

SWISS

VIEWS AND NEWS FROM SWITZERLAND

SOUND

A PUBLICATION BY STUDER REVOX

1/84
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Editorial

The Manufacturer with the complete range

In the coming months you will notice an increasing number of Studer Revox advertisements in the trade press, all carrying the headline "The Manufacturer with the complete range of Magnetic Tape Recorders".

Right from the outset, the activities of our company in research and development, manufacturing and sales were fully concentrated to cover all areas of audio recording, may this be in the field of broadcasting, television, disc-recording or public address applications in theatres and opera houses.

Intensive brain work has been invested towards the creation of a wide range of equipment and its continued complementation. Numerous new developments resulted from this, especially in the area of audio mixing consoles and related products.

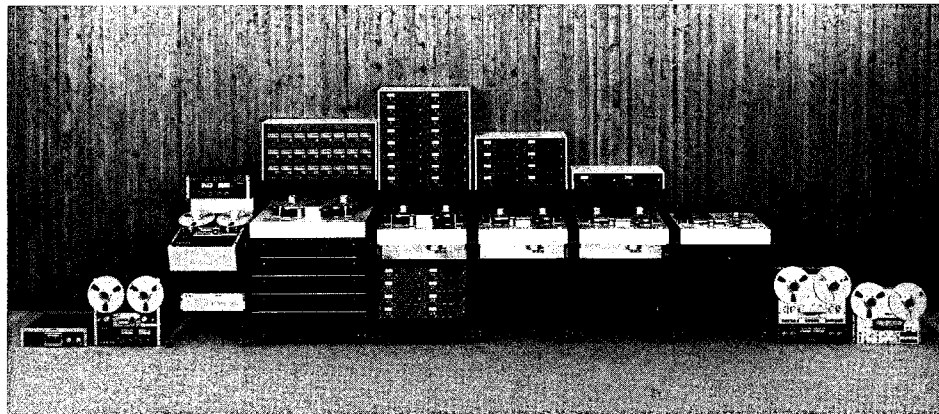
With such a wide product range available it gets easily overlooked that we also have a considerable selection of individual components and modules to

offer. It is our intention to create a separate catalogue for these items, thereby making their worldwide introduction possible. These modules, namely booster- and power amplifiers, power supplies, stabilizers, balancing amplifiers and many more, are ideally suited for

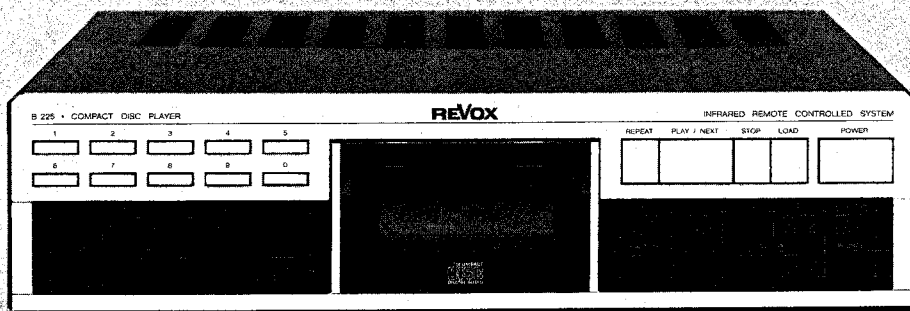
various applications in professional sound systems.

Along with this extension of our product range goes our effort for continued improvement of our advisory services in all areas we are active in.

Eugen E. Spörri

The new Standard

**Revox B225
Compact Disc Player**

Compact-Disc-Player REVOX B225: superb technology with exceptional operating convenience.

The CD fever has broken out! There is hardly a professional journal without a report on CD players in every issue. Various developments are now under way for this new digital medium. As announced, the Revox CD player will reach the market this Spring. Its quality, design, and features correspond to the traditional Studer Revox standard.

The compact disc was introduced word-wide during the last year. This new, revolutionary sound carrier is largely immune against dust, fingerprints, and scratches. This is made possible by a combination of laser scan-

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ning and digital processing of the music signals. The operating convenience achieved in conjunction with additional signals recorded on the compact disc surpasses everything. But in the field of CD players, the REVOX B225 sets new standards.

Design of the Revox CD player

The front panel is partitioned into 3 functional sections. The multifunction display is located in the middle, on the drawer section that opens and closes for loading and unloading the discs.

The two lateral operating sections are subdivided into primary (upper) and secondary (lower) controls. The large command keys for controlling the player mechanism are located on the right-hand side, the programming controls are located on the left-hand side.

The advanced, microcomputer-controlled electronics basically fulfills the following functions:

- Acceptance of control command (input via keyboard, wire remote control, or IR remote control B201).
- Processing of subcode (additional information on CD such as time, index).
- Control of LCD display.
- Storing (RAM) the program entered through the keyboard.
- Interaction with the radial control positioning the laser pick-up and during fast search.
- Monitoring the drawer (for example, if a child gets its finger caught, the drawer movement reverses automatically).

Operating modes for every requirement

There are two main modes:

1) direct operating mode through which the laser can be positioned to the start of each selection,

2) programming mode through which up to 19 program steps can be defined. A program step can define:

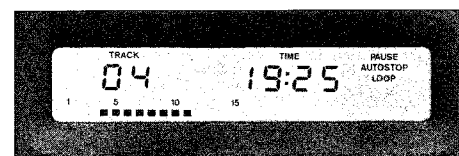
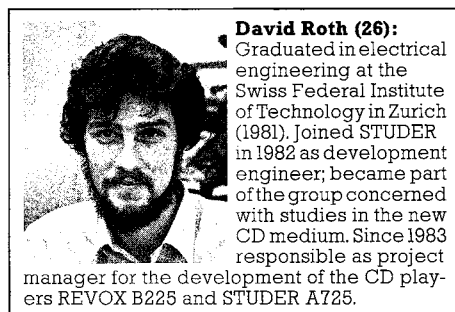
- A **Track** (selection).
- A **sequence** between any "start mark" and any "stop mark". These marks can be searched aurally (MARK key) or entered directly via the keyboard (TRACK/TIME key).
- A **special step** such as pause, loop, stop, calibration tone, power off.

The assembled program can be checked and if necessary corrected, with the two keys Program Step +/- . This is possible even while the program is already being played.

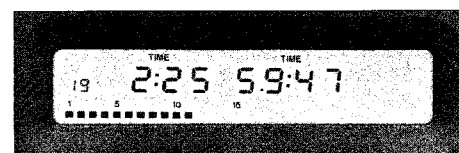
Informative multifunction display

The multifunction display is the information center of the CD player. This comprehensive LC display supplies information concerning:

- Track
- Index (if encoded on the CD)
- Selection time
- Total time
- Number of selections on CD (contents list)
- Program step
- Pause
- Calibration tone
- Autostop
- Loop



Display in direct operating mode.



Display in programming mode.

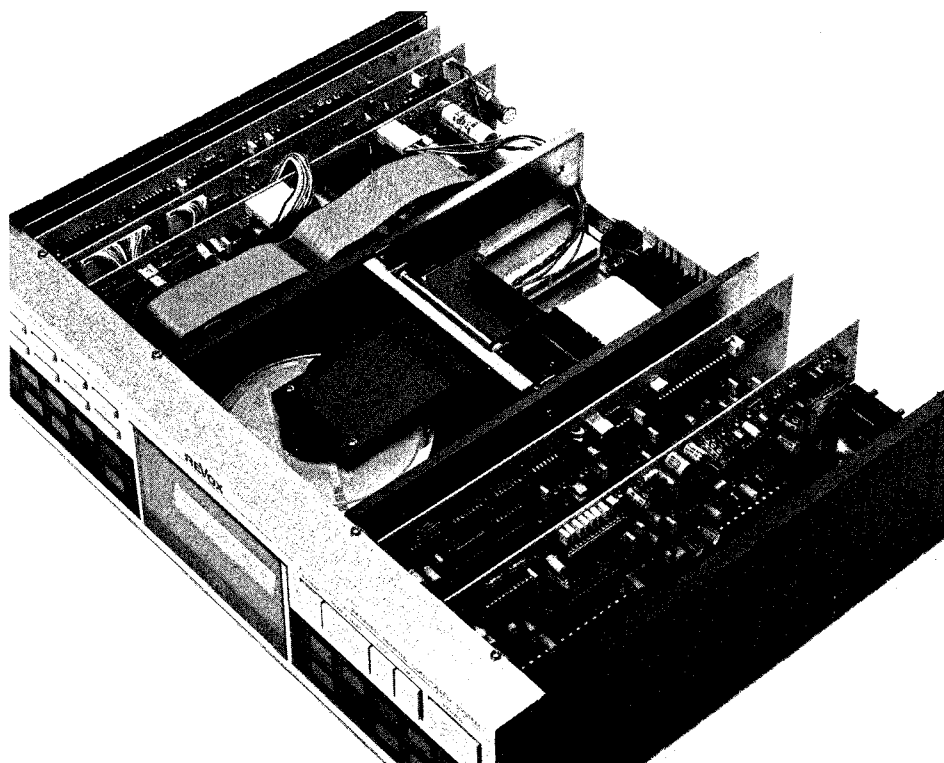
It supplies not only neatly arranged status information but also access to program information which makes it easier to grasp some of the more complex operating modes.



CAL 1000 Hz: Display in calibration mode.

Built-in reference tone generator

The built-in digital sine-wave generator (1,000 Hz at maximum digital level) enables simple and above all accurate calibration of a connected tape recorder.



Clean design: plugged in circuit boards that do not need any alignment.

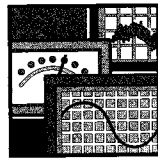
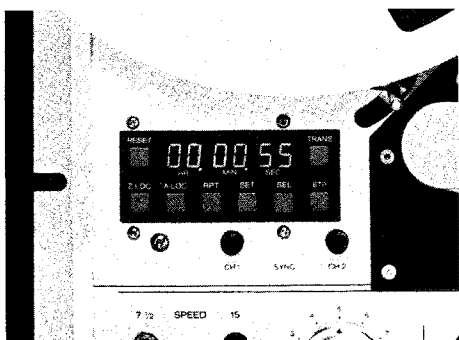
Technical Data:

- Phase linearity through digital filtering (oversampling)
- Frequency response: 20 Hz ... 20 kHz: +0/-0.6 dB
- Harmonic distortion: < 0.006 % (20 Hz ... 20 kHz)
- SN ratio, linear: > 96 dB (20 Hz ... 20 kHz)
- SN ratio, weighted: > 100 dB (20 Hz ... 20 kHz)
- Crosstalk attenuation: > 90 dB (20 Hz ... 20 kHz)
- Fixed level: 2 VRMS
- Variable level: 0 ... 2 VRMS
- Search: < 4 sec or more than 12'000 tracks per second (full CD)
- Power consumption: < 40 W
- Dimensions: H: 109 / W: 450 / D: 332 mm

Professional design for professional performance

The design of the REVOX B225 is neat and clean (Fig. 5): standard size circuit boards are plugged into a master board behind the front panel in order to reduce wiring to a minimum. Player, system, and disc drive control are arranged in the left-hand section while the circuit boards for digital audio processing are located on the right-hand side. State-of-the-art circuitry has eliminated all alignment procedures for these boards. It is also one of the reasons why the REVOX B225 features such a favorable price/performance ratio.

David Roth

**Modifications****PR99 MK II**

The well-known semiprofessional tape recorder PR99 has been greatly enhanced by a number of modifications.

In addition to the new varispeed option, the redesigned erase oscillators, and the expanded set-up facilities for the reproduce channels (treble equalization and output), the PR99 MK II convinces particularly through its electronic real-time counter with a microprocessor in the control electronics.

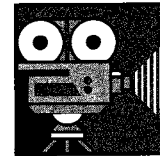
The counter is driven by a tape-driven roller (fitted instead of the fixed tape guidance) with tacho generator that also detects the direction of the tape travel. This roller drive is virtually free of slip and thus ensures that the counting error remains within a tolerance of 0.5 % even at high spooling speeds.

The LED display with the controls and the corresponding electronics are mounted on the tape transport cover on the left of the headblock, above the SYNC selector buttons. The following programming and control features are supported by the **Microprocessor in the counter electronics:**

- Fast forward or rewind to the zero location
- Entry of an address into memory through the TRANSFER button while the tape is running.
- REPEAT causes shuttle operation between the stored address and zero. Play restarts always at the lower address (zero or negative address).
- When changing the tape speed, the counter reading is doubled or halved. The starting position (zero) is retained.
- The braking phases are designed for heavy, full metal reels. If small lightweight reels are used, the microprocessor "learns" that faster braking is required. The opposite happens when changing to heavy reels.
- LEDs in the ZLOC, ALOC, and REPEAT keys turn on when the corresponding function is in progress.

The PR99 MK II, which was first demonstrated at the AES in Paris, is available immediately.

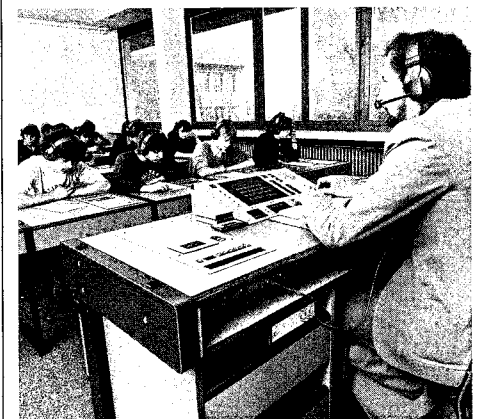
Joe Dörner



Teaching and learning aids

DIDACTA 1984 in Basel

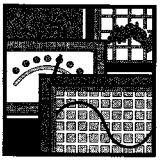
More than 500 exhibitors from 25 countries underscored through their participation the importance of this largest international teaching materials fair. From the traditional blackboard and school furniture to fossil collections, maps, and even microcomputers and language trainers, everything could be found.



It is superfluous here to extol the virtues of electronically supported instruction. Revox's AV department was represented at the DIDACTA with an 80 m² stand. The reliable language trainer 884 with new software, the Revox trainer system with combined facilities for language laboratory and typing instructions, and the student's cassette recorder D88 were exhibited.

For the audio products used in instructional equipment, quality and stability of the mechanical components and the electronics are of utmost importance. There is no severer duty than the hard daily use by more or less motivated students. The exceptional interest that was clearly evident on this year's DIDACTA is further proof that the Revox AV equipment superbly satisfies this ruggedness requirement.

Massimo Schwalder



FM Engineering: automatic tuning for stringent requirements

Electronic tuning - accurate, even in critical situations

Automatic station search on an FM tuner is a complex process. In manual tuning mode, we use our ears and eyes as sensors and our hands as executive instruments. When this process is executed automatically, numerous criteria must be taken into consideration if autotuning is to function properly and accurately under difficult conditions.

One of the earliest tuning aids was the RF level indicator (e.g. magic eye). It brought a real improvement over purely aural tuning, however, it had some serious weaknesses:

- Adjustment to a maximum that is not uniform.
- A weak station is difficult to tune if the adjacent station comes in very strong.

Fig. 1 illustrates the signal patterns of an RF level indicator as a function of the antenna input voltages. (In our receive-

ers, this signal is used for "Threshold Station and Stereo" muting.)

Today's high-quality tuners are equipped with a special FM discriminator for on-channel indication. **Fig. 2** illustrates the corresponding discriminator signals, again as a function of the antenna input voltages.

The center position tuning indicator has some decisive advantages over ordinary level indicators:

- Ideal tuning always corresponds to the same needle position.
- Indication is largely independent of the signal strength.

This discriminator signal is also used for automatic station search or for electronic station tuning. In **Fig. 2**, the response range (horizontal window, level) and the lock-in range (vertical window, frequency) are already drawn in. Assuming ideal reception conditions, these pa-

rameters would be sufficient for controlling a search. In reality, the conditions are never ideal, particularly in areas with a densely packed FM band. In this case, the automatic station search must not allow itself to be confused by overlapping and asymmetrical discriminator curves because they are influenced by adjacent stations. Neither should the automatic tuning system be irritated by a reversal in the search direction. These are constraints that make an "intelligent" solution mandatory. We have solved these problems with a microcomputer and corresponding software.

Software solution

Fig. 3 illustrates a typical hardware arrangement for controlling the frequency synthesizer.

Our solution differs from other automatic tuning systems primarily in that the comparator signals "STOP 0" and "STOP 1" are **not** logically combined before they

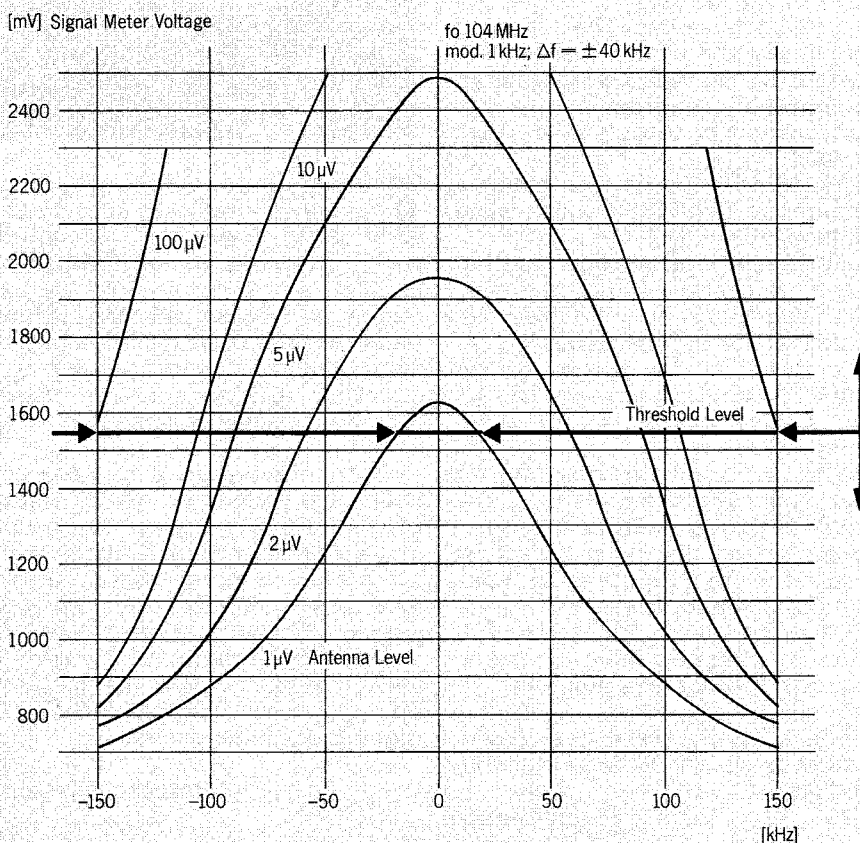


Fig. 1: IF signal voltages as a function of the antenna voltages.

Signal Quality Inputs:

- Signal Level (stereo and mono)
- Stereo pilot

External commands:

- AUTOTUNING start/stop
 - Stereo only
 - etc.
- (MUTING is driven by a matrix according to these information)

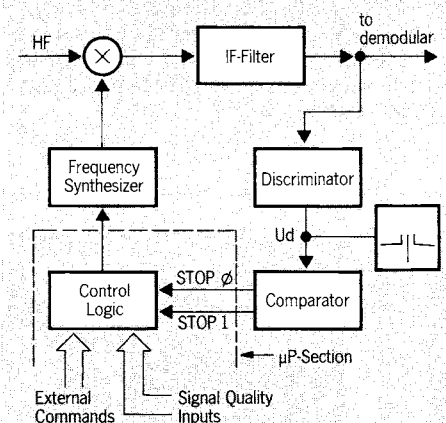


Fig. 3: Block diagram of the tuning control (hardware).

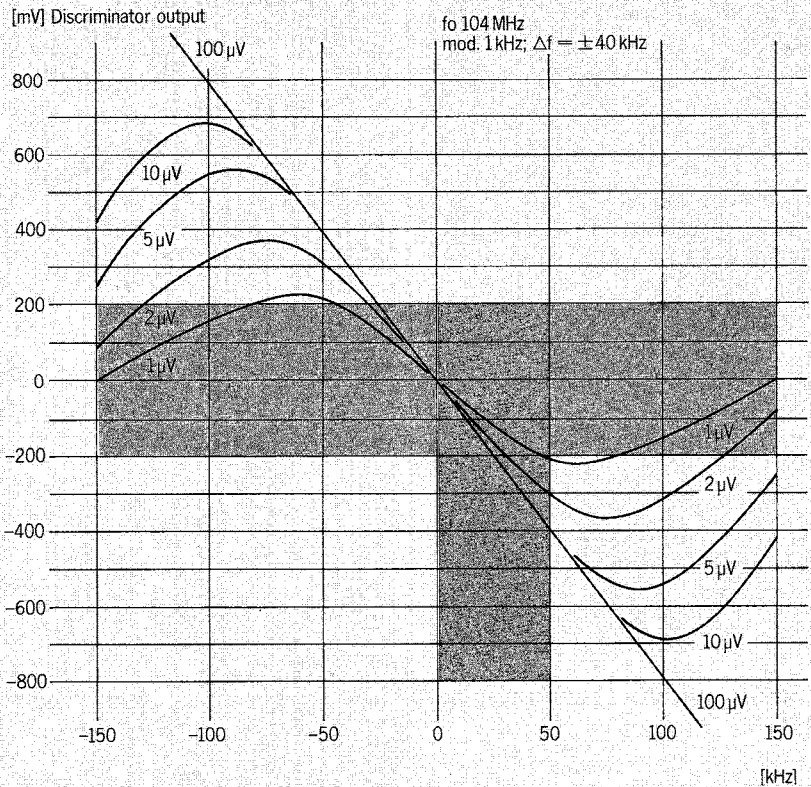


Fig. 2: Discriminator voltage indication as a function of the antenna voltage.

reach the microprocessor control. This means that the information for detecting the CENTER position is derived not simply from these two parameters but also by other influences that provide information on the history of the tuning process.

The corresponding program flow is described in the form of a status diagram. The individual cells function according to the following logic (Fig. 4).

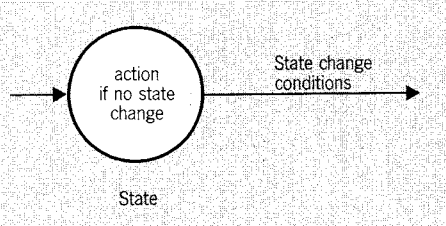


Fig. 4

The loop describes a status. The contents of the loop describe a function that is performed until an exit condition occurs. Such an exit condition (described next to the arrow) transfers control to another loop.

The complete search concept is summarized in Fig. 5.

The operating principle of this status diagram can best be explained with two examples, a simple, ideal case and a critical situation in which a weak station is "badgered" by a strong one.

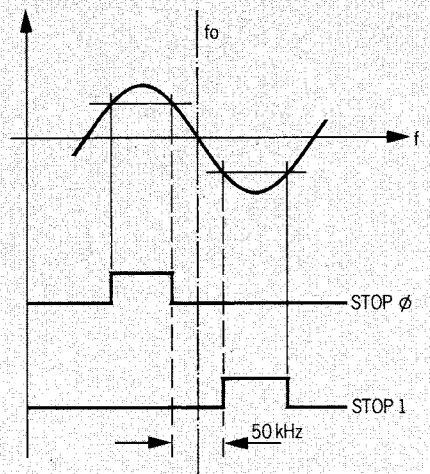
Example 1 (Fig. 6):

Most simple situation for a well isolated station (discriminator curve and status diagram).

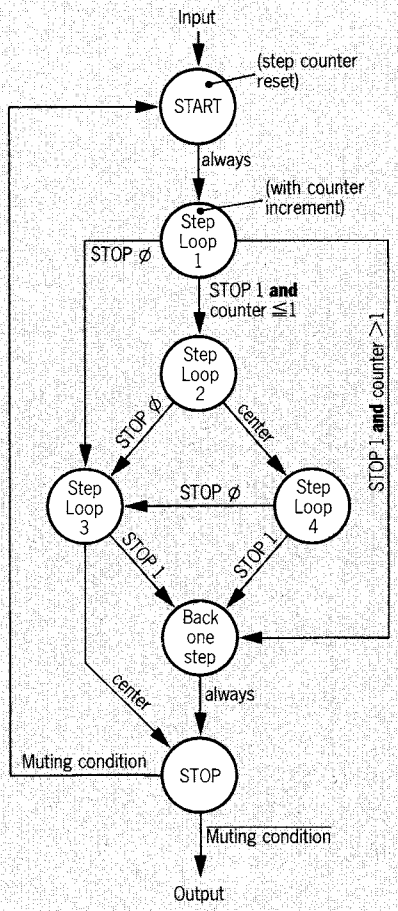
Example 2 illustrates the far more common situation with critical tuning conditions. Station A on 104 MHz comes in with an antenna voltage of 5 μV, while station B spaced only 200 kHz away with a frequency of 104.2 MHz comes in with an antenna voltage of 50 μV. The discriminator curves become asymmetrical because of overlapping. If only the comparator signals were evaluated, CENTER tuning would be incorrect.

The status diagram in Fig. 7 illustrates that the software also takes the history into consideration for discrimination. The program "detects" that it has exceeded the actual center point for the weak station in the second step (50 kHz) of loop 4 and therefore takes the synthesizer one step back to the correct on-channel point (center).

Autotuning Concept
Equivalent available signals:



Status Diagram (up tuning)

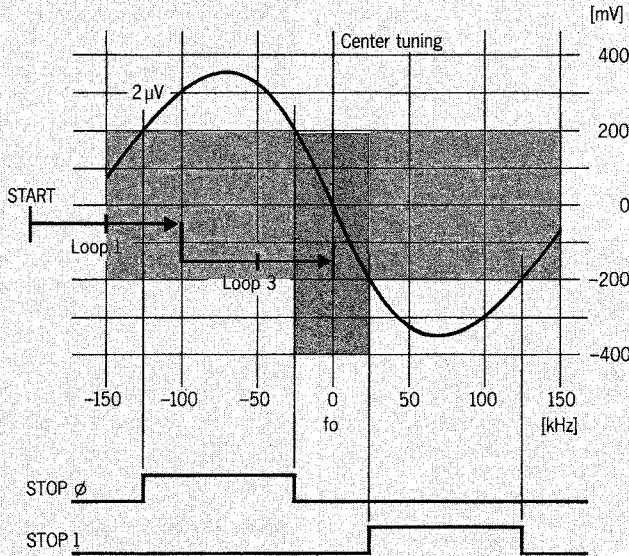


- Notes:**
- STEP is always 50 kHz
 - Center = STOP φ or STOP 1
 - for down tuning:
(STOP φ) up = (STOP 1) down
(STOP 1) up = (STOP φ) down

Fig. 5: Concept of the automatic search.

Autotuning, Example 1

1 Station alone (easiest case)
 $f_0 = 104 \text{ MHz}$; mod. 1 kHz; $\Delta f = \pm 40 \text{ kHz}$



Status Diagram (up tuning)

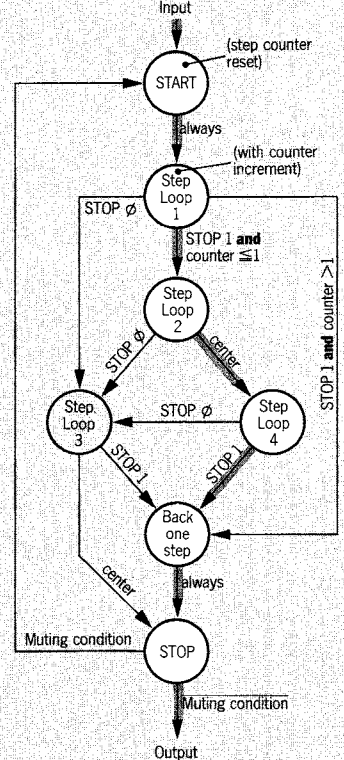


Fig. 6: Station search for tuning in an isolated station.

Notes:
 - STEP is always 50 kHz
 - Center = STOP 0 or STOP 1
 - for down tuning:
 (STOP 0) up = (STOP 1) down
 (STOP 1) up = (STOP 0) down

Status Diagram (up tuning)

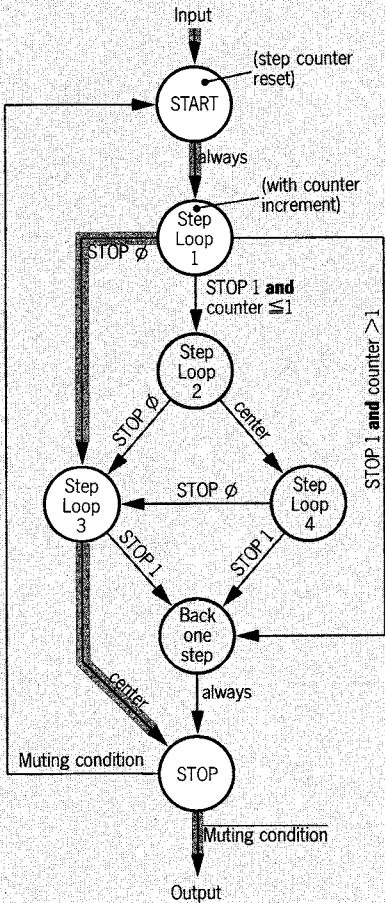
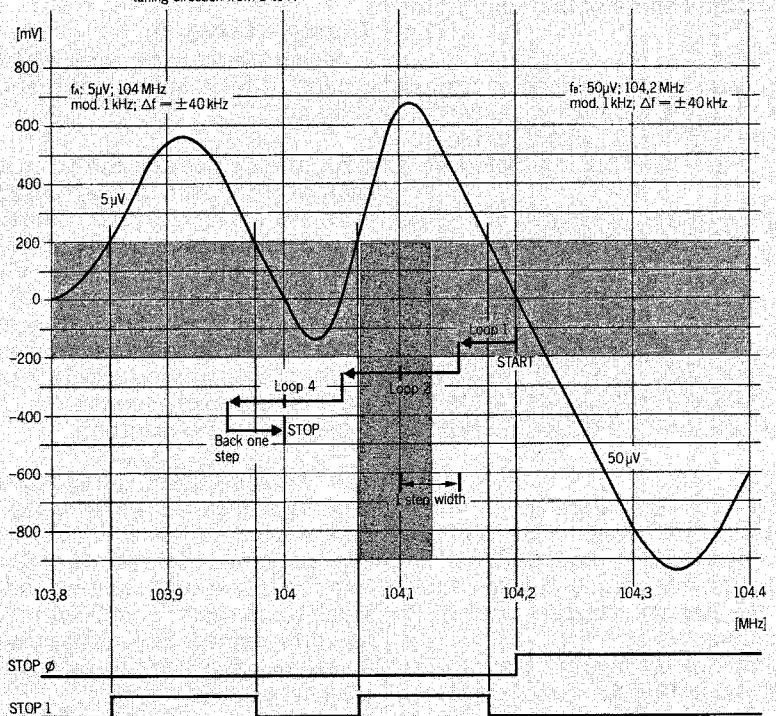


Fig. 7: Station search for a complex reception condition.

Notes:
 - STEP is always 50 kHz
 - Center = STOP 0 or STOP 1
 - for down tuning:
 (STOP 0) up = (STOP 1) down
 (STOP 1) up = (STOP 0) down

Autotuning, Example 2

Critical case: station A = 5 μV ; 104 MHz
 station B = 50 μV ; 104.2 MHz
 tuning direction from B to A



The signal quality parameters are also evaluated and compared with the selected conditions (commands). If, for example, stereo only reception is required, the following conditions are checked:

- Pilot tone present?
- Signal strength sufficient (stereo threshold)?

If all conditions are satisfied, the muting signal is cancelled and the modulation is connected through, otherwise the automatic station search continues.

How fast can a station search be?

The speed of a search is not limited by the microprocessor control but rather by the principle of the frequency modulation. In modulated FM stations the frequency cycles periodically with the deviation around the mean value $F_{station}$. The evaluation of the search criteria STOP 0 and STOP 1 depends on the mean value of the FM-modulated station signal. An analog 10 Hz low-pass filter is used for developing the mean value. This filter requires a settling time of 100 ms, after which the search criteria can be evaluated for the new tuning frequency. For this reason, search steps are only possible in intervals of 100 ms.



Kurt Heinz (31):

Basic training of electro-engineering at the institute of technology in Le Locle, studies of electronics and engineering. After studies, employment at the research department for high-precision quartz watches of the Neuenburg observatory.

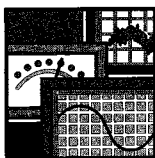
Joined development department, language laboratories, in 1977; advanced to project group manager for the software development of B251/B261. Department manager Educational Systems since 1982.

Conclusion

The software-controlled search system of the new tuner generation is able to cope also with critical reception conditions. The sensitivity of the system is so high that the full range of stations worthwhile for hi-fi reception will be scanned.

The main advantage over simple level discriminators is in the evaluation of the "history" and a search algorithm that is controlled only by the uncombined status signals "Stop 0" and "Stop 1".

Kurt Heinz
Marcel Siegenthaler



For the amateur? For the professional?

Revox reel-to-reel recorders

In the first installment of this series we have listed the various models of interest to the audiophile. In the second installment we shall examine the requirements of the AMATEUR in more detail.

A amateur or professional? This definition is best left to the individual user. One thing is certain: Revox recordings are frequently used for disc production.



As mentioned in our first article, tape editing makes it necessary for amateurs to use 2-track machines; the speed combination 7.5/15 ips is highly recommended.

For straight sound recordings, the following recorder versions are available:

- Standard 3.75/7.5 ips, NAB 2-track
- High-speed (HS) 7.5/15 ips, IEC 2-track or NAB 2-track

Which speed is better, 7.5ips or 15ips?

As the term implies, music is recorded on magnetic tape in magnetic form. A sine wave consequently produces a north/south magnetization on the tape. At a frequency of 20,000 Hz and a tape speed of 7.5 ips, one sine wave corresponds to a tape length of 9.5 μ m. At twice the tape speed the length is 19 μ m.

Accurate tape editing is, therefore, easier with higher tape speeds. If, for example, the announcer touches the microphone with his script, this can cause a noise of approximately 1/10th of a second duration. At a tape speed of 7.5 ips, this is equivalent to a tape length of 3/4", at 15 ips this tape length is 1 1/2".

If we compare the technical data we may conclude that there is no major improvement from 15 ips over 7.5 ips, or at least so it seems when the frequency response with tape in the circuit is measured at -20 dB relative to 0 dB indication on the VU-meter.

If we measure the frequency response at a higher recording level, we obtain a different picture. With a tape speed of 15 ips, the frequency response remains linear even at high recording levels, while at 7.5 ips a drop of several dB will be noticed at 20 kHz. The reason for this is that tape saturation occurs earlier with high frequencies and low speeds. The only remedy is to take back the recording level with the effect that noise becomes more noticeable in pianissimo passages. If the recording level is not reduced, difficult-to-measure distortions will occur in addition to the previously mentioned treble loss; when the tape is oversaturated with high frequencies, its ability to record bass frequencies also declines. For maximum quality, 15 ips is, therefore, the preferred speed for live recordings.

NAB or IEC/CCIR?

The abbreviations stand for:

- NAB** National Association of Broadcasters (USA)
IEC International Electrotechnical Commission
CCIR Comité Consultatif International des Radiocommunications

These standards define the reproduce equalization, i.e. the time constant in microseconds corresponding to the frequency responses of RC networks in series or parallel connection, to ensure that a linear frequency response can be achieved with the tape flux of the corresponding reproduce calibration tape.

	NAB	IEC	CCIR
3.75 ips	3180/90	3180/90	—/—
7.5 ips	3180/50	—/70	—/70
15 ips	3180/50	—/35	—/35

Within the scope of this series of articles it is not possible to discuss the advantages or disadvantages of these standards in detail. As a decision-making aid for selecting the appropriate standard, the following strongly simplified table should be helpful:

NAB: Used by all radio and recording studios in the United States and Canada.

CCIR/IEC: Used by all radio and recording studios in Europe.

For IEC/CCIR or NAB recordings that are reproduced by a machine that does not conform to the corresponding standard, the following frequency response errors will occur:

	IEC/CCIR to NAB	NAB to IEC/CCIR
7.5 ips 40 Hz	-3,75 dB	+3,75 dB
4 kHz	-1,6 dB	+1,6 dB
16 kHz	-2,5 dB	+2,5 dB
15 ips 40 Hz	-4,3 dB	+4,3 dB
4 kHz	+1,4 dB	-1,4 dB
16 kHz	+2,7 dB	-2,7 dB

When copying twice with the wrong equipment combination, the error will be doubled!

Audio-visual synchronization

The desire of our customers to synchronize image and sound has led to the development of the following recorder versions:

- B77-SLIDE (for Slide synchronization)
- B77-DHA (Dissolve Head Amplifier)
- B77-FH (Free Head)

All three versions are available with the tape speeds 3.75/7.5 ips or 7.5/15 ips. The latter are available with either NAB or IEC/CCIR equalization.

These recorders are equipped with an additional soundhead for recording and reproducing the sync track. In 2-track versions the sync track is located between the two audio channels, in 4-track versions on the fourth track.

SLIDE SYNC

This recorder is able to control a slide projector with 1000 Hz control pulses through a relay. Forward and backward feed of the projector is controlled by pulses of long or short duration. The standard Revox cable remote control is required for recording the pulses.

DISSOLVE HEAD AMPLIFIER

The sync soundhead is equipped with an additional record and reproduce amplifier featuring a band width of 400 Hz to 4000 Hz. Through the SLIDE SYNC socket the recorder can be connected to a dissolve unit for controlling two or more projectors.

FREE HEAD

Same as the DHA version, but without amplifier section, i.e. the corresponding electronics must be incorporated in the external control system.

In the next edition of SWISS SOUND we shall cover **professional applications** in more detail.

Bruno Baronio



The Studer Group
of Companies
"Who is who"

This column has been reserved for introduction of personalities of our affiliated companies and representations in Europe and Overseas.

Introducing:



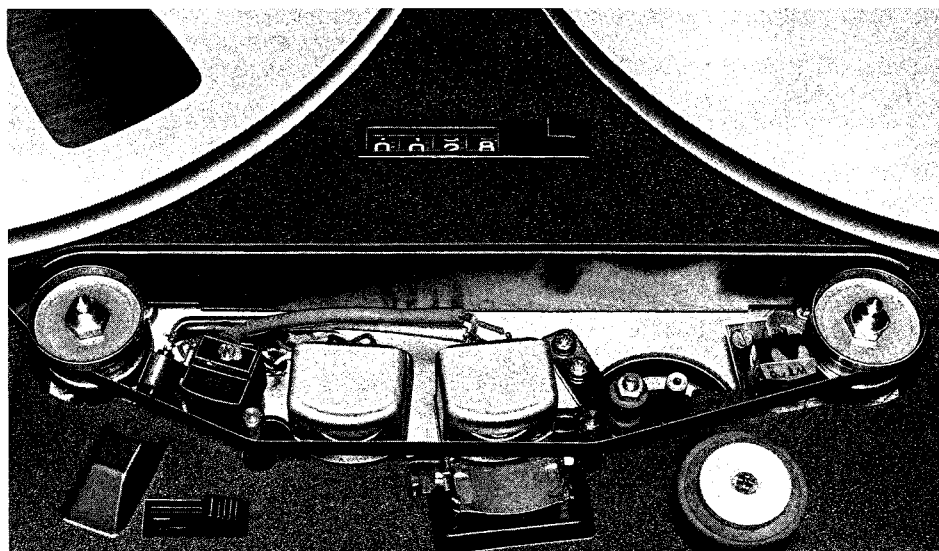
Rolf Günter Neumaier

General manager of the German Studer Revox group since 1980 • born 1940 and grown up in Reutlingen, South Germany • after graduating from High School of Economics and Administration, studies of economics at the university of Tübingen, followed by the universities of Würzburg and Munich • diploma in business administration/industrial management.

His professional activities started with a one year's training at headquarters of a German affiliate of a US multinational group, where he held controller jobs in several departments after training; Rolf Neumaier gained valuable experience in the application of various management methods, and also experiences and appreciates the advantages of cooperative management.

The area of his responsibilities within the STUDER group mainly concerns the profitability of the German companies which consist of three organisations: a holding and two daughter companies - Studer Revox GmbH with the product ranges of hi-fi and professional equipment, educational systems, and Willi Studer GmbH with production facilities in Löffingen, Bonndorf, Ewatingen and Säckingen.

Rolf Neumaier has used his business experience to the advantage of the Studer companies; he adapted the organisation to latest requirements. Flexibility predominates. Consequently, production of printed circuit boards, automatically equipped on demand, has been made available for special customers.



Rugged head block with additional synchro-head.

Hobbies? Sailing, riding and skiing in his spare time.

Rolf Neumaier refers to his concept of work: "An organisation is alive. On one hand, ways and decisions supposed to lead to the realisation of objectives require permanent control. On the other hand, organisational structures have to be clear cut and lasting, and should offer personal mobility and responsibility."

Renate Ziemann

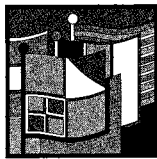
Professional application

Revox linear-tracking turntable

The superb operating convenience of the Revox linear-tracking turntable is appreciated not only by sophisticated hi-fi enthusiasts; also professionals have recognized the benefits of the controlled tone arm, as demonstrated by the application example of the Danish Broadcasting Company in Copenhagen.

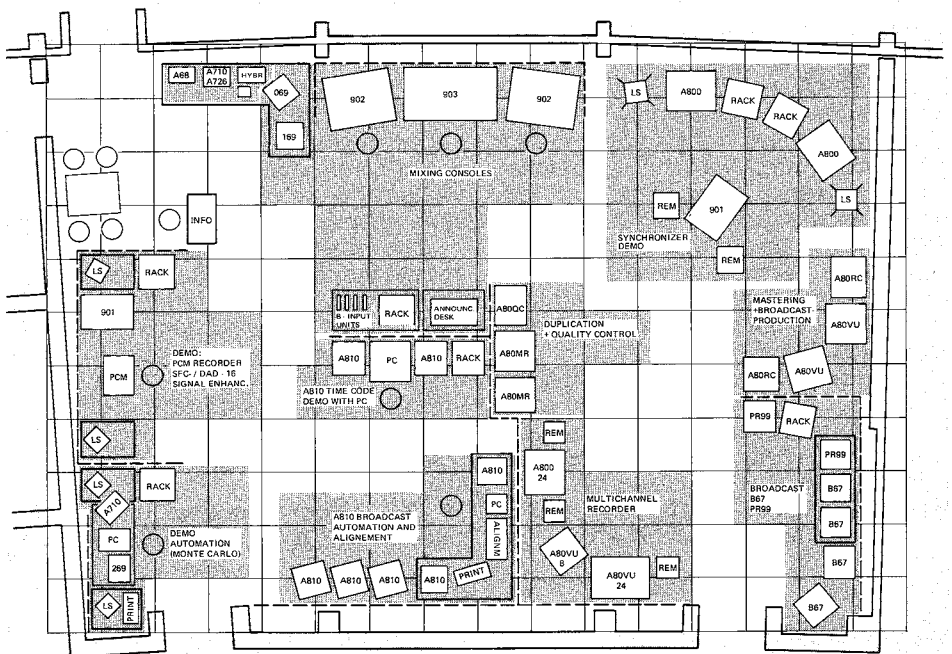
The latest discs received by the broadcasting studio are not simply filed by title and artist. This may suffice for the average user, but the broadcasting professional wants to know more: the exact playing time of the individual selections, the duration of the "prelude" before the song starts, a quick-reference description of the content and the nature of the music, etc. This information is extracted in a "prelistening discotheque". Straight music programs are also assembled here. It is important that the keys of consecutively played selections harmonize more or less. Characteristic for this type of work are very short sampling times of the individual selections: the tone arm must be frequently raised and lowered. Several Revox B790 turntables have been in use for some time in the "Radiohuset København". The possibility of positioning the linear-tracking tone arm with push buttons has greatly reduced the number of disc scratches resulting from incorrect manipulations on a manually controllable turntable. Professional users are unanimous in their opinion: no other turntable treats the valuable sound carriers more gently.

Massimo Schawaldler



AES Paris, March 27 until 30, 1984

Studer with complete product line at the AES



180 m² of Swiss audio quality.

The stand at the AES in Paris is the largest that has ever been set up for Studer products. Two truck loads containing approximately 10 tons of equipment were transported to Paris. In the general exhibition area we were represented with only a small stand (T72) of 18 m² on which primarily the latest Revox products were exhibited. Of foremost interest was of course the new CD player that had just made its première at the "Festival du Son".

The main Studer exhibition was located on the third floor of the "Palais des Congrès" (demonstration room D330). On nearly 180 m² of space we demonstrated with a comprehensive panorama the unique diversity of our product line. The following products, arranged in functional groups, were accessible to the international visitors:

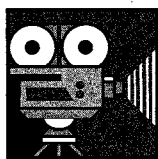
- Mixing consoles
902, 903, announcer desk, 169, 269, 069
- Synchronizer demo
A800, TLS 4000, TLS 2000, 901, 2706
- Broadcast production and mastering
A80 RC, A80 VU
- Broadcasting
B67, PR99 MK II
- Multichannel recorders
A800, A80 VU-24, A80 VU-8, channel remote controls

- Duplication and quality control
A80 MR MK II, A80 QC MK II
- A810 Time code demo with Personal Computer (PC), A810 TC, PC
- A810 Broadcast automation and alignment
A810 console, A810, PC, alignment computer, printer
- PCM demo
PCM 2-channel recorder, SFC-16, DAD-16, digital signal enhancement, 901, 2706
- Demo automation (Radio Monte Carlo)
A810 TC, PR99, A710, 169, 2706, PC
- Miscellaneous equipment
A68, A710, A726, telephone system (hybrid), plug-in modules

With all the equipment, this was the largest AES exhibition so far seen in Europe (larger stand area than in Montreux), and this in the exceedingly expensive advertising location, Paris!

Today, at the time these lines are written, i.e. some four hectic weeks before the AES opens, we also expect a far larger number of visitors so that the enormous expenses can be "justified". You will hear more about this in our next issue of Swiss Sound.

Marcel Siegenthaler



3rd Channel

New channel for Malaysia's television

"Malaysia's plan to run a third channel, operated entirely by the private sector, is expected to provide not only RTM's two existing channels but also Singapore's television network with stiff competition.

The channel is expected to begin transmission in January 1985 and will initially televise on a regional basis within the Kelang Valley area, which includes Kuala Lumpur and its major suburbs, as this would be the fastest and cheapest way of coming on air.

The Fleet Group, the organisation that's been granted the license to operate the third channel, expects to spend about \$ 45.7 million in developing the station, of which \$ 5.2 million will go towards the acquisition of land, \$18 million for building facilities and \$ 14.5 million

for buying foreign broadcasting equipment and technical facilities."

When this information appeared in the October 1983 issue of ABC, the well-known professional magazine, our Singapore team was right in the middle of technical negotiations with the responsible planning task force of the project.

Two weeks later, after hard work around the clock, the effort was rewarded: Studer Revox Singapore received the order for completion of the first stage installation - 1 continuity studio, 2 drama studios. End of January this year, the installation of a video sound dubbing studio was taken over by our crew to be finished in the course of the second stage.

The project comprises mixing consoles STUDER 900, multi-channel ma-

chines STUDER A80, broadcast recorder STUDER A810 with time code track, amplifier STUDER A68 and loudspeaker models 2706 for sound reinforcement and also complex synchronisation systems as used in video sound dubbing.

In addition, all installation work of both stages will have to be tackled within the indicated period of time. Interfacing (audio-video) as required for video production facilities is another demanding job to be carried out by our Singapore team. The video part of the project went to a reputed German manufacturer.

The new television building, three floors, will be ready to go on air as early as August 1984. Our best wishes for a successful transmission go to the Fleet Group of Malaysia.

Paul Meisel

Down under

STUDER on the 5th Continent

In January this year, two 20-ft-containers arrived at our premises to be filled with 88 STUDER B67 and 22 PR99 magnetic tape recorders, console-versions, totalling 191 seaworthy crates. Destination of the rather unusual consignment of 10.890 kilos? Sydney, Australia!

For six weeks the equipment will travel half the globe - in a trailer truck from Regensdorf to Hamburg seaport, on a container ship via the Atlantic, and round the "Cape of Good Hope" to Sydney.

Consignee of the mammoth-shipment is the Australian Broadcast Commission (ABC). Winner of the order for supply of professional audio equipment was SYNTEC International Pty. Ltd. of Sydney, exclusive Studer Revox distributors since 1980.

Our opponents in this "game for market shares" do not necessarily come from international sources, but include national manufacture as well. We are consequently proud of the results obtained by our distributors.

Who is SYNTEC?

A distribution company, with sales and



Headquarters in Chatswood, Sydney.

service organisation, and headquarters at Chatswood, North Sydney, N.S.W. There are also branches in Melbourne (Victoria), Brisbane (Queensland) and Perth (West Australia). Head of the organisation is Clive Sloss, assisted by his sons Robert and David, and a team of 12 employees - all active in the professional audio and hifi business.

Clive Sloss, most experienced in the broadcast field, knows his business. In the course of the last few years, he has established an efficient organisation

and offers a wide range of top-class products. There is no limit to SYNTEC's reputation: the company is well-known in New Zealand, New Guinea, Fiji and other surrounding markets as well.

The members of the company enjoy thorough training, especially in the technical field: this requires constant travels to the source of technical progress - the various suppliers in overseas. Australia is still 12 jethours and more away from the next continent/supplier, and own initiative is in great demand.



The crew at the IREECON in Sydney.
Left to right: Dave Sloss, Brian Murphy, Bob Sloss, Robert Findlay.

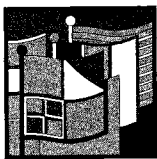


Clive Sloss: The Boss.

For Studer Revox, SYNTEC have proved their independent engagement and their efficiency to deal in a business area which requires special technical and commercial skill. With Australian broadcast commissions, private local stations and well-known recording studios, Studer Revox is an established fact; our equipment has finally reached an acknowledged position in the Australian market.

We would like to take the opportunity to thank SYNTEC for their splendid cooperation.

Paul Meisel



Finland

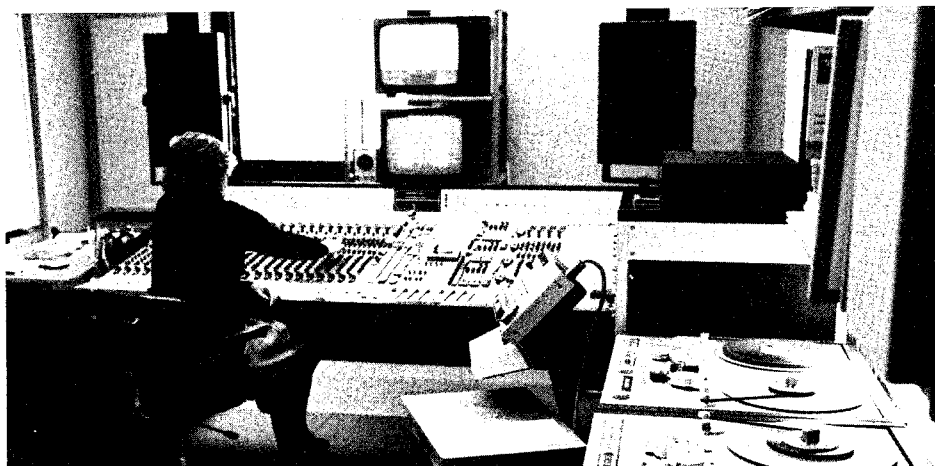
Studer up North

Up north – to be precise in Finland – there aren't only forrests, snow and reindeers. Actually, Finland has got a very active broadcasting industry as is shown by the example of Yleisradio in Helsinki.

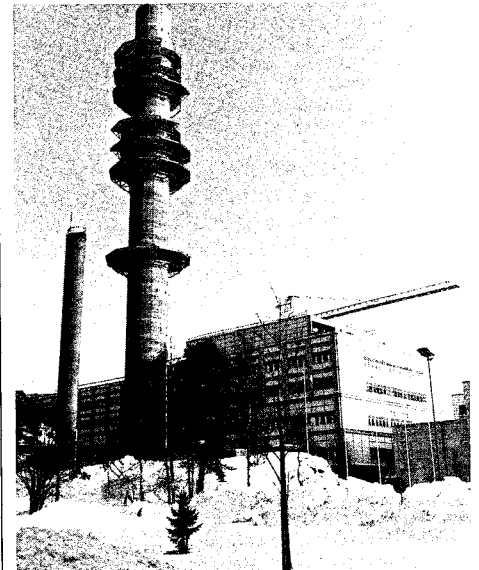
In various applications the whole range of Studer tape recorders, from the B67 to A80 to A800 16-channel with TLS is used daily.



Picture 2



Picture 1



Picture 3

- Picture 1** Radio & TV sound post production.
- Picture 2** TV-sound post production.
- Picture 3** The new transmission centre.

Photos: Pauli Vellonen





Audio Engineering Society Meeting

The AES Swiss Section held a meeting on the subject of Professional PCM Technics at the Studer headquarters in Regensdorf. 60 of the 120 members attended the meeting.

Marcel Schneider (Project Manager, Digital Audio Division) and Dr. Roger Lagadec (Product Manager, Digital Audio) informed the audience on the latest state of the art.



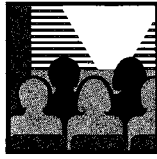
Marcel Schneider, born 1949, basic training as radio technician, joined Studer in 1971 for two years and worked mainly in the test department for professional tape recorders. Joined Swiss Broadcasting Corporation (SRG) in Berne in order to gain experience from the user's point of view. Specializing in music recording and design of broadcasting equipment. Since 1980 design engineer for digital audio systems again at Studer. Currently responsible as project engineer for digital tape recorders. Holding a BSc degree in electrical engineering (Ing. HTL).

The meeting was divided into a general lecture on today's state of the art in PCM recording and a practical workshop with various professional digital devices such as tape recorder, sampling frequency converter, delay unit and compact disc player.

When reviewing the outcome of the lecture and summarizing the response of the audience the following statement can be made:

In retrospect one can say that the digital audio technology is characterized by a rather sensible progress, quite in contrast to all the enthusiastic statements that appeared in the past. The number of the various professional recorders now available on the market is slowly on the increase, yet their prices in comparison with analog systems remain quite high.

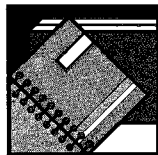
In the home entertainment field, digital systems are becoming available in increasing quantities but not all of them can be looked upon as presenting the standard of the future. The approach to think in complete systems shows more



Training courses on professional STUDER equipment

02.04. - 06.04.84 STUDER 900 / A810 , Seminar	English	18.06. - 22.06.84 STUDER A80 RC, A80 VU Tape Recorders	English
09.04. - 13.04.84 STUDER A810 , Tape Recorder STUDER A80 , Tape Recorder	English English	25.06. - 29.06.84 STUDER B67 , Tape Recorder STUDER 169/269 , Mixing Consoles	English
24.04. - 28.04.84 STUDER A800 , Multitrack Tape Recorder	French	03.09. - 06.09.84 STUDER 900 , Seminar	German
30.04. - 04.05.84 STUDER 900 , Mixing Console	French	17.09. - 21.09.84 STUDER 900 , Mixing Console	English
07.05. - 11.05.84 STUDER A810 , Tape Recorder	French		
14.05. - 18.05.84 STUDER A810 , Tape Recorder	German		
21.05. - 24.05.84 STUDER A810 , Tape Recorder	English		
25.05.84 REVOX PR99 , Tape Recorder	English		
18.06. - 22.06.84 STUDER A800 , Multitrack Tape Recorder	English		

The courses are not fully booked yet. Each course takes 8-12 people and demands reasonable knowledge of electronics. Course fee is sFr. 110.- per day.

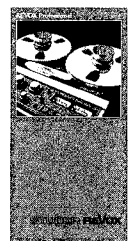


From the printers

10.30.0080	B225 CD-Player , OI (g/e/f)
10.30.0130	B77 MKI/II , SD
10.23.2421	Tel. Hybrid , Leaflet (e)
10.26.0050	Mixing Console 069 , Leaflet (g)
10.26.0060	Mixing Console 069 , Leaflet (e)
10.26.0070	A80 MR/QC , Leaflet (g)
10.26.0080	A80 MR/QC , Leaflet (e)
10.23.3610	A810 , Leaflet (f)
10.85.0720	Studer Announcer Desk , PI10/84 (g)
10.85.0730	Studer Announcer Desk , PI10/84 (e)
10.29.0250	Revox Pro Leaflet , (e)

PI = Product information
OI = Operating instructions
SD = Set of diagrams
SI = Service instructions

Sets of diagrams, operating and service instructions available at nominal charge.



Please mail your letters to:
SWISS SOUND, STUDER REVOX Public Relations,
Althardstrasse 10, CH-8105 Regensdorf
Phone 01/840 29 60 · Telex 58 489 stui ch

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Art and production: Lorenz Schneider
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For further information please contact

rapid progress on the analog side than with digital equipment, although digital has undoubtedly certain advantages to offer. It seems that experience weighs yet more than a theoretical technical potential. The years 1984 and 1985 will show whether or not digital will be able to achieve a higher market penetration as was the case during its sobering start in the early eighties.

Peter Joss

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