Five segment LED signal strength indicator.

Long span dial scale.

Smooth tuning action.

TA F30/AMPLIFIER

30 watts per channel (20 Hz–20 kHz,).

Power level indication incorporating six LEDs for each channel which register the power level supplied to each speaker.

Eleven step tone controls, one each for bass and treble, incorporating centre defeat for a flat response.

ST A30L/TUNER

Three wavebands: VHF, MW, LW.

Five segment LED signal strength indicator.

Acute servo lock for stable and accurate VHF tuning. The STA 30L has the ability to "lock" on to a station, a feature previously found only in expensive synthesised tuners.

Stereo indicator.

Smooth tuning action.

TA 535/AMPLIFIER

40 watts per channel (20Hz–20kHz).

LED power indication.

Power level is indicated in 2 stages: either from 0–16 watts or from 0–160 watts.

Soft touch illuminated function switches.

Muting switch.

TA F60/AMPLIFIER

75 watts per channel (20Hz–20kHz).

Pulse power supply.

Thermodynamic cooling.

Built-in head amp.

13 segment LED peak meter.

TA F70/INTEGRATED AMPLIFIER

90 watts per channel (20Hz–20kHz).

Pulse power supply.

Preamp and power amp sections are internally separated.

Thermodynamic cooling.

TA E86B/PRE-AMPLIFIER

Built-in head amplifier for use with moving coil cartridges.

DC equaliser and flat amplifiers.

Completely independent circuitry for left and right channels utilising specially developed ultra-high frequency transistors.

TA N86B/POWER AMPLIFIER

80 watts per channel class B; 18 watts class A; 120 watts mono.

PLPS power supply for optimum performance under all signal conditions.

Full DC amp construction.

TA E7B/PRE-AMPLIFIER

Distortion (T.H.D. and I.M.) below 0.003%.

Built-in head amplifier for moving coil cartridges.

Adjustable meter characteristics.

Short signal path for optimum performance.

ST A7B/TUNER

Synthesized FM stereo tuner.

Combines the advantages of digital stability with analogue performance.

Adjustable selectivity.

TA N7B/POWER AMPLIFIER

100 watts per channel (20 Hz–20 kHz).

High power V-FET output transistors.

Constructed as two mono amplifiers in one package.

Two massive toroidal transformers.

Rugged professional construction.

TA E88B/PRE-AMPLIFIER

Consists of two separate mono pre-amplifiers housed in one case.

Distortion (T.H.D. and I.M.) below 0.002%.

Slim line professional chassis construction.

TA N88B/POWER AMPLIFIER

Utilizes the revolutionary PWM (pulse width modulation) technique.

High power output; 160 watts r.m.s. per channel.

PLPS (pulse locked power supply).

ST J88/TUNER

Fully synthesized.

Seven pre-set stations.

Auto tuning facility.

Adjustable selectivity.

Power-off station memory.

HST 49A/CASSIEVER

20 watts per channel (1 kHz).

VHF, MW, LW, SW.

3 position tape selector.

5 programme sensors on both VHF and LW.

HST 99/CASSIEVER (Illustrated below)

40 watts per channel (1 kHz).

VHF/MW/LW/SW with 5 step signal indicator.

One touch programme sensor.

Digital timer clock with timer/sleep set and auto dimmer.

12 segment LED record level meter and power indicator.

Soft touch cassette function control with AMS.

Metal tape position.

STR 232L/RECEIVER

20 watts per channel (1 kHz).

3 wavebands: VHF, MW, LW.

Loudness switch to improve sound at low listening levels.

Separate controls for bass and treble.

Automatic muting in stereo mode.

Stereo indicator light.

Headphone socket.

STR 333L/RECEIVER

25 watts per channel (20 Hz–20 kHz).

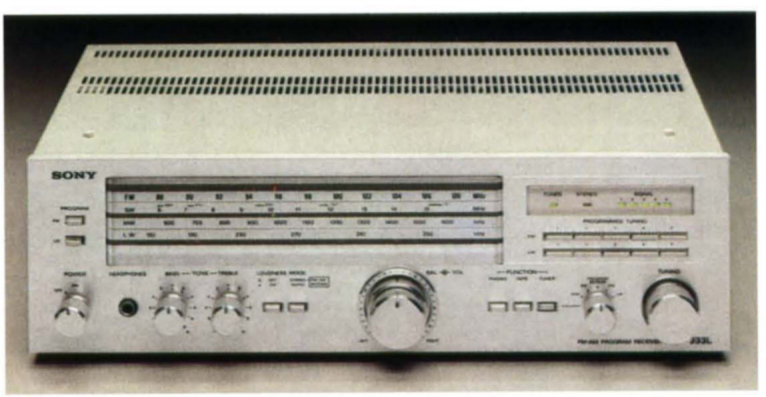
Four wavebands: VHF, MW, LW, SW.

One touch programme sensor: a new system which has all the convenience of pre-sets with the advantage of a visual display of the station location. Five stations can be programmed on VHF and five on LW, and then recalled by direct access push buttons.

Five segment LED signal strength indicator which tells you precisely how strong a signal you are receiving.

Loudness control.

Headphone socket.



STR 434L/RECEIVER

40 watts per channel (20Hz–20kHz).

Four wavebands: VHF, MW, LW, SW.

One touch programme sensor: a new system which has all the convenience of pre-sets with the advantage of a visual display of the station location. Five stations can be programmed on VHF and five on LW, and then recalled by direct access push buttons.

Seven segment LED signal strength indicator.

Digital frequency display.

Connections for two tape recorders.

High filter button.

Loudness control.

Facilities for connecting two pairs of speakers (A,B,A+B).

Headphone socket.

STR V3L/RECEIVER

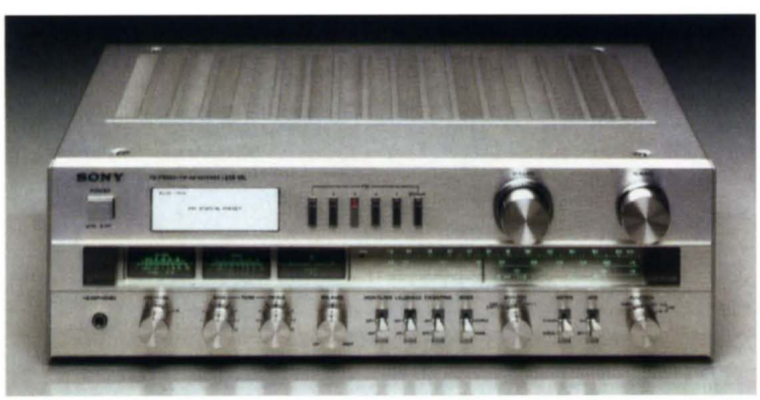
25 watts per channel (20Hz–20kHz).

Pre-set facility for 5 VHF stations.

Twin centre tuning and signal strength meters.

3 wavebands: VHF, MW, LW.

Combination stereo/mono and FM muting switch.



STR V4L/RECEIVER

50 watts per channel (20Hz–20kHz).

Pre-set facility for 5 VHF stations.

Twin power meters, centre tuning meter, plus signal strength indication.

3 wavebands: VHF, MW, LW.

Facilities for two tape recorders.

STR V5/RECEIVER

85 watts per channel (20Hz–20kHz).

2 wavebands: VHF and MW.

Twin power meters, centre tuning meter plus signal strength indication.

Full copying facilities for two tape recorders.

Precision flywheel tuning action.

Adjustable tuner selectivity.

STR V6/RECEIVER

115 watts per channel (20Hz–20kHz).

2 wavebands: VHF and MW.

Twin power meters, centre tuning meter plus signal strength indication.

Connection for two turntables.

Full copying facilities for two tape recorders.

Precision flywheel tuning action.

Cassette Decks and Open Reel Tape Recorders

Thirty years of Sony know-how have gone into developing the tape recorders you'll find in this next section.

Sony Open Reel Tape Recorders are well known for their high standards of performance and provide the degree of flexibility that tape enthusiasts require. Over the years they have consistently set the standards by which other tape equipment is judged.

Equally, when it comes to our range of cassette decks we find it hard to be modest. Not surprisingly, when you consider how much research we've invested helping to change the cassette deck from hi-fi's poor relation to a sophisticated piece of equipment central to a modern system.

All our cassette decks share those features which ensure that the convenience of cassettes is matched by high standards of sound reproduction.

Naturally all the decks incorporate the Dolby noise reduction system to minimise tape hiss.

All have bias and equalisation controls so that you can obtain maximum performance with the various types of tape you use. Some even have a setting for the latest development – metal tape.

In all ways, Sony recorders have been developed to give you the highest quality.

Take the TC K65, illustrated opposite. Here Sony have designed what they consider to be one of the most advanced machines, and you'll find many of its features on the other models in the range.

Instead of conventional VU meters the TC K65 uses Sony's LED display. LED's faithfully register any sudden, sharp peaks of the input signal. Peaks that VU meters are too slow to show.

The TC K65's controls operate at a feather touch with an internal protective logic. Even if you asked the deck to switch from fast forward to fast rewind simultaneously it could safely handle it.

On many decks the heads are made of 'ferrite and ferrite' (F & F) with a life of up to 200 times longer than conventional heads. Crucial, if you want your system to give constantly high performance. The more expensive machines have gone one stage further – 'sendust and ferrite' (S & F) heads with an even higher performance.

As you will see the TC K65 is only one of the range of cassette decks that Sony present here. It's a really wide range, so whatever you require in the way of recording equipment you should be able to find on one of the following pages.

RM 50 optional remote control for use with TC K65

TC K65 (Illustrated below)

TC U2/STEREO CASSETTE DECK

Dolby noise reduction system to reduce hiss when recording or playing back tapes.

Illuminated VU meters.

FG servo motor.

3 position tape selector for normal, ferrichrome and chromium dioxide tapes.

Soft eject.

Auto shut-off mechanism.

Stereo headphone socket.

TC U30/CASSETTE DECK

Sixteen segment LED record meters enable simple but precise adjustment of the record level.

3 position tape selector for normal, ferrichrome and chromium dioxide tapes.

Timer facility.

FG servo motor.

Soft eject.

Full auto shut off mechanism.

Input selector for mic. and line.

Stereo headphone jack socket.

Pause button.

TC K35/CASSETTE DECK

Separate three position bias and equalisation switches.

FG servo motor for stable operation.

Soft eject.

Auto shut-off mechanism.

Input selector for mic. and line.

Stereo headphone jack socket.

Spring return rec. mute lever.

Peak level LED indicator.

F and F head.

Direct coupled playback amplifier.

TC K45/CASSETTE DECK

Sixteen segment LED record meters enable simple but precise adjustment of the record level.

Auto play facility.

Separate three position bias and equalisation switches.

Memory counter.

F and F head.

Input selector for mic. and line.

Spring return rec. mute lever.

TC K55 Mk II/CASSETTE DECK

Micro processor, supervised feather touch function control.

Two motor tape transport systems, using BSL tri duty motor.

S and F head.

Separate four position bias and equalisation controls including metal tape position.

Five LED peak level indicators.

Remote control facility (RM 50 optional).

Auto space record mute facility; holds the deck in pause mode after creating a 4 second blank on the tape.

Memory counter.

TC K81/CASSETTE DECK

"Dual suspension" S and F R/PB heads.

3 head facility allowing full "off tape" monitoring.

Closed loop dual capstan tape drive, ensuring accurate tape to head contact.

2 motors giving excellent speed stability.

16 segment fast reacting LED recording display.

Dolby calibration tone, for accurate adjustment for different tapes.

User adjustable bias control.

Micro processor supervised function control.

Remote control (RM 50) option.

TC K96R/CASSETTE DECK

Automatic reverse using roto-bilateral head (F and F).

Feather touch control unit removable for remote operation.

Magnetic clutch enables precise high speed tape movement.

Two motors including capstan FG servo motor.

Large VU meters with 3 stage peak indicator.

TC K88/CASSETTE DECK

Slim line unit using unique auto-slide front loading system.

33 segment fast reacting LCD peak metering system.

3 motors and direct drive crystal locked capstan drive system ensuring excellent speed stability and reliability.

Separate 4 position bias and equalization switches allowing the use of the new high performance metal tape.

S & F head.

Remote control (RM 50) option.

AMS facility.

TC 765/OPEN REEL TAPE RECORDER

Four track, 3 head format utilising F&F record and playback heads.

3 motor tape transport including an AC servo capstan motor for exceptionally low wow and flutter.

Closed loop dual capstan system ensures perfect tape to head contact.

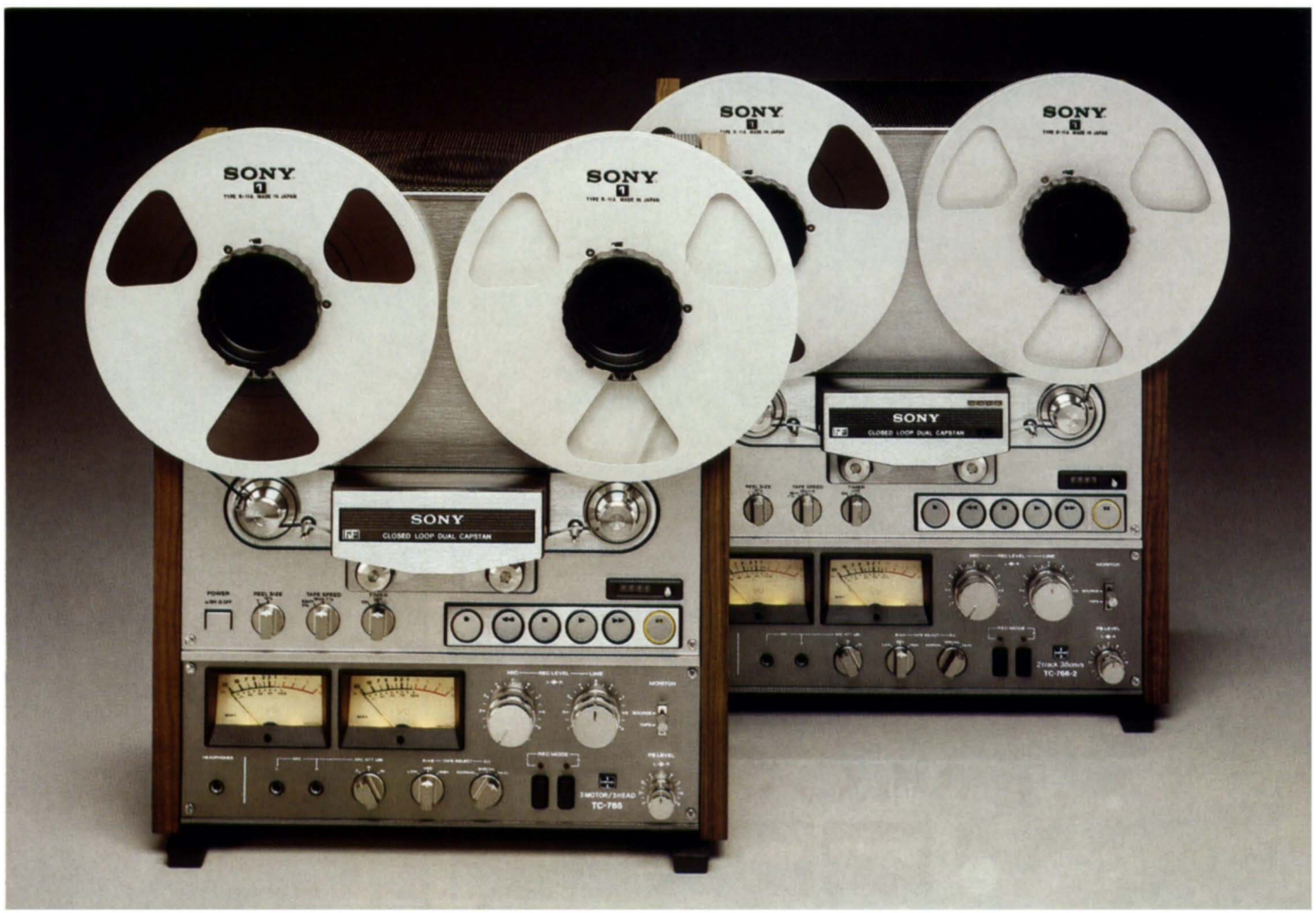
2 speeds: (19 cm/s, 9.5 cm/s).

TC 766-2/OPEN REEL TAPE RECORDER

Includes TC 765 features but with 2 track record/playback system.

Additional head for 4 track playback.

2 speeds: (38 cm/s, 19 cm/s).



TC 510-2/OPEN REEL TAPE RECORDER

Professional quality portable open reel tape recorder.

Two track, 3 head format utilising F&F record and playback heads.

Two speed. 19/9.5 cms.

Switchable built-in limiter.

4 power sources: batteries, AC adaptor (supplied), rechargeable battery pack (optional), car battery (with optional lead).

TC 399/OPEN REEL TAPE RECORDER

3 head open reel tape recorder.

3 speeds: 19, 9.5 and 4.8 cm/s.

F and F record and playback heads.

Mechanical tension servo for low wow and flutter.

Separate 3 position bias and equalisation (Normal, Special FeCr).

TC 880-2/OPEN REEL TAPE RECORDER

Professional quality open reel stereo tape recorder.

3 F&F heads including 2 track record, 2 track playback and 4 track playback.

Switchable VU, PPM meter characteristics including peak hold facility.

Sel-synch facility for precision overdubbing.

Tape counter calibrated in real time (at 38 cm/s), in minutes and seconds.

TC 645/OPEN REEL TAPE RECORDER

3 head open reel stereo tape recorder.

3 motors for stable tape transport.

2 speeds: 19 and 9.5 cm/s.

Switchable bias and equalisation.

EL D8/PORTABLE ELCASET TAPE DECK

Professional quality portable stereo recorder utilizing the ELCASET format.

Direct drive system enables low wow and flutter (0.04% w.r.m.s.).

Peak programme meters with peak hold facility.

Automatic tape selection.

4 power sources: batteries, AC adaptor (supplied), rechargeable battery pack (optional), car battery (with optional lead).

Speakers

Choosing speakers is probably one of the most difficult stages in assembling your hi-fi system. They have to match your amplifier, your room and your ears. Just as personal music tastes vary, so do preferences for one speaker rather than another.

The SS E series of speakers ranges from the SS E20 to the SS E70. Depending on your desire for quality and the power of your amplifier, you'll be able to find a speaker that should meet your needs within this range, which has been specially tailored to European tastes.

For the connoisseur, the SS G range, illustrated on the opposite page, has been developed using the most sophisticated design and construction techniques.

Remember, whatever hi-fi systems you have assembled, there is one golden rule; before you buy your speakers, listen to them. Your Sony dealer will be pleased to help.

In many cases, optional speaker stands are available.


SONY
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SF.01
SF.03
SF.05
SF.07

ACCESSORIES

Illustrated here is a selection from our comprehensive range of accessories. We have just about everything you will require to make your equipment that little bit more versatile, from a connecting lead to a pair of stereo headphones. For further information, please consult the new Sony accessories brochure.

		PS212A	PS333	PS636	PST15	PSX35
Turntable Section	Type	Semi-automatic	Fully automatic	Fully automatic	Semi-automatic	Fully automatic
	Speeds	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm
	Motor	Linear BSL motor	Linear BSL motor	BSL DC servo motor	Linear BSL motor	Linear BSL motor
	Speed control range	±3%	±6%	±6%	±4%	Fixed
	Wow and flutter	0.03% wrms, ±0.045% DIN	0.03% wrms, ±0.045% DIN	0.03% wrms, ±0.045% DIN	0.04% wrms, ±0.065% DIN	0.03% wrms, ±0.05% DIN
	S/N ratio	70 dB DIN	70 dB DIN	70 dB DIN	68 dB DIN	73 dB DIN
Tonearm Sect.	Type	Static balance	Static balance	Static balance	Static balance	Static balance
	Overall arm length	300 mm	216.5 mm	300 mm	300 mm	300 mm
	Stylus force adj. range	0–3 g	0–3 g	0–3 g	0–3 g	0–3 g
	Shell weight	13 g (with cartridge)	7.5 g	7.5 g	7.5 g	10.5 g
	Cartridge weight range	4–12 g	4.5–11 g	4–12 g	4–10 g	12–18 g (with headshell)
Cartridge Sect.	Type	VL 33G	VL 37G	VL 34G	XL 15	XL 15
	Channel separation	Better than 20 dB at 1 kHz	Better than 23 dB at 1 kHz	Better than 25 dB	Better than 25 dB at 1 kHz	Better than 25 dB at 1 kHz
	Output voltage	3.5 mV at 1 kHz	3 mV at 1 kHz	3 mV at 1 kHz	4 mV at 1 kHz	4 mV at 1 kHz
	Tracking weight	2–3 g (2.5 g recommended)	2–3 g (2.5 g recommended)	2 g recommended	1.7 g recommended	1.7 g recommended
	Stylus	ND136G	ND137G	ND134G	ND15G conical, 0.6 mil diamond	ND15G conical, 0.6 mil diamond
General	Power requirements	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz
	Power consumption	6 watts	6 watts	6 watts	8 watts	8 watts
	Dimensions	410 (W) x 125 (H) x 370 (345) (D) mm	430 (W) x 125 (H) x 365 (D) mm	450 (W) x 135 (H) x 385 (D) mm	445 (W) x 140 (H) x 375 (D) mm	445 (W) x 140 (H) x 395 (D) mm
	Weight	4.8 kg	5.3 kg	8 kg	5 kg	5.8 kg

		PSX40	PSX60	PSX70	PSP7X	PSB80
Turntable Section	Type	Fully automatic	Fully automatic	Fully automatic	Semi-automatic	Fully automatic
	Speeds	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm
	Motor	Linear BSL motor	Linear BSL motor	Linear BSL motor	Linear BSL DC servo motor	Linear BSL motor
	Speed control range	Fixed	Fixed	± 10%	Fixed	Fixed
	Wow and flutter	0.025% wrms, ±0.045% DIN	0.025% wrms, ±0.045% DIN	0.025% wrms, ±0.045% DIN	0.025% wrms ±0.045% DIN	0.02% wrms ±0.04% DIN
	S/N ratio	73 dB DIN	75 dB DIN	75 dB DIN	75 dB DIN	78 dB DIN
Tonearm Sect.	Type	Static balance	Static balance	Static balance	Static balance	Biotracer (electronically controlled)
	Overall arm length	300 mm	330 mm	330 mm	300 mm	325 mm
	Stylus force adj. range	0–3 g	0–2.5 g	0–2.5 g	0–3 g	0.5–3 g
	Shell weight	11 g	11 g	11 g	11 g	11 g
	Cartridge weight range	12–19 g (with headshell)	11–19.5 g, 19–27.5 g (with extra weight)	11–19.5 g, 19–27.5 g (with extra weight)	12–18.5 g, 18–24.5 g (with extra weight)	12–22 g, 21–31 g (with extra weight)
Cartridge Sect.	Type	Not supplied	Not supplied	Not supplied	XL 15	Not supplied
	Output voltage				4 mV at 1 kHz	
	Stylus				ND 15G	
General	Power requirements	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz (AC 220V, selectible	AC 110–120, 220–240V, 50/60 Hz
	Power consumption	8 watts	12 watts	12 watts	internally)	26 watts
	Dimensions	445 (W) x 145 (H) x 400 (D) mm	480 (W) x 165 (H) x 420 (D) mm	480 (W) x 165 (H) x 420 (D) mm	430 (W) x 110 (H) x 345 (D) mm	500 (W) x 175 (H) x 430 (D) mm
	Weight	8 kg	12 kg	13 kg	9.5 kg	15 kg

		ST212AL	ST333L	ST636	STA30L	STJ60
FM Section	Sensitivity	3 µV (IHF)	1.9 µV (IHF)	1.8 µV (IHF)	1.8 µV (IHF)	1.8 µV (IHF)
	S/N ratio	70 dB (mono), 65 dB (stereo)	75 dB (mono), 70 dB (stereo)	75 dB (mono), 70 dB (stereo)	65 dB (mono), 60 dB (stereo)	68 dB (mono), 64 dB (stereo)
	Capture ratio	2.5 dB	1.0 dB	1 dB	1 dB	1 dB
	Selectivity		55 dB	57 dB	50 dB (300 kHz), 75 dB (400 kHz)	80 dB at 300 kHz
	Image rejection	40 dB	45 dB	80 dB	50 dB	85 dB
	IF rejection	80 dB		70 dB	95 dB	95 dB
	Spurious rejection		80 dB	90 dB	75 dB	100 dB
	AM suppression	49 dB	50 dB	54 dB	54 dB	60 dB
	Frequency response	30–15,000 Hz ±3 dB	30–15,000 Hz +0.5/−2 dB	30–15,000 Hz +0.5/−2 dB	30–15,000 Hz +1/−2 dB	30–15,000 Hz + 0.2/−0.5 dB
	Aerial terminals	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced
	Harmonic distortion	0.5% (mono), 0.8% (stereo)	0.15% (mono), 0.3% (stereo)	0.1% (mono), 0.2% (stereo)	0.15% (mono), 0.4% (stereo) at 1 kHz	Mono / Stereo
						100 Hz 0.1% 0.3%
						1 kHz 0.1% 0.2%
						10 kHz 0.1% 0.5%
	Stereo separation	30 dB at 1 kHz	45 dB at 1 kHz	45 dB at 1 kHz	35 dB (100 Hz), 45 dB (1 kHz), 32 dB (10 kHz)	100 Hz 48 dB; 1 kHz 50 dB; 10 kHz 40 dB
AM Section	Tuning range	MW 530–1605 kHz	MW 530–1605 kHz	MW 530–1605 kHz	MW 530–1605 kHz	
		LW 150–350 kHz	LW 150–350 kHz		LW 150–350 kHz	
		SW 5.8–15.8 MHz	SW 5.8–15.8 MHz			
	Sensitivity	MW 389 µV/m built-in, 125 µV external aerial; LW 1250 µV/m built-in, 398 µV external aerial; SW 55 µV external aerial	MW 250 µV/m built-in, 100 µV/m external LW 500 µV/m built-in, 100 µV/m external SW 30 µV/m external	250 µV/m built-in, 100 µV/m external	MW 250 µV/m built-in, 100 µV external LW 500 µV/m built-in, 100 µV external	
	Selectivity		50 dB (MW, LW)	50 dB	45 dB (MW, LW)	
	S/N ratio	38 dB (MW, LW, SW)	52 dB (MW, LW, SW)	52 dB	50 dB (MW, LW)	
	Harmonic distortion	1%	0.3% (at 400 Hz)	0.3% (at 400 Hz)	0.5% (MW, LW)	
General	Power requirements	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 110, 127, 220, 240V, 50/60 Hz
	Power consumption	14 watts	10 watts	28 watts	7 watts	13 watts
	Dimensions (approx.)	407 (W) x 150 (H) x 300 (D) mm	430 (W) x 130 (H) x 290 (D) mm	430 (W) x 130 (H) x 311 (D) mm	430 (W) x 80 (H) x 275 (D) mm	430 (W) x 80 (H) x 310 (D) mm
	Weight (approx.)	4.6 kg	5.2 kg	6.2 kg	3.6 kg	4.5 kg

		STP7J	STA7B	STJ88
FM Section	Sensitivity	1.8 µV (IHF)	1.5 µV (IHF)	3.2 µV (50 dB)
	S/N ratio	68 dB (mono), 64 dB (stereo)	80 dB (mono) 75 dB (stereo)	75 dB (mono), 70 dB (stereo)
	Capture ratio	1 dB	0.8 dB (normal, 1.8 dB (narrow)	1 dB/1.7 dB (normal/narrow)
	Selectivity	80 dB at 300 kHz	300 kHz, 26 dB (normal), 76 dB (narrow)	—
	Image rejection	85 dB	90 dB	—
	IF rejection	95 dB	120 dB	110 dB
	Spurious rejection	100 dB	120 dB	110 dB
	AM suppression	60 dB	60 dB	60 dB
	Frequency response	30 Hz–15 kHz + 0.2/−0.5 dB	20 Hz–15 kHz + 0.2/− dB	30–15,000 Hz + 0.2 dB/−0.5 dB
	Aerial terminals	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 750 ohms unbalanced
	Harmonic distortion	Mono / Stereo	Mono / Stereo	(normal/narrow) Mono / Stereo
		100 Hz 0.1% 0.3%	100 Hz 0.04% 0.08%	100 Hz 0.04%/— 0.07%/0.3%
		1 kHz 0.1% 0.2%	1 kHz 0.04% 0.08%	1 KHz 0.04%/— 0.07%/0.3%
		10 kHz 0.1% 0.5%	10 kHz 0.05% 0.3%	10 KHz 0.04%/— 0.15%/0.6%
	Stereo separation	48 dB at 100 Hz, 50 dB at 1 kHz,	100 Hz 50 dB	(normal/narrow)
		100 Hz 48 dB	100 Hz 50 dB	100 Hz 50 dB/45 dB
		1 kHz 50 dB	1 kHz 55 dB	1 KHz 50 dB/45 dB
		10 kHz 40 dB	10 kHz 40 dB	10 KHz 45 dB/40 dB
General	Power requirements	AC 240V, 50 Hz	AC 240V, 50 Hz	AC 110, 120, 220, 240V, 50/60 Hz
	Power consumption	13 watts	45 watts	25 watts
	Dimensions (approx.)	215 (W) x 80 (H) x 330 (D) mm	430 (W) x 170 (H) x 420 (D) mm	480 (W) x 80 (H) x 370 (D) mm
	Weight (approx.)	3.6 kg	14.1 kg	6.7 kg

		TA 212A		TA 333		TA 535		TA 636		TA F30	
Main amp Section	Rated output (rms)	20 watts per channel (20 Hz–20 kHz, 8 ohms)		25 watts per channel (20 Hz–20 kHz, 8 ohms)		40 watts per channel (20 Hz–20 kHz, 8 ohms)		60 watts per channel (20 Hz–20 kHz, 8 ohms)		30 watts per channel (20 Hz–20 kHz, 8 ohms)	
	Power bandwidth	15–20,000 Hz		15–30,000 Hz		15–30,000 Hz		10 Hz–50 kHz		20–20,000 Hz	
	Harmonic distortion	0.7% at rated output		0.3% at rated output		0.05% at rated output		0.05% at rated output		0.05% at rated output	
	IM distortion	0.7% at 1 watt		0.3% at rated output		0.05% at rated output		0.05% at rated output		0.02% at rated output	
	Damping factor	30 (8 ohms) at 1 kHz		30 (8 ohms) at 1 kHz		30 (8 ohms) at 1 kHz		50 (8 ohms) at 1 kHz		40 (8 ohms) at 1 kHz	
Pre-amp Section	Inputs	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity
	Phono (headamp)	47 k ohms	2.5 mV	50 k ohms	2.5 mV	50 k ohms	2.5 mV	50 k ohms	2.5 mV	50 k ohms	2.5 mV
	Mic.	600 ohms	2.5 mV	10 k ohms	2 mV	10 k ohms	2 mV	10 k ohms	2 mV		
	High level inputs	47 ohms	150 mV	50 k ohms	150 mV	50 k ohms	150 mV	50 k ohms	150 mV	50 k ohms	140 mV
	Output	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level
	Rec. out	18 k ohms	140 mV	10 k ohms	150 mV	10 k ohms	150 mV	10 k ohms	150 mV	4.7 k ohms	140 mV
	Headphone	8 ohms		8 ohms		8 ohms		8 ohms			
	Frequency response	Phono RIAA equalisation curve ± 0.5 dB, 40 Hz–40 kHz ± 3 dB tuner, tape		Phono RIAA equalisation curve ± 0.5 dB, 20 Hz–50 kHz +0/−3 dB tuner, tape		Phono RIAA equalisation curve ± 0.3 dB, 20 Hz–50 kHz +0/−1 dB tuner, aux, tape		Phono RIAA equalisation curve ± 0.3 dB, 20 Hz–50 kHz +0/−1 dB tuner, aux, tape		Phono RIAA equalisation curve ± 0.3 dB, 5–60 kHz +0/−2 dB tuner, aux, tape	
	Loudness control	+7 dB at 50 Hz		+4 dB at 100 Hz		+9 dB at 100 Hz		+8 dB at 100 Hz		+8 dB at 100 Hz, +4 dB at 10 kHz	
	S/N ratio	Phono, mic 70 dB, tape 85 dB		Phono 70 dB, tape 90 dB		Phono 80 dB, tape 95 dB		Phono 80 dB, tape 95 dB		Phono 80 dB, others 100 dB	
General	Power requirements	AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz	
	Power consumption	120 watts		240 watts		360 watts		480 watts		200 watts	
	Dimensions (approx.)	407 (W) x 150 (H) x 300 (D) mm		430 (W) x 130 (H) x 290 (D) mm		430 (W) x 130 (H) x 300 (D) mm		430 (W) x 130 (H) x 300 (D) mm		430 (W) x 80 (H) x 295 (D) mm	
	Weight (approx.)	5.1 kg		6.2 kg		8.1 kg		8.8 kg		5.8 kg	

		TA F40		TA F60		TA F70		TA P7F	
Main amp Section	Rated output (rms)	50 watts per channel (20 Hz–20 kHz, 8 ohms)		75 watts per channel (20 Hz–20 kHz, 8 ohms)		90 watts per channel (20 Hz–20 kHz, 8 ohms)		50 watts per channel (20 Hz–20 kHz, 8 ohms)	
	Power bandwidth	5–30,000 Hz		5–30,000 Hz		5 Hz–30 kHz		5–30,000 Hz	
	Harmonic distortion	0.01% at rated output		0.01% at rated output		0.007% at rated output		0.01% at rated output	
	IM distortion	0.01% at rated output		0.01% at rated output		0.007% at rated output		0.01% at rated output	
	Damping factor	50 (8 ohms) at 1 kHz		40 (8 ohms) at 1 kHz		100 (8 ohms) at 1 kHz		50 (8 ohms) at 1 kHz	
Pre-amp Section	Inputs	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity
	Phono (headamp)	50 k ohms (100 ohms)	2.5 mV (0.25 mV)	50 k ohms (100 ohms)	2.5 mV (0.25 mV)	50 k ohms (100 ohms)	2.5 mV (0.125 mV)	50 k ohms (100 ohms)	2.5 mV (0.25 mV)
	Mic.								
	High level inputs	50 k ohms	150 mV	50 k ohms	150 mV	50 k ohms	150 mV	60 k ohms	150 mV
	Output	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level
	Rec. out	6 k ohms	150 mV	4.7 k ohms	150 mV	4.7 k ohms	150 mV	4.7 k ohms	150 mV
	Headphone	8 ohms		8 ohms		8 ohms		8 ohms	
	Frequency response	Phono RIAA equalisation curve ± 0.2 dB 5–70 kHz +0/−1 dB tuner, aux, tape		Phono RIAA equalisation curve ± 0.2 dB 3–70 kHz +0/−1 dB tuner, aux, tape		Phono RIAA equalisation curve ± 0.2 dB, DC–100 kHz +0/−1 dB tuner, aux, tape		Phono RIAA equalisation curve ± 0.2 dB, 5–60 kHz +0/−1 dB tuner, aux, tape	
	Loudness control	+10 dB at 100 Hz, +3 dB at 10 kHz		+10 dB at 60 Hz, +6 dB at 25 kHz				+6 dB at 10 kHz	
	S/N ratio	Phono 88 dB (headamp 75 dB), others 100 dB		Phono 88 dB (headamp 75 dB), others 100 dB		Phono 88 dB (headamp 78 dB), others 105 dB		Phono 1, 2 88 dB, headamp 75 dB, others 100 dB	
General	Power requirements	AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz	
	Power consumption	240 watts		420 watts		420 watts		280 watts	
	Dimensions (approx.)	430 (W) x 80 (H) x 335 (D) mm		430 (W) x 155 (H) x 340 (D) mm		430 (W) x 160 (H) x 410 (D) mm		215 (W) x 80 (H) x 300 (D) mm	
	Weight (approx.)	4.2 kg		6.7 kg		8.7 kg		3.7 kg	

		TA N7B			TA N86B				TA N88B	
Power amplifier	Rated output (r.m.s.)	100 w/ch 20 Hz – 20 kHz 8 ohms			80 w/ch (class B), 18 w/ch (class A), 120 w (mono), all at 20 Hz – 20 kHz, 8 ohms				200 w/ch, 1 kHz 8 ohms; 160 w/ch 20 Hz – 20 kHz 8 ohms	
	Power bandwidth	5 – 35,000 Hz			5 – 45,000 Hz (B), 5 – 60,000 Hz (A)					
	Harmonic distortion	r.m.s. output	Bandwidth 20 Hz – 20 kHz	5 Hz – 50 kHz	r.m.s. output	class (20 Hz – 20 kHz) A	B	mono	less than 0.5% at rated output less than 0.2% at 1 W output	
		100 W output	0.01%	0.05%	rated output	0.007%	0.007%	0.015%		
		10 W output	0.008%	0.02%	10 W output	0.0025%	0.0035%	0.008%		
		1 W output	0.008%	0.02%	1 W output	0.001%	0.003%	0.008%		
	IM distortion (measured at 60 Hz/7 kHz)	100 W output	0.01%		rated output	0.004%	0.004%	0.005%	less than 0.1% at rated output	
		10 W output	0.008%		10 W output	0.002%	0.003%	0.004%	less than 0.1% at 1 W output	
		1 W output	0.008%		1 W output	0.002%	0.003%	0.004%		
	Frequency response	DC–100,000 Hz +0/−1 dB (direct coupled) 6–100,000 Hz +0/−1 dB (C. coupled)			DC–200,000 Hz +0/−1 dB (direct coupled) 7–200,000 Hz +0/−1 dB (C. coupled)				5–40,000 Hz +0.5/−1 dB	
	Damping factor	100 (8 ohms) at 1 kHz			70 (8 ohms) at 1 kHz				20 (8 ohms) at 1 kHz	
	S/N ratio	120 dB (short circuit inputs, A network)			120 dB (short circuit inputs, A network)				110 dB (short circuit inputs, A network)	
	Input terminals	Direct and C. coupled (cut off 3 Hz)			Direct and C. coupled					
	Input sensitivity & impedance	1.3 V (rated output/50 k ohms)			1.1 V (rated output/50 k ohms/class B)				1.4 V (rated output/50 k ohms)	
General	Circuit system	Pure complementary V-FET, cascode SEPPOCL			3 stage differential amp. (A class), 3 stage darlington power amp.				Amp: pulse width modulation system, 500 kHz carrier wave	
	Power requirements	AC 240 V, 50 Hz			AC 240 V, 50 Hz				AC 240 V, 50 Hz	
	Power consumption	480 watts			450 watts				550 watts	
	Dimensions (approx.)	430 (W) x 170 (H) x 335 (D) mm			480 (W) x 80 (H) x 380 (D) mm				480 (W) x 80 (H) x 360 (D) mm	
	Weight (approx.)	20.1 kg			8 kg				13 kg	

		TA E7B			TA E86B			TA E88B		
Pre-amplifiers	Inputs	Impedance	Sensitivity	Capacitance	Impedance	Sensitivity	Capacitance	Impedance	Sensitivity	Capacitance
	Phono 1 (2)	50 k ohms (50/100 k ohms)	2.5 mV (2.5 mV)	100 pF (140 pF)	100/50/25 k ohms	2.5 mV	100 pF	50 k ohms (10–100 k ohms*)	2.5 mV (2.5 mV)	100 pF (100–500 pF†)
	Head amp.	3/40 ohms	0.125 mV		3/40 ohms	0.125 mV		3/40 ohms	0.125 mV	
	High level inputs	50 k ohms	150 mV		50 k ohms	150 mV		50 k ohms	150 mV (aux 250 mV)	
	Outputs	Impedance	Output level		Impedance	Output level		Impedance	Output level	
	Rec. out	1 k ohms	150 mV		10 k ohms	150 mV		1 k ohms	150 mV	
	Pre out	1.5 k ohms	1.5 V		100 ohms	1.5 V		100 ohms	1.5 V	
	Headphones	8 ohms			8 ohms			8 ohms		
	Harmonic distortion	0.003% at rated output			0.003% at rated output			0.002% at 10 V		
	IM distortion	0.003% at rated output			0.003% at rated output			0.002% at 10 V		
	Phono overload	Phono 1, 2 250 mV, head amp 12.5 mV			Phono 1 250 mV, head amp 12.5 mV			Phono 1, 2 250 mV, Phono 1, 2 head amp 12.5 mV		
	Frequency response	Phono 1, 2 RIAA equalisation curve ± 0.2 dB, 1–150,000 Hz +0/−1 dB tuner, aux, tape			Phono 1, 2 RIAA equalisation curve ± 0.2 dB, 5–500,000 Hz +0/−1 dB tuner, aux, tape			Phono 1, 2 RIAA equalisation curve ± 0.2 dB, DC–500,000 Hz +0/−1 dB tuner, aux, tape		
	Tone controls	± 10 dB at 25/50 Hz, ± 10 dB at 20/40 kHz								
	Filters	12 dB at 30 Hz, 12 dB at 9 kHz			(phono only) 12 dB at 15 Hz			(phono only) 12 dB at 15 Hz		
	S/N ratio	Phono 1, 2 85 dB, head amp 75 dB, others 105 dB			Phono 87 dB, head amp 78 dB, others 105 dB			Phono 1, 2 88 dB, head amp 80 dB, others 105 dB		
Meters	Frequency response	20–70,000 Hz +0/−3 dB								
	Attack time	average 300 ms, peak 1 ms								
	Indication range	−40 dB to +10 dB (0dB = 1 Vrms METER SENS. Min.) −60 dB to −10 dB (0 dB = 1 Vrms METER SENS. Max.)								
	Error	−10 dB to +10 dB ± 0.5 dB −30 dB to −10 dB ± 1.5 dB								
General	Circuit system	Low noise head amp, direct coupled eq. amp & flat amp, CR tone controls (with defeat), SEPPOTL head amp.			Low noise DC head amp, DC flat amp, DC NF equaliser amp.			Low noise head amp, direct coupled NF equaliser amp, direct coupled input buffer amp, direct coupled flat amp.		
	Power requirements	AC 240 V, 50 Hz			AC 240 V, 50 Hz			AC 240 V, 50 Hz		
	Power consumption	22 watts			15 watts			22 watts		
	Dimensions (approx.)	430 (W) x 170 (H) x 320 (D) mm			480 (W) x 80 (H) x 370 (D) mm			480 (W) x 80 (H) x 370 (D) mm		
	Weight (approx.)	11 kg			8.2 kg			9 kg		

*measured in 10 k ohm steps.

†measured in 10 pF steps.

		STR 232L	STR 333L	STR 434L	STR V3L	STR V4L
Amplifier Section	Rated output (rms)	20 w/ch (1 kHz, 8 ohms)	25 w/ch (20 Hz–20 kHz, 8 ohms)	40 w/ch (20 Hz–20 kHz, 8 ohms)	25 w/ch (20 Hz–20 kHz, 8 ohms)	50 w/ch (40 Hz–16 kHz, 8 ohms)
	Harmonic distortion	0.7% at rated output	0.3% at rated output	0.08% at rated output	0.3% at rated output	0.1% at rated output
	Inputs	Impedance / Sensitivity	Impedance / Sensitivity	Impedance / Sensitivity	Impedance / Sensitivity	Impedance / Sensitivity
	Phono	50 k ohms / 2.6 mV	50 k ohms / 2.5 mV	50 k ohms / 2.5 mV	50 k ohms / 2.5 mV	50 k ohms / 2.5 mV
	High level inputs	100 k ohms / 150 mV	50 k ohms / 150 mV	50 k ohms / 150 mV	50 k ohms / 150 mV	50 k ohms / 150 mV
	Outputs	Impedance / Output level	Impedance / Output level	Impedance / Output level	Impedance / Output level	Impedance / Output level
	Rec. out	10 k ohms / 150 mV	10 k ohms / 150 mV	10 k ohms / 150 mV	10 k ohms / 150 mV	10 k ohms / 150 mV
	Speaker				8 ohms	8 ohms
	Headphone	8 ohms	8 ohms	8 ohms	8 ohms	8 ohms
	Frequency response	Phono RIAA equalisation curve ± 1 dB, 10–50,000 Hz +1/−3 dB tape	Phono RIAA equalisation curve ± 1 dB, 10–50,000 Hz +0/−1 dB tape	Phono RIAA equalisation curve ± 1 dB, 10–50,000 Hz +0/−1 dB tape	Phono RIAA equalisation curve ± 0.8 dB, 10–40,000 Hz +0.5/−3 dB	Phono RIAA equalisation curve ± 0.8 dB, 5–50,000 Hz +0.5/−2 dB
FM Section	S/N ratio	Phono 70 dB, others 90 dB	Phono 70 dB, tape 90 dB	Phono 80 dB, tape 95 dB	Phono 75 dB, others 100 dB	Phono 75 dB, others 100 dB
	Tuning range	VHF 87.5–108 MHz	VHF 87.5–108 MHz	VHF 87.5–108 MHz	VHF 87.5–108 MHz	VHF 87.5–108 MHz
	Sensitivity	1.9 µV (IHF)	1.9 µV (IHF)	1.8 µV (IHF)	1.6 µV (S/N=26 dB)	1.6 µV (S/N=26 dB)
	Capture ratio	1 dB	1 dB	1 dB	1 dB	1 dB
	Selectivity	55 dB	55 dB	55 dB	70 dB	70 dB
	Frequency response	30–15,000 Hz +0.5/−2 dB	30–15,000 Hz +0.5/−2 dB	30–15,000 Hz +0.5/−2 dB	30–15,000 Hz +1/−2 dB	30–15,000 Hz +1/−2 dB
	Stereo separation	45 dB (1 kHz)	45 dB	45 dB	45 dB (1 kHz)	45 dB (1 kHz)
	Aerial terminals	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced
AM Sec.	Tuning range	MW 530–1605 kHz, LW 150–350 kHz, SW 5.8–15.8 MHz	MW 530–1605 kHz, LW 150–350 kHz, SW 5.8–15.8 MHz	MW 530–1605 kHz, LW 150–350 kHz, SW 5.8–15.8 MHz	MW 530–1605 kHz, LW 150–350 kHz	MW 530–1605 kHz, LW 150–350 kHz
	Aerial	Built-in ferrite bar (LW), attached antenna wire (MW), external terminals (MW, LW)	Built-in ferrite bar (LW), attached antenna wire (MW), external terminals (MW, LW)	Built-in ferrite bar (MW, LW), external terminals (VHF, SW)	Built-in ferrite bar (MW, LW), external aerial terminals (MW, LW)	Built-in ferrite bar aerial, external aerial terminals
General	Power requirements	AC 240 V, 50 Hz	AC 240 V, 50 Hz	AC 240 V, 50 Hz	AC 240 V, 50 Hz	AC 240 V, 50 Hz
	Power consumption	110 watts	240 watts	380 watts	230 watts	410 watts
	Dimensions (approx.)	410 (W) x 145 (H) x 305 (D) mm	430 (W) x 145 (H) x 310 (D) mm	430 (W) x 135 (H) x 370 (D) mm	440 (W) x 145 (H) x 370 (D) mm	480 (W) x 145 (H) x 395 (D) mm
	Weight (approx.)	5.9 kg	7.6 kg	9.3 kg	8.5 kg	14 kg

		STR V5	STR V6
Amplifier Section	Rated output (rms)	85 w/ch (20 Hz–20 kHz, 8 ohms)	115 w/ch (20 Hz–20 kHz, 8 ohms)
	Harmonic distortion	0.07% at rated output	0.07% at rated output
	Inputs	Impedance / Sensitivity	Impedance / Sensitivity
	Phono	50 k ohms / 2.5 mV	50 k ohms / 2.5 mV
	High level inputs	100 k ohms / 150 mV	100 k ohms / 150 mV
	Outputs	Impedance / Output level	Impedance / Output level
	Rec. out	4.7 k ohms / 150 mV	4.7 k ohms / 150 mV
	Headphone	8 ohms	8 ohms
	Frequency response	Phono RIAA equalisation curve ± 0.5 dB, 5 Hz–50 kHz +0/−2 dB aux, tape	Phono 1, 2 RIAA equalisation curve ± 0.5 dB, 5 Hz–50 kHz +0/−2 dB aux, tape
	S/N ratio	Phono 75 dB, others 100 dB	Phono 1, 2 75 dB, others 100 dB
FM Section	Tuning range	VHF 87.5–108 MHz	VHF 87.5–108 MHz
	Sensitivity	1.4 µV (S/N=26 dB)	1.3 µV (S/N=26 dB)
	Capture ratio	1 dB	1 dB
	Selectivity	50 dB at 300 kHz, 85 dB at 400 kHz	55 dB (normal), 85 dB (narrow) at 400 kHz
	Frequency response	30–15,000 Hz +0.2/−1.5 dB	30–15,000 Hz +0.2/−1.5 dB
	Stereo separation	48 dB (1 kHz)	48/40 dB at 1 kHz (normal/narrow)
	Aerial terminals	300 ohms balanced, 75 ohms unbalanced	300 ohms balanced, 75 ohms unbalanced
AM Sec.	Tuning range	MW 530–1605 kHz	MW 530–1605 kHz
	Aerial	Built-in ferrite bar aerial, external aerial terminals	Built-in ferrite bar aerial, external aerial terminals
General	Power requirements	AC 240 V, 50 Hz	AC 240 V, 50 Hz
	Power consumption	430 watts	620 watts
	Dimensions (approx.)	525 (W) x 195 (H) x 450 (D) mm	525 (W) x 195 (H) x 450 (D) mm
	Weight (approx.)	19 kg	22 kg

		HST 49A	HST 99
	Rated output (rms)	20 watts per channel (1 kHz, 8 ohms)	40 watts per channel (1 kHz, 8 ohms)
	Harmonic distortion	Less than 0.5% at 1 watt	Less than 0.2% at rated output
Amp Section	Inputs	Impedance / Sensitivity	Impedance / Sensitivity
	Phono	47 k ohms / 3.5 mV	47 k ohms / 3.5 mV
	Mic.	600 ohms / 3.5 mV	600 ohms / 3.5 mV
	High level inputs	47 k ohms / 500 mV	47 k ohms / 500 mV
	Outputs	Impedance / Sensitivity	Impedance / Output level
	Rec. out	10 k ohms / 250 mV	10 k ohms / 250 mV
	Speaker	8 ohms	8 ohms
	Headphone	8 ohms	8 ohms
	Frequency response	Phono RIAA equalisation curve ± 2 dB,	Phono RIAA equalisation curve ± 2 dB
	S/N ratio	Phono 65 dB, mic 60 dB, aux 70 dB	Phono 70 dB, aux 90 dB
Cassette	Frequency response	50–12,500 Hz ± 6 dB (normal), 40–12,500 Hz ± 6 dB (CrO_2)	30–17,000 Hz (metal tape)
	Wow and flutter	0.18% wrms	0.04% wrms
	S/N ratio	52 dB (CrO_2) Dolby off	55 dB (metal tape) Dolby off
	Harmonic distortion	3%	1%
FM Section	Tuning range	VHF 87.5–108 MHz	VHF 87.5–1108 MHz
	Sensitivity	2.2 µV (S/N=30 dB)	1.6 µV (S/N=30 dB)
	S/N ratio	65 dB	70 dB
	Harmonic distortion	0.5% (mono), 1% (stereo)	0.1% (mono), 0.3% (stereo)
	Stereo separation	35 dB	40 dB
	Frequency response	70–12,500 Hz ± 3 dB	30–15,000 Hz ± 3 dB
AM Section	AM suppression	45 dB	
	Tuning range	MW 530–1605 kHz, LW 150–350 kHz, SW 5.8–15.8 MHz	MW 530–1605 kHz, LW 150–350 kHz, SW 5.8–15.8 MHz
	Sensitivity	MW 500 µV/m built-in, 35 µV external LW 55 dB/m built-in, 150 µV external SW 30 µV external	MW 250 µV/m built-in, 35 µV external LW 500 µV/m built-in, 150 µV external SW 30 µV external
General	Power requirements	AC 240 V, 50 Hz	AC 240 V, 50 Hz
	Power consumption	105 watts	240 watts
	Dimensions (approx.)	456 (W) x 225 (H) x 247 (D) mm	455 (W) x 240 (H) x 267 (D) mm
	Weight (approx.)	6.9 kg	11.5 kg

		TC U2		TC U30		TC U60		TC K35		TC K45	
Recorder Section	Wow and flutter	0.08% wrms, ± 0.2% DIN		0.05% wrms, ± 0.14% DIN		0.04% wrms, ± 0.12% DIN		0.05% wrms, ± 0.14% DIN		0.05% wrms, ± 0.14% DIN	
	S/N ratio*	55 dB (FeCr)		56 dB (FeCr)		59 dB (FeCr)		58 dB (FeCr)		58 dB FeCr	
	Frequency response	50–13,000 Hz (± 3 dB) FeCr		50–13,000 Hz (± 3 dB) FeCr,		30–16,000 Hz (± 3 dB) FeCr		30–15,000 Hz (± 3 dB) FeCr,		30–15,000 Hz (± 3 dB) FeCr,	
		50–13,000 Hz (DIN) FeCr		50–13,000 Hz (DIN) FeCr		30–16,000 Hz (DIN FeCr)		30–15,000 Hz (DIN) FeCr		30–15,000 Hz (DIN) FeCr	
	Total harmonic dist.	2% with FeCr tape		1.7% with FeCr tape		1.3% with FeCr tape		1.3% with FeCr tape		1.3% with FeCr tape	
	Inputs	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity
	Mic.	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)
	Line	100k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)
	DIN	10 k ohms		10 k ohms		10 k ohms		10 k ohms		10 k ohms	
	Outputs	Impedance	Output level	Impedance	Output level	Impedance	Sensitivity	Impedance	Output level	Impedance	Output level
	Line	more than 10k ohms	435 mV	10 k ohms	435 mV	More than 10 k ohms	435 mV	More than 10 k ohms	435 mV	More than 10 k ohms	435 mV
	DIN	50k ohms	435 mV	50 k ohms		50 k ohms	435 mV	50 k ohms		50 k ohms	435 mV
	Headphones	8 ohms		8 ohms		8 ohms		8 ohms		8 ohms	
	Motor	FG servo motor		Tri duty FG servo motor		Two (one BSL motor)		FG servo motor		FG servo motor	
	Heads	1 x rec/PB head, 1 x erase head		1 x F&F rec/PB head, 1 x erase head		1 x F&F rec/PB head, 1 x erase head		1 x F&F rec/PB head, 2 x erase heads		1 x F&F rec/PB head, 1 x erase head	
General	Power requirements	AC 240 V, 50 Hz		240V, 50 Hz		AC 240V, 50 Hz		AC 240V, 50 Hz		AC 240V, 50 Hz	
	Power consumption	12 watts		16 watts		30 watts		12 watts		14 watts	
	Dimensions (approx.)	410 (H) x 145 (W) x 260 (D) mm		430 (W) x 130 (H) x 290 (D) mm		430 (W) x 130 (H) x 290 (D) mm		430 (W) x 130 (H) x 290 (D) mm		430 (W) x 130 (H) x 290 (D) mm	
	Weight (approx.)	5 kg		5.4 kg		5.7 kg		5.8 kg		5.8 kg	
		TC K55 Mk II		**TC K65**		**TC K81**		**TC K88**		**TC K96R**	
Recorder Section	Wow and flutter	0.04% wrms, ± 0.12% DIN		0.04% wrms, ± 0.12% DIN		0.04% wrms, ± 0.12% DIN		0.03% wrms, ± 0.085% DIN		0.05% wrms, ± 0.14% DIN	
	S/N ratio*	59 dB (FeCr)		59 dB (FeCr)		60 dB (FeCr)		60 dB (FeCr)		59 dB	
	Frequency response	30–17,000 Hz (± 3 dB) FeCr,		30–17,000 Hz (± 3 dB) FeCr,		30–18,000 Hz (± 3 dB) FeCr,		30–17,000 Hz (± 3 dB) FeCr,		30–16,000 Hz (± 3 dB) FeCr,	
		30–17,000 Hz (DIN) FeCr		30–17,000 Hz (DIN) FeCr		30–18,000 Hz (DIN) FeCr		30–17,000 Hz (DIN) FeCr		30–16,000 Hz (DIN) FeCr	
	Total harmonic dist.	1% with FeCr tape		1% with FeCr tape		0.9% with FeCr		0.9% with FeCr		1.3% with FeCr tape	
	Inputs	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity
	Mic.	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)	Low	−70 dB (0.25 mV)
	Line	50 k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)	50 k ohms	−20 dB (77.5 mV)	100 k ohms	−20 dB (77.5 mV)
	DIN	10 k ohms		10 k ohms		10 k ohms		10 k ohms		10 k ohms	
	Outputs	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level
	Line	More than 10 k ohms	435 mV	More than 10 k ohms	435 mV	More than 10 k ohms	435 mV	More than 10 k ohms	435 mV	More than 10 k ohms	435 mV
	DIN	50 k ohms	435 mV	50 k ohms	435 mV	50 k ohms		50 k ohms		50 k ohms	775 mV
	Headphones	8 ohms		8 ohms		8 ohms		8 ohms		8 ohms	
	Motor	Two (FG servo capstan)		Two (one FG servo capstan)		Two (one FG servo capstan)		3 D.D. BSL+ slide motor		Two BSL FG (FG servo capstan motor)	
	Heads	1 x S&F rec/PB head, 1 x erase head		1 x S&F rec/PB head, 1 x erase head		S&F rec/PB heads, 1 x erase head		1 x S&F rec/PB head, 1 x erase head		1 x F&F rec/PB head, 2 x erase heads	
General	Power requirements	AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 240 V, 50 Hz		AC 110, 120, 220, 240 V, 50/60 Hz	
	Power consumption	26 watts		26 watts		28 watts		45 watts		33 watts	
	Dimensions (approx.)	430 (W) x 130 (H) x 290 (D) mm		430 (W) x 130 (H) x 290 (D) mm		430 (W) x 130 (H) x 290 (D) mm		480 (W) x 80 (H) x 385 (D) mm		430 (W) x 155 (H) x 325 (D) mm	
	Weight (approx.)	5.2 kg		5.7 kg		6.3 kg		10 kg		8.5 kg	
		TC 399		**TC 645**		**TC 765**		**TC 766-2**		**TC 880-2**	
Recorder Section	Bias frequency	160 kHz		160 kHz		160 kHz		160 kHz		160 kHz	
	Recording format	4-track, 2-channel		4-track, 2-channel		4-track, 2-channel stereo		2-track, 2-channel stereo rec/PB;		2-track, 2-channel, rec/PB;	
								4-track, 2-channel PB		4-track, 2-channel PB	
	Tape speeds	19, 9.5, 4.8 cm/s		19, 9.5 cm/s		19, 9.5 cm/s		38, 19 cm/s		38, 19 cm/s	
	Wow and flutter	19 cm/s 0.06% wrms±0.09% DIN		19 cm/s 0.07% wrms ± 0.09% DIN		19 cm/s 0.04% wrms ± 0.07% DIN		38 cm/s 0.018% wrms ± 0.035% DIN		38 cm/s 0.02% wrms ± 0.03% DIN	
		9.5 cm/s 0.09% wrms±0.12% DIN		9.5 cm/s 0.11% wrms ± 0.12% DIN		9.5 cm/s 0.08% wrms ± 0.15% DIN		19 cm/s 0.04% wrms ± 0.07% DIN		19 cm/s 0.03% wrms ± 0.04% DIN	
		4.8 cm/s 0.12% wrms									
	S/N ratio	55 dB (normal), 58 dB (special)		53 dB (normal), 56 dB (SLH)		55 dB (normal), 58 dB (SLH), 61 dB (FeCr)		58 dB (normal), 61 dB (SLH), 64 dB (FeCr)		59 dB (normal), 62 dB (SLH), 65 dB (FeCr)	
		61 dB (FeCr)									
	Frequency response	FeCr tape		'SLH' tape		'SLH, FeCr' tape 19 cm/s 30 – 25,000 Hz		'SLH, FeCr' tape 38 cm/s 30 – 30,000 Hz		'FeCr' tape 38 cm/s	
		19 cm/s 30–25,000 Hz (±3 dB)		19 cm/s 30–25,000 Hz ± 3 dB		± 3 dB 30 – 25,000 Hz DIN		± 3 dB 30 – 30,000 Hz DIN		20 – 40,000 Hz ± 2 dB	
		19 cm/s 30–25,000 Hz (DIN)		19 cm/s 30–24,000 Hz DIN		'SLH, FeCr' tape 9.5 cm/s 30 – 18,000 Hz		'SLH, FeCr' tape 19 cm/s 30 – 25,000 Hz		'FeCr' tape 19 cm/s	
		9.5 cm/s 30–18,000 Hz (±3 dB)		9.5 cm/s 40–16,000 Hz DIN		± 3 dB 30 – 18,000 Hz DIN		± 3 dB 30 – 25,000 Hz DIN		25 – 30,000 Hz ± 2 dB	
		9.5 cm/s 30–18,000 Hz (DIN)									
	Total harmonic dist.	0.8% with FeCr tape		1.2%		0.7% with 'FeCr' tape		0.5% with 'FeCr' tape		0.5% with FeCr tape	
	Inputs	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity	Impedance	Sensitivity
	Mic	Low	−70 dB (0.25 mV)	Low	−72 dB (0.2 mV)	Low	−72 dB (0.2 mV)	Low	−72 dB (0.2 mV)	Low	−72 dB (0.2 mV)
	Line	100 k ohms	−20 dB (77.5 mV)	100 k ohms	−22 dB (60 mV)	100 k ohms	−22 dB (60 mV)	100 k ohms	−22 dB (60 mV)	100 k ohms	−22 dB (60 mV)
	DIN	10 k ohms		10 k ohms		10 k ohms		10 k ohms			
	Outputs	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level	Impedance	Output level
	Line	More than 10 k ohms	435 mV	More than 10 k ohms	775 mV (100 k ohms)	more than 10 k ohms	435 mV (100 k ohms)	more than 10 k ohms	435 mV (100 k ohms)	more than 10 k ohms	435 mV (100 k ohms)
	DIN	50 k ohms	435 mV	50 k ohms	775 mV	50 k ohms	435 mV	50 k ohms	435 mV	50 k ohms	
	Headphone	8 ohms		8 ohms		8 ohms		8 ohms		8 ohms	
	Motor	1		3		3		4		4	
	Heads	1 x F&F rec. head, 1 x F&F PB head,		1 x F&F rec. head, 1 x F&F PB head,		1 x F&F PB head, 1 x F&F rec head,		1 x F&F PB head (4T), 1 F&F x PB head (2T),		1 x F&F PB (2T), 1 x F&F PB (4T),	
		1 x erase head		1 x erase head		1 x erase head		1 x F&F rec head (2T), 1 x erase head (2T)		1 x F&F rec head, 1 x erase head	
General	Power requirements	AC110, 120, 220, 240V, 50/60 Hz		AC110, 127, 220, 240 V, 50/60 Hz		AC 110, 120, 220, 240 V, 50/60 Hz		AC 110, 120, 220, 240 V, 50/60 Hz		AC 110, 127, 220, 240 V, 50/60 Hz	
	Power consumption	35 watts		110 watts		90 watts		90 watts		120 watts	
	Dimensions (approx.)	415 (W) x 435 (H) x 190 (D) mm		378 (W) x 370 (H) x 224 (D) mm		445 (W) x 525 (H) x 235 (D) mm		445 (W) x 525 (H) x 235 (D) mm		465 (W) x 515 (H) x 265 (D) mm	
	Weight (approx.)	12.9 kg		18.5 kg		27 kg		27 kg		36.5 kg	
		TC 510-2		**ELD 8**							
Recorder Section	Bias frequency	160 kHz		106 kHz							
	Recording format	2-track, 2-channel		4-track, 2-channel							
	Tape speeds	19, 9.5 cm/s (manually variable ± 10%)		9.5 cm/s							
	Wow & flutter	19 cm/s 0.05% wrms ± 0.08% DIN		0.04% wrms, 0.1% DIN							
		9.5 cm/s 0.08% wrms ± 0.12% DIN									
	S/N ratio*	64 dB (FeCr)		62 dB							
	Frequency response	'FeCr' tape 19 cm/s 30 – 27,000 Hz ± 3 dB		25 – 22,000 Hz ± 3 dB (FeCr)							
		30 – 27,000 Hz DIN		20 – 23,000 Hz DIN (FeCr)							
		'FeCr' tape 9.5 cm/s 30 – 18,000 Hz									
		± 3 dB 30 – 18,000 DIN									
	Total harmonic distortion	0.8% with FeCr tape		0.8% with FeCr tape							
	Inputs	Impedance	Sensitivity	Impedance	Sensitivity						
	Mic	Low	−72 dB (0.2 mV)	Low	−70 dB (0.25 mV)						
	Line	100 k ohm	−22 dB (60 mV)	100 k ohm	−20 dB (77.5 mV)						
	Outputs	Impedance	Output level	Impedance	Output level						
	Line	more than 10 k ohms	435 mV (100 k ohms)	10 k ohms	435 mV at 100 k ohm						
	Headphone	8 ohms (adjustable volume)		8 ohms							
	Power output	500 mw									
	Speaker	44 x 94 mm									
	Motor	1 x DC servo motor		1 x reel motor, 1 x capstan motor							
	Heads	1 x F&F rec head, 1 x F&F PB head,		1 x F&F rec/PB head, 1 x erase head							
		1 x erase head									
General	Power requirements	DC 12 V, 8 x HP2 ("D" size) batteries, AC		DC 12 V, 8 x HP2 batteries; AC 240 V,							
		240 V, 50 Hz with power adaptor, optional		50 Hz with power adaptor; optional							
		rechargeable battery pack (BP 55), car		rechargeable battery pack (BP 55);							
		battery via optional car battery cord		car battery via optional cord (DCC 130)							
		(DCC 129).									
	Power consumption			11 watts (with AC 26)							
	Dimensions (approx.)	333 (W) x 136 (H) x 296 (D) mm		332 (W) x 100 (H) x 298 (D) mm							
	Weight (approx.)	6.8 kg including batteries		5.2 kg							

* DIN 45–633, measured with Dolby off; Dolby on improvement 5 dB at 1 kHz, more than 10 dB at 5 kHz.

		HMK 11B	HMK 33/33B	HMK 44	HMK 80/80B	HMK 7000
Tuner Section	Tuning range	VHF 87.5–108 MHz	VHF 87.5–108 MHz	VHF 87.5–108 MHz	VHF 87.5–108 MHz	VHF 87.5–108 MHz
	Sensitivity	2.2 μV (S/N = 30 dB)	2.2 μV (S/N = 30 dB)	2μV (S/N = 30 dB)	1.8 μV (S/N = 30 dB)	10μV (S/N = 50 dB)
	Wave bands	MW, LW	MW, LW	MW, LW	MW, LW	MW, LW
		SW 5.8–15.8 MHz	SW 5.8–15.8 MHz		SW 5.8–15.8 MHz	
Amp. Sec.	Rated output (r.m.s.)	12 watts per channel at 1 kHz (8 ohms), music power 35 watts (total)	18 watts per channel at 1 kHz (8 ohms) music power 50 watts (total)	25 watts per channel at 40 Hz – 15 kHz (8 ohms), music power 90 watts (total)	35 watts per channel at 1 kHz (8 ohms) music power 100 watts (total)	30 watts per channel at 1 kHz (8 ohms) music power 90 watts (total)
Player Section	Speeds	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm	33⅓, 45 rpm
	Motor	DC servo motor	DC servo motor	DC servo motor	DC servo motor	DC servo motor
	Drive	Belt drive	Belt drive	Belt drive	Direct drive	Direct drive
	Wow and flutter	0.08% wrms, ± 0.12% DIN	0.08% wrms, ± 0.12% DIN	0.1% wrms	0.04% wrms, ± 0.06% DIN	0.04% wrms,
	S/N ratio	55 dB	55 dB	55 dB	68 dB	68 dB
	Cartridge	VL 33G	VL – 33G	VL 33GS	VL 34G	VL 34G
	Tracking force	3 g	3 g	3 g	1.5 – 2.5 g (2 g rec.)	1.5 – 2.5 g (2 g rec.)
	Stylus	ND – 136G	ND – 136G	ND – 136G	ND – 134G	ND – 134G
Recorder Section	Wow and flutter	0.2% wrms	0.2% wrms	0.18% wrms	0.2% wrms	0.04% wrms
	S/N ratio*	46 dB (CrO_2) HNR off	46 dB (CrO_2)	50 dB (FeCr)	46 dB (normal), 48 dB (FeCr)	56 dB (normal), 58 dB (FeCr)
	Frequency response	40 – 12,500 Hz ± 3 dB (normal)	40 – 12,500 Hz ± 3 dB (normal)	50 – 12,500 Hz ± 3 dB (normal)	40 – 12,500 Hz ± 3 dB (normal)	30 – 17,000 Hz ± 3 dB (FeCr)
				40 – 15,000 Hz ± 3 dB (FeCr, CrO_2)	40 – 16,000 Hz ± 3 dB (FeCr, CrO_2)	30 – 17,000 Hz ± 3dB (metal)
Speaker System	System	2 way speaker system	2 way speaker system		2 way: woofer 200 mm diameter cone type; tweeter 25 mm diameter dome type.	Recommended speakers SS E50
	Handling power	40 watts (music)	40 watts (music)		60 watts (DIN)	
	Impedance	8 ohms	8 ohms		8 ohms	
	Dimensions (approx.)	300 (W) x 500 (H) x 190 (D) mm	300 (W) x 500 (H) x 190 (D) mm		290 (W) x 535 (H) x 230 (D) mm	
	Weight (approx.)	5.4 kg	5.4 kg		9.5 kg	
General	Power requirements	AC 240 V, 50 Hz	AC 240 V, 50 Hz	AC 240 V, 50 Hz	AC 240 V, 50 Hz	AC 240 V, 50 Hz
	Power consumption	75 watts	100 watts		250 watts	300 watts
	Dimensions (approx.)	613 (W) x 146 (H) x 428 (D) mm	613 (W) x 146 (H) x 428 (D) mm	508 (W) x 254 (H) x 628 (D) mm	663 (W) x 177 (H) x 495 (D) mm	688 (W) x 160 (H) x 500 (D) mm
	Weight (approx.)	9.2 kg	9.5 kg	16.5 kg	19.3 kg	24 kg
	Supplied accessories	microphone, instruction cassette, ribbon antenna	*microphone, instruction cassette, ribbon antenna		set of headphones, microphone, instruction cassette, ribbon antenna, 45 rpm adaptor	ribbon antenna, 45 rpm adaptor

		HMK 9000
Tuner Section	Tuning range	VHF 87.5–108 MHz
	Sensitivity	10μV (S/N = 50 dB)
	Wave bands	MW, LW
Amp. Sec.	Rated output (r.m.s.)	40 watts per channel at 1 kHz (8 ohms) music power 120 watts (total)
Player Section	Speeds	33⅓, 45 rpm
	Motor	DC servo motor
	Drive	Computerised direct drive
	Wow and flutter	0.03% wrms, ± 0.045% DIN
	S/N ratio	70 dB
	Cartridge	VL 34G
	Tracking force	1.5 – 2.5 g (2 g rec.)
	Stylus	ND – 134G
Recorder Section	Wow and flutter	0.04% wrms
	S/N ratio	56 dB (normal), 58 dB (FeCr)
	Frequency response	30 – 17,000 Hz + 3dB (FeCr)
		30 – 17,000 Hz + 3dB (metal)
Speaker System	System	Recommended speakers SS E50/E70
	Handling power	
	Impedance	
	Dimensions (approx.)	
	Weight (approx.)	
General	Power requirements	
	Power consumption	360 watts
	Dimensions (approx.)	688 (W) x 160 (H) x 515 (D) mm
	Weight (approx.)	24 kg
	Supplied accessories	ribbon antenna, 45 rpm adaptor

*DIN 45–633, measured with Dolby off; Dolby on improvement 5 dB at 1 kHz, more than 10 dB at 5 kHz.

	SSE20	SSE30	SSE50	SSE70
Speaker systems	2-way, 2 speaker system	2-way, 2 speaker system	3-way, 3 speaker system	3-way, 3 speaker system
Drive units	Woofer 160 mm cone, tweeter 65 mm cone	Woofer 200 mm cone, tweeter 30 mm dome	Woofer 200 mm cone, mid-range 80 mm cone, tweeter 20 mm dome	Woofer 250 mm cone, mid-range 80 mm cone, tweeter 20 mm dome
Nominal impedance	8 ohms	8 ohms	8 ohms	8 ohms
Power handling	Nominal 25 watts, music 40 watts	Nominal 30 watts, music 50 watts	Nominal 45 watts, music 70 watts	Nominal 65 watts, music 100 watts
Sensitivity	91 dB (1W1m)	91 dB (1W1m)	91 dB (1W1m)	91 dB (1W1m)
Frequency response	60 Hz–20 kHz +4/–8 dB DIN	50 Hz–20 kHz +4/–8 dB DIN	40 Hz–20 kHz +4/–8 dB DIN	30 Hz–20 kHz +4/–8 dB DIN
Dimensions (approx.)	255 (W) x 480 (H) x 215 (D) mm	300 (W) x 600 (H) x 295 (D) mm	270 (W) x 570 (H) x 280 (D) mm	310 (W) x 610 (H) x 280 (D) mm
Weight (approx.)	6 kg	10.6 kg	9 kg	12 kg

	SSG1	SSG3	SSG5	SSG7
Speaker system	3-way speaker system	3-way, infinite baffle	3-way, bass reflex	3-way, 3-speaker, bass reflex
Drive units	Woofer 250 mm, mid range 80 mm, tweeter 25 mm	Woofer 250 mm, mid range 80 mm tweeter 50 mm	Woofer 300 mm, mid range 80 mm tweeter 25 mm	Woofer 380 mm, mid range 100 mm tweeter 35 mm
Input impedance	8 ohms	8 ohms	8 ohms	8 ohms
Power handling	55 watts nominal	60 watts nominal	80 watts nominal	100 watts nominal
Frequency response	35–20,000 Hz	40–20,000 Hz	35–20,000 Hz	30–20,000 Hz
Crossover frequency	800 Hz, 4 kHz	900 Hz and 5 kHz	–	550 Hz & 4.5 kHz at 12 dB/oct
Att: Tweeter	(fixed)	+3 dB to –47 dB (variable);	+2 dB to –48 dB (variable);	+0 to –4 dB (variable);
Mid range	(fixed)	+2 dB to –4 dB (variable)	+2 dB to –4 dB (variable)	+0 to –4 dB (variable)
Dimensions (approx.)	340 (W) x 595 (H) x 300 (D) mm	345 (W) x 615 (H) x 340 (D) mm	415 (W) x 720 (H) x 350 (D) mm	510 (W) x 940 (H) x 445 (D) mm
Weight (approx.)	13 kg	17 kg	26 kg	47 kg

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