

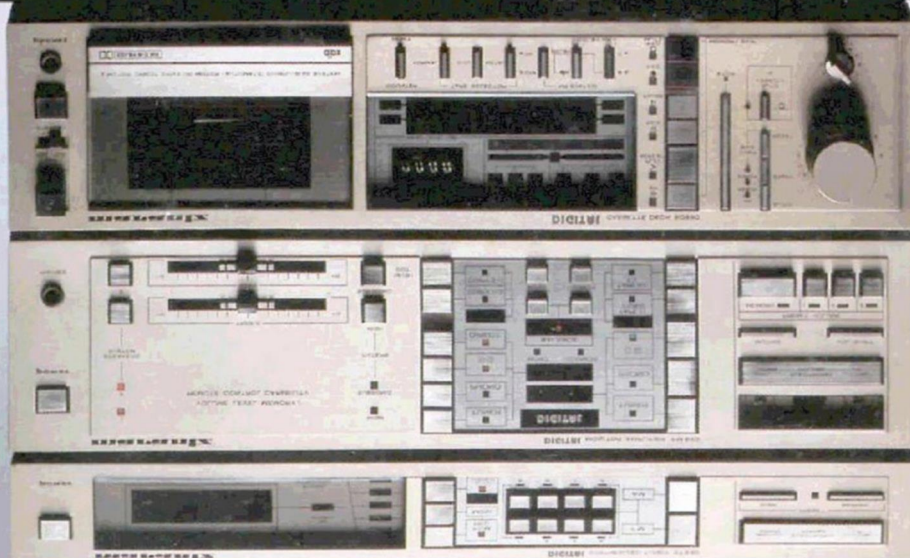
marantz®



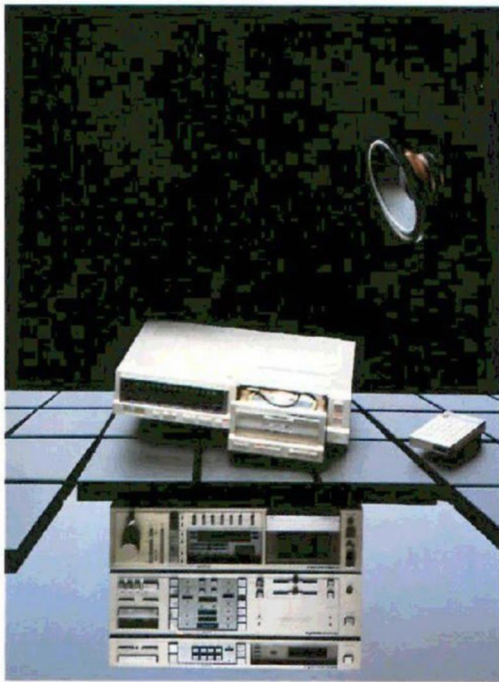
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1983-84



COMPACT
disc
DIGITAL AUDIO



M.A.A.C.

DIGITAL

BUS

Quarter A

COMPACT
disc
DIGITAL AUDIO

The year 1983 will be forever regarded as the year of introduction of the first digital player called Compact Disc. CD was born after years of research and investment in highly technical fields such as laser technology, microoptics and microprocessors. The final product has proven how well technology can serve our sense of aesthetics when it is used with discrimination and sensibility. MARANTZ has never forgotten that the ultimate goal of any progress in the HiFi world is to serve the art of music and its creators.

In 1956 the first stereo LP was released and was heading towards the success we all know. At the same time MARANTZ decided to build its first stereo amplifier and pre-amplifier. MARANTZ had long been devoted to serve the fine art of music and we were convinced that the stereo LP was the beginning of a new dimension in musical reproduction.

The perfection of the sound produced by this new technique was such that no existing amplifier was good enough to transcend it. MARANTZ then created Models 7 and 8 which are still considered today as the finest pre-amplifier and power amplifier built up to that time. They were the ESSENCE OF MUSIC and our philosophy has never changed since then. Twenty seven years after the advent of the first stereo LP, the advent of the first digital record has dawned.

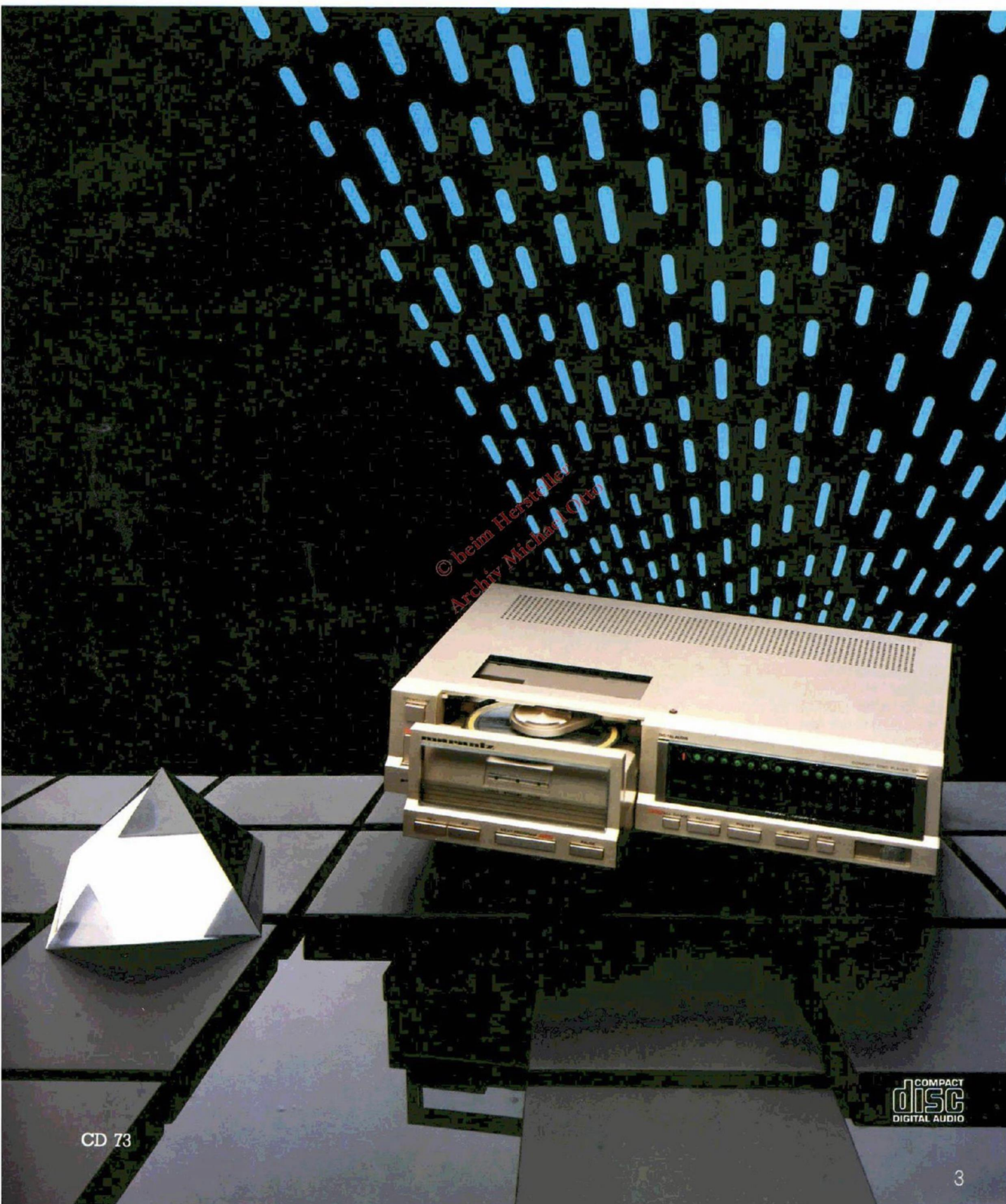
We are convinced, that we are witnessing again the beginning of a new musical dimension. Being confronted with such perfection of musical reproduction we have asked ourselves how we could enhance and maintain this perfection throughout the other components in a HiFi system. We resolutely took a step forward into the digital age and we would like to share with you the enthusiasm and faith that drive us in the search for the ESSENCE OF MUSIC.

This catalogue is yours to journey through MARANTZ newest, widest and most comprehensive range of products suiting all needs and moods. MARANTZ dedication to offer you the best sound has deeply marked our product development and you will discover that MARANTZ already offers a range of components which are entirely compatible with Compact Disc or other digital sources.

MARANTZ is also proud to offer you the first range of Bus compatible products. The word Bus comes from computer terminology and means that instructions of commands are digitally coded and sent over through the same line. BUS compatible units are remote controllable and can easily be connected to one another in any order, permitting free expansion of the system to as many units as you wish.

We are also attentive to changes in lifestyle. In a mobile and urbanized society the pleasure of listening to music can be adapted to practical conditions. Where space is precious and time is worth gold, a **Freedom X-9 Series** system with its compact dimension and its simplicity in performing complex functions will automatically be appreciated by more and more people with a sense of practicality and intensity. At MARANTZ we try to be the ESSENCE OF MUSIC for everyone of every lifestyle.

Compact Disc Digital Audio



CD 73

COMPACT
disc
DIGITAL AUDIO

Despite the continual improvement in traditional Hi Fidelity equipment, there were some areas where progress has not been as radical as in others, and in this respect the traditional recording and playback techniques were ones where improvements were most needed.

It took years of research and development to come up with something that would radically revolutionize the entire recording industry. Today this revolution has begun with the advent of digital recording, the most important step to date in the history of recorded sound.

The shape the playback of this recording takes is called the COMPACT DISC. It is the worldwide standard for all CD players. Only 12 cm in diameter, the disc allows up to 60 minutes of continuous play. And that's only the beginning of its advantages. Unlike ordinary records, it has no grooves. The digitally encoded information lies under the surface of the disc. It is read optically, which means that there is no physical contact, and thus no wear whatsoever. In fact, the Compact Disc maintains its high quality forever. Repeated use does not affect it. Dust, dirt and fingerprints can be wiped off easily. Also, because it is digitally encoded, convenience features such as Search and Replay are child's play. But most important, by all measures of sound quality, the Compact Disc is a staggering improvement. The dynamic reproduction and the signal-to-noise ratio coupled with low distortion, outpaces by far that of any other reproduction system. Channel separation is excellent, and there is no hum, acoustic feedback nor wow and flutter to affect the performance.

You must hear the real ESSENCE OF MUSIC by MARANTZ.

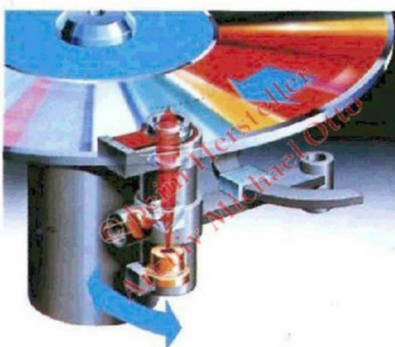
The Compact Disc can be connected to any amplifier at the Aux input. Naturally, if you want to experience the full performance of your CD you will have to be a little discerning when choosing these components. Quality is not the only key for good CD reproduction since it is necessary to «think» the amplifier and the speakers in the full knowledge that they will have to reproduce the higher dynamic range and wider frequency response produced by CD. MARANTZ has since long incorporated this potential in amplifiers and speakers, and for every amplifier in this catalogue the dynamic power capability is given. A benefit that only MARANTZ gives.

The Compact Disc player's electronic circuitry is highly sophisticated and incorporates the latest technology in terms of DAD conversion (Digital to Analogue and vice-versa) and component integration.

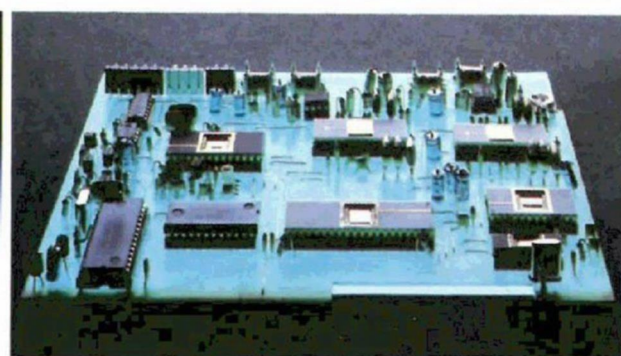
First, the information on the disc is read optically using laser technology. The light beam coming from a laser diode is reflected on the disc surface, captured on its way back by an optical system and con-



CD 73 - PM630 - LD 50



Pick-up assembly



CD decoding circuitry.

verted into electrical impulses. Simple and reliable!

Then, these electrical impulses (several million per second) are interpreted by a decoding circuit using highly integrated components.

The advantage of digital decoding is that the signals are stored in a memory to be delivered at precisely the right speed. This is what we call QUARTZ PRECISION CLOCKING. This insures that slight deviations of the speed of rotation of the disc do not produce the usual «wow and flutter». Finally, the signals decoded are cleaned from remaining high frequency noise by DIGITAL FILTERING. The Marantz Compact Disc players differ in this aspect from many other CD players who use conventional analogue filtering, with all the usual problems of phase shift, temperature drift and ageing. In the MARANTZ Compact Disc the digital format is preserved until the very end, guaranteeing sound perfection in every detail.

There are many other improvements over conventional players.

Ease of Use : just pop in the disc and listen. You can listen to the disc as you would with a normal LP or you can programme the tracks you want to listen to and forget the others. The programming feature is child's play and you can search forwards and backwards or repeat any sequence.

Compatibility : MARANTZ CD players are perfectly matched with Marantz components. Two sleek, beautifully designed units are available. The CD 73 with convenient drawer loading, exactly matches other units in the MARANTZ range in size and colour. The top-loading CD 63 is the smallest Compact Disc player in the world. Both CD players will offer you the ultimate in digital reproduction.

Reliability : Because of its non-contact laser pick-up unit, the CD is very stable and does not wear out like a normal stylus does.

CD 73

Drawer loading programmable Compact Disc player.

The CD 73 features a surprisingly pleasant loading system whereby the disc is loaded and unloaded automatically by a motorized drawer.

The virtue of the drawer is to keep the unit slim and beautifully balanced. The keys to operate the disc are located conveniently on the drawer. On the right side of the drawer are located the display and the keys for programming. Two rows of LED's will light up to tell you which tracks have been entered in the memory and which track is being played. You can thus select up to 15 tracks in any order you may wish and repeat that sequence as many or as few times as desired. If you wish to change your choice after playback has started, just press the CANCEL key and start all over again. If you want to just momentarily interrupt playback, just press the PAUSE button; to engage playback again, press the PAUSE button once more. The music will start exactly where it was interrupted and you can do that as many times as you like without damage or wear to the disc.

The CD 73 can be operated with the Bus (*) control. The MARANTZ remote control Bus RC 430 can be connected to the CD 73 for operation or can also be connected to a complete system for global operation.

(*) Digital Bus : see explanation on page 18.



CD 63

CD 63

Top loading programmable Compact Disc player.

The CD 63 is one of the most compact CD players. Nevertheless, nothing has been sacrificed in terms of sound quality and performance. It features random access programming up to 15 tracks with Repeat function of one track or of the whole programme sequence. If you wish to change your choice after playback has started, just press the CANCEL key and you may re-programme your CD 63.

You may momentarily interrupt playback by just pressing the PAUSE key.

All these functions can be performed at the tip of a finger as many times as you like without damage to the disc.

As is the case for CD 73 the CD 63's electronic circuitry incorporates all the latest technology like laser optical pick-up system to read out the information on the record, quartz precision decoding circuitry for fail-proof digital to analogue conversion and digital filtering for superb sound.

TECHNICAL SPECIFICATIONS (DIN)		
	CD 73	CD 63
AUDIO PERFORMANCE		
Number of Channels	2	2
Frequency Range	20-20,000 Hz	20-20,000 Hz
Dynamic Range	> 90 dB	> 90 dB
Signal-to-Noise Ratio	> 90 dB	> 90 dB
Channel Separation	> 90 dB	> 90 dB
Total Harmonic Distortion (incl. noise)	< 0.005 %; 0.004 % at 1 KHz	< 0.005 %; 0.004 % at 1 KHz
Wow and Flutter	quartz crystal precision	quartz crystal precision
D/A Conversion	16 bit with digital filtering	16 bit with digital filtering
Error Correction System	Cross Interleave Reed Solomon Code (CIRC)	Cross Interleave Reed Solomon Code (CIRC)
Audio Output Level (maximum)	2 V rms	2 V rms
OPTICAL READOUT SYSTEM		
Laser	semi-conductor AlGaAs	semi-conductor AlGaAs
Wave length	0.78 μ m	0.78 μ m
SIGNAL FORMAT		
Sampling Frequency	44.1 kHz	44.1 kHz
Quantization	16 bit linear/channel	16 bit linear/channel
DISC		
Diameter	120 mm	120 mm
Thickness	1.2 mm	1.2 mm
Sense of rotation (seen from reading side)	anti-clockwise	anti-clockwise
Scanning velocity	1.2 - 1.4 m/s	1.2 - 1.4 m/s
Rotation speed	500-200 rpm	500-200 rpm
Playing time (max)	60 min (stereo)	60 min (stereo)
Track pitch	1.6 μ m	1.6 μ m
Material	plastic	plastic
CABINET, GENERAL		
Dimensions (W x H x D)	416 x 81 x 300 mm (drawer closed)	320 x 72 x 255 mm (cover closed)
	416 x 130 x 483 mm (drawer open)	320 x 179 x 255 mm (cover open)
Weight	8 kgs approx.	5 kgs approx.
Connection Cable	Fitted with moulded goldplated phono plugs	Fitted with moulded goldplated phono plugs

Freedom X-9 Series

Whether it is art or technology, miniaturization has been a symbol of mastership, and one constantly marvels at the new limits which are set. Unfortunately, in our everyday life, this progress is perceived as pure gimmickry without really translating into a

product that really meets real demand and needs.

Today we have closed the gap and MARANTZ is presenting for the first time a range of systems (320 mm wide) which will change your lifestyle.

The systems MX 250, MX 320 and MX 500 are small size-wise, but are big quality and convenience-wise.

Be introduced to the first computerized and digitalized compact audio systems.

MX SYSTEMS 16 BASIC FEATURES

- 8 AM and 8 FM presets — Total 16 presets
- 6 stations programming for recording
- A choice of 3 different output powers: 2 x 25 W, 2 x 32 W, and 2 x 55 W
- All push and slide operation. Digital feeling flat panel. Electronic volume on MX 320 and MX 500.
- Super Bass control on all systems for dynamic low frequency response.
- Microprocessor controlled cassette decks with outstanding functions: Index Scan, Blank Search, QMS, (Quick Music Sensor), Automatic tape selector, Automatic demagnetizer and Automatic slack take-up (MX 320, MX 500)

- Dolby C noise reduction system
- Linear tracking turntables with free front loading system
- Microprocessor controlled turntables with outstanding features: autodisc size selector, auto disc existence sensor, auto speed selector and programming facility (MX 500)
- Clear sound VM (V Magnet) cartridge with auto stylus cleaner
- Dynamic and clear sound from Linear Dynamic speaker design
- One-touch Easy Operation for the whole system. The amplifier switches automatically as the function changes.
- Full remote control and programme timer

functions with the new DIGITAL BUS (*) system developed by MARANTZ (can be used with MX 320 whereas MX 500 comes already completely equipped)

- Optional graphic equalizer with Mic Mixing facility
- Compact Disc compatibility in size and performance with MARANTZ CD 63 Compact Disc player
- All systems delivered with RM 333 rack, a specially adapted shelf top rack with adaptable height in case you want to upgrade later.

(*) Digital Bus: see explanation on page 18

^oDolby is the registered trademark of Dolby Laboratories Inc.



MX 500

MX 500

Digitally monitored system: the digital Bus controls a high number of features and functions on the amplifier, tuner, turntable and cassette deck. The instructions are sent digitally from the hand-held command module to the receiver, and from there they are relayed to the separate components.

Bus (*) compatible system with programmable timer and graphic equalizer.

PM 433 (Amplifier)

2 x 55 W RMS, 1 kHz, 8 ohms, THD 0.05 %. Bass and treble controls. Electronic volume control. Super Bass boost. PA Mic Mixing. Muting -20 dB and low filter. Feather touch selector switches. One-touch Easy Operation. Remote controllable with Bus* system.

ST 333 (Tuner)

Quartz synthesizer (sensitivity 1.2 μ V/10.8 dBf). 8 AM + 8 FM presets. Auto scan/manual tuning. Record prog-

rammable. Dot dial. Remote controllable with Bus* system. One-touch easy operation. The ST 333 is also available with long waves as ST 333 L.

SD 333 (Cassette deck)

I.C. full logic transport (2 motors). Dolby C + Dolby B. QMS (30 tunes). Repeat playback and memory rewind. Auto demagnetizer and auto tape selector. Remote controllable with Bus* system. One-touch Easy Operation.

TT 433 (Turntable)

Jacket size linear tracking turntable with drawer loading, direct drive with quartz reference. Fully automatic auto disc size selector and disc existence sensor. Auto speed selector and auto stylus cleaner. Synchro recording output. Random programme operation. Remote controllable with Bus system. One-touch Easy Operation.

LD 30 MK II (Speakers)

2 way speaker system. Linear Dynamic design with DPIC (Duo Polymer Impregnated Cone) woofer (see page 26). Maximum power: 100 W.

AT 333 R (Digital Bus Remote Control Unit with Timer)

Digital Bus remote control unit with timer.

The AT 333 R is delivered with the hand held command unit RMC 10.

The RMC 10 can operate the following functions and features:

Amplifier: Volume Up/Down, Mute, Loudness, Tape 1 Monitor, Tape 2 Monitor, Tuner, Phono, CD/Aux.

Tuner: AM/FM, Tuning Up/Down, Presets 1-8.

Deck: Play, Stop, FF, Rew. Pause, Record, Rec Mute, Index scan, PGM, Memo (for two tape decks).

Phono: Play, Cut, Cue, Repeat.

The AT 333 R can operate 2 AC outlets independently. The AT 333 R is the starting point of the connections from the Bus* system to the other components.

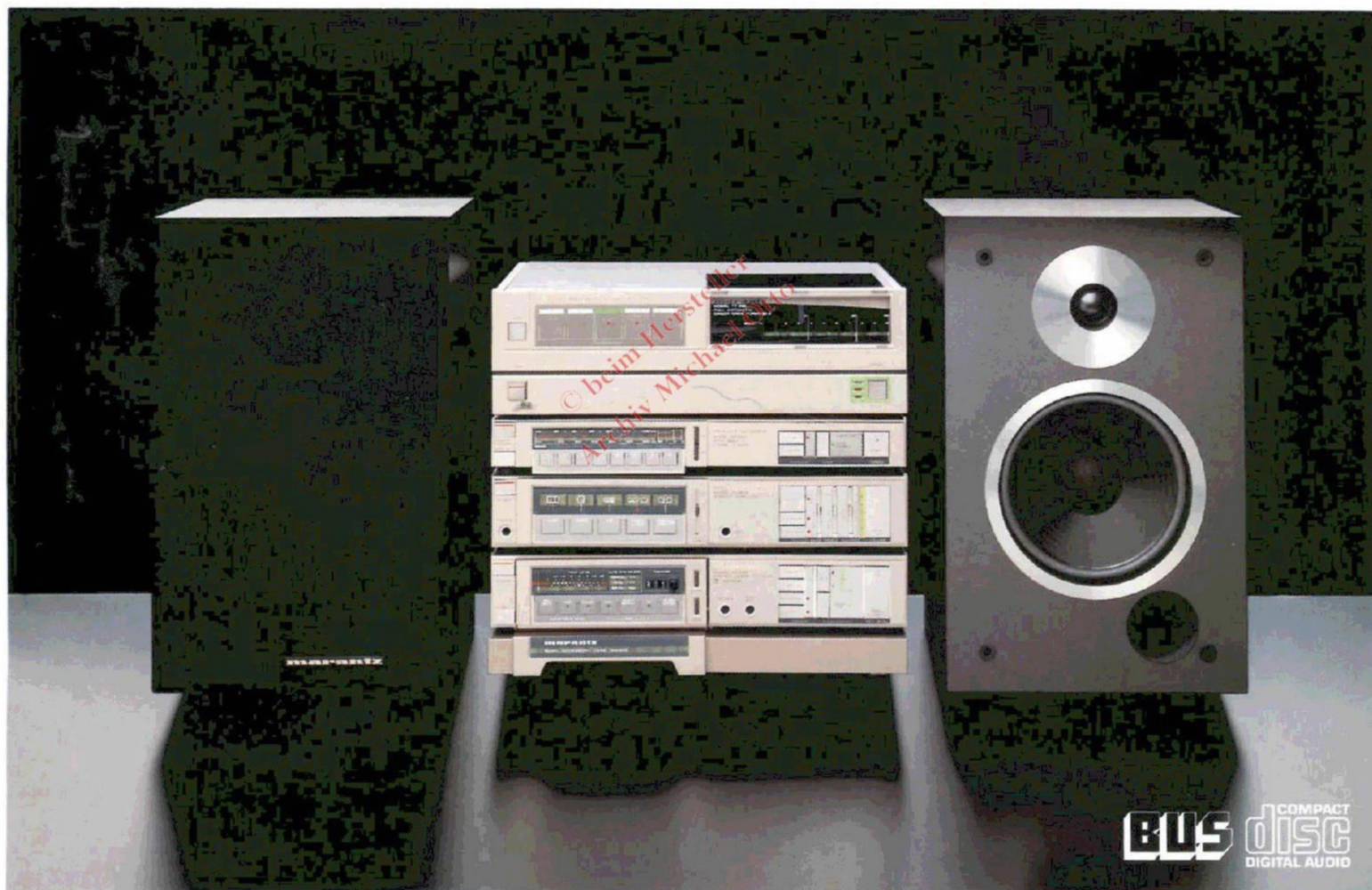
EQ 333 (Equalizer)

11 band graphic equalizer. Mic mixing with level control. Tape copy 1 to 2. EQ Defeat.

RM 333

Shelf top adjustable rack

(*) Bus: see explanation on page 18.



MX 320

Bus (*) compatible system.

PM 333 (Amplifier)

2 x 32 W RMS, 1 kHz, 8 ohms, THD 0.05 %. Bass and treble controls. Electronic volume control. Super bass boost. PA Mic mixing. Muting -20 dB. Feather touch selector switches. Remote controllable with Bus* system. One-touch Easy Operation.

ST 333 (Tuner)

Quartz synthesizer (sensitivity 1.2 μ V/10.8 dBf). 8 AM +

8 FM presets. Auto scan/manual tuning. Record programming. Dot dial. Remote controllable with Bus* system. One-touch Easy Operation. The ST 333 is also available with long waves as ST 333 L.

SD 333 (Cassette deck)

I.C. full logic transport (2 motors). Dolby C + Dolby B. QMS (30 tunes). Repeat playback and memory rewind. Auto rec mute and auto slack take-up. Index scan. Auto demagnetizer and auto tape selector. Remote controllable with Bus* system. One-touch Easy Operation.

TT 333 (Turntable)

Jacket size linear tracking turntable with drawer load-

ing, direct drive, fully automatic. Auto disc size selector and disc existence sensor. Auto speed selector and auto stylus cleaner. Synchro recording output. Remote controllable with Bus* system. One-touch Easy Operation.

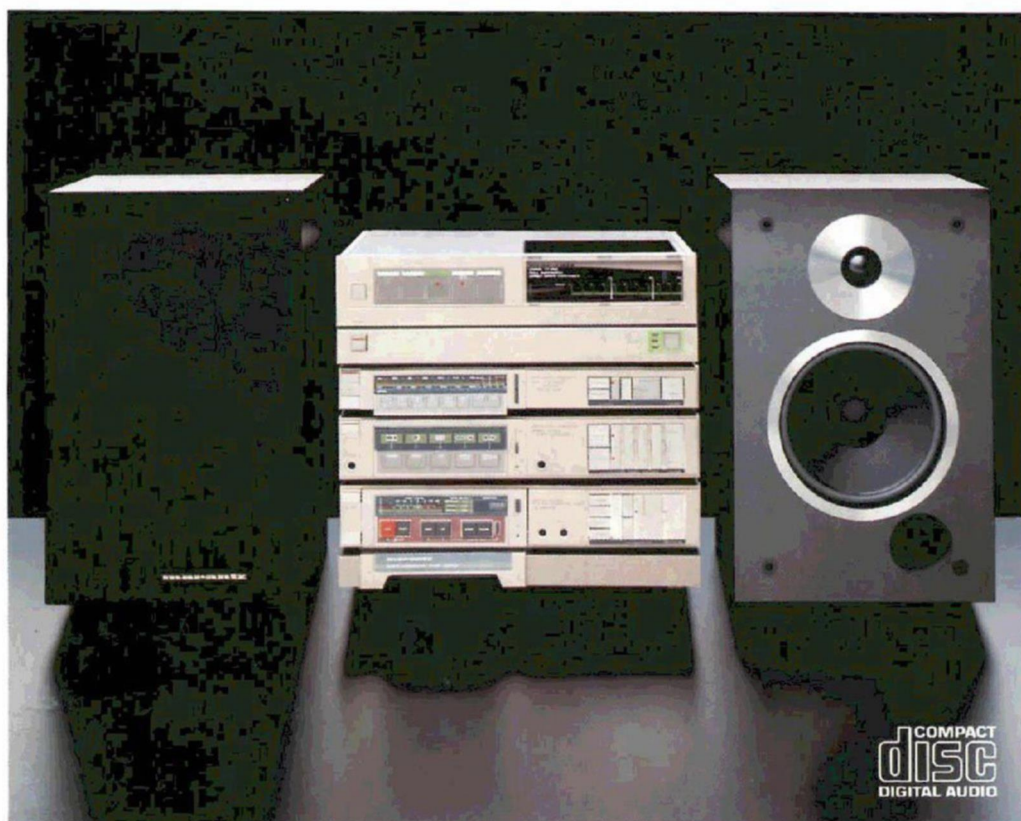
LD 20 (Speakers)

2 way speaker system. Linear Dynamic design with DPIC (Duo Polymer Impregnated Cone) woofer (see page 26). Maximum power: 60 W.

RM 333

Shelf top adjustable rack.

(*) Bus: see explanation on page 18.



MX 250

PM 233 (Amplifier)

2 x 25 W RMS, 1 kHz, 8 ohms, THD 0.05 %. Bass, treble, sliding volume. Super Bass boost. PA Mic mixing. Muting -20 dB. Feather touch selector switches. One-touch Easy Operation.

ST 333 (Tuner)

Quartz synthesizer (sensitivity 1.2 μ V/10.8 dBf). 8 AM + 8 FM presets. Auto scan/manual tuning. Record programmable. Dot dial. Remote controllable with Bus* system. One-touch Easy Operation.

The ST 333 is also available with long waves as ST 333 L.

SD 233 (Cassette deck)

Soft touch tape transport key. Dolby $\text{^{\circ}C}$ + Dolby $\text{^{\circ}B}$. Normal, Chrome and Metal tape. Timer Standby. Record Mute.

TT 333 (Turntable)

Jacket size linear tracking turntable with drawer loading, direct drive, fully automatic. Auto disc size selector and disc existence sensor. Auto speed selector and auto stylus cleaner. Synchro recording output. Remote controllable with Bus* system. One-touch Easy Operation.

LD 20 (Speakers)

2 way speaker system. Linear Dynamic design with DPIC (Duo Polymer Impregnated Cone) woofer (see page 26). Maximum power: 60 W.

RM 333

Shelf top adjustable rack.

(*) Bus: see explanation on page 18.

AMPLIFIER	PM 233	PM 333	PM 433	
Power Output per channel				
RMS 1 kHz 8 Ohms	25	32	55	W
RMS 1 kHz 4 Ohms	33	38	55	W
Dynamic Power (BPF) 8 Ohms	35	46	100	W
Dynamic Power (BPF) 4 Ohms	53	56	128	W
Total harmonic distortion at RMS 8 Ohms	0.05	0.05	0.05	%
Frequency Response				
MM (FIAA)	± 1.0	± 1.0	± 1.0	dB
Aux (± 1 dB)	15-50	15-50	15-50	Hz ~ kHz
Signal-to-Noise Ratio (HF-A Network)				
Phono (MM)	75	76	76	dB
Aux	86	86	86	dB
Dimensions (W x H x D)	320 x 55 x 260	320 x 55 x 260	320 x 55 x 260	mm
Weight	4.2	4.5	5	kg
Power requirements	110/120/220/240	110/120/220/240	110/120/220/240	V

TUNER	ST 333
FM TUNER SECTION (87.5 - 108 MHz)	
Usable Sensitivity	
Mono (S/N 26 dB, 75 ohm)	1.2 μ V
Stereo (S/N 48 dB, 75 ohm)	40 μ V
Signal-to-Noise Ratio at 99 MHz weighted Mono	76 dB
Stereo	68 dB
MW TUNER SECTION (522-1611 kHz)	
Usable Sensitivity (Dummy Load)	15,500 μ V
Selectivity 1 MHz	60 dB
LW TUNER SECTION (153-353 kHz)	
Usable Sensitivity (Dummy Load)	100,600 μ V
Dimensions (W x H x D)	320 x 37 x 260 mm
Weight	1.9 kg
Power requirements	110-120/220-240 V

CASSETTE DECK	SD 233	SD 333
Overall Frequency Response at -20 dB		
Normal Tape	30-16	25-17
C-O ₂ Tape	30-17	25-19
Metal Tape	30-18	25-20
Hz ~ kHz		
Signal-to-Noise Ratio		
with Dolby $\text{^{\circ}C}$ ON	75	75
Dolby (OFF)	59	59
dB		
Wow and Flutter WRMS	0.08	0.04
%		
Dimensions (W x H x D)	320 x 55 x 260	320 x 55 x 260
mm		
Weight	3.8	3.8
kg		
Power requirements	110/120/220/240	110/120/220/240
V		

TURNTABLE	TT 333	TT 433
Drive	DIRECT	DIRECT QUARTZ
Speeds	33 1/3, 45	33 1/3, 45
rpm		
Wow and Flutter (WRMS)	0.03	0.03
%		
Rumble (DIN)	75	75
dB		
Dimensions (W x H x D)	320 x 100 x 335	320 x 100 x 335
mm		
Weight	7.2	7.2
kg		
Power requirements	N 220	N 220
V		
	E 110/120/220/240	E 110/120/220/240
V		

EQUALIZER	EQ 333
Freq. control points	31.5Hz 63Hz 125Hz 250Hz 500 Hz 1KHz 2 KHz 4KHz 8KHz 16KHz 32KHz ($\pm$ 12 dB)
T-H (20 Hz - 20 kHz)	0.01
%	
Frequency resp.	20-23
Hz-KHz	
Dimensions	320 x 55 x 260
mm	
Weight	2
kg	
Power requirements	110-120/220-240
V	

TIMER/REMOTE CONTROL	AT 333 R
Hour system	12H/24H
AC outlet	2 x 250
W	
Dimensions (W x H x D)	320 x 37 x 260
mm	
Weight	1.9
kg	
Power requirements	110-120/220-240
V	

SPEAKERS	LD 20	LD 30MKII
Max Power	60	100
W		
Efficiency	87	88
dB		
Freq. Response	40-22	35-22
Hz-KHz		
Dimensions (W x H x D)	230 x 240 x 355	272 x 419 x 268
mm		
Weight	6.5	6.5
kg		

Turntables

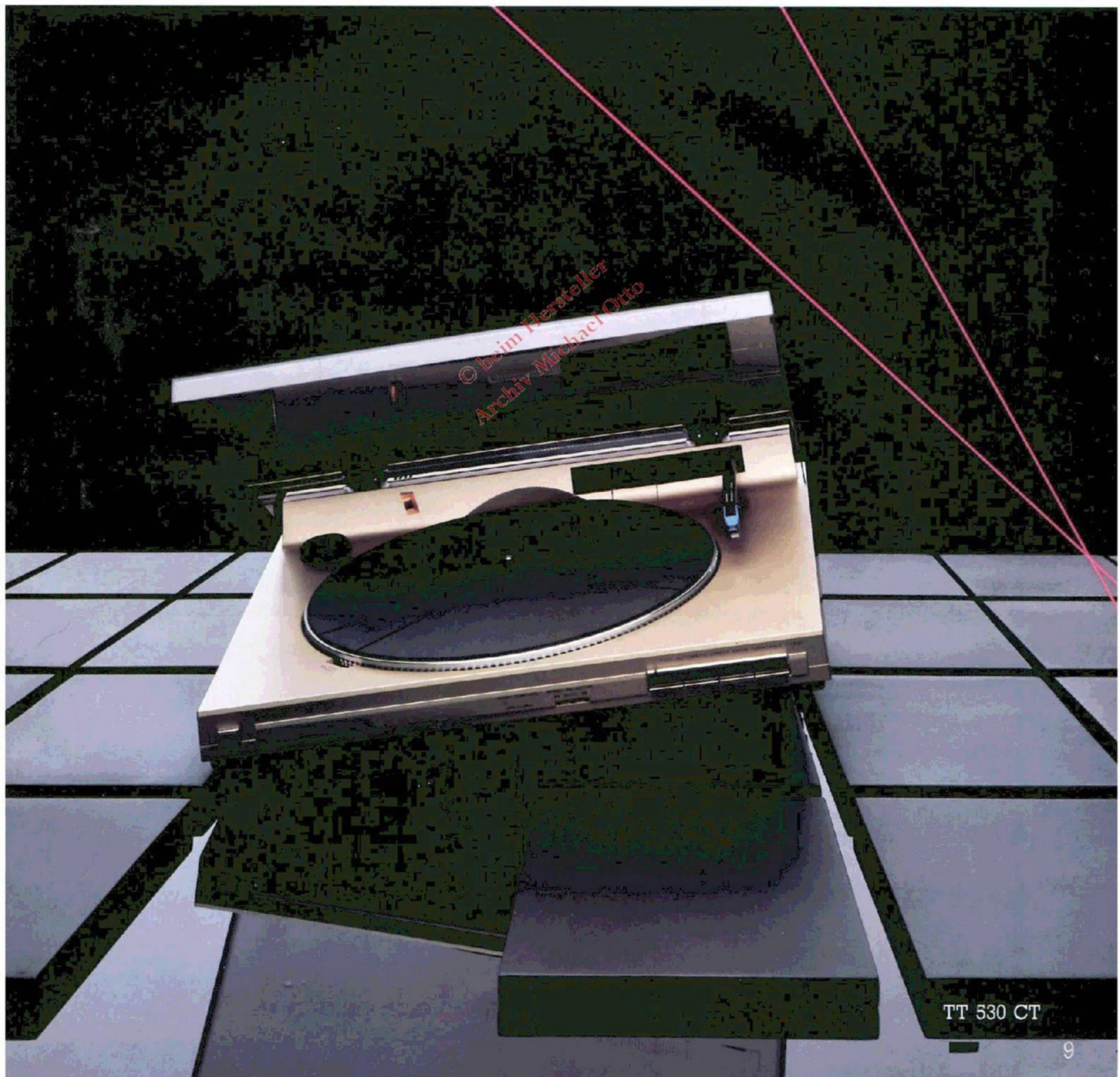
Today's collection of LP records is attractive due to its wide variety of titles and artists. Records contain impressions and emotions which can only be subtly reproduced and preserved if the turntable in combination with the tonearm and cartridge can pick up every faint nuance of the recorded programme without adding any more.

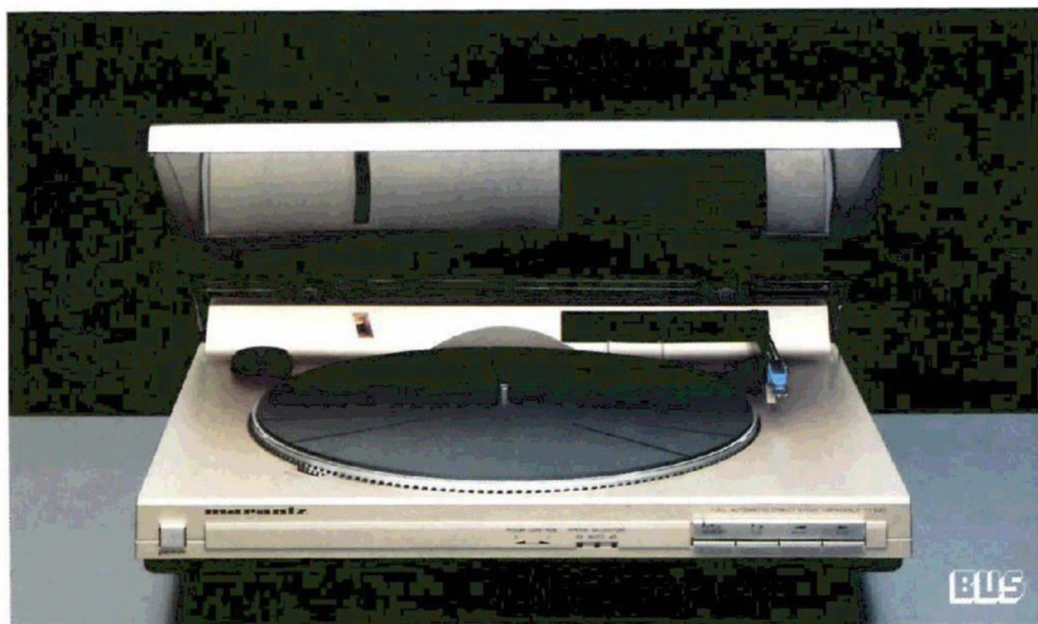
It is therefore of paramount importance to have a smoothly rotating platter, exempt of speed variations and mechanical con-

straints. Furthermore, the tonearm has to be absolutely free from friction to follow the groove pattern, and at the same time be absolutely rigid in order not to add any interference to the programme recorded in the groove.

The MARANTZ turntables use highly accurate DC motors and our direct drive models, with dynamically balanced die-cast platter, most of them using quartz crystal reference, deliver absolutely smooth and accurate speed motion.

The low mass straight tonearm used on all our turntables has been made of high carbon content aluminium, and the resonant frequency is kept out of the critical area. The tonearm gimbals are built of hardened metal pieces and have been tooled with a precision of 0.001 mm to avoid unnecessary friction. The result is a highly balanced combination of mechanical precision and electronic know-how, which can easily be operated to play your favorite precious records.





TT 530 CT

Remote controllable with Bus (*) system. Direct drive, linear tracking with fully automatic functions and remote control capability. Auto disc size selector (17 and 30 cm). Auto disc existence sensor to protect the stylus. Auto speed selector (33 1/3 and 45 rpm). Auto stop, auto return and auto repeat. Feather touch controls. Speed control with stroboscope. P-mount cartridge. Remote control functions Play, Cut, Repeat, Cue. One-touch Easy Operation

(*) Digital Bus : see explanations on page 18



TT 420 CT

Direct drive fully automatic turntable with quartz referenced speed. Dual suspension. 2 motors : one for the platter and one independent motor for the tonearm. Feather touch functions including cueing. Low mass straight tonearm fitted with matching high performance cartridge. Automatic Repeat function. Heavy aluminium diecast platter



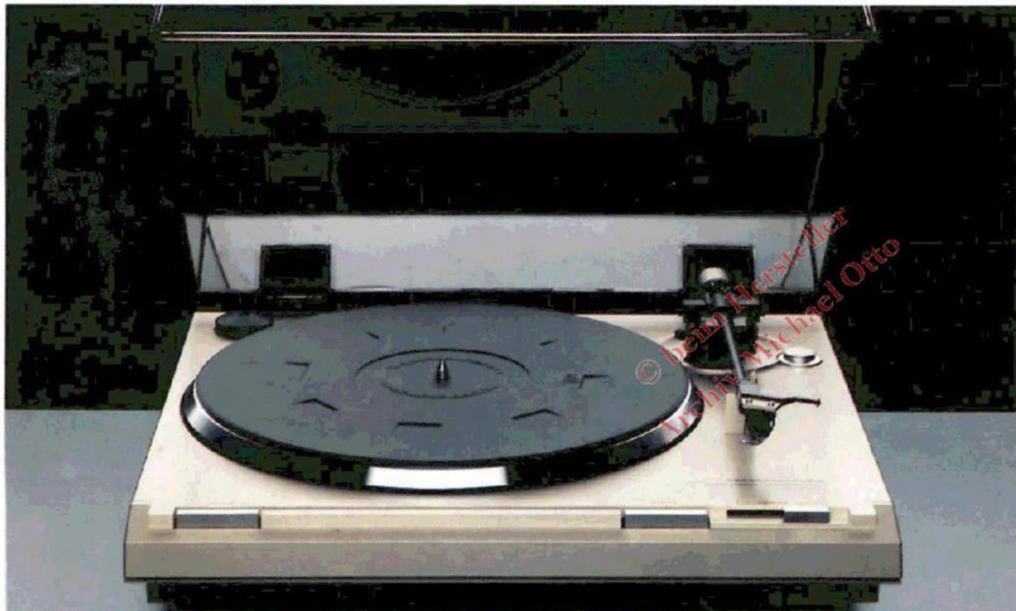
TT 320 CT

Direct drive fully automatic turntable. Dual suspension. 2 motors: one for the platter and one independent motor for the tonearm. Feather touch functions including cueing. Low mass straight tonearm fitted with matching high performance cartridge. Automatic Repeat function. Speed control with stroboscope. Heavy aluminium diecast platter



TT 221 CT

Direct drive semi-automatic turntable. Dual suspension. Front panel controls including cueing. Low mass straight tonearm fitted with matching high performance cartridge. Speed control with stroboscope. Reject knob. Heavy aluminium diecast platter.



TT 120 CT

Belt drive semi-automatic turntable. Dual suspension. Front panel controls including cueing. Low mass straight tonearm fitted with matching high performance cartridge. Reject knob



TT 130 CT

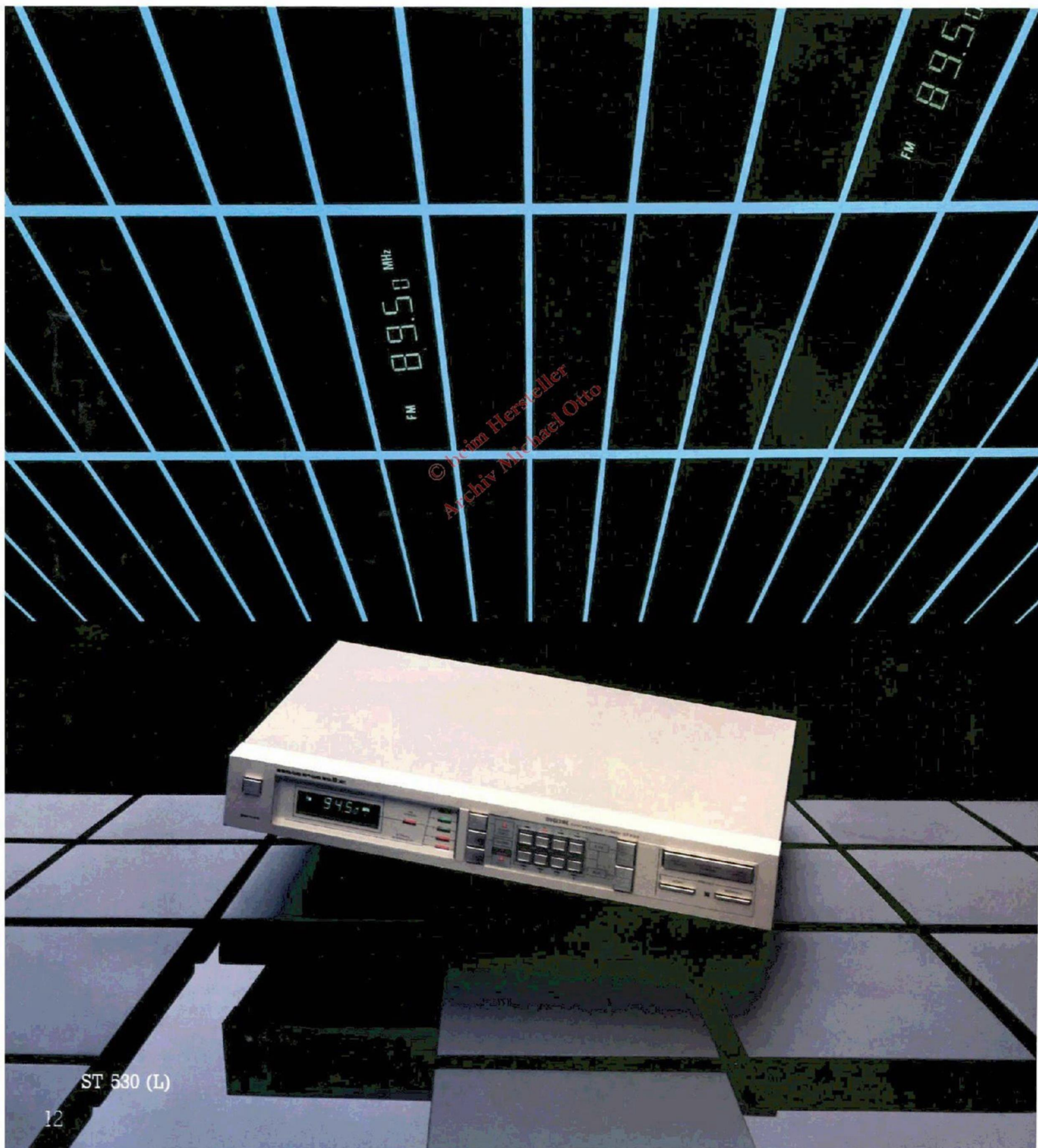
Belt drive semi-automatic turntable. Auto stop, auto return. Front panel controls including cueing. Low mass straight tonearm fitted with matching high performance cartridge. Reject knob. Aluminium diecast platter

Tuners

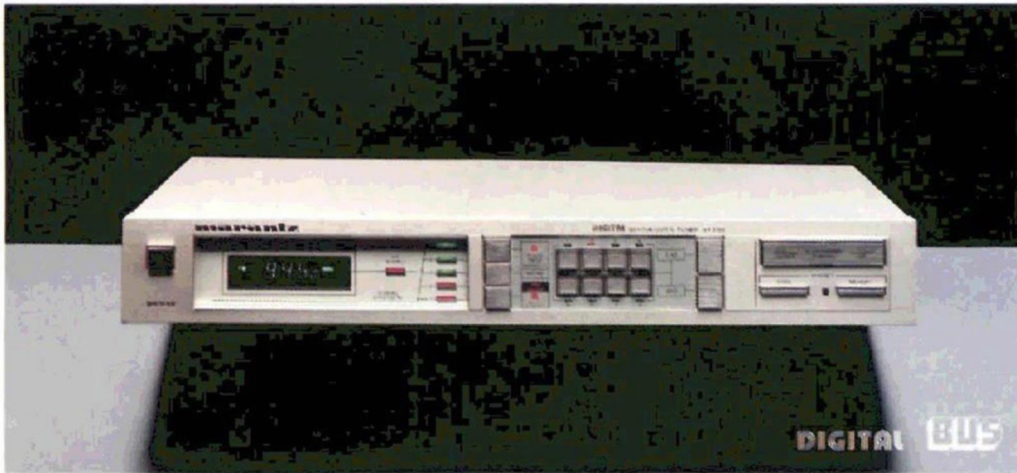
When CD becomes used as a programme source by more and more broadcasting stations, the group delay characteristics of the tuner's front end and IF circuit become critical. The MARANTZ

tuner design has minimum group delay distortion to benefit from the linear phase character of CD. Even when listening to analogue disc broadcasting, this design is effective in improving the sound reproduction.

The **ST 530** has been designed as a "Digital Monitoring Tuner" to emphasize the high performance compatibility with CD sources. Of course all other tuners deliver the kind of performance you would expect from a modern tuner plus a little bit more because we are MARANTZ.



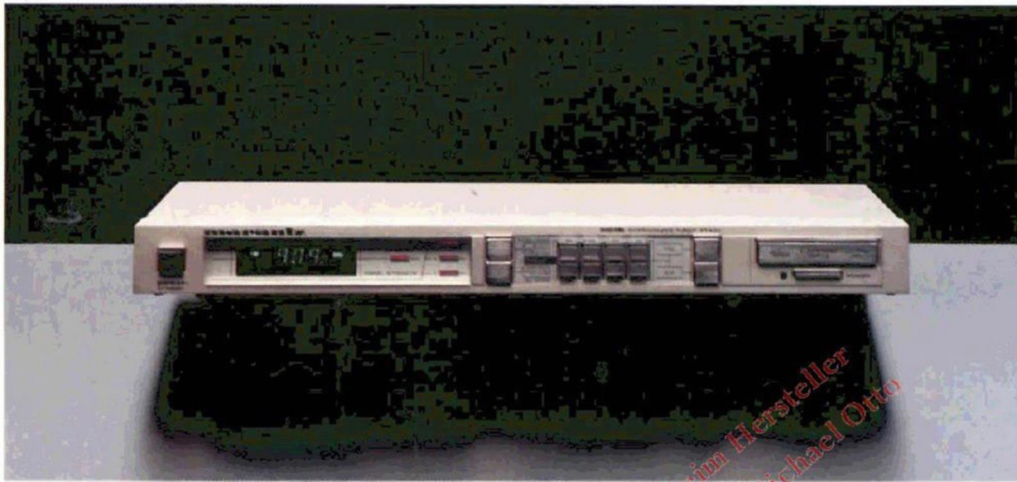
ST 530 (L)



ST 530

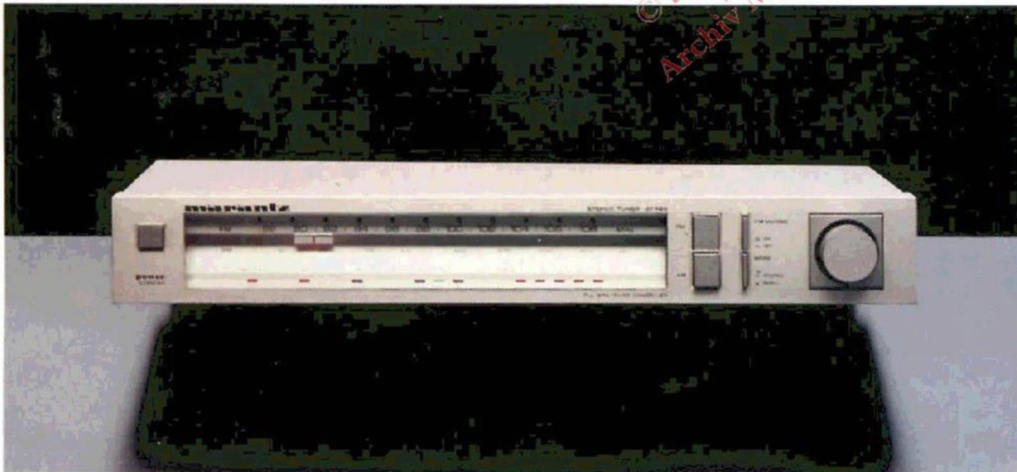
Digital monitoring tuner. AM/FM digital synthesizer. Dual gate MOSFET front end with twin varactor type tuning stage. 8 AM + 8 FM presets. Preset memory battery back-up. Automatic station scanning and automatic preset scanning. Record programmable: you can programme up to 6 stations which can be recorded alternatively during your absence. All functions clearly displayed with large LED's. Bi-color signal strength LED indicator. Last station memory. AM detachable loop antenna. Remote controllable with Bus (*) system. One-touch Easy Operation. Multiplex pilot canceller. This model is also available with long waves as ST 530 L

(*) Digital bus: see explanation on page 18



ST 430

AM/FM digital synthesizer. MOSFET front end with twin varactor tuning. 8 AM + 8 FM presets. Preset memory battery back-up. Automatic station scanning. All functions clearly displayed with large fluorescent display and LED's. Last station memory. AM detachable loop antenna. Multiplex pilot canceller. Super slim design. This model is also available with long waves as ST 430 L



ST 320

AM/FM analogue tuner. Illuminated dial window. 3 LED's for optimal tuning and 3 LED's for signal strength indication. Pilot frequency rejection filter. AM detachable loop antenna. This model is also available with long waves as ST 320 L

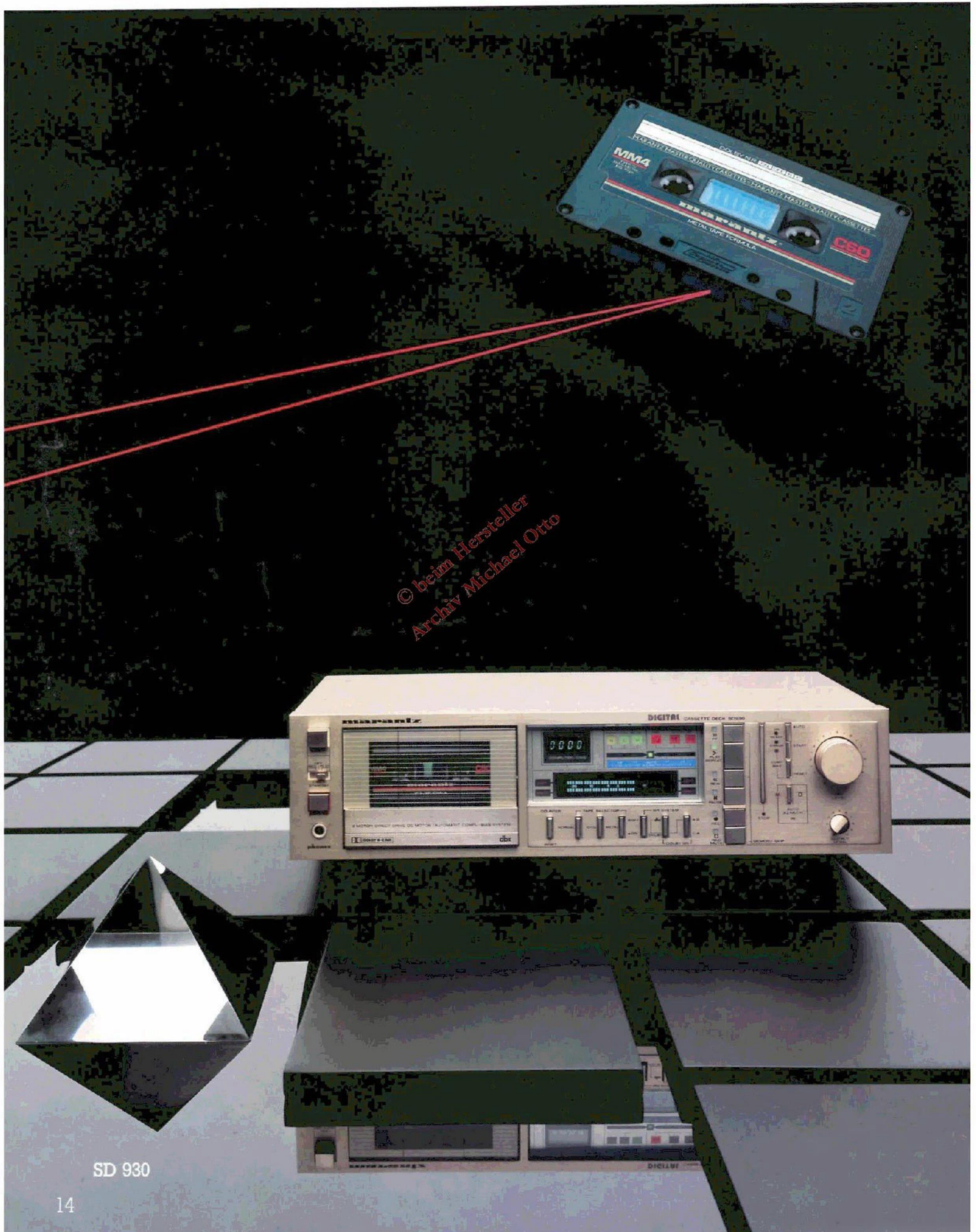


Timer

AT 230

24 hours programmable timer. 24 hours display. Reverse and forward time setting. Sleep timer. Seconds count

Cassette Decks



SD 930

CD sources have unprecedented linear phase characteristics and dynamic range. They can only be preserved within a recording by either a digital recorder (but such recorder is not available in a practical consumer format) or by an exceptionally well designed cassette deck.

MARANTZ has designed such a cassette deck: the SD 930

The SD 930 is the epitome of the technology MARANTZ has developed with the M.A.A.C. (MARANTZ AUTOMATIC AZIMUTH CONTROL); the auto bias, level, recording Eq system, the dbx noise reduction system and many other features which can be found also on other models in the range.

The SD 930 as well as SD 630, SD 530 and SD 430, have been designed as "Digital Monitoring decks" to stress the high performance compatibility of these units with CD sources.

M.A.A.C. (MARANTZ AUTOMATIC AZIMUTH CONTROL) (SD 930)

When recording from a CD source any phase problem created by the cassette deck will affect the playback quality of the recording. The major source of this problem comes from a bad azimuth alignment of the playback head. Until now, all systems permitting head azimuth adjustment used to set the proper azimuth either at the beginning or at any point of the tape, but without any correction as the tape moved. With M.A.A.C. the playback head is dynamically adjusted by microprocessor at every moment as the tape moves along. The essence of this technology is the new split head gap built into the playback head of the SD 930. The phase differences of each recorded track are compared by the two portions of the head gap and the head is automatically adjusted by a compensation signal directed to the actuator supporting the head. This compensation signal is monitored by microprocessor to ensure correct compensation at every moment.

The advantages of this system are:

- No phase distortion at any frequency
- Better frequency response, especially in the upper frequencies (up to 10 dB gain)
- Stability of image and depth, exactly as a live performance

DBX NOISE REDUCTION SYSTEM (SD 930, SD 820, SD 630)

The dbx system consists in an encoder which compresses the dynamic range of the input signal by 1/2 during recording, and a decoder which doubles the dynamic range of the input signal during playback.

This means that the 100 dB dynamic range of the original signal (like on Compact Disc for example) can be compressed to 50 dB and can thus be recorded on tape.

During playback the original 100 dB dynamics are restored, preserving the quality of the music like no other system can do.

In addition, the dbx decoder can be used via a special input on the back of the decks to decode dbx encoded discs which you may be playing on your turntable.

COMPU BIAS (SD 930, SD 820, SD 720)

This computerized function sets the bias, level and equalization to optimal levels. Because there is no international standard in this respect, each tape manufacturer uses different bias and equalization values for every tape. Consequently, no truly satisfactory record and playback result can be achieved unless the cassette deck has been strictly adjusted to the type of tape which is being used.

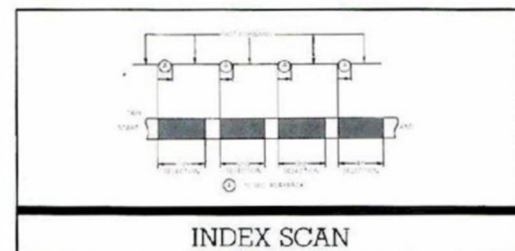
These MARANTZ cassette decks overcome this limitation by analyzing accurately any tape thanks to its microprocessor. The bias, level and equalization are then set precisely to match the particular tape which is being used.

In addition, the accuracy with which the tape is analyzed depends closely on the

head gap characteristics. That is why these models are equipped with mechanically independent recording and playback heads.

INDEX SCAN (SD 630, SD 530, SD 430, SD 333)

The units will play 10 seconds of the beginning of each tune. The interval between these sections is scanned in the FF mode until you press on the Play button to indicate that you want to continue listening to the sequence.



QMS (Quick Music Sensor) 31 tunes (SD 930, SD 630, SD 530, SD 430, SD 333, SD 233)

This function makes it possible to search a specific tune on a tape. To do this you must first find out the relative position of the tune you wish to listen to in regards to the one presently played. Then you press the PGM NO button the equivalent number of blank spaces which must be skipped. Press the FF or REW button to start the search. The deck will automatically resume playback when the selection is located.

AUTOMATIC TAPE SELECTOR (SD 333)

The automatic tape selector built into this machine will automatically check the type of tape being used and light the corresponding LED on the front panel to indicate that the deck is ready to operate.

AUTOMATIC SLACK TAKE-UP (SD 930, SD 630, SD 530, SD 430, SD 333)

The tape slack is automatically taken up by the left reel when the cassette is loaded.

AUTOMATIC DEMAGNETIZER (SD 630, SD 530, SD 430, SD 333)

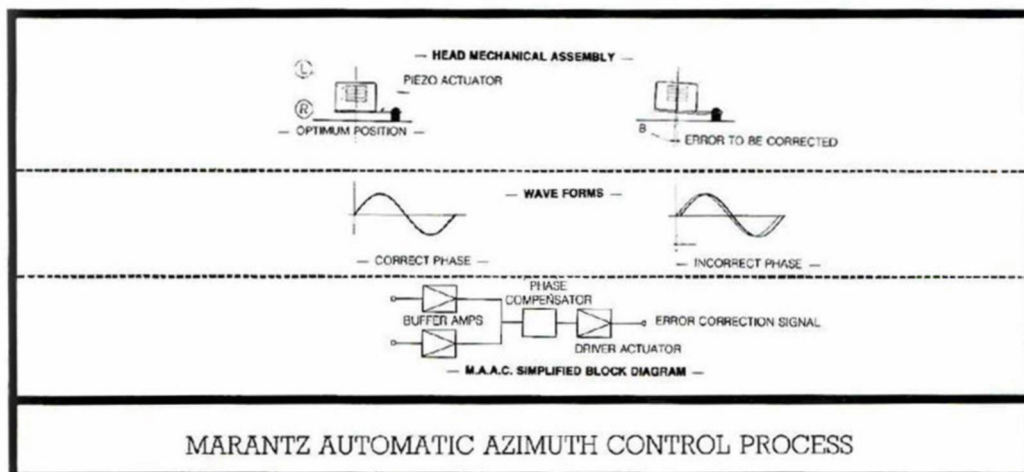
The head is automatically demagnetized immediately after the power is turned on. No matter how intensely you use your cassette deck, the optimal frequency response is preserved.

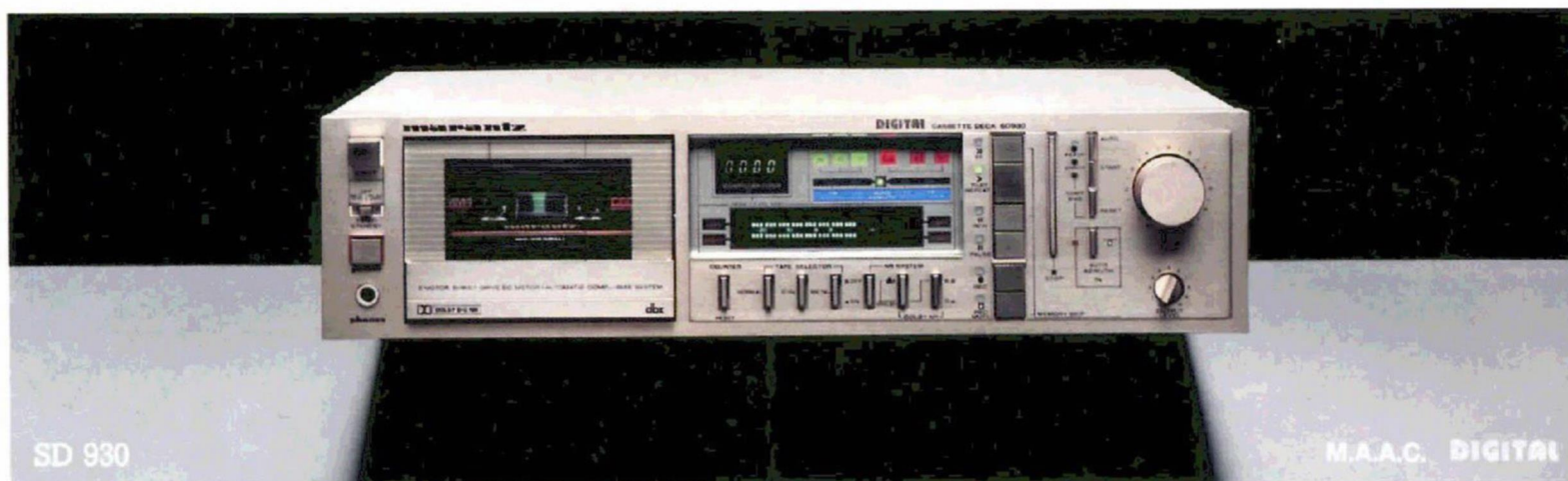
REPEAT PLAYBACK (SD 630, SD 530, SD 430, SD 333)

Pressing the PLAY/REPEAT button during playback causes the tune to be repeated. Pressing the PLAY/REPEAT button a second time causes the entire tape to be repeated.

RECORD MUTE (SD 930, SD 630, SD 530, SD 430, SD 333)

Pressing this button while the deck is in the recording mode causes a 4 second blank space to be recorded before the tape deck enters the REC PAUSE mode.





SD 930

M.A.A.C. DIGITAL



SD 820 DBX



SD 720

SD 930

Digital Monitoring Cassette Deck. The SD 930 has a microprocessor driven IC logic transport mechanism with two motors, one of them directly driving the capstan. It incorporates the M.A.A.C. exclusive and advanced system for top class performance with CD sources. dbx, Dolby $\text{^\circ C}$ + Dolby $\text{^\circ B}$ noise reduction systems. Digital real time counter with QMS indication. Output level control. Fully automatic bias, level and recording Eq adjustments. Timer standby. A 2 k byte microprocessor gives automatic features such as: Repeat playback for one or all tunes, QMS, Automatic record mute, Automatic slack take-up.

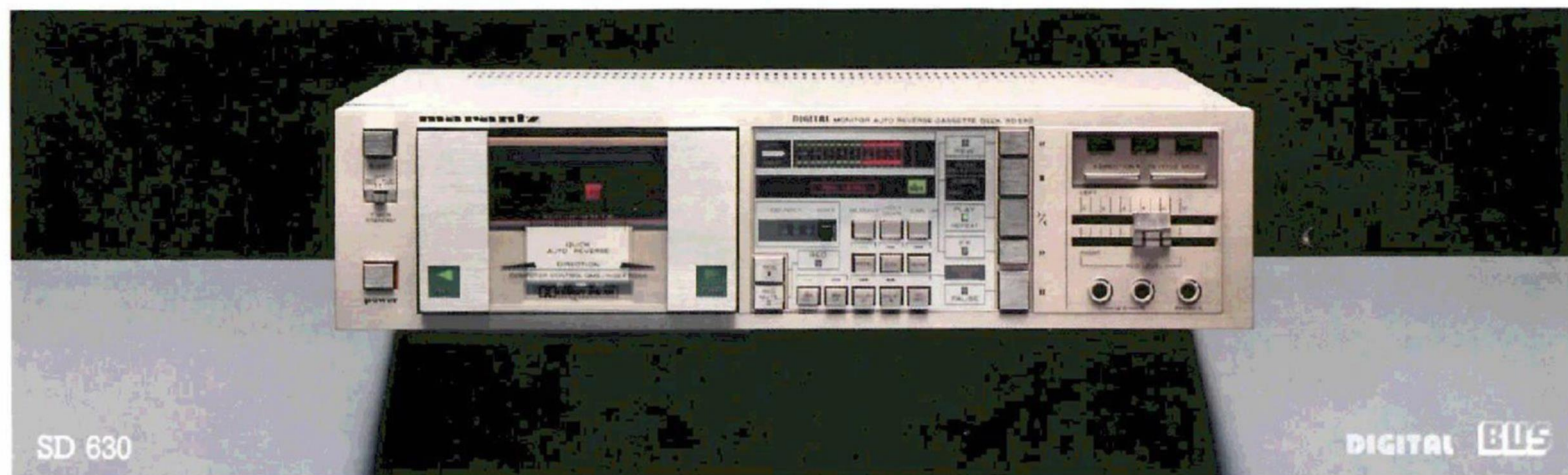
SD 820 DBX

Has a microprocessor driven IC logic transport mechanism with 2 motors, one of them directly driving the capstan. Separate recording and playback heads. Each head can be adjusted separately for optimum azimuth alignment. COMPU BIAS: Automatic and computerized adjustment of the bias, level and Eq. dbx and Dolby $\text{^\circ C}$ + Dolby $\text{^\circ B}$ noise reduction systems. A separate 2 k byte microprocessor gives automatic features such as QMS, Repeat playback for one or all tunes, Automatic record mute, Automatic slack take-up. Output level control. Timer standby. Remote controllable with RMC 1.

SD 720

The SD 720 has the same features and functions as the SD 820 except for the dbx noise reduction feature.

Note : SD 930 - available in November 1983.



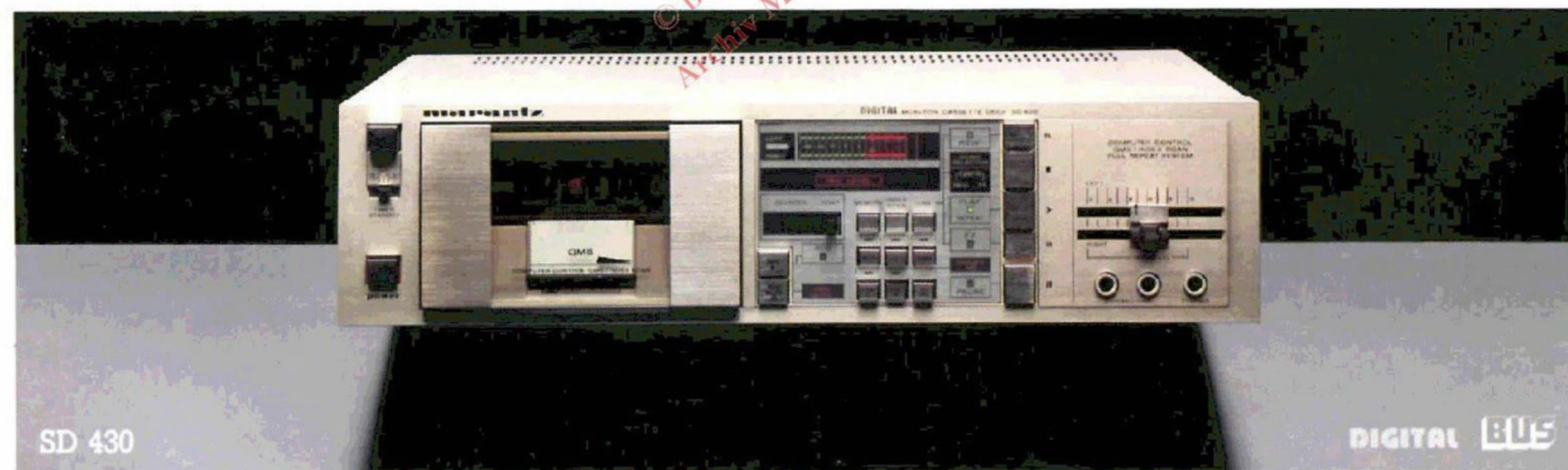
SD 630

DIGITAL BUS



SD 530

DIGITAL BUS



SD 430

DIGITAL BUS

SD 630

Digital monitoring cassette deck. Bus* compatible deck. Microprocessor driven IC logic transport mechanism with 2 motors Quick auto reverse record and playback. dbx and Dolby $\text{C} + \text{Dolby B}$ noise reduction systems. The dbx circuit can also be used for playing back dbx encoded discs. One-touch record. Auto demagnetizer. A separate 2 k byte microprocessor gives automatic features such as QMS, Index scan, Repeat playback for one or all tunes, Automatic record mute and Automatic slack take-up. Timer standby. One-touch Easy Operation.

SD 530

The SD 530 has the same features and functions as the SD 630 except for the dbx noise reduction feature.

SD 430

Digital monitoring cassette deck. Bus (*) compatible deck. The SD 430 has a microprocessor driven IC logic transport mechanism with 2 motors. Dolby $\text{C} + \text{Dolby B}$ noise reduction systems. One-touch record. Auto demagnetizer.

A separate 2 k byte microprocessor gives automatic features such as QMS, Index scan, Repeat playback for one or all tunes, Automatic record mute and Automatic slack take-up. Timer standby. One-touch Easy Operation.

(*) Digital bus - see explanation on page 18.

SD 330

Soft touch tape transport mechanism. Dolby $\text{^{\circ}C}$ + Dolby $\text{^{\circ}B}$ noise reduction systems. LED meters for level setting. Timer standby. Line and Mic selector switch. Record mute. Convenient sliding level controls. Normal, CrO_2 and metal, tape selector.



SD 230

Soft touch tape transport mechanism. Dolby $\text{^{\circ}B}$ noise reduction system. LED meters for level setting. Timer standby. Line and Mic selector switch. Record mute. Convenient sliding level control. Normal, CrO_2 and metal tape selector.



RC 430 REMOTE CONTROL UNIT BUS SYSTEM

There are two types of MARANTZ bus systems : the Digital Bus system and the Easy Operation Bus system.

1.

The **Digital Bus System** is made to receive on its receiver the operating signal from a wireless remote control and to convert it for transmission to the different units. The orders are given via an address coded signal through a single line. The units are thus connected on the bus line one after the other permitting free expansion of the system. The RC 430 remote control and AT 333 R timer carry the MARANTZ digital bus system. The remarkable thing about the digital bus is that it only requires one connection to the RC 430 for the entire system, making it child's play to connect. The digital Bus system, by means of the hand held command can operate the following features and functions :

Amplifier : Volume Up/Down, Muting, Balance, Loudness, Low and High filters. Tuner, Phono, CD/Aux, Tape 1, Tape 2.

Tuner : AM/FM, Tuning Up/Down, Presets 1-8.

Deck : Play, Stop, Rew, FF, Pause, Record, Tape direction, QMS, Index Scan, Memo, Rec Mute (for 2 tape decks).

Player : Play, Cut, Cue/Pause, Repeat (for either turntable or CD).



2.

The **Easy Operation Bus** is intended to transmit to the premain amplifier the signal that the units have performed their operations, and to automatically switch the source selector of the premain amplifier. The Easy Operation bus reacts to orders such as :

— Frequency change operation on the tuner (including memory recall).

— Playback operation for the deck.
— Starting operation and arm lowering for the turntable.

NOTE : When the tape deck is in the recording mode, the Easy Operation bus system is switched off in order not to accidentally change the function selector of the premain amplifier.

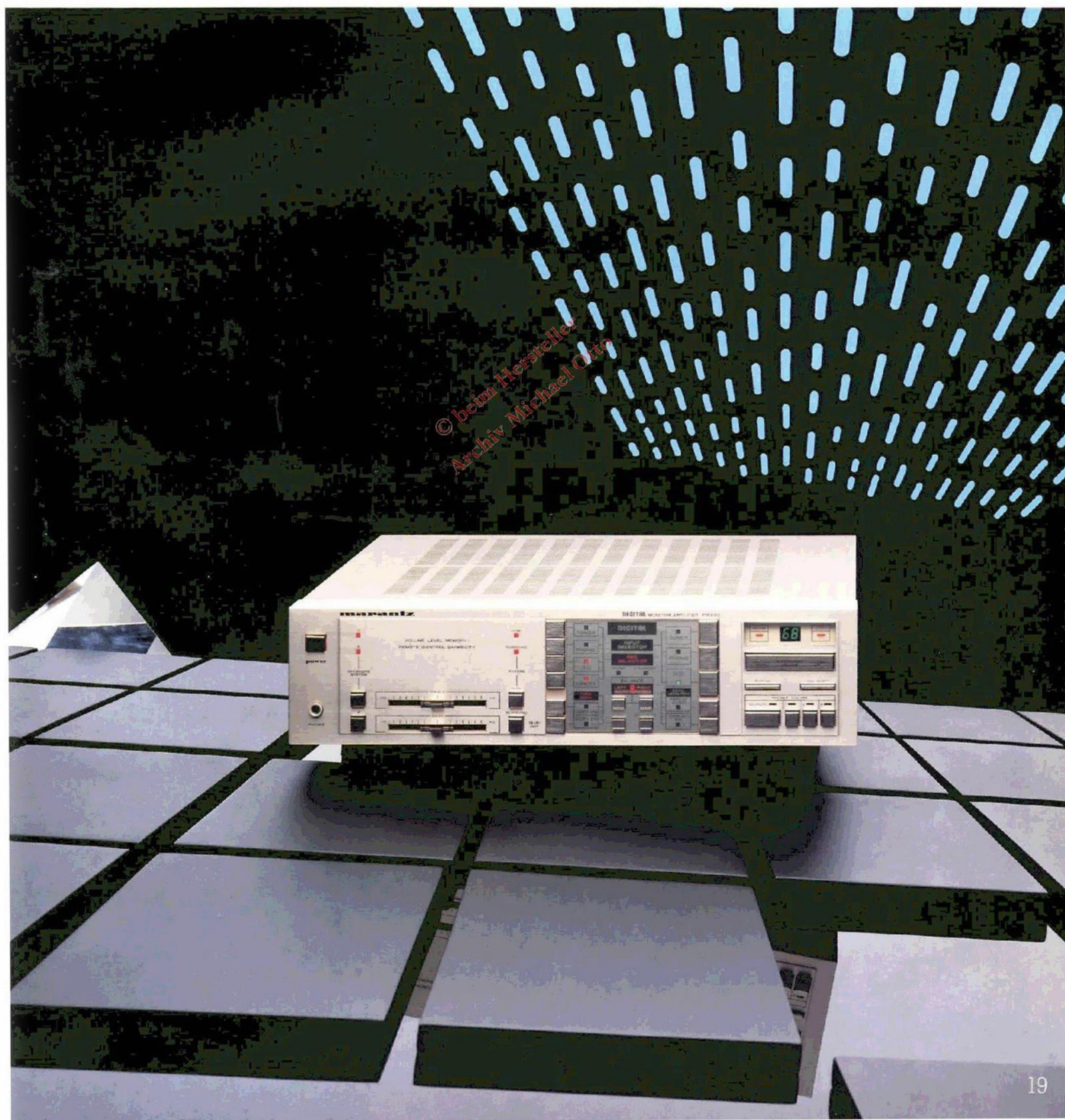
Amplifiers

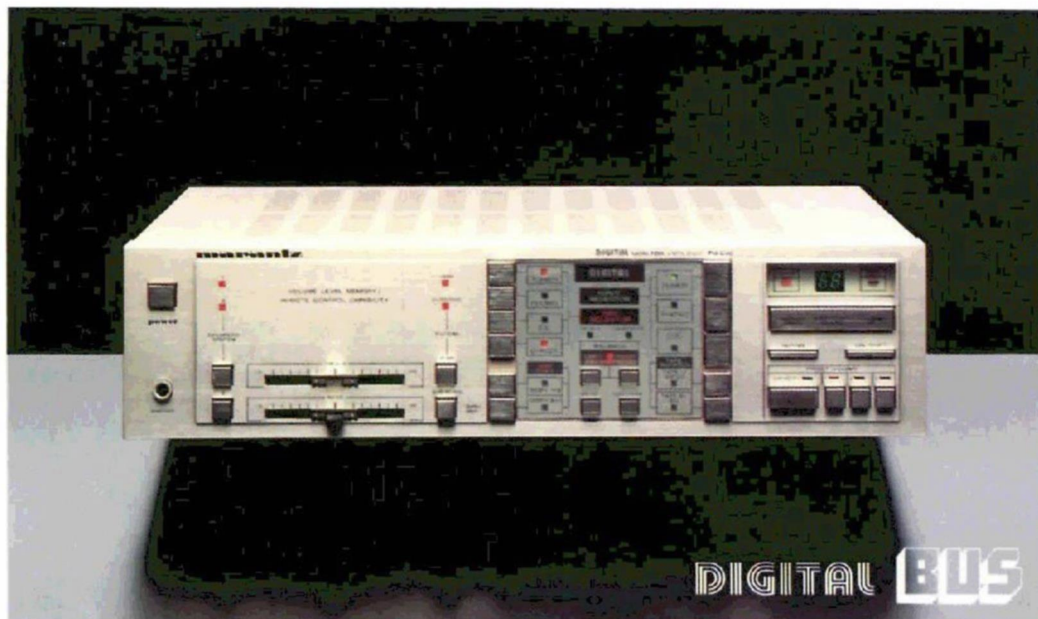
Today, good amplifiers will be judged on their capacity of reproducing music. However, CD sound represents two major difficulties for amplifiers:

1. The signals coming for the CD are very stable in frequency and phase and the amplifier has to fight against the unstable nature of the speaker load characteristics to preserve this benefit. As the speaker load varies (this happens with
2. The dynamic range delivered by CD is very demanding on the amplifier on its peak power requirements. All MARANTZ amplifiers have been designed with ample dynamic headroom to be able to reproduce those dynamic peaks without

clipping. The dynamic power characteristics of each MARANTZ amplifier are indicated in the specification chart.

MARANTZ amplifiers are thus highly recommendable for use with a Compact Disc and the PM 630 has been designed as a «Digital Monitoring Amplifier» to stress its high performance compatibility with CD.





PM 630

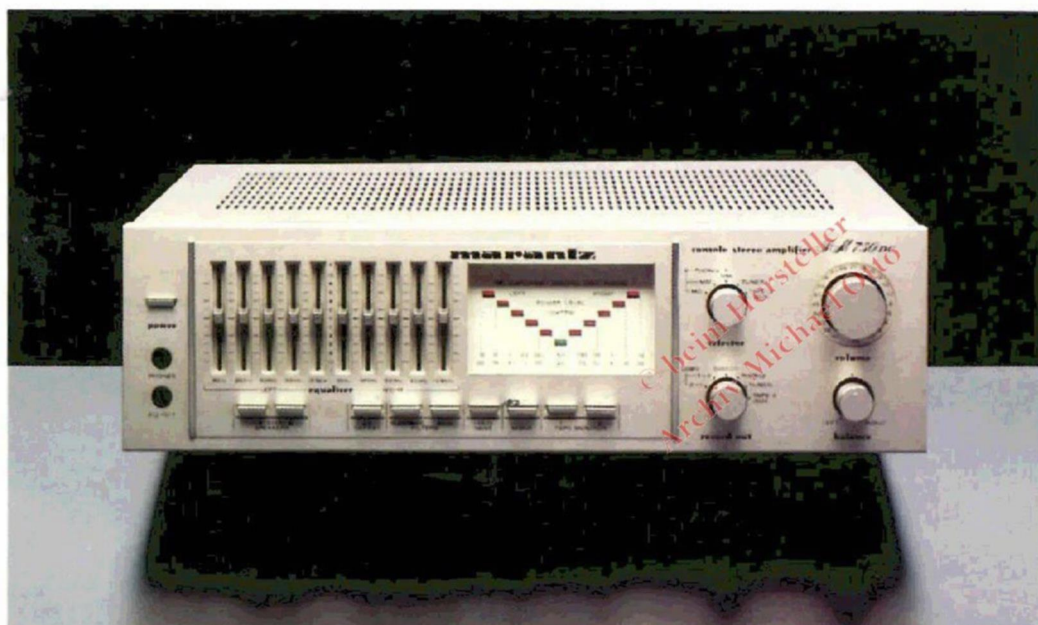
Digital monitoring amplifier. Remote controllable with Bus (*) system. $2 \times 55 \text{ W}$ at 1 kHz, 8 ohms, THD 0.008 % (Main In). $2 \times 150 \text{ W}$, 4 ohms, dynamic power (IHF method). Feather touch volume control with large digital display and 3 memory positions. Feather touch balance control with LED for centre position. Feather touch source selection and tape copy functions. Bass and treble sliding controls. High and low filters. Muting circuit (-20 dB). Recording mode selector with possibility to listen to any source while recording another. Tape copy 1 to 2 and 2 to 1 with independent tape monitor. DC amplifier design for powerful and dynamic low frequency response with no phase distortion. Connections for two speaker systems. One-touch Easy Operation.

Rear connections

Speaker systems 1 and 2.

Sources : tuner, CD/Aux, Tape 1 and 2 In and Out, Phono MM. Bus connectors.

(*) Digital bus : see explanation on page 18.



PM 750 DC

$2 \times 80 \text{ W}$, 1 kHz, 8 ohms, THD 0.03 %. $2 \times 139 \text{ W}$, 4 ohms dynamic power (IHF method). Large, easy to use graphic equalizer from 60 Hz to 12.8 kHz, each control covering 2 octaves. The left and right channels are controlled separately. Recording mode selector : you can listen to any source while recording another. Moving coil cartridge input. Two large scale output power indicators with LED's. Equalizer Out jack on the front panel to make equalized tapes for your car or portable cassette player. Independent tape monitor 1 and 2. High and subsonic filters (12 dB/oct). Speaker switching for two pairs of speakers. DC output stages for powerful and dynamic low frequency response with no phase distortion.

Rear connections

Speaker systems 1 and 2.

Sources : tuner, CD/Aux, Tape 1 and 2 In and Out, Phono 1 (MM), Phono 2 (MC).



PM 550 DC

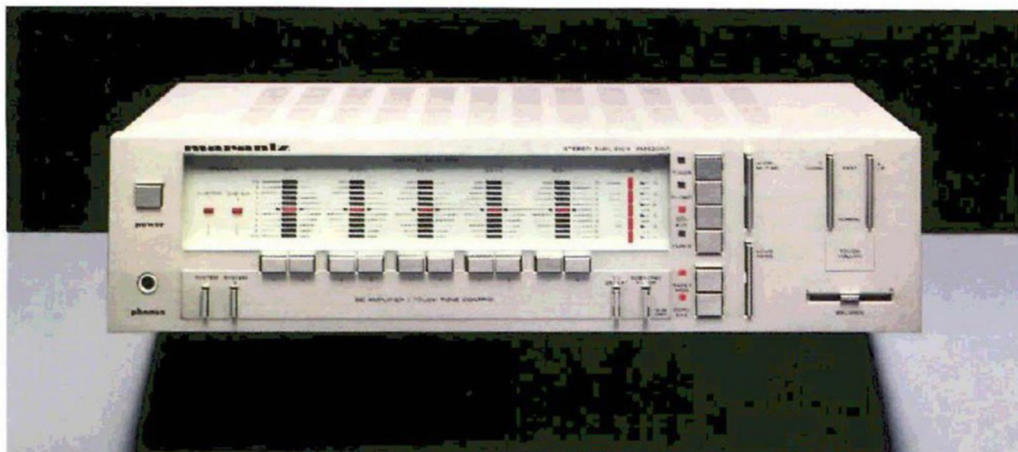
$2 \times 65 \text{ W}$, 1 kHz, 8 ohms, THD 0.03 %. $2 \times 115 \text{ W}$, 4 ohms dynamic power (IHF method). Large, easy to use graphic equalizer from 60 Hz to 12.8 kHz, each control covering 2 octaves. Recording mode selector : you can listen to any source while recording another. Moving coil cartridge input. Two large scale output power indicators with LED's. Equalizer Out jack on the front panel to make equalized tapes for your car or portable cassette player. Independent tape monitor 1 and 2. High and subsonic filters (12 dB/oct). Speaker switching for two pairs of speakers. DC amp design for powerful and dynamic low frequency response with no phase distortion.

Rear connections

Speaker systems 1 and 2.

Sources : tuner, CD/Aux, Tape 1 and 2 In and Out, Phono 1 (MM), Phono 2 (MC).

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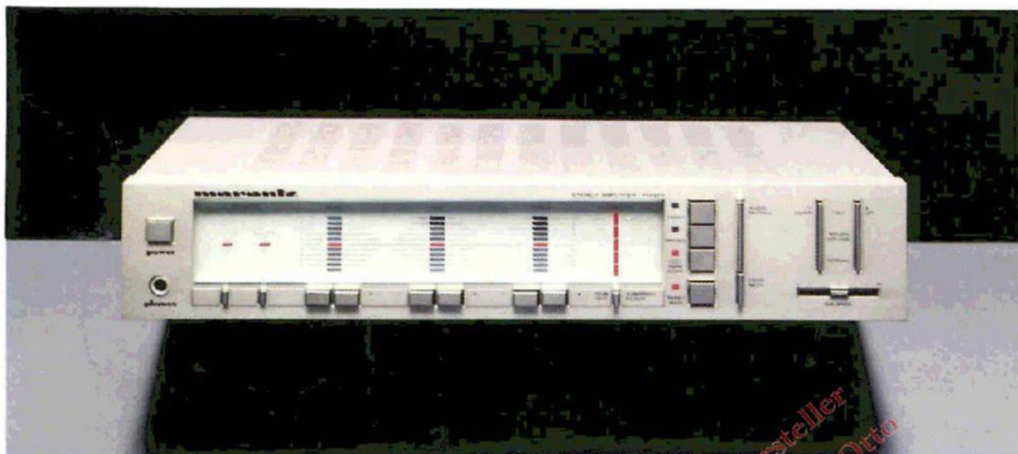
PM 520 DC

2 × 58 W, 1 kHz, 8 ohms, THD 0.03 % 2 × 101 W, 4 ohms dynamic power (IHF method). Touch volume control with fast and slow operation. Touch control graphic equalizer from 60 Hz to 12.8 kHz, each control covering 2 octaves. LED graphic indicators of the equalizer position. Subsonic filter (12 dB/oct). Tape monitor 1 and 2. Tape copy function 1 to 2. Audio muting (−20 dB). Speaker switching for 2 pairs of speakers. High grade phono preamplifier (RIAA ± 0.5 dB, 20 Hz–20 kHz). DC amp design for powerful and dynamic low frequency response with no phase distortion.

Rear connections

Speaker systems 1 and 2.

Sources : tuner, CD/Aux, Tape 1 and 2 In and Out, Phono.



PM 420

2 × 45 W, 1 kHz, 8 ohms, THD 0.05 %. 2 × 73 W, 4 ohms dynamic power (IHF method). Touch volume control with fast and slow operation. Touch tone controls including bass, midrange and treble. LED graphic indicators of the tone controls position. Subsonic filter (12 dB/oct). Tape monitor 1. Audio muting (−20 dB). Speaker switching for 2 pairs of speakers. High grade phono preamplifier (RIAA ± 0.5 dB, 20 Hz–20 kHz).

Rear connections

Speaker systems 1 and 2.

Sources : tuner, CD/Aux, Tape 1 In and Out, Tape 2 In, Phono.



PM 330

2 × 37 W, 1 kHz, 8 ohms, THD 0.05 %. 2 × 73 W, 4 ohms dynamic power (IHF method). Touch volume control. Touch function selectors. Low filter. Bass and treble sliding tone controls. Audio muting (−20 dB). LED power level meters. Tape monitor 1 and 2. Speaker switching for 2 pairs of speakers. Beautiful slim line design.

Rear connections

Speaker systems 1 and 2.

Sources : tuner, CD/Aux, Tape 1 and 2 In and Out, Phono.



PM 230

2 × 30 W, 1 kHz, 8 ohms, THD 0.05 %. 2 × 56 W, 4 ohms dynamic power (IHF method). Sliding volume control. Touch function selectors. Low filter. Bass and treble sliding tone controls. Tape 2 monitor switch. Beautiful slim line design.

Rear connections

Speaker system 1.

Sources : tuner, CD/Aux, Tape 1 In and Out, Tape 2 In, Phono.

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Receivers

Many Hi Fi purists used to look down on receivers. In their view, putting the tuner and the amplifier together in the same box was simply asking for trouble. Electrical emanations from the tuner were bound to affect the amplifier and produce distortion.

Things have changed. Superior insulation materials and clever circuit design allow to fit the tuner and amplifier into the same housing without risk or interference.

Today, thanks to the silicon chip and the integrated circuit, a tuner, a preamplifier

and a main amplifier can be packed into a chassis only very slightly larger than any one of these components used to need.

Do not make the mistake of believing that any of the three component parts of MARANTZ receivers is of lesser quality than it would be if you bought it separately.

SR 820 DC

AM/FM digital synthesized receiver. 2×85 W, 1 kHz, 8 ohms, THD 0.03 %. 2×138 W, 4 ohms dynamic power (IHF method). FM sensitivity $1.5 \mu\text{V}$ (DIN 300 ohms). AM/FM Computuner with quartz PLL synthesizer and 8 AM + 8 FM presets. Preset memory battery back-up. Last station memory. Automatic station scanning with variable threshold switch to allow to scan only the strong and clear stations rather than all of them. Tuning precision facilitated by LED indicators. 5 band graphic equalizer from 60 Hz to 12.8 kHz, each control covering 2 octaves. Large scale LED output power indicators. Equalizer Out jack on the front panel to make equalized tapes for your car or portable cassette player. High and subsonic filters (12 dB/oct). Tape copy function: tape 1 to tape 2, tape 2 to tape 1. Speaker switching for two pairs of speakers. DC amp design for powerful and dynamic low frequency response with no phase distortion. Low TIM (Transient Intermodulation Distortion) design that gives crystal clear sound without harshness.

Rear connections

Speaker systems 1 and 2.

Sources: CD/Aux, Phono, Tape 1 and 2 In and Out. FM antenna, AM external antenna.

SR 620

AM/FM digital synthesized receiver. 2×55 W, 1 kHz, 8 ohms, THD 0.03 %. 2×84 W, 4 ohms dynamic power (IHF method). FM sensitivity $1.8 \mu\text{V}$ (DIN 300 ohms). AM/FM computuner with quartz PLL synthesizer and 8 AM + 8 FM presets. Preset memory battery back-up. Automatic station scanning. Tuning precision facilitated by LED indicators. Bass, medium and treble tone controls. Subsonic filter (12 dB/oct). Audio muting (-20 dB). Tape copy function from tape 2 to tape 1. Tape monitor 1 and 2. Speaker switching for 2 pairs of speakers. Low TIM (Transient Intermodulation Distortion) design that gives crystal clear sound without harshness.

The SR 620 is also available with long waves as SR 620 L.

Rear connections

Speaker systems 1 and 2.

Sources: CD/Aux, Phono, Tape 1 and 2 In and Out. FM antenna, AM external antenna.

SR 520

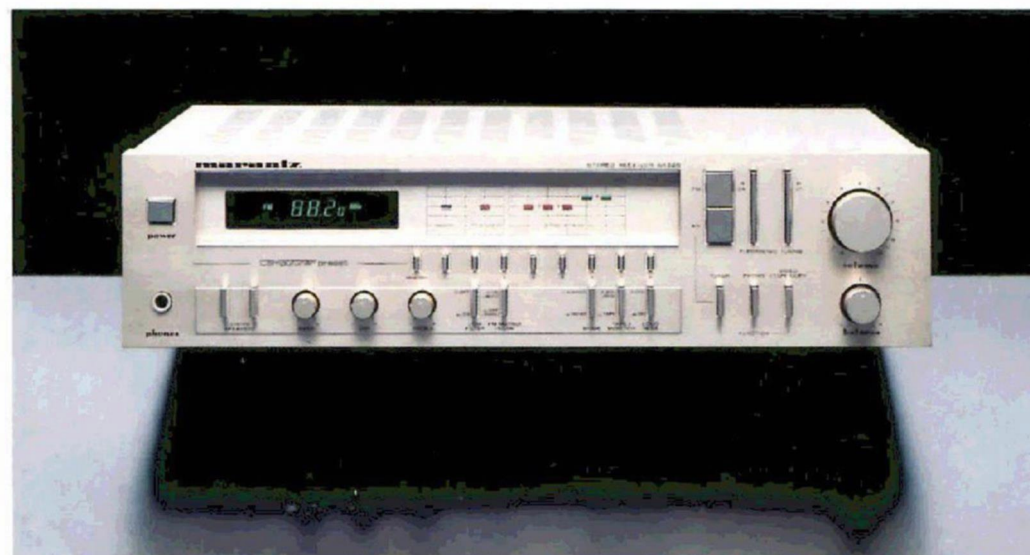
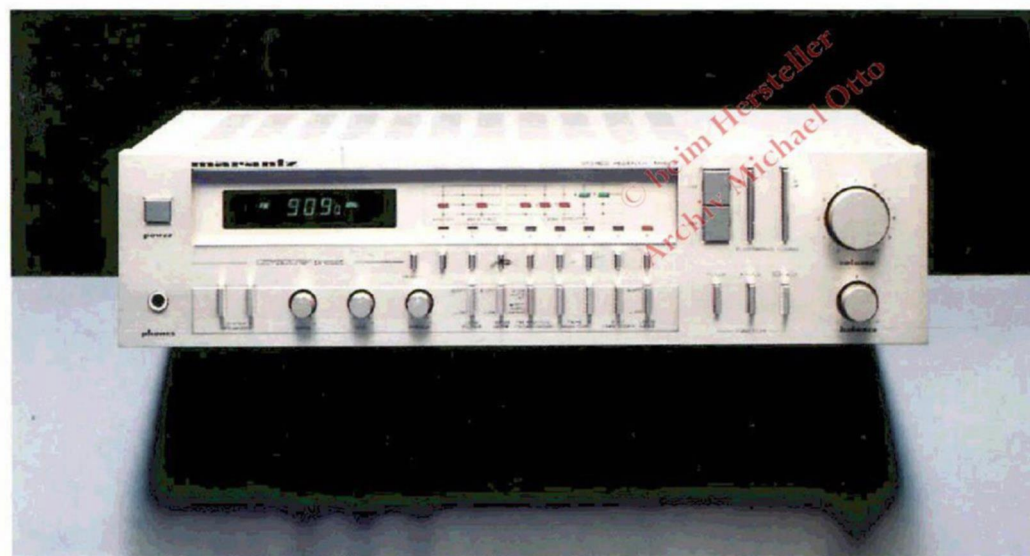
AM/FM digital synthesized receiver. 2×40 W, 1 kHz, 8 ohms, THD 0.03 %. 2×68 W, 4 ohms dynamic power (IHF method). FM sensitivity $1.8 \mu\text{V}$ (DIN 300 ohms). AM/FM Computuner with quartz PLL synthesizer and 8 AM + 8 FM preset. Preset memory battery back-up. Automatic station scanning. Tuning precision facilitated by LED indicators. Bass, medium and treble tone controls. Low filter (6 dB/oct). Tape monitor 1. Speaker switching for two pairs of speakers. Low TIM (Transient Intermodulation Distortion) design that gives crystal clear sound without harshness.

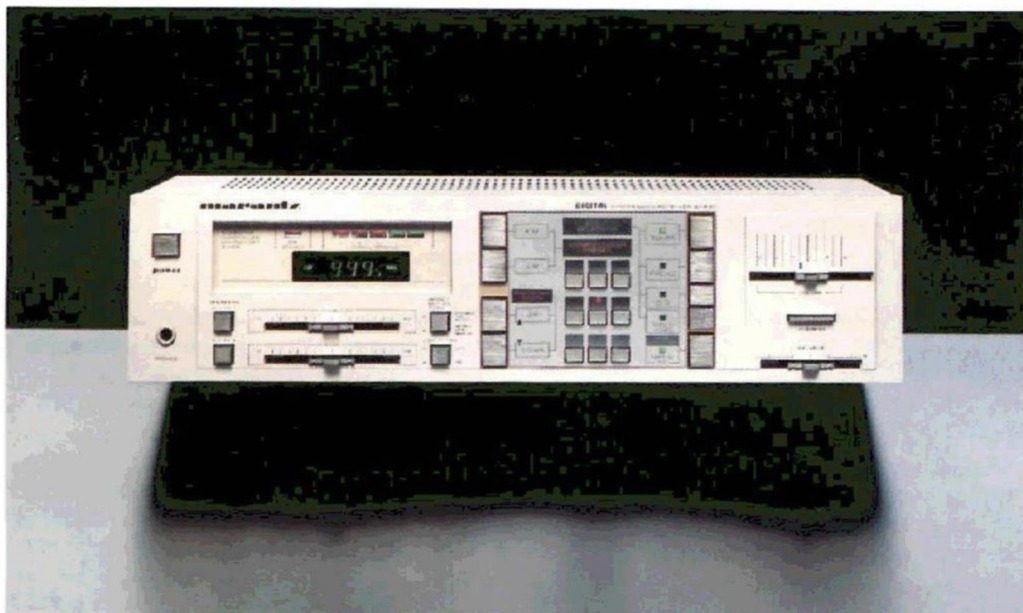
The SR 520 is also available with long waves as SR 520 L.

Rear connections

Speaker systems 1 and 2.

Sources: CD/Aux, Phono, Tape 1 In and Out, Tape 2 In. FM antenna, external AM antenna.





SR 430 DIGITAL

AM/FM digital synthesized receiver. 2×35 W, 1 kHz, 8 ohms, THD 0.05 %. 2×73 W, 4 ohms dynamic power (IHF method). FM sensitivity $2 \mu\text{V}$ (DIN 300 ohms). AM/FM Computuner with quartz PLL synthesizer and 8 AM + 8 FM presets. Preset memory battery back-up. Automatic station scanning. Tuning precision facilitated by LED indicators. Bass and treble sliding tone controls. Inputs for 2 tape decks with monitoring. Speaker switching for two pairs of speakers. Low TIM (Transient Intermodulation Distortion) design that gives crystal clear sound without harshness.

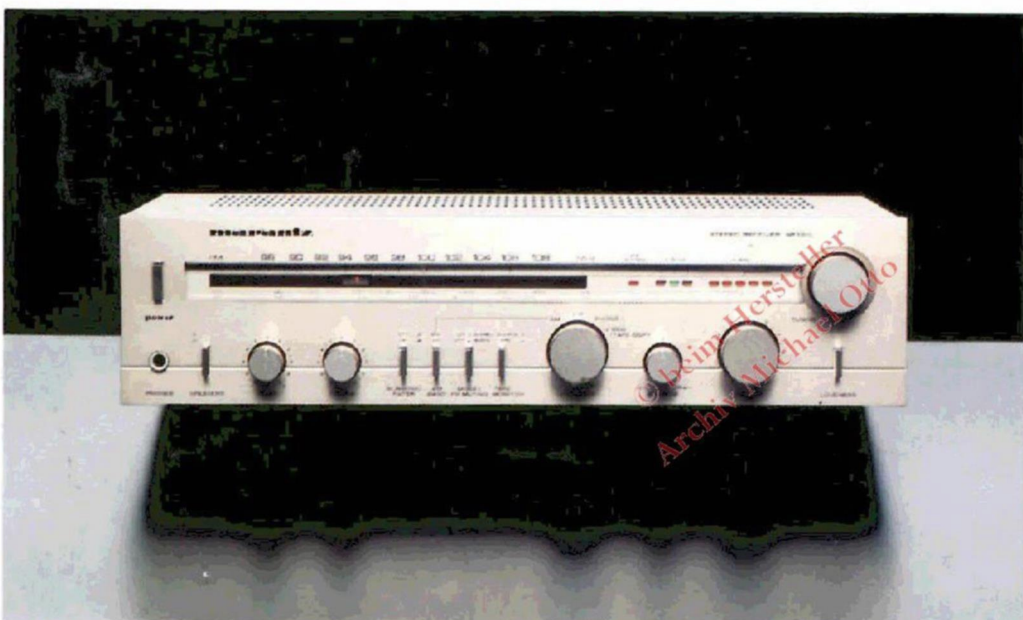
The SR 430 is also available with long waves as SR 430 L.

Rear connections

Speaker systems 1 and 2.

Sources : CD/Aux, Tape 1 and 2 In and Out, Phono, FM antenna 75 ohms-300 ohms, external AM antenna.

Note : available in November 1983.



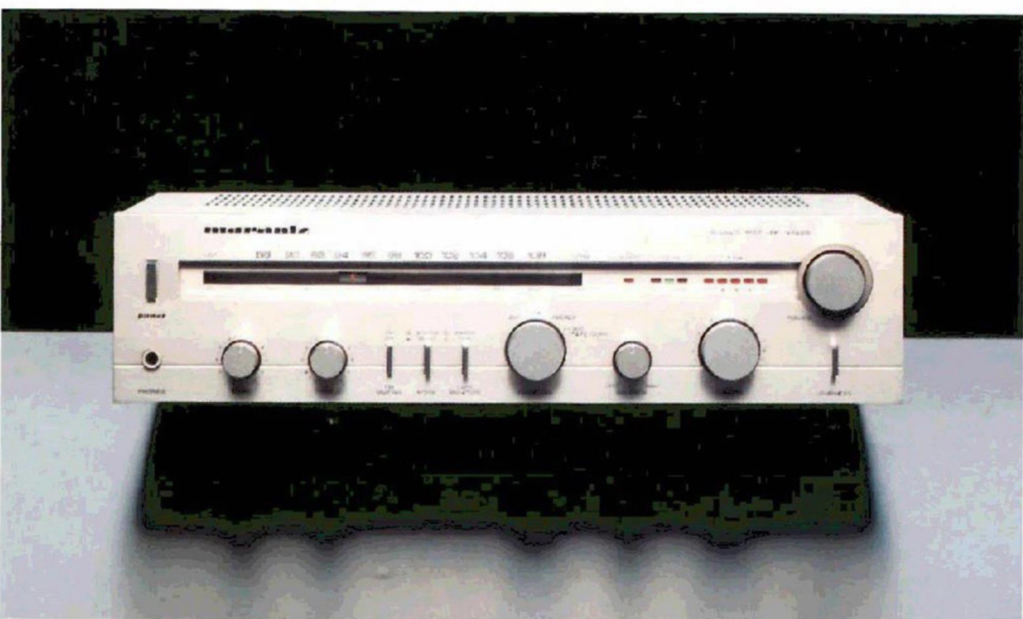
SR 320

AM/FM stereo receiver. 2×30 W, 1 kHz, 8 ohms, THD 0.05 %. 2×54 W, 4 ohms dynamic power (IHF method). FM sensitivity $2.2 \mu\text{V}$ (DIN 300 ohms). Flywheel tuning system with LED tuning indicators. Bass and treble tone controls. Low filter (50 Hz - 6 dB/oct). Tape copy 2 to 1 with tape monitor 1. Speaker switching between system 1 and 2. Low TIM (Transient Intermodulation Distortion) design to eliminate intermodulation distortion. Pilot canceller for clean FM reception. The SR 320 is also available with long waves as SR 320 L.

Rear connections

Speaker systems 1 and 2.

Sources : CD/Aux/tape 2, Phono, Tape 1 In and Out. FM antenna 300 ohms, external AM antenna.



SR 220

AM/FM stereo receiver. 2×20 W, 1 kHz, 8 ohms, THD 0.05 %. 2×35 W, 4 ohms dynamic power (IHF method). FM sensitivity $2.2 \mu\text{V}$ (DIN 300 ohms).

Flywheel tuning system with LED tuning indicators. Bass and treble tone controls. Tape copy 2 to 1 with tape monitor 1. Low TIM (Transient Intermodulation Distortion) design to eliminate intermodulation distortion. Pilot canceller for clear FM reception.

The SR 220 is also available with long waves as SR 220 L.

Rear connections

One speaker system.

Sources : CD/Aux/Tape 2, Phono, Tape 1 In and Out. FM antenna 300 ohms, external AM antenna.

Loudspeakers

Until recently the digital recording and playback technique has only been used by professionals, but the improvement of this technique on analogue recording and playback is clearly recognized by everybody.

Wide dynamic range, higher resolution, flatter and wider frequency response, low distortion and high signal-to-noise ratio are just a few of the parameters improved by the digital audio system to reproduce music in its fullest harmonious beauty.

Naturally, the optimum sound reproduction achieved with the digital technique puts the speakers under a heavy strain. The MARANTZ speaker engineering group has been aware of the problems created by these factors for a long time. They also knew that the introduction of Compact Disc, the revolutionary musical programme source would dramatically change the HiFi

world and require new concepts in speaker design.

The LD (**Linear Dynamic**) concept of Marantz was thus established with digital audio monitoring in mind. In fact, LD speakers were waiting for the arrival of the Compact Disc musical source.

The basic philosophy behind the Linear Dynamic speakers design is quite simple: to achieve musicality with any programme source; one should hear the music, not the speaker. In other words, the speaker system should reproduce the musical field with proper image and depth, so that the existence of the speaker cannot be felt or heard.

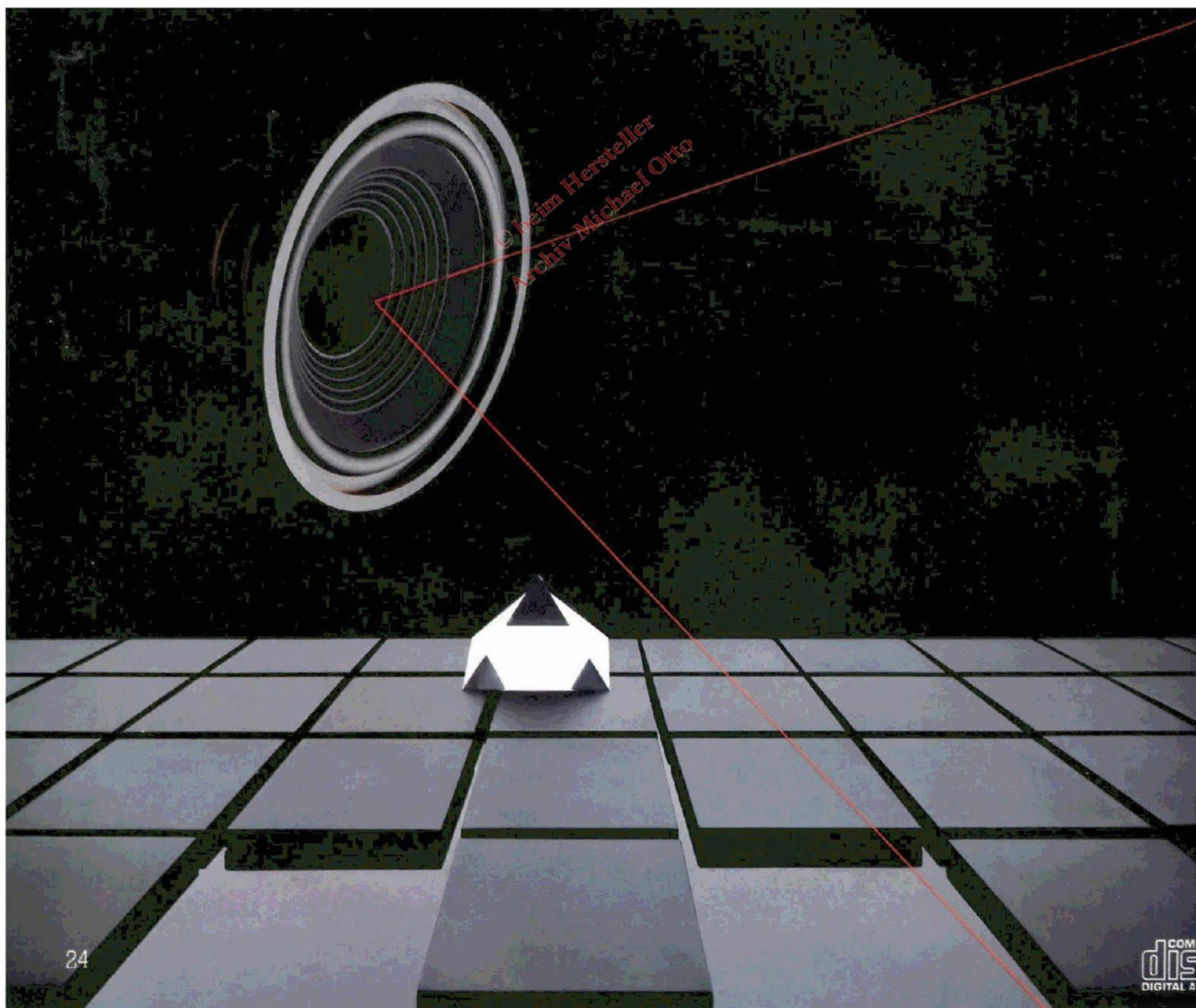
With Compact Disc programme sources this philosophy becomes even more important because of the fundamental improvements brought by Compact Disc.

These are the criteria and challenge for digital age speakers.

MARANTZ tackled the problem starting from basics: the development of new transducers following our philosophy.

All the LD speaker systems are equipped with **DPIC** (Duo Polymer Impregnated Cone) woofers. These cones are unique. All speaker engineers know what is the ideal material for the bass driver cone, but the difficulty is to find and make it.

With Compact Disc source, the dynamic range is particularly wide and the bass is further extended. The rigidity of the cone must thus be extremely high and the normal paper cone would not stand a change in this field. Yet, its light weight and internal damping make it quite attractive.



DPIC has all these qualities including high rigidity without the very high peaks at the end of the high frequencies response and low internal damping common to many other high rigidity cone materials. Many engineers will say that these very high peaks are not a real problem because you just need to take the crossover point at a much lower frequency. However, in MARANTZ opinion, this type of basic characteristics cannot be eliminated by the network, specially since such a high Q peak shall always be audible even if a lower crossover frequency is taken.

DPIC woofers possess amazing high frequency roll-off characteristics without any peak or dip, and this is the case from the lowest to the highest input powers (wide dynamic range). The excellent characteristics of these woofers have been reinforced using a linear damper, polyurethane edge, 4-layer voice coil Nomex bobbin, etc.

High frequency drivers are certainly as important as bass drivers.

MARANTZ has chosen to use polyester fiber domes for its high frequency drivers, because of the smooth sound reproduction characteristics of this material, rather than hard domes with their ultra wide frequency response.

With the Compact Disc as a source, the energy on the high frequency band is increased. The high rigidity of the dome is thus essential. Adequate internal loss is needed at the same time to avoid resonance which creates listening fatigue.

The MARANTZ polyester fiber dome is extremely light and its radius is calculated for the highest rigidity. In addition, to be able to cope with Compact Disc, these domes are ferrofluided to minimize distortion. Moreover, the high thermal conductivity of the ferrofluid is very efficient in the cooling of the voice coil, increasing thus substantially the power handling capability of the dome.

The crossover network design is quite complex, and its contribution to the final sound reproduction is more than one can imagine. Intensive care was taken for the choice of components. MARANTZ engineers have spent tremendous time evaluating parts, both by measurements and listening tests. Low DC resistance air core coils, potted large ferrite core inductors and metalized polycarbonate film capacitors have been chosen after such time consuming investigations.

MARANTZ made no compromise either in the design of the cabinets. The choice of the board, construction method, bracing are all very important, specially with the high dynamics reproduced with Compact Disc.

All this has been done by MARANTZ to optimize the sound reproduction.

These points can only give you an indication of the Linear Dynamic speakers design concept. Listen for yourself, and you will be convinced.



	LD 300	LD 200	LD 100	
	3 Way	3 Way	3 Way	
System				
Maximum Power	300	200	150	W
Frequency response	20-22	20-22	20-22	Hz-kHz
Sensitivity (SPL 1 W/1 m/1 kHz)	92	91	90	dB
Impedance	8	8	8	Ohms
Transducers Woofer	2 x 20	25	20	cm
Midrange	5 (dome)	5 (dome)	5 (dome)	cm
Tweeter	2.5 (dome)	2.5 (dome)	2.5 (dome)	cm
Dimensions (W×H×D)	340×890×374	340×700×262	286×652×262	mm

COMPACT
disc
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MINI MONITORS

Recent advanced technologies enabled MARANTZ to develop small size, high quality speaker systems. Up to now all small speakers built had two important drawbacks: not enough bass extension and very low sensitivity despite the fact that some of them reproduced music beautifully.

MARANTZ Mini Monitors are quite different. They have outstanding bass response thanks to MARANTZ original **Dynamic Bass Reflex Alignment**, which, unlike other bass reflex systems, is an optimized combination of energy and transient response plus higher sensitivity. Of course, the Linear Dynamic design philosophy has been applied to this design and beautiful music reproduction is thus guaranteed.

	LD 50	LD 30 MK II	LD 20	
System	2 Way	2 Way	2 Way	
Maximum Power	120	100	60	W
Frequency Response	35-22	35-22	40-22	Hz-kHz
Sensitivity (SPL 1W/1m/1kHz)	89	88	87	dB
Impedance	8	8	8	ohms
Transducers Woofer	20	20	16	cm
Tweeter	2.5	2.5	2.5	cm
Dimensions (W x H x D)	272 x 419 x 280	272 x 419 x 268	230 x 240 x 365	mm



HIGH DEFINITION LINE

Similarly to the LD series, MARANTZ HD line is unique.

There are many speakers on the market having a "dynamic-sounding" character which means booming bass, harsh treble and prominent mid-band. This may sound better at first hearing, but after a few hours of listening, would produce listening fatigue. Real music will never cause fatigue, it is very smooth and enjoyable. Speakers should not produce attractive dynamic sound which in reality is only distorted sonic accuracy. Speakers should not colour the sound.

MARANTZ HD speakers are designed for music lovers. They will sound smooth and let you enjoy music.

We have used a lot of LD technologies in the HD line, such as ferrofluid mid and tweeter for lower distortion and higher power handling.

	HD 700	HD 600	HD 500	HD 400	HD 300	HD 250	
System	3 Way	3 Way	3 Way	3 Way	3 Way	2 Way	
Maximum power	150	120	100	60	50	40	W
Frequency response	35-20	40-20	45-20	50-20	60-19	60-18	Hz-kHz
Sensitivity (SPL 1W/1m/1kHz)	90	90	90	90	90	90	dB
Impedance	8	8	8	8	8	8	Ohms
Transducers Woofer	30	25	25	20	17	17	cm
Midrange	12	12	12	12	7.5	—	cm
Tweeter	5	5	5	5	5	5	cm
Dimensions (W x H x D)	390x700x300	350x650x300	320x580x220	265x512x200	256x508x200	225x400x200	mm

LS 15 A — LS 17 A

These speakers are designed with two unusual requirements in mind: high power handling and high maximum sound pressure level. They are able to reproduce high acoustic power with relatively low power amplifiers. A pair of LS 17 A is able to reproduce 116 dB SPL in a normal room, where LS 15 A reaches 113 dB.

During parties, etc... these speakers will fill your room with music.

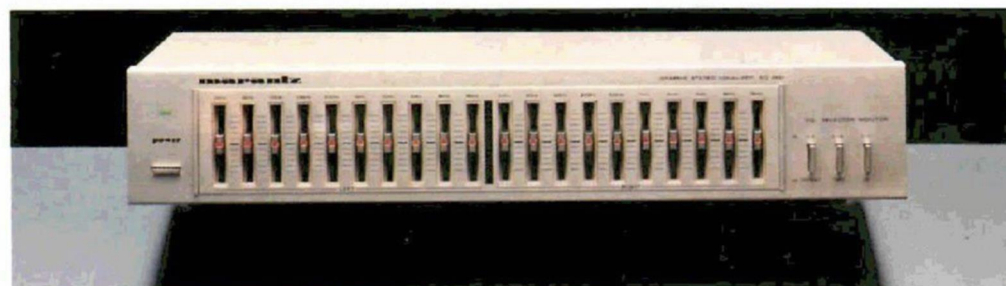
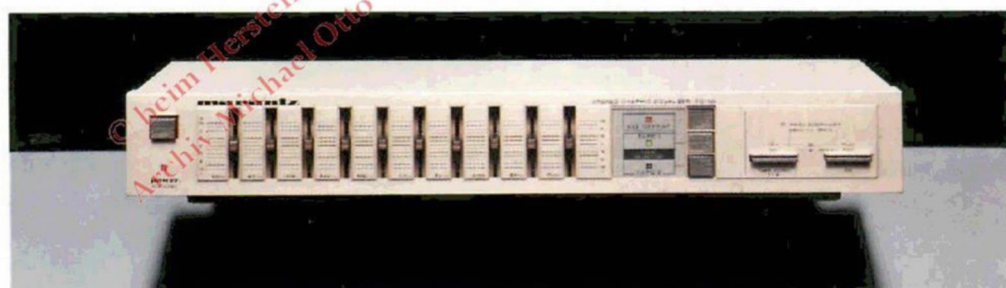
	LS 17 A	LS 15 A	
System	4 Way	3 Way	
Maximum Power	300	150	W
Frequency Response	20-40	20-35	Hz-kHz
Sensitivity (SPL 1W/1m/1kHz)	99	96	dB
Impedance	8	8	Ohms
Transducers Woofer	38	30	cm
Midrange	2 x 10	10	cm
Tweeter	Horn	Ring	
Super tweeter	3.8 metal film	—	cm
Dimensions	445x690x276	370x620x276	mm

(Note : Not available in the U.K.).



Equalizers

Equalizers can be used to compensate for acoustic imperfections of your listening room, or simply to mould and shape the sound to your own personal taste.



EQ 130

It gives a 10 octave frequency range for both channels together : 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz. The Tape Eq recording function can be used to equalize your tape. The Eq Defeat switch can be used at all times to listen to a flat frequency response and to compare the original sound with the equalized sound.

EQ 20 D

This model gives a 10 octave frequency range for each channel separately. Red LED's in the control knobs give a visual indication of the shape of the equalized curve. All basic functions performed by the EQ 130 can be performed by the EQ 20 D.

	EQ 130	EQ20D
Freq. control points	31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz	31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz
Channel action	L + R	L & R separate
Rated output	150 mV	1V
IM distortion	0.005 %	0.005 %
THD (20 Hz-20 kHz)	0.005 %	0.005 %
Frequency response	20Hz-30kHz	20Hz-50kHz
S/N ratio	100 dB	110 dB
Dimensions	416 x 55 x 190 mm	416 x 55 x 190 mm
Weight	2.1 kg	2.5 kg
Power requirements	110-120/220-240V	110-120/220-240V

Esoteric Technology

Many times throughout this catalogue you have noticed MARANTZ desire to match the quality of CD sound with its other products. CD astonishing sound performance has put pressure on the other components to raise above the level which was generally considered as very good already. In this respect, the MARANTZ ESOTERIC line can be considered as a reference, a criterion of perfection, a pinnacle which others strive to reach but rarely attain.

The MARANTZ ESOTERIC amplifiers will make you reach the ESSENCE OF

MUSIC when connected to a CD or any other high quality source. The QUARTER A technique introduced for the first time in the world with SM 8 and PM 6 A is the absolute answer to reproducing digital sound purity by means of Class A amplification and to respond instantaneously to the dynamic peaks which require from the amplifier a very high power potential which cannot be matched by ordinary Class A amplifiers.

The amplifier will operate in pure Class A until the output power reaches 1/4 of the

nominal power. For example, the PM 6 A (120 W RMS) will operate in pure Class A up to 30 W with fixed bias current, and beyond 30 W (from 30 W to 120 W) it will automatically switch to the AB mode.

The change over is performed electronically by the high speed switching circuit developed by Marantz.

In case of a dynamic peak similar to the ones created by CD, the amplifier switches from Class A to Class AB during that fraction of a moment necessary to reproduce that dynamic burst.

SM 1000

It delivers 400 W RMS per channel, into 8 ohm. It produces THD and TIM distortion figures of only 0.01 % and the signal-to-noise ratio is a truly incredible 126 dB. The 8 ohm dynamic power (IHF method) is 594 W and the 4 ohm dynamic power is an incredible 1056 W.

As always with MARANTZ, this amplifier has been tested, re-tested and tested again. In the laboratory and by ear... until optimum sound quality was achieved.

Nothing has been spared. The finest materials. The latest technology.

The left and right channels are of mono construction. Apart from the power lead and the cooling fan, every element is independent for the two channels. You can employ AC or DC coupled power. Low distortion is achieved by the perfect power block of the SM 1000. The most sophisticated and advanced technology was used to produce the ideal audio amp. The power block is designed in every stage using the pp (push-pull) concept. New techniques have been evolved to give highly efficient heat dissipation (we took some of our ideas from the NASA); to eliminate the need for a speaker protection relay — by installing a muting circuit in the bias of the cascade amp; to eliminate interference between channels — by using left and right independent power supplies; to give fantastic power... without the harshness that power usually means. It goes without saying that the SM 1000 is the perfect amplifier for digital sound reproduction.

SC 1000

The SC 1000 is the preamplifier which matches the SM 1000. It matches not only in presentation and finish but also in sound reproduction.

Every part of the SC 1000 has been evaluated for sound quality as well as for technical quality.

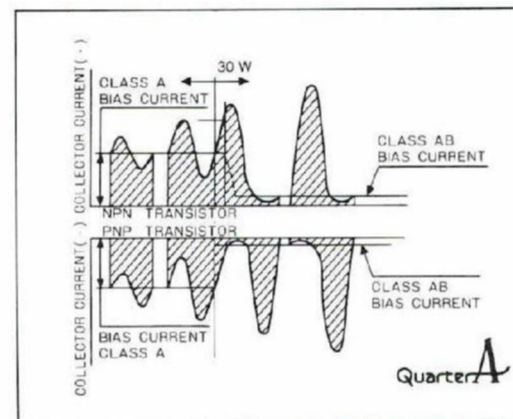
The unit amplifier is designed for minimum use of negative feedback.

Special care has been given to the power supply to make it flexible to tough signal characteristics. The RIAA deviation in the phono preamplifier is almost nil. The volume control uses a new 10 kOhms conductive plastic volume control to avoid signal-to-noise deterioration. For the same reason, the volume control output signal is fed directly into a flat amplifier, bypassing the tone control switches (which remain available if you call for them).

Circuit elements incorporate sound-evaluated capacitors, metal coated resistors, low noise

semi-conductors, glass epoxy PC boards and 70 μ m copper foil at crucial points.

With the adoption of selector switches using epoxy based materials with double contacts, stable functions will be maintained for many years.



SM 8

Stereo main amplifier providing 120 W RMS maximum output power. Operating in Quarter A principle. The 8 ohm dynamic power (IHF method) is 160 W, and the 4 ohm dynamic power is 283 W.

It employs advanced circuit technology, making clever use of the heat loop, thermal dissipation principle developed by the NASA to cool output transistors and maintain the high quality performance over many years.

SC 8

A stereo pre-amplifier providing a truly superb dynamic range for input to any of the power amplifiers of the Esoteric range. The RIAA curve precision is carefully maintained by selected parts components and the Tone Defeat switch will allow the signal to bypass the tone amplifier. A perfect signal is thus fed to the power amplifier. A moving coil head amplifier, separate tone controls for each channel and high and subsonic filters are among just some of the fascinating features of this model.

PM 6 A

Stereo pre-main amplifier providing a 120 W RMS output power. Operates in Quarter A principle. The 8 ohm dynamic power (IHF method) is 189 W, and the 4 ohm dynamic power is 312 W.

The superior dynamic headroom of this amp makes it a perfect match for CD auditioning. The fine tone quality of this amp is preserved even when driven at high powers. The crossover and transient distortions have been drastically reduced by use of super high Ft power transistors and MARANTZ original low TIM design.

It employs advanced circuit technology, making clever use of the heat loop.

PM 5

A stereo pre-main amp with Class A or Class AB choice. In Class A it produces 20 W RMS per channel; in Class AB it gives 80 W RMS per channel.

It has a highly original low TIM design, DC concept and all stage pp circuits.

The MC amp and the phono Eq are designed to minimize TIM. By reducing the impedance of Phono Eq elements, we have given the PM 5 a signal-to-noise ratio of 86 dB.

In the choice of parts, in design and in materials, first priority has been given to producing superb sound. Whatever it may cost.

PM 4

A popular pre-main amplifier with a highly efficient MARANTZ heat sink — necessary to dissipate the heat generated in delivering 2×15 W power output in pure Class A or 2×60 W in Class AB operation.

An exclusive low TIM design reduces distortion even in the control amplifier circuit.

The phono amplifier allows for direct connection of an MC cartridge.



COMPACT
disc
DIGITAL AUDIO

Portable Hi-Fi Systems

Here are two true Hi Fi systems in miniature.

Both the PH 32 and the PH 52 give 20 W of power per channel. Each has a 3-way choice of power supply: batteries, DC 15 V or mains AC.

Each has a 5-band graphic equalizer with LED indicators and phono input for MM cartridge turntable.

The cassette deck has soft touch controls, metal tape capability, Dolby [®]B noise reduction system and Mic mixing.

A built-in automatic music selector picks up one out of 3 tunes one LED lights up for each selection.

There is even a Tape Eq switch which shapes the signals to the tape deck. You can use it to equalize tapes for your car or portable cassette player — when more bass or midrange may be needed.

The speakers, which are detachable, are two-way, with a 10 cm woofer and 4 cm tweeter.

The PH 52 has a built-in PLL synthesized tuner with 8 presets and LED frequency display.

Both models have a removable carrying handle.

PH 32 and PH 52 are available with AM/FM bands.

PH 32 L is available with FM, MW, LW and SW bands.

PH 52 L is available with FM, MW and LW bands.

TUNER	PH 32	PH 52
FM Section:		
Usable Sens. (40 kHz, 98 MHz)	1.8 μ V	1.2 μ V
S/N Ratio	76 dB	76 dB
THD Mono	0.6 %	0.6 %
Frequency Resp. (50 Hz - 15 kHz)	+0/-1 dB	+0/-1 dB
MW Section:		
Usable Sens. (20 dB S/N, 30 % mod)	320 μ V	350 μ V
Selectivity 1 MHz, $\pm$ 0 kHz	30 dB	30 dB
LW Section:		
Sens. (20 dB S/N, 30 % mod)	600 μ V	700 μ V
SW Section:		
Sens. (20 dB S/N, 30 % mod)	35 μ V	—

AMPLIFIER	PH 32	PH 52
Output power (RMS Max.)	20 W	20 W
Output power (RMS, 1 kHz, 5 % THD)	15 W	15 W
Frequency Response	20Hz - 20kHz	20Hz - 20kHz
Aux input: Impedance	47 kOhms	47 kOhms
Sensitivity	150 mV	150 mV
MM cartridge input/Impedance	47 kOhms	47 kOhms
MM cartridge input/ Sensitivity	5 mV	5 mV

CASSETTE DECK	PH 32	PH 52
Frequency response (metal tape)	30 Hz-17 kHz	30 Hz-17 kHz
S/N ratio Dolby [®] ON	59 dB	59 dB
Wow and flutter DIN	0.15 %	0.15 %
FF and REW time	90 sec	90 sec
Power requirement AC: 110/120/220/240 V AC switchable		
DC: 15 V or 10 "D" cells		
DC car adaptor DCA-15 optional		

Dimensions (all mounted) 496 x 210 x 200 (W x H x D)
Weight: 12.5 kg



PH 32



PH 52

Turntables

	TT 130 CT*	TT 120 CT*	TT 221 CT	TT 320 CT*	TT 420 CT	TT 530*
Drive	BELT	BELT	DIRECT	DIRECT	DIRECT QUARTZ	DIRECT
Motor type	SYNC	SYNC	FG SERVO	FG SERVO	FG SERVO	FG SERVO
Speeds	33-45	33-45	33-45	33-45	33-45	33-45
Wow and flutter WRMS	0.06	0.06	0.03	0.03	0.03	0.03
	0.09	0.09	0.055	0.055	0.055	0.055
Rumble DIN	62	65	70	70	72	72
Dimensions (W x H x D)	416 x 115 x 385	416 x 118 x 385	416 x 115 x 385	416 x 115 x 385	416 x 115 x 385	416 x 94 x 346
Net weight	5.0	5.5	5.3	6.5	6.0	4.5
Power requirements by version	220 (N) 240 (T) 110/220 (E)	220 (N) 240 (T) 110/220 (E)	220 (N) 240 (T) 110/220 (E)	220 (N) 240 (T) 110/120/220/240 (E)	220 (N) 240 (T) 110/120/220/240 (E)	V220 (N) 240 (T) 110/120/220/240 (E)

* For 60 Hz operation the capstan should be changed.

Tuners

FM STAGE (87.5 - 108 MHz)	ST 320(L)	ST430 (L)	ST 530 (L)
Sensitivity			
DIN mono (S/N 26 dB)	1.8 (300 Ohms)	0.7 (75 Ohms)	0.7 (75 Ohms)
DIN stereo (S/N 45 dB)	60 (300 Ohms)	25 (75 Ohms)	22 (75 Ohms)
Selectivity adjacent channel 98 MHz	65	63	70
Image frequency rejection	55	48	78
Intermediate frequency rejection	80	70	85
Spurious response	85	75	95
AM suppression	47	55	55
Signal/noise ratio DIN			
Unweighted mono	70	70	78
stereo	60	63	70
Weighted mono	70	76	80
stereo	65	70	72
Pilot frequency rejection 19 kHz	62	35	65
Carrier frequency rejection 38 kHz	65	45	65
Total harmonic distortion mono (N/W)	0.25	0.1	0.1
stereo (N/W)	0.4	0.2	0.2
Frequency response (30 Hz - 15 kHz)	+ 0/-1	+ 0.5/-1.5	+ 0/-1.5
Stereo separation	40	45	50
Channel balance	0.2	0.2	0.2
MW STAGE (522 - 1611 kHz)			
Sensitivity (S/N 20 dB 30% mod. 1 MHz)	10	10	6
Selectivity 1 MHz $\pm$ 9 kHz	30	35	60
Image rejection at 1 MHz	45	45	45
Interm. frequency rejection at 1 MHz	40	45	70
Signal/noise ratio at 1 MHz	50	55	54
Total harmonic distortion at 1 MHz	0.3	0.3	0.3
LW STAGE (153 - 360 kHz)			
Sensitivity (S/N 20 dB 30% mod. 250 kHz)	90	90	80
Image rejection at 250 kHz	30	36	50
Interm. frequency rejection at 250 kHz	60	65	60
Signal/noise ratio at 250 kHz	48	50	54
Dimensions (W x H x D)	416 x 55 x 190	416 x 37 x 190	416 x 55 x 300
Net weight	2.4	2.0	2.9
Power requirements by version	220/240 (N,T) 110/120/220/240 (E)	110-120/220-240 (N)	110-120/220-240 (N)

Esoteric technology

	SM 1000	SM 8
Power output, 8 Ω , 20 Hz-20 kHz	400 W x 2 THD 0.01 %	120 W x 2 THD 0.15 %
Power output, 4 Ω , 20 Hz - 20 kHz	600 W x 2 THD 0.02 %	140 W x 2 THD 0.015 %
Dynamic power (IHF), 8 Ω	594 W x 2	160 W x 2
4 Ω	1056 W x 2	283 W x 2
IM distortion 8 Ω	0.01 %	0.015 %
Input sensitivity/impedance	2.83 V/27 k Ω	1.5 V/27 k Ω
Frequency response	DC 100 kHz, +0/-1 dB	5 Hz - 85 kHz
Damping factor (at 1 kHz)	300	100
S/N, IHF - A Network	126 dB	110 dB
Power consumption	985 W	450 W
Dimensions (W x H x D)	483 x 178 x 550 mm	473.5 x 172.5 x 346 mm
Weight	43 kg	16.5 kg
	SC 1000	SC 8
Input sensitivity/impedance phono MC (at 1.5 V output)	—	120 μ V/100
Input sensitivity/impedance phono MM (at 1.5 V output)	2.2 mV/47/100 k Ω	2.2 mV/27/47/100k Ω
Input sensitivity/impedance		
Tuner	150 mV/47 k Ω	150 mV/34 k Ω
Aux	150 mV/47 k Ω	150 mV/34 k Ω
Tape 1	150 mV/47 k Ω	150 mV/34 k Ω
THD (20 Hz-20 kHz)	0.03 %	0.04 %
Frequency response:		
Tone defeat	($\pm$ 0.2 dB) 10Hz-100kHz	($\pm$ 1.0 dB) 10Hz-100kHz
Phono equalizer	($\pm$ 0.2 dB) 20Hz-20kHz	($\pm$ 0.2 dB) 20Hz-20kHz
Phono Overload MC	—	12 mV
Phono Overload MM	300 mV	220 mV
Tone Action, treble	at 10 kHz: 2/4/6 dB	at 10 kHz: 18 dB
Tone Action, bass	at 100 Hz: 2/4/6 dB	at 100 kHz: $\pm$ 8 dB
Power consumption	80 W	42 W
Dimension (W x H x D)	483 x 117.5 x 441 mm	473 x 172.5 x 266 mm
Weight	13.1 kg	8.5 kg

Amplifiers

	PM 230	PM 330	PM 420	PM 520 DC	PM 630	PM 550 DC	PM 750 DC
Power output per channel							
RMS 1kHz 8 Ohms	30	37	45	58	55	65	80
4 Ohms	33	49	50	79	70	90	105
Dynamic power (IHF) 8 Ohms	40	50	54	75	100	85	97
4 Ohms	56	73	73	101	150	115	139
Total harmonic distortion at RMS 8 Ω	0.05	0.05	0.05	0.03	0.03	0.03	0.03
Intermodulation distortion	0.05	0.05	0.05	0.03	0.03	0.03	0.03
Damping factor 8 Ω (1 kHz)	50	60	50	60	70	80	85
M.M. CARTRIDGE INPUT							
Frequency response (RIAA)	$\pm$ 0.5	$\pm$ 0.5	$\pm$ 0.5	$\pm$ 0.5	$\pm$ 0.3	$\pm$ 0.3	$\pm$ 0.2
S/N ratio	80	80	81	80	85	82	85
Input impedance	47	47	47	47	47	47	47
Equivalent noise at input	1.3	1.0	1.0	1.5	0.5	0.5	0.3
Dynamic range	90	90	100	100	100	110	112
MOVING COIL CARTRIDGE INPUT							
Input sensitivity	—	—	—	—	—	280	280
Input impedance	—	—	—	—	—	100	100
AUX. INPUT							
Input impedance	30	30	27	28	25	28	33
Input sensitivity	150	150	150	150	150	150	150
Frequency response	10-40	10-40	10-30	10-40	10-50	10-50	5-75
S/N ratio	90	92	90	90	90	96	98
OUTPUT VOLTAGE							
Tape out	460	460	380	400	400	410	410
Preamplifier output	—	—	—	—	—	—	—
OUTPUT IMPEDANCE							
Tape out	290	290	325	500	500	470	470
Preamplifier output	—	—	—	—	—	—	—
Dimensions (W x H x D)	416 x 55 x 260	416 x 55 x 260	416 x 73 x 300	416 x 100 x 300	416 x 100 x 300	416 x 117 x 329	416 x 117 x 329
Net weight	4.8	5.1	5.8	7.6	7.7	8	9
Power requirements (N)	110/120/220/240	110/120/220/240	110/120/220/240	110/120/220/240	110/120/220/240	110/120/220/240	110/120/220/240

Cassette decks

	SD 230	SD 330	SD 430	SD 530	SD 620	SD 720	SD 820 DBX	SD 930
Loading system	FRONT	FRONT	FRONT	FRONT	FRONT	FRONT	FRONT	DIRECT
Motor(s) and type	DC	DC	2 x DC	2 x DC	2 x DC	2 x DC	2 x DC	DC
Number of heads	2	2	2	3	3	3	3	3
Peak indication system	LED	LED	LED	LED	LED	LED	LED	LED
Frequency response w.o. Dolby ^a								
Normal	30-16	30-16	25-17	20-17	20-17	20-17	20-17	20-20
CrO ₂	30-17	30-17	25-19	20-19	20-19	20-19	20-19	20-20
Metal	30-18	30-18	25-20	20-20	20-20	20-22	20-22	20-22
Signal to noise ratio (CrO ₂) (1 kHz)								
with Dolby ^a	65	70*	75*	75*	85**	75*	85**	90**
without Dolby ^a	56	56	59	59	62	59	62	65
Wow and flutter								
DIN weighted	0.15	0.15	0.08	0.08	0.08	0.06	0.06	0.06
WRMS	0.08	0.08	0.04	0.04	0.04	0.03	0.03	0.03
Outputs								
Line Level/Imped	600/5	600/5	600/4	600/4	600/4	700/2	400/5	400/5
Headphone Level/Imped	50/50	50/50	50/100	50/100	50/100	75/70	50/180	50/180
Inputs level at 0 VU								
Line sensitivity/Imped	70/50	70/50	65/50	70/50	70/50	70/50	70/50	70/50
MC sensitivity/Imped	0.3/10	0.3/10	0.3/10	0.3/10	0.3/10	0.3/10	0.3/6	0.3/6
Dimensions (W x H x D)	416 x 100 x 190	416 x 100 x 190	416 x 100 x 300	416 x 100 x 300	416 x 100 x 300	416 x 100 x 300	416 x 100 x 300	416 x 100 x 300
Net weight	3	3.2	3.4	3.7	4.0	6.5	7	7.5
Power requirements (W)	110/220 120/240	110/220 120/240	110/220 120/240	110/220 120/240	110/220 120/240	110/220 120/240	110/220 120/240	110/220 120/240

*WITH DOLBY[®] C ** WITH DBX

Receivers

	SR 220(L)	SR 320(L)	SR 430(L)	SR 520(L)	SR 620(L)	SR 820 DC
AMPLIFIER STAGE						
Rated output per channel*						
RMS 1 kHz 8 Ohms	20	30	35	40	59	85
4 Ohms	20	33	35	45	60	95
Dynamic power (IHF) 8 Ohms	26	35	74	49	74	102
4 Ohms	35	55	53	69	85	138
Total Harmonic distortion at RMS 8 Ω	0.1	0.05	0.05	0.03	0.03	0.03
Damping factor 8 Ω (1 kHz)	40	50	50	50	50	70
PREAMP STAGE						
Frequency response						
Phono (RIAA)	± 2.0	± 2.0	± 1.5	± 1.0	± 1.0	± 1.0
Aux (± 1 dB)	40-20	16-30	20-22	10-35	10-35	16-30
Signal/Noise ratio						
Phono	80	85	85	90	95	99
Input sensitivity/Imp.						
Phono	2.8/47	2.8/47	2.8/47	2.8/47	2.8/47	2.7/47
Auxiliary	160/25	160/25	160/25	160/25	160/25	160/25
FM stage (87.5 - 108 MHz)						
Sensitivity						
DIN Mono (S/N 26dB-300 Ohms)	2.2	2.2	2.0	1.8	1.8	1.5
DIN Stereo (S/N 46dB-300 Ohms)	80	80	45	40	40	35
Selectivity/adjacent channel 98 MHz DIN	60	60	60	63	63	68
Signal/Noise ratio 98 MHz						
Unweighted mono	70	70	75	75	75	75
stereo	60	60	65	65	65	68
Weighted mono	75	75	78	78	78	79
stereo	62	62	68	68	68	72
MW stage (525 - 1605 kHz)						
Sensitivity (20 dB S/N 30 % mod 1 MHz)	30	30	20	30	30	30
Selectivity	30	30	30	30	30	46
LW stage (150 - 350 kHz)						
Sensitivity (20 dB S/N 30 % 250 kHz)	200	200	100	100	100	—
GENERAL DATA						
Dimensions (W x H x D)	416 x 100 x 190	416 x 100 x 190	416 x 100 x 190	416 x 100 x 300	416 x 100 x 300	416 x 117 x 300
Net Weight	4.9	5.2	5.5	6.2	6.9	10
Power requirements	220/240 (N.T.)	220/240 (N.T.)	110/120/220/240 (N.T.)	220/240 (N.T.)	220/240 (N.T.)	110/120/220/240 (E)
	110/120/220/240 (E)	110/120/220/240 (E)		110/120/220/240 (E)	110/120/220/240 (E)	

Esoteric technology

	PM 6 A	PM 5	PM 4
Power output, 8 Ω 20 - 20 kHz (per channel)	120 W - THD 0.05 %	80 W - THD 0.025 %	63 W - THD 0.03 %
Power output, 4 Ω 20 - 20 kHz (per channel)	150 W - THD 0.08 %	100 W - THD 0.05 %	73 W - THD 0.06 %
Dynamic Power (IHF), 8 Ω (per channel)	189 W	126 W	90 W
4 Ω (per channel)	312 W	220 W	136 W
Power bandwidth	7 Hz - 50 kHz	7 Hz - 50 kHz	10 Hz - 40 kHz
IM Distortion, 8 Ω	0.03 %	0.015 %	0.02 %
Input sensitivity/impedance Phono MM	2.2 mV/47 k Ω	2.2 mV/47 k Ω	2.5 mV/47 k Ω
Phono MC	220 V/75 Ω	220 V/75 Ω	220 V/100 Ω
Aux	150 mV/33 k Ω	150 mV/40 k Ω	150 mV/25 k Ω
Tape	150 mV/33 k Ω	150 mV/40 k Ω	150 mV/25 k Ω
Frequency Response, aux	10 Hz - 80 kHz (± 1 dB)	5 Hz - 100 kHz (± 0.2 dB)	7 Hz - 60 kHz (± 1 dB)
Frequency Response, phono equalizer	20 Hz - 20 kHz (± 0.3 dB)	20 Hz - 20 kHz (± 0.2 dB)	20 Hz - 20 kHz (± 0.25 dB)
Phono overload, 1 kHz, MM	220 mV	220 mV	300 mV
Phono overload, 1 kHz, MC	24 mV	20 mV	—
S/N IHF - A Network, MM	90 dB	86 dB	86 dB
MC	76 dB	70 dB	64 dB
Aux	98 dB	108 dB	100 dB
Power consumption	500 W	200 W	250 W
Dimensions (W x H x D) mm	416 x 146 x 332	416 x 146 x 332	416 x 117 x 334
Weight (kg)	15.5	13	9
Class A power output, 8 Ω, 20 - 20 kHz	Quarter A	20 W x 2 - THD 0.015 %	15 W x 2 - THD 0.03 %

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