STUDER REVOX

SWISS SOUND

VIEWS AND NEWS FROM SWITZERLAND

A PUBLICATION BY STUDER REVOX

2/83
June 1983

Editorial

35 Years

It was on January 2, 1948, when I founded my business which at that time was a private company, and together with 2 employees started with the construction of special oscillographs for ultrahigh-voltage test bays. In January of this year it was, therefore, 35 years since my first frail steps as a businessman. The tender seedling developed well and I believe to be correct in saying: it has grown into an enjoyable garden. Of course, weeds inevitably grow too, but a good gardener sees to it that they won't take over.

It is not my intention to give a comprehensive history of the company's growth, especially since I feel that after 30 years only the decades are celebrated.

A current snapshot of our company may, however, be of interest, and we may say that on the whole it is healthy and vigorous:

1. Our development department with a budget of 5% of the total sales revenue is very well endowed.
2. Our ultramodern production facilities are far from being obsolete.
3. Our sales organization is very effective.

These three elements, combined with the attentive care which prevents the weeds from taking over, are the fundamental guarantors for a bright future of our company.

At this point I wish to thank all our many employees, without forgetting our many distributors abroad, especially those who pull on their oars.

Our motto shall be: Let's keep it up, and, as mentioned, let's take care of the weeds which, as we all know, grow exceptionally well in large enterprises.

Dr. h.c. Willi Studer

Mixing Console Series 900

A close-up of the chassis ground system

Totally new solutions to a number of problems had to be found for the newly developed mixing consoles of the series 900. One of our major goals was to achieve outstanding performance in respect to cross talk and signal-to-noise ratio. The following article describes the inherent problems as well as the advanced solutions.

Problems in the layout of the chassis ground occur to some degree in all audio equipment. Careful planning is essential to a satisfactory solution. All persons involved in the design must participate: the development engineer, the laboratory technician who lays out the printed circuit board, the designer in his search for the best possible physical implementation or the technician in the assembly of the equipment.

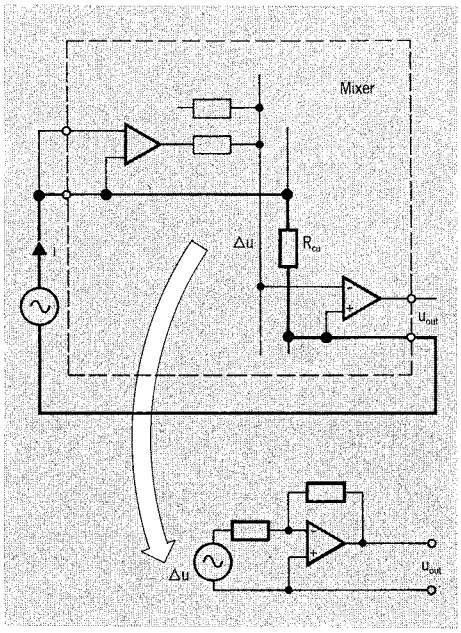

Fig. 1

Even the user should possess some basic knowledge in order to achieve satisfactory results. The enormous problems associated with the studio ground, including the electrical safety, would fill books, and thus cannot be covered here. The following report concentrates on the internal chassis ground concept of the Series 900 mixing consoles.

1) External wiring

Example (Fig. 1):
A signal current i flows through the chassis from the input to the output where it can be measured as noise.

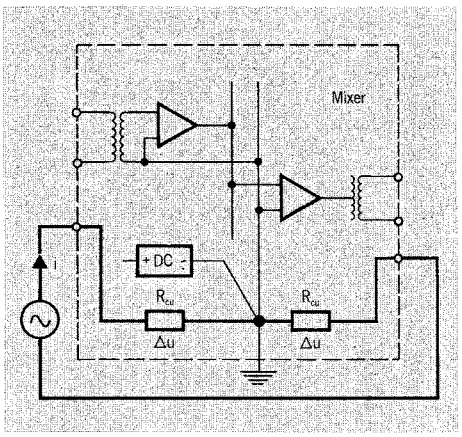

Fig. 2

Reason:
On the copper resistor R_{cu} of the ground conductor, the AC current i causes a voltage drop which appears at the output in the form of amplified noise. This is a seri-

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ous problem, especially in non-professional equipment with unbalanced decoupling components. In professional equipment, this problem has been largely solved by incorporating balanced decoupling components (transformers or electronics).

Solution (Fig. 2):
The ground conductors of the inputs are combined on the rear panel from where a common branch leads to the ground of the power supply. Instead of being fed into the return, the parasitic current is fed into the screening and can no longer interfere with the transmission.

2) Internal ground layout

The mixing console is the main switching center of the recording studio. An uncountable number of audio paths can be established, however, not all paths carry the same types of signals. The cross-talk specification are, therefore, very demanding.

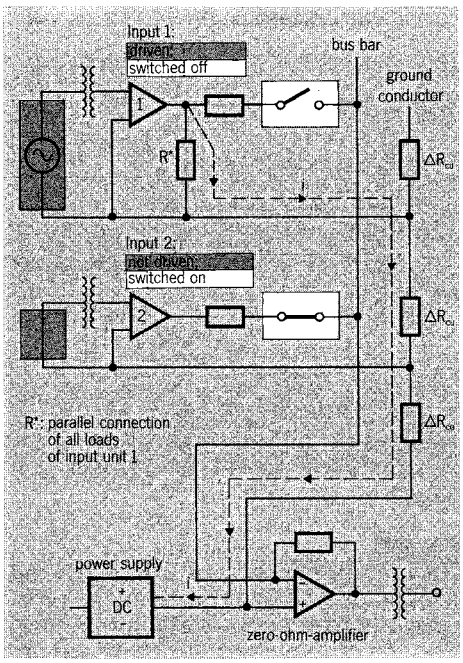


Fig. 3

Example: Target specifications of ARD (Association of German Broadcasting Companies)

PAN POT	> 70 dB
Dependent paths	> 80 dB
Independent paths	> 85 dB
Misc. programs	> 95 dB
Trimmer attenuation	>100 dB

The specifications of other broadcasting companies are similar.

Capacitative cross talk can be overcome through physical isolation of the channels. However, resistive cross talk

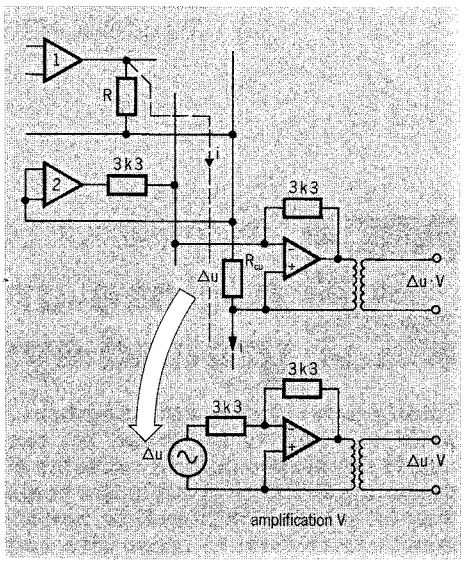


Fig. 4

can only be prevented by an optimum ground system.

To illustrate the problem: simple bus bar arrangement (Fig. 3). Input 1 is driven. The voltage forms a current i on resistor R. This current flows through the ground of the bus bar to the power supply. The ground conductor can be represented as a circuit with serially connected partial resistors ΔR_{cu}. The current i causes a voltage drop Δu on ΔR_{cu}. In the selected circuit 2, this voltage acts as a generator and causes cross talk (Fig. 4).

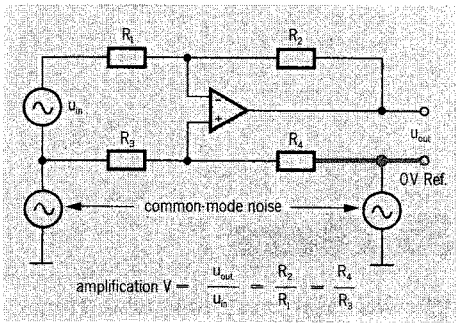


Fig. 5

Possible solutions:
- Installation of bus bar with large cross-section
- Feeding the ground in the middle of the bus bar
- Star-connected chassis ground (not feasible)
- Decoupling with transformers (outdated)
- Decoupling with differential amplifiers

The last solution which is based on the differential amplifier is implemented in the Series 900 mixing consoles and shall now be described in more detail (Fig. 5).

The input/output common-mode noise is compensated by this circuit. In the Series 900 mixing console, a "0 V refer-

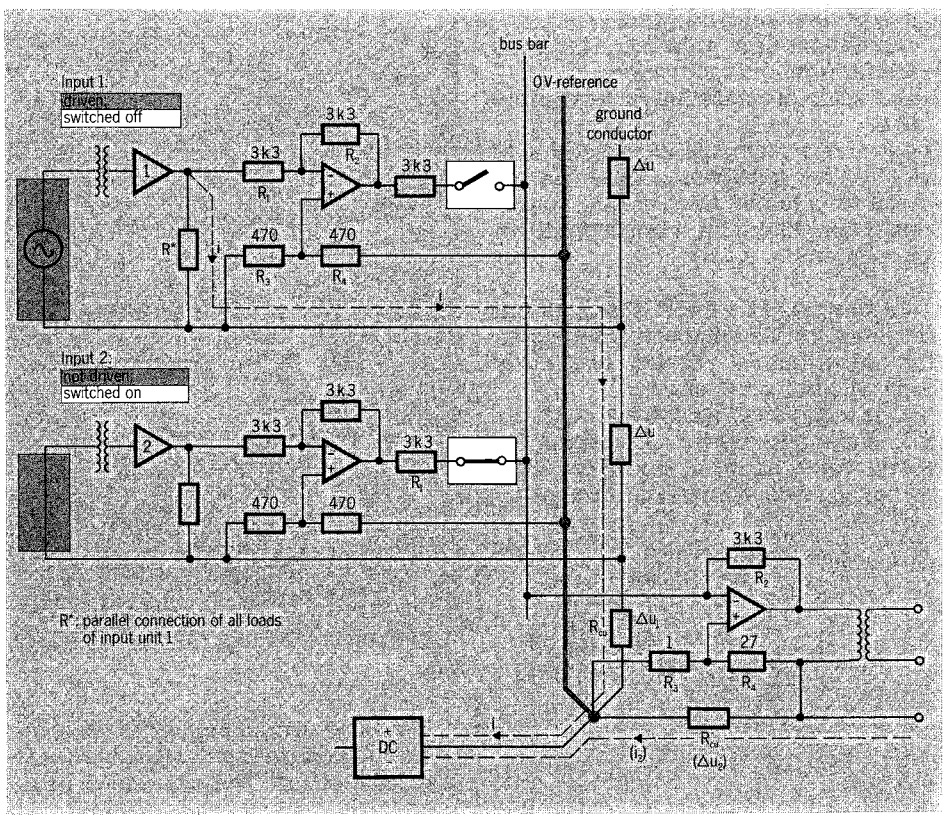


Fig. 6

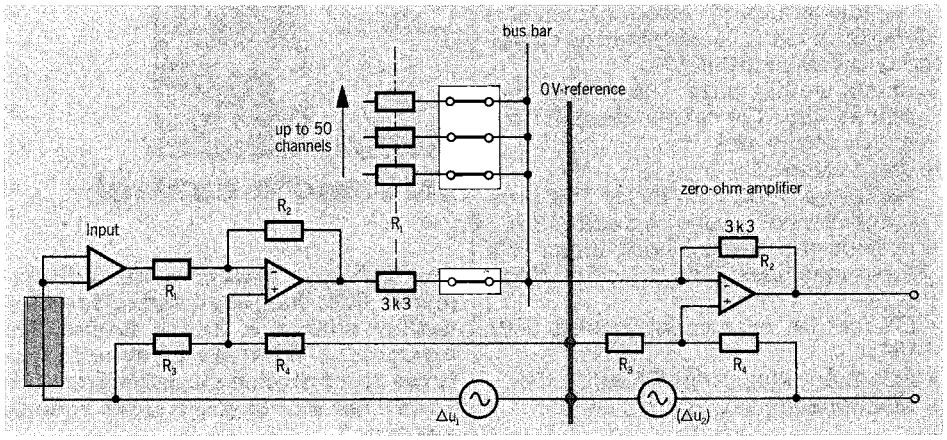
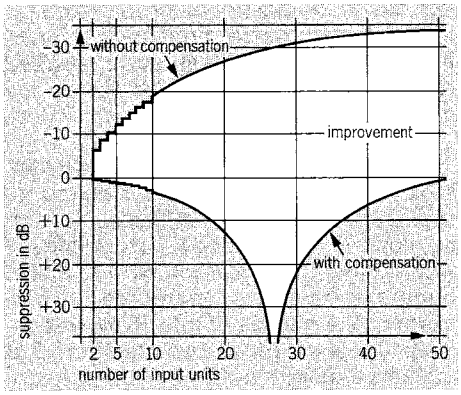


Fig. 7



Suppression of noise voltage as a function of the connected input channels.

ence" line is introduced as a reference ground. Under no circumstance must this conductor be loaded.

The actual circuitry looks as follows (Fig. 6):
Input 1 is again driven and produces a current i on resistor R. This current flows through the ground of the bus bar to the power supply. Current i produces a small voltage ΔR_1 on ΔR_{cu}.

The built-in differential amplifier (Fig. 7) compensates this voltage. ΔU_1 is thus eliminated and resistive cross talk is cancelled. For an excellent result, the condition $R_2 : R_1 = R_3 : R_4$ must be optimally satisfied.

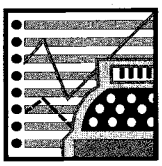
In contrast to the zero-ohm amplifier, this requirement is well satisfied in the input unit. In the zero-ohm amplifier, the input resistance R_1 varies between 3k3 : 1 ... 3k3 : 50, depending on the number of channels selected.

However, a significant improvement in the suppression of noise signals is still achieved (Fig. 8).

Differential amplifiers are used in all major decoupling locations. This fact should, therefore, be taken into consideration in the subsequent installation of custom equipment. Because of the universal application of this advanced technology, even the largest mixing consoles we build still offer excellent cross-talk rejection and SN ratios.

Peter Frigo

Peter Frigo (38): Basic training as a communications and electronics equipment technician in a communications engineering firm. Received his electrical engineering diploma in 1969 from the Technical High-school in Bienne. Subsequently joined Willi Studer AG. Various studio engineering assignments. Since 1977 project manager for the development of mixing consoles. Since 1982 head of mixing console development department.



Tunisia

Studer Activities in North Africa

RTT – Tunisian Broadcasting Corporation – has officially started operation at their brand-new radio stations in the provincial cities of Monastir and Sfax. Each station accommodates five studios, entirely designed and installed by Studer International AG.

In March 1982, an agreement was concluded in Tunis. RTT intended to operate their studios by the end of August. Due to the very short time available before supply of the equipment, it was decided that only two studios would be completed at each station until August 1982. All remaining equipment was scheduled for delivery end 1982. Thanks to the efforts of our studio department, all material was ready in time.

Plenty of audio – ready to go.

During May 1982, when the equipment was still in manufacture, 6 RTT technicians underwent an intensive technical training course of three weeks at Regensdorf premises.

Only three months after signature of contract, the equipment of the first installation phase was commissioned by RTT engineers at the factory. As this happened when Studer International AG moved into new office premises and with them the studio department, advertising crew, factory facilities etc., many disturbances and delays inevitably occured. We are grateful to the RTT delegates for their patience and understanding which enabled us to finalize acceptance tests within one week.

Another problem arose – the transportation of 47 m³ of material, weighing more than 7.5 tons to Tunisia would require more than two weeks to reach destination. A quick decision by RTT sent a chartered Boeing 737 combi to Zurich for the pick-up of all goods. Filling the aircraft was a hard job. Obviously, the

123 cases would never fit in. Patiently, like a jig-saw puzzle, every parcel found its spot – the smallest even in toilet rooms. The "Tunis Air Studer" flight took off with closed doors...

One week later, under a heat wave of 50° C and plenty of Sahara dust, our installation crew arrived in Tunisia to take up work. Without these shortcomings, it would have been just too nice to install equipment in a tourist' paradise like Monastir in the middle of July. However, installation work on all sectors started at the same time: electricity, airconditioning, painting and plumbing, and – last not least – the Studer crew. Luckily, the talents and the diplomacy of Mr Khenfir (Radio Monastir) and Mr Abid (Radio Sfax) coordinated all strings to excellent results; the studio was completed in time for the opening.

In November 1982, the equipment of the second installation phase was ready for factory commissioning; testing and measuring was done in one week at the premises of Studer International AG. Once again, a chartered Boeing 737 took care of 6 tons and 41 m^3 of material. Two days before Christmas 1982, Radio Monastir and Radio Sfax were fully operational.

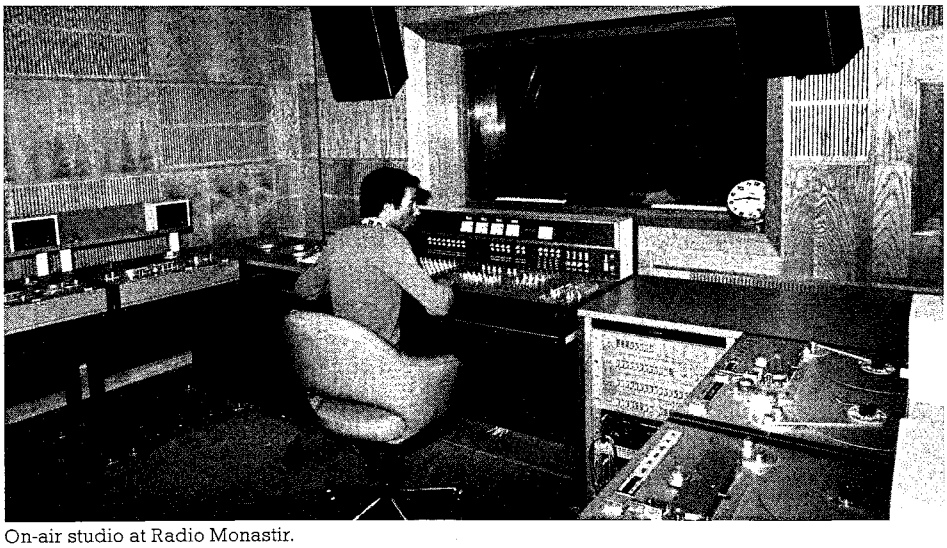
At the studios of Radio Monastir and Radio Sfax the following Studer equipment has been installed:
- on-air studio: mixer 369; tape machines A80 RC; cassette deck A710
- music studio and
- drama studio:
  each equipped with mixer 369; tape machines B67, cassette deck A710
- speech recording studio: mixer 169; tape machines B67; cassette deck A710
- OB and PA equipment (mixers 069/169)
- Listening equipment (PR99)
- Maintenance workshop

In addition, Radio Monastir is equipped with a continuity studio (169/B67/A710) and Radio Sfax with a TV studio (369/B67/A710)

In collaboration with the RTT technical team, altogether 10 weeks were needed by our installation crew to accommodate the above equipment.

We are convinced that the results are worth the effort.

Text and photos: Jean-Pascal Ruch



On-air studio at Radio Monastir.

Each station is equipped with five studios. All control rooms include a STUDER mixing console with external patch-bay, 3 or 4 STUDER open reel recorders, one STUDER cassette recorder, and one EMT turntable. Monitoring consists of STUDER A68 power amplifiers and Studer Revox loudspeaker systems Plenum B – the latter introduced by a radio station for the first time.

Thumbs up for a well done project.

Concept

Revox IR remote control

The infrared remote control transmitter B201 has been introduced together with the Revox Series 200 equipment. What are its special features and how does it differ from the countless existing wireless remote controls?

Its design specifications called not only for an excellent range and high interference immunity but also for a large number of executable commands. Especially the latter makes it possible to extend its use to a complete family of hi-fi components to a degree probably never achieved before.

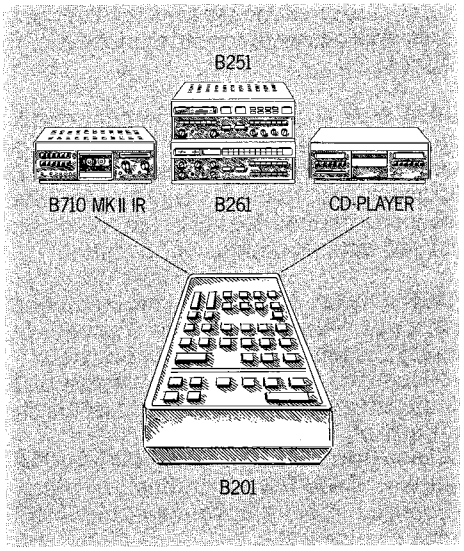
Let us examine the paths over which the individual components are reached by the infrared transmitter: The Revox B251, B261, B710 IR and the future CD player are factory-equipped with their own IR receiver section. They can therefore process IR commands directly.

Components from the existing Series that have not yet been equipped with an IR receiver such as the B77, B710 MK I / MK II, B791/B795 can be controlled through the external receiving unit REVOX B202.

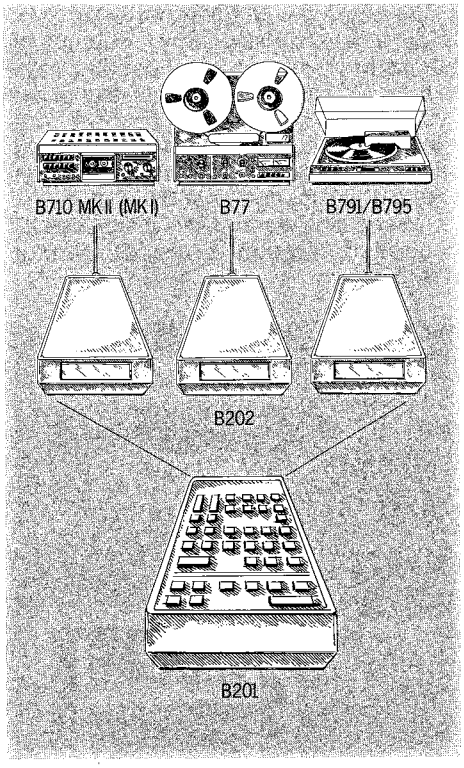
This approach again underscores the Revox philosophy of building equipment that lasts a long time rather than being obsoleted after a short time by the introduction of a new series. Existing components can thus be easily upgraded to the operating convenience available with the latest equipment generation by installing simple retrofit kits.

Now let us look at the operating concept in more detail: through distinct addresses, e.g. 2 open-reel or cassette recorders and 2 turntables can be selectively and independently operated. A LED on the addressed unit turns on to acknowledge that a command has been received.

To ensure that the user can easily relate to the components to be controlled remotely, the keys on the hand-held transmitter are arranged as closely as possible like the main front-panel controls. As is the case in local operating



mode, the components can be switched on by simply activating the desired function. On the amplifier this is via the source selection, on the tuner via station selection, on the turntable via cartridge movement, and on the tape recorders via one of the tape transport commands.



The complete configuration is switched off simultaneously with the higher ranking POWER OFF command. Older units that are still equipped with true AC power switches will be brought into their typical idle condition.

State-of-the-art remote control of the volume and the balance can hardly be achieved with conventional potentiometers. However, a completly new, sophisticated circuit technology was required for implementing digital level controllers that satisfy our requirements in respect to operating convenience and performance. This is probably one of the main reasons why Revox decided not to offer a less satisfactory remote control system in the past. Good things simply take their time!

Marino Ludwig

Streamlining by means of an efficient, computerassisted sound archive system

Automation in broadcasting

Because of the world-wide demand for information, the media assume a role of ever growing importance. The broadcasting industry ideally satisfies this requirement with its ability to distribute hot news fast. But the expanded programs cause a corresponding rise in costs unless more efficient production methods can be found.
After many years of development work, STUDER has created a system that offers a level of automation to small, medium and large studios that can be tailored to their individual requirements.

Is it possible to compare broadcasting with an industrial enterprise? Depending on ones point of view, the answer is either an unequivocal Yes or an equally clear No. Whichever position is taken, the trends are obvious:
- The average on-air time is increasing, especially on account of stations with 24-hour programs.
- The listeners demands for special types of programs will sooner or later have to be satisfied.
- Private stations with an exactly defined target audience seek to expand their listenership.
- Because of technological changes such as cable radio, satellite transmission, etc., the listeners are increasingly able to receive foreign programs of superb quality.

Didn't these and many other aspects clearly lead to a more competitive environment? But with growing competition, timely countermeasures are highly crucial to the long-term success.

With the STUDER CAMOS system, a central sound archive can be maintained without additional staff and equipment in order to:
- Produce all types of existing and new programs
- To automate the broadcasting of commercials

Is automation only affordable by large broadcasting corporations?

The components of this system have been designed in such a manner that not only the requirements of large but also of smaller companies can be satisfied. The system also offers a high degree of flexibility, expandability, and ease-of-use. These are essential to efficient and error-free preparation, monitoring and broadcasting of radio programs.

How have the software problems been solved?

A computer-assisted or computer-controlled system is only as effective as the available software. We have teamed up with specialists from broadcasting institutes and have signed an agreement with INFORA of Cologne/Germany for cooperation in the field of automation.

In which departments can automation lead to savings?

The following departments can profit from automation:
- Sound archive
- Editorial room
- Audio engineering
- Royalty and license fee accounting

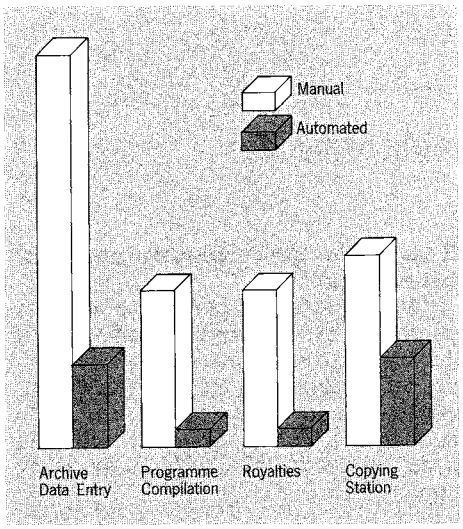
If we examine these areas in detail, the following tasks can be streamlined (the list does not pretend to be complete):

In the sound archive:
- Simplified catalog maintenance procedures
- No catalog indices required
- Faster retrieval of tapes and discs
- Easier refiling of sound material into the archive

In the programm production:
- Improved research facilities, even for complex cases
- Easier preparation of playlists
- Direct transfer of the research results into the playlist

In audio engineering:
- Fewer manual tape and disc playback operations
- Automated fade-in and fade-out as well as time-controlled program starts
- Automatic level monitoring
- Automatic control of reproduction equipment

In royality and license fee accounting:
- Because the playlists are entered directly into the system at the time the program is broadcast, the amount of data to be acquired for the royalty and licence fee statistics is drastically reduced
- The error rate in the statistics can be significantly lowered



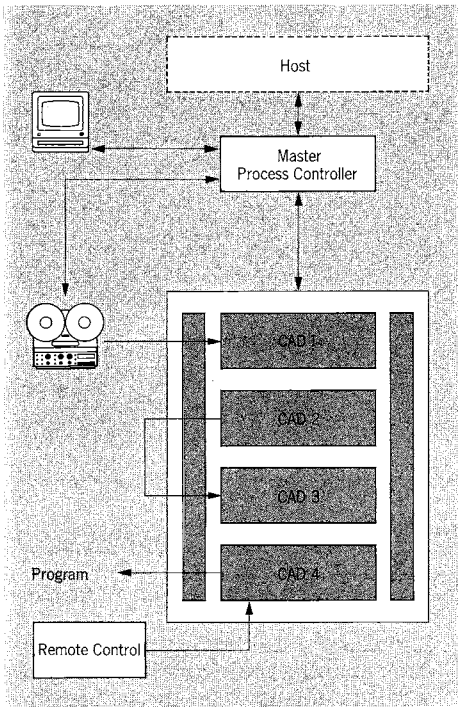
Cost reductions through automated broadcasting.

System description:

The basic sound carrier in this system is the UNISETTE® cassette which is not only eminently suited for automation but also guarantees professional audio quality.

Because the STUDER CAMOS 3000 features a modular design, optimum solutions are possible at all configuration levels. All operations within the entire system are controlled by a process computer. This central processor features a standard interface for communication with a coordinating host computer.

In addition, each CAMOS unit can be controlled through a serial interface (RS232C).



Example of a commercials broadcasting system.

Summary of available software packages:

GEPARD
General Purpose Archive Research and Documentation Program

PPF
Playlist Preparation Facility

PSP
Playlist Statistics Package

MPCP
Master Process Control Package

The innovative progress of the CAMOS development can be seen from the following product history:

1973 Studer conducts initial studies and preliminary analyses in the field of automation

1974 BASF introduces the Unisette® cassette at the AES in Copenhagen

® = Reg. trademark BASF

1976 Studer demonstrates the first professional cassette recorder at the AES in Zurich

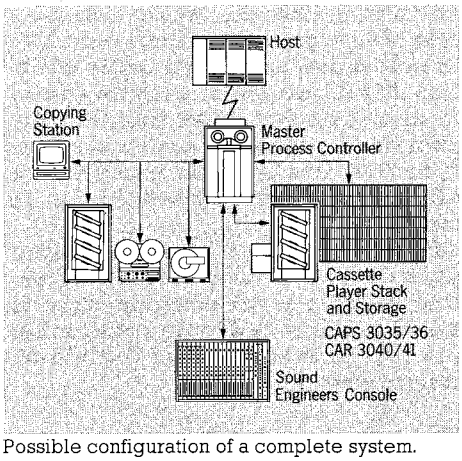
1978 SDR + IRT publish in "Rundfunktechnische Mitteilungen" their findings on the "Simulation of radio studio work procedures based on streamlined sound broadcasting with computer-controlled subsequences of operation"

1979 Studer introduces the technical concept "The Professional Cassette Library System" at the AES in Brussels.
Conclusion of a contract between SDR Stuttgart and Studer Regensdorf for the supply of:
Kassettenmodulationsspeicher-Anlage – CAMOS – (original wording).
Storage capacity: approximately 40,000 music selections

1980 Acceptance of the 1st cassette recorder by SDR + IRT

1981 Studer demonstrates some of the CAMOS systems with minicomputer at the TV Symposium in Montreux.

1982 SDR Stuttgart puts a prototype system into pilot operation.
A test phase of 1 year is planned.
Radio Bremen orders a CAMOS 3005 commercials broadcasting system.
Studer + Infora sign an agreement for cooperation in the field of automation.



Possible configuration of a complete system.

1983 Studer + Infora demonstrate a CAMOS 3005 commercials broadcasting system at the Hanover Fair as well as at the TV symposium in Montreux. The prototype equipment at SDR is replaced by a standard system. Copying into the music archive is started.

Additional information can be found in the product description "Automated Broadcasting System" publication No. 10.85.0580.

Jules Limon

Studer Revox America

Ten Years to the Top

Back in 1973, when Willi Studer America first opened for business, selling a Studer multi-track recorder to an American recording studio was about as easy as selling a camel to an Eskimo.

"It was rough going in the early days", admits Fred Layn, who has been the key man in Studer's New York office for almost 10 years. "We were new, we were foreign, we were expensive, and we didn't have remotes or autolocators – a must for the American market. Also, the product had gained a bad reputation because the independent distributor who had been selling Studer before provided virtually no service back-up."

Laboring under these handicaps, the young company often met with a cold shoulder when presenting the Studer product. "To give you an idea of how seriously we were taken", recalls Layn, "when I was talking with somebody in studio management at RCA, I mentioned that we had modest ambitions of someday capturing 15 to 20 percent of the U.S. market. He just laughed"

Layn now enjoys the last laugh. Studer has easily surpassed the 15% mark, and is still moving ahead. In New York, over 40% of the 24-track units sold over the past two years have been Studers, and the percentage for the top-line New York studios is probably double that figure. No longer a struggling young company, Studer Revox America's annual sales are now more than 22 times what they were in Willi Studer America's first full year of operation.

Willi Studer America, the direct predecessor of Studer Revox America, was formed in November of 1973 when Studer International decided to exert more direct control over marketing in North America. Initially the company was closely linked to its sister company, Willi Studer Canada, located in Toronto. In order to minimize travel time between the two headquarters, Willi Studer America was established in the nearest large American city, Buffalo, New York. Less than two years later, however, the direct links between the two firms were severed, and Willi Studer America soon considered relocating. Buffalo, after all, ranks somewhere near Karachi as a major recording center, and there's no sense in setting up shop where the action isn't.

Service: at the phone Doug Beard, at the soldering iron Tom Knox.

"A challenge", Hans D. Batschelet (President of SRAI).

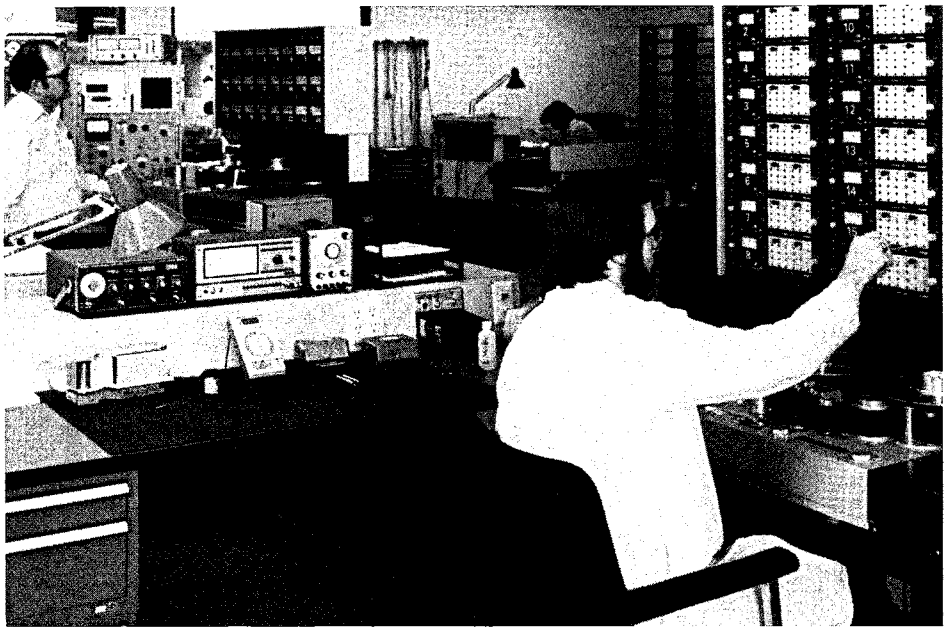
The first site to be considered, then rejected, was New York City. Too expensive. Next, Los Angeles was nixed: almost as expensive and the time zone difference would cause communication problems. The third largest music recording center was (and still is) Nashville, Tennessee. Hmm. Central location, low operating costs, and a welcome change from Buffalo's sub-arctic winters. So, in September of 1975, three-quarters of Willi Studer America's headquarters staff (3 people) packed up and headed south to Music City, USA.

The Nashville studio equipment market was dominated at the time – as was the rest of the U.S. market – by American firms: Ampex, MCI, and 3M. When Willi Studer America put down new roots a few blocks from Music Row, Nashville studios boasted only a handful of Studer two-tracks and only one multi-track. That score has changed drastically over the past seven years. Nashville is virtually an all-Studer town today, with over 30 multi-track machines installed, which accounts for practically every prestige studio in the city.

The spectacular success didn't come easy, though. It took years of aggressive marketing, continual feedback to the factory on product development, and exceptional after-sale service support.

"In order to establish ourselves as a company in those early days, it was very important to establish our support of the equipment in the field," according to National Service Manager Doug Beard, who joined the company early in 1976. "This was one way we could justify the extra cost. We had to establish a reputation for service that was equal to the reputation of the machine."

Between 1973 and 1977, Studer slowly but surely gained a stronger foothold in the fast-growing but ferociously competitive U.S. market. Disc mastering facilities were the first hard-core Studer



Test department for professional tape recorders.

fans, and they spread the word of Studer quality to their recording studio colleagues. Two-track sales took off first, and then multi-track sales caught on as the first remote units were introduced. In 1977 Willi Studer America was no longer an infant, but a strong and capable adolescent.

With adolescence came a sudden spurt of growth, along with some inevitable growing pains. In July of 1977, the Revox line was removed from its independent distributor, Hammond Industries, and turned over to Willi Studer America; the company was then rechristened Studer Revox America, Inc.

The small firm suddenly became a medium-sized concern. The number of employees quadrupled in one year, from seven (including the reps in New York and L.A.) to more than thirty. An IBM computer system was brought in to handle ordering, billing, and inventory. New office space was added, and separate warehouse space was secured.

The transition was not easy. When the new management team of Bruno Hochstrasser (president) and Bill Muggler (vice president) arrived in 1979, they were faced with some knotty inventory and accounting problems. But through skillful management and by taking some carefully calculated risks, the growing pains were soon overcome. Efficiency and productivity steadily increased, to the point where company sales more than doubled between 1977 and 1982 while the number of employees remained constant.

In 1980, the company moved into its new 15,000 sq. ft. headquarters building, located between downtown Nashville and the city's airport. Members of the press and other industry notables were flown in to tour the expanded service, accounting, and warehousing facilities. To cap the occasion, Dr. Studer made a rare trip across the Atlantic to meet the press and cut the ribbon during the formal opening ceremony.

The opening of the new building inaugurated a two-year period of spectacular growth. During that time, the A800 was finally accepted as the premier multi-track recorder. Studer 2-tracks became the mastering standard even among the smaller studios that could not yet afford Studer multi-tracks. And Tom Mintner was brought in as Broadcast Products manager to further the quickening sales in that market.

Skillful management and sound marketing have helped, of course, but the fundamental reason for the company's success is twofold: a quality product and superior service follow-up. "I think continuity of service has been very important", says Doug Beard. "I think customers appreciate the fact that they can call me on the phone and get an answer to their questions without getting the runaround – and without having to deal with somebody new every six months. It's also great to have a product you can represent honestly to the customer. With a Studer you can tell him that it will last for 10 years without crossing your fingers, because you know it's true."

This past year, 1982, has also been a pivotal time for the now-maturing company. The introduction of Studer PCM digital products to the American market marked the advent of a challenging era of new technologies. The Revox division, led by director of marketing and sales Larry Jaffe, launched an aggressive program to woo the nation's affluent music lovers over to our hi-fi components. An Educational Division, headed by Bill Sanford, was established to introduce Revox language labs to the U.S. market. And finally, after four years of dedicated (and extra-ordinarily successful) service, Bruno Hochstrasser left the company to assume a new post back in Switzerland.

Hochstrasser's successor, Hans D. Batschelet, looks forward to tackling the potential growth that still lies ahead. "Personally it's a challenge", he says, "and I look forward to growing with a growing company. I will be serving as a 'translator' to keep the factory aware of the needs over here so that our products will be highly competitive in the U.S. market. We'll listen to what people say. That's the best way to come up with the right product at the right time.".

It took ten years of hard work, but Studer Revox America has finally convinced all the professional audio "Eskimos" across the country. No more camels. Now Studer has sled dogs. The best. Purebred, sleek, powerful, durable, microprocessor-controlled, transformerless, analog and/or digital sled dogs. Man's best friend in the recording or broadcast studio.

Text: Sam Borgerson
Photos: Rhea Rippey

Creative with STUDER

"Gänge"

A highly unusual project made its premiere at the Frankfurt Opera on Feb. 27, 1983: the ballet dance performance "Gänge" which attempts to trans-

(Photo: Thiel, Stuttgart)

late into steps and patterns of motion the history of the ballet. The music, record-

ed with the orchestra of the Frankfurt Opera was subsequently electronically modified in the Walldorf studio by the composer Thomas Jahn in cooperation with the musical director Andreas Breitscheid and the balancing engineer Thomas Becke, with the goal of producing a suggestive sound pattern that gives the listener an auditory perspective. Concerning this project, Thomas Becke says: "The complete electronic editing was performed on two STUDER A800 24-channel machines in conjunction with a TLS2000. Since the final product is an 8-channel tape on which no splice editing was possible, the STUDER A800 / TLS2000 combination was the only technically feasible system that offered a solution to this problem.

New from Studer

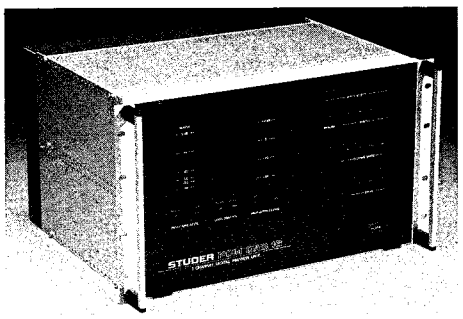
DAD-16, digital preview unit for disc cutting

The introduction of the stereo long playing record approx. 30 years ago was only possible thanks to an entirely new disc cutting technique. The constant spacing between the grooves was abandonded in favor of variable pitch recording. This made it possible to cut the grooves closer in passages with reduced dynamic range, thus enlarging the total recording capacity.

In disc cutting the spacing between the grooves is controlled by the amplitude of the recorded signal. This requires knowledge of the signal to be cut into the lacquer one revolution in advance, as well as cutting lathes under sophisticated control. High-quality lathes are available, while the delay of the signal from the master recorder can be implemented in two ways: either with specially designed analog recorders with a preview head (such as the wellknown analog STUDER A80 Prelistening) or by using a digital delay unit. This device delays the cutting signal for the necessary amount of time (relative to the repro signal).

A digital audio delay unit has the advantage of operating with both analog and digital master recorders. Its preview length can be tailored to each application and type of cutting lathe, while 16-bit resolution and high-quality filters and conversion ensure the very high quality required in cutting rooms.

Studer has introduced such a digital preview unit, the DAD-16 (for Digital Audio Delay, 16 bit resolution); some details of its design will be highlighted in a forthcoming issue of SWISS SOUND.



Some of its main features:

- compatible with both analog and digital master recorders
- accepts sampling frequencies of 48 kHz (professional), 44.1 kHz (Compact Disc) and a user-definable value if required
- digital interfaces for all commonly used formats (the AES/EBU standard interface originally proposed by Studer, but also Sony, JVC, 3M)
- very high quality A-to-D, D-to-A and balancing circuits
- phase-compensated analog filters
- full- and half-speed mastering of 33 and 45 rpm discs on all cutting lathes in use today
- memory retention (all parameters are memorized when power is switched off)
- microprocessor control
- digital control of input and output levels
- 19" rack-mountable format

Dr. Roger Lagadec

The Studer Group of Companies

"Who is who"

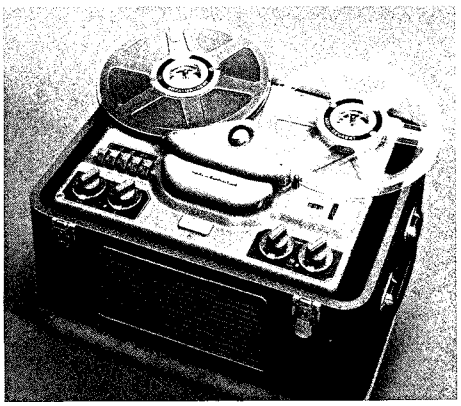
This column has been reserved for introduction of personalities of our affiliated companies and representations in Europe and Overseas.

Introducing:

Guido Besimo

Director of Quality Control at Willi Studer AG, Member of the Board • born 1933 and grown-up in Zurich • great interest in audio-electronics in earlier years already • between army service and technical university, laboratory work with a Swiss radio manufacturer.

After officer candidate school, Guido Besimo associates with WILLI STUDER in 1957 as a design engineer. Via standards and engineering, he joins the development department of tape recorders where the very first stereo tape recorder, the REVOX D36, is created.



In close cooperation with Willi Studer, the REVOX series D, E, F and G36 are developed. He is also responsible for the audio-electronics of the STUDER C36 machine.

Studer crosses the threshold from valve to silicon age in 1967 with the A77 model (12 years in production!), developed by Guido Besimo and his team. Today, almost the same team is still active in development and design of Studer Revox successor models.

From 1957 to 1974, a new technology of large scale integration was setting a dramatic upcurve in the business of WILLI STUDER; for all members of the company, this time span reflects the most creative years in the company's history. For Guido Besimo as a development and project engineer of all models following the C37, it was a most fascinating period.

In 1973, he organizes quality control within the company group – a complex of responsibilities he still holds today.

In 25 years of attachment to WILLI STUDER, the company has always had top priority.

His preferences for Italian-made cars, for folk and classical music, for Italian cuisine and Italian wine is understandable, for his ancestors are "Ticinese", from the South of Switzerland.

Guido Besimo's actual hobby is golfing. He took it up in recent years only and has practised it successfully ever since.

His friends and colleagues know his qualities: his modesty, his reliability, and his propensity to precision. He is always willing to let everyone participate in his vast stock of experience.

Asked about any guiding principles he may have, he simply says: "We have to be best"... He likes to quote Vincenzo Lancia, pioneer of the automobile industry, who said:

"If only a single time we allow ourselves to handle a matter below the level of our abilities, we lock out all chances for success."

Renate Ziemann

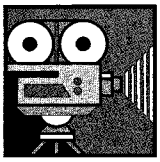
Visit

Dealers from the Netherlands

From April 27 – 29, 26 Revox dealers from the Netherlands, accompanied by three employees of our agency, Audiotrade, visited us in order to acquaint themselves with the Studer Revox group. We therefore gave our visitors not only a tour of our manufacturing facilities in Regensdorf, Bonndorf, and Löffingen, but also explained our basic business philosophy, introduced them to the new B200 series, and discussed with them the existing product line. Our Dutch friends were able to get some insight into the marketing policies applicable in Switzerland and we also gave them the opportunity to voice their opinion about commercial and technical problems in their home country. Between the scheduled events there was ample time for interesting private discussions with the dealers and the agents.

The first Revox equipment was exported to the Netherlands 30 years ago. Today, this country is, and should continue to be, one of the key Revox markets in Europe. Since the dealers who visited us produce approximately 25 % of our sales volume in the Netherlands, good results can be anticipated from this direct promotional activity.

F. Fuchs



New Audio Production Facility at WFAA-TV

Radio advertising for a TV station

The promotion department of WFAA-TV, Dallas-Fort Worth, Texas, has the reputation of being an innovator when it comes to marketing its product, "Channel 8".

One recent innovation pays tribute to the expanding role audio is playing in television production and promotion. WFAA-TV Promotion recently completed an update of its audio recording/production room, "Studio X".

The heart of WFAA-TV's emphasis on audio production is a new Studer A80 MK III eight track recorder, and three Studer B67 to track machines.

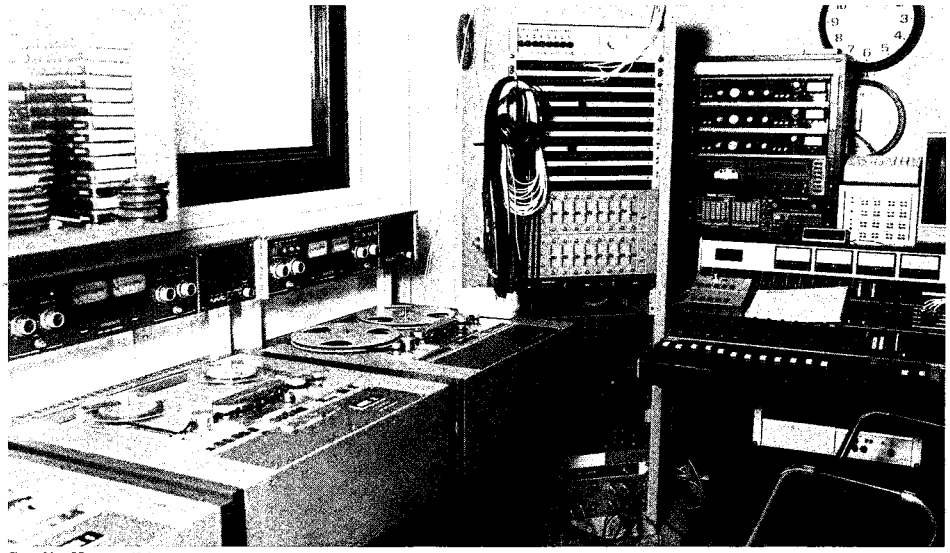
Radio advertising is important in the promotion of WFAA-TV. According to Wally Wawro, audio production specialist, "Studio X is primarily used for the production of our radio advertising. We produce a large amount of spots on a weekly basis and buy a like amount of advertising time. Having the A80 eight track for production purposes saves time and gives us some of the best sounding spots in the market. We believe in daily-specific advertising of our programs. This includes newscasts, special news series, PM Magazine, our movies, not to mention special prohects and programming. With a complete recording suite in our building we can produce and distribute spots to the dozen or so radio stations we buy immediately. We've installed equalized 15 kHz phone lines to each station we place a schedule with. This gives us incredible flexiblility. For example, at 3:45 PM I can record and produce a spot with a news anchor, detailing the important local stories that will be covered on our 6:00 PM news. I can feed this spot at 3:55 PM to all radio stations simultaneously to air in that afternoon's drive time, 4:00 to 6:00 PM. You can imagine the impact of having our anchor explain in detail to the afternoon commuter what we'll cover 'tonight on News 8' when he or she arrives home! Needless to say the cost of the

phone lines is substantial, but it works and gives us definite advantage in the marketplace."

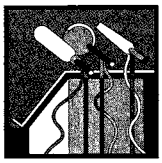
But why does the station call their audio room "Studio X"? Wawro told us "that's a good question. 'Studio X' is located out of the way on the second floor of our building. In fact the majority of our staff doesn't know it exists. Some people, upon discovery, admit they thought it was a janitor's closest. The room is small, only 8 by 16 feet. But what we've packed in here and how it's used makes a difference. It keeps Channel 8 a step ahead!"

Text: Chris Ware / Photo: Alan Beutler

Chris Ware is head of the Dallas office of SRAI.



Studio X: small but efficient.



13th International Television Symposium in Montreux

Video highlights in Switzerland

Every other year, the TV professionals flock to Montreux. The importance of this symposium and the exhibition in the convention center has again been clearly demonstrated: the number of visitors broke all previous attendance records.

Participation in this important exhibition is an established tradition for Studer International Ltd. since STUDER hardware has been on display at every TV symposium held so far. Because of the significance of this international symposium, no effort was spared: on the stand with its exhibition space of 60 square meters, new and field-proven products were demonstrated in two sections.

The 904 mixing console with VCA modules which for the first time has been introduced to a large community of professionals, clearly dominated the stand. But the CAMOS 3005 commercials broadcasting system with process computer, terminal, and audio source A810 also drew much attention. In a different equipment complex, the new tape lock system TLS 4000, comprising a synchronizing system with operating panel and two A810 recorders, a 901 mixing console, and a computer terminal, was demonstrated. This system, which is optimally matched to the A810 and for which it is exclusively available at this time, also evoked much interest.

In a complete video dubbing complex, all audio dubbing possibilities were demonstrated live. The main components of this sophisticated hardware configuration were a 902 mixing console with TLS 2000, channel remote control and event controller ECS 6000, as well as a 1" video VTR, U-matic VCR, various A810s, cassette recorder CAD-3011, cassette recorder A710, PR99, video character generator, monitor speaker 2706 and various auxiliary units.

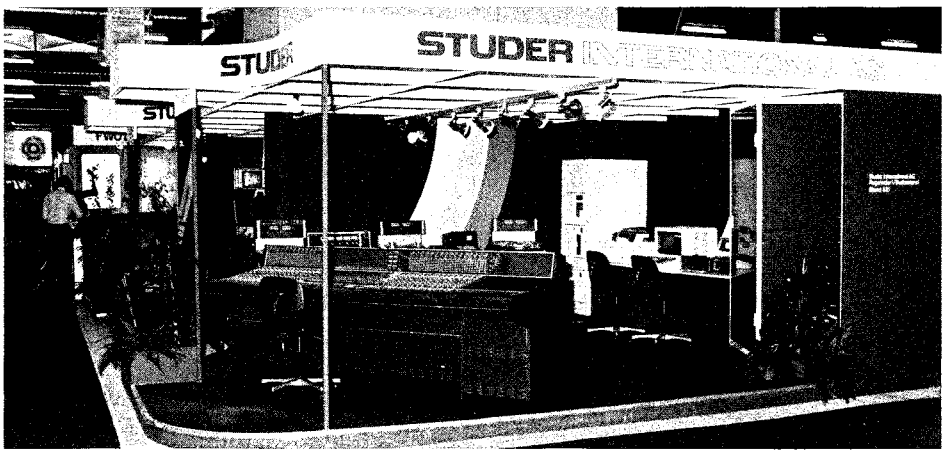
For the first time, the STUDER stand featured a second floor for consultation and for entertaining the many international guests.

As a prelude to the symposium, a short meeting of our sales representatives was held during which new products and the world-wide market situation were discussed.

The key features of this 13th symposium were the demonstration of high-definition television (HDTV), satellite and cable television. The assumption that the leading manufacturers were present in Montreux is supported by the fact that 160 exhibitors from 16 countries and approximately 150 registered journalists were present!

The video medium has again demonstrated its impressively high level of development, at least from a hardware point of view.

Marcel Siegenthaler



Studer stand with control desk 904 and commercials broadcasting system CAMOS 3005.

Training courses on professional STUDER equipment

27.06.–30.06.83		
STUDER A810, Tape Recorder		English
18.07.–29.07.83		
STUDER 900, Mixing Console		Arabic
12.09.–16.09.83		
STUDER 169-369, Mixing Console		French
STUDER B67, Tape Recorder		
19.09.–30.09.83		
STUDER A80 RC, B67, Tape Transport		Arabic
REVOX PR99, Tape Recorder		
STUDER 169-369, 900, Mixing Console		
03.10.–07.10.83		
STUDER TLS 2000, Tape lock system		English
STUDER A800/A80, Conversion		
11.10.–14.10.83		
STUDER A810, Tape Recorder		English
17.10.–28.10.83		
STUDER A80 RC, B67, Tape Recorder		English
STUDER A80 VU, Multichannel Tape Recorder		
STUDER 169, Mixing Console		
07.11.–11.11.83		
Seminar on **STUDER 900,** Mixing Console		English
14.11.–16.11.83		
Seminar on **STUDER A810,** Tape Recorder		English
21.11.–25.11.83		
STUDER A800, Multichannel 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.

Studer Revox in the Far East

New company

To underline our presence in South East Asia, and for better coordination of Studer Revox presentations in the Far East markets, a new company,

STUDER REVOX Audio Pte. Ltd.
173 Goldhill Centre
Singapore 1130

was established.

Under the management of Mr V.P. Ortega and the technical/commercial support of Mr Chan K.W., the new organisation will dedicate its initial activities to the introduction of Studer Revox products. Service and technical advice on both lines is guaranteed. The management of the new company has long-term experience with the Studer Revox range of products. From the Singapore base, the markets of Singapore, Malaysia, Sarawak, Sabah, Brunei and Indonesia (the latter on the government business sector only) will be exclusively handled.

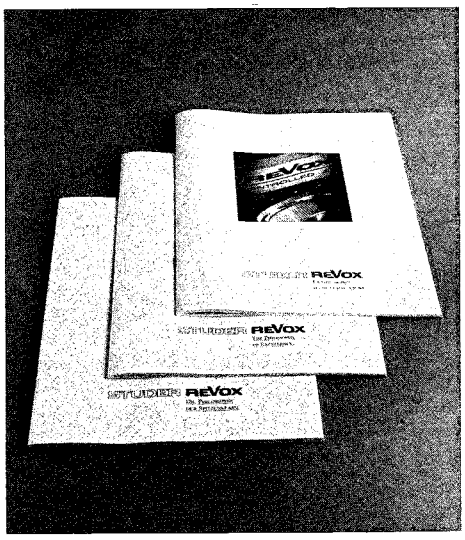
Revox

New product catalog

Concurrently with the introduction of the Series 200, Revox created a new product catalog which is now available in English, German, and French. Versions in other languages are in preparation and will be available in the summer of 1983.

The new Revox product catalog introduces on 40 pages the philosophy of our company and the current Revox hi-fi line. Each product group is described in detail on 4 pages. The exclusive Revox features are highlighted in detail illustrations.

The make up of the new catalog was coordinated with our current advertising campaign in order to promote a world-wide uniform image of the Revox brand.

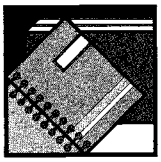


Awarded

"Pro Sound News" the American newsmagazine for the world of professional audio has in its 5th Annual Recording & Sound Awards again given top marks to studios using Studer equipment.

In the category "studios", recording centres equipped with Studer were runner up and second runner up while in mastering studios the top three work with Studer machines.

We are pleased if our products were able to contribute something towards this success and wish the studios all the best for the future.



From the printers

23.362.0583	**Mixing Consoles Series 900,** Leaflet (d)
23.363.0583	**Mixing Consoles Series 900,** Leaflet (e)
23.365.0583	**Monitor Speaker 2706,** Leaflet (e)
23.831.0383	**Prof. Monitor Speaker System,** PI 5/83 (e)
23.832.0383	**Mixing Consoles Series 900,** PI 6/83 (f)
23.833.0383	**Mixing Consoles Series 900,** PI 6/83 (e)
23.834.0383	**Mixing Consoles Series 900,** PI 6/83 (d)
23.828.0383	**CAMOS 3000,** PI 1/83 (d/e)
90.145.0	**Revox product catalog** (d)
90.146.0	**Revox product catalog** (e)
90.147.0	**Revox product catalog** (f)
18.239.0483	**B791/B795,** SI (d/e/f)
18.657.0483	**B261,** OI (d/e/f)
18.658.0583	**B251,** OI (d/e/f)
18.660.0483	**B201,** OI (d/e/f)

PI = Product information / SD = Set of diagrams
SI = Service instructions / OI = Operating instr.
Sets of diagrams, operating and service instructions available for a 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

Editorial staff: Massimo Schawalder
Technical Editor: Marcel Siegenthaler
Art and production: Lorenz Schneider
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For further information please contact