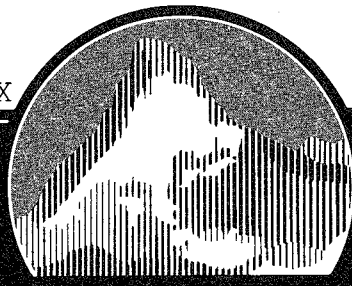


SWISS

NEWS AND VIEWS FROM SWITZERLAND

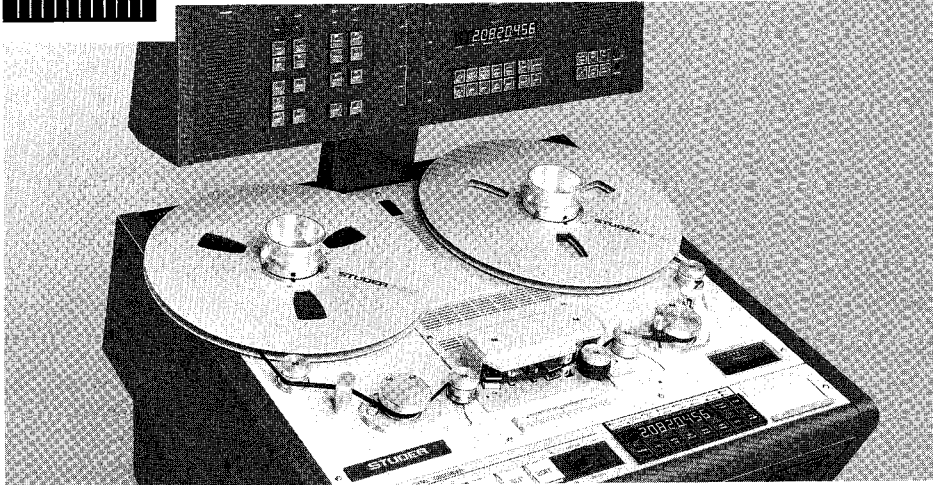
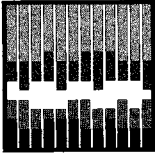


SOUND

STUDER REVOX

Digital 2-channel tape recorder Studer D820X

Automatic functions



The Studer digital 2-channel recorder D820X has been developed during the last few years, and is now in a state of maturity, promising good perspectives for its success on the market.

Experience has been gathered on the performance of the machine and on the compatibility with other 2-channel DASH recorders on the market, using the feedback to further improve the D820X. Parallel to this, the first digital audio editors (DE4003) to the D820X are introduced in the market.

With increasing competition in the 2-channel digital audio market, it is imperative to incorporate features which other makes do not have. Quality of design is one. DASH recorders, for example, allow for several sampling rates (48 and 44.1 kHz with 44.056 kHz as an option) and the use of emphasis on the main audio channels.

The two auxiliary tracks on the tape can be used for stereo cueing channels or one track can be used for a mono cueing (MIX CH 1 and 2) channel while the second one is used to record external auxiliary data, e.g. CD subcode data. The mode in which the tape has been recorded is noted in the control data contained in the RT (Reference Track: sampling rate and auxiliary track mode) and in the control data of the eight digital audio tracks (emphasis).

A prerecorded tape can therefore be played on the D820X without having to preset manually for the correct sampling rate, emphasis and use of auxiliary tracks. By simply putting the recorder into play mode, the D820X will read the required control data from the tape and automatically set itself within approx. one second.

The D820X offers a similar feature when using the digital audio input. Selecting the AES/EBU format digital audio input causes the D820X to read the control data content of the AES/EBU signal first, and set parameters like the sampling rate and the emphasis accordingly.

If by chance the recorder is synced with an AES/EBU signal which contains a different audio parameter than the tape on the recorder, the D820X flashes a red error LED and explains the conflict in the liquid crystal display on the tape deck, e.g. a 48 kHz AES/EBU external sync combined with a 44.1 kHz tape will result in an error message like 'RT FS mis-match'. In the event that the error message is ignored, a pitch error of approx. 9 percent would result, the external sync signal having priority.

The automatic setting of the recorder according to the control data in the digital input signal or on the prerecorded tape is a feature unique to the D820X. Other recorders require manual setting

of switches on panels or on the front of printed circuit board while cross checking the machine mode visually with LEDs.

The value of the automatic setting features lies in the advantage that the operator can fully concentrate on his or her artistic work, rather than setting the recorder, with the latter safe-guarding against operational errors.

The intelligence of the setting functions is located in the SYSCON (system controller) in the PCM box. Living on 32 kByte of instructions, the MC6803 microprocessor of the SYSCON controls all audio functions, while communicating via a SSDA connection with the Master Processor of the D820X. It also regulates communication with an external terminal via the RS232 SYSCON Monitor interface.

Control data on DASH tape and in the AES/EBU signal is defined in format documents, which are accepted by a great number of manufacturers. However, the formats merely describe rules according to which a machine must interpret the data. DASH and AES/EBU format documents do not prescribe the actual implementation in product development. This is strictly up to the manufacturer to decide. The Studer development team worked hard to implement both formats intensively, ensuring that all features offer full advantage to the operator of the recorder.

The above described functions are only two of the many features which are standard in the D820X. Others will be explained in later articles.

David Walstra

SWISS 25 SOUND

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Studer DE4003 Digital Editor

Electronic editing

The DE4003 is a new, future-oriented tool for use with digital recordings in the DASH format and has been specifically designed for efficient electronic editing. However, this editing method which is new to the audio field, also raises some questions, particularly with respect to the price/performance ration. The following report sheds some light on the current situation.

The principle of cutting something with scissors and pasting it back together again in a different order was already adopted when the first tape recorders appeared on the market. With the availability of synchronization systems, the more elegant analog-electronic editing technique became feasible, which is particularly appreciated when multichannel tapes are to be processed.

Scissors - or no scissors?

With the advent of the digital recording technique the efficacy of tape splicing had to be reexamined. Although the traditional scissors method can be used in conjunction with certain recording digital formats, there are some reservations about this approach:

- Edit points cannot be spaced too closely
- The tape is physically destroyed at the edit point. Although the digital information can be restored by error correction techniques, the tape is of limited use for new recordings
- Electronic methods offer greater capabilities.

For many users, the preceding point is the criterion that justifies the higher investments in an editing station which can range from sFr. 40000 to sFr. 150000.

Some of these greater capabilities are:

- An edit function can be simulated, i. e. it can be rehearsed without performing the actual editing.
- Based on this rehearsal, the exact edit point can be corrected as desired.

- The crossfade function between two joined sections can be varied within wide ranges: individual times for drop-out and drop-in and independent curve shapes for the fade processes are today already the rule in many edit workstations.

A difficult choice

With today's state of the art, two ways of electronic editing are feasible:

a) Systems with hard disk or Winchester drives.

The advantage of systems based on these technologies is the extremely short access time to **any** audio information stored on the medium. Edits are simulated with so-called 'GO TO' commands: the read head simply jumps to the information that follows the edit point. Rather than executing the actual edits a simple edit list is prepared.

This process does not modify the original material, which means that it can be reused for other editing operations. The disadvantage is the relatively costly hardware: direct access is only feasible if the entire source material is available on hard disk or Winchester disk. The capacity required for editing a symphony can easily amount to several hours because initially the takes to be used for the final version are not known. For this reason, disk configurations with a total capacity of over one gigabyte are not unusual.

The main disadvantage, however, is the need for media change: as a rule the source material resides on different media and the system must be loaded. In most systems this process consumes real time. If a production cannot be edited in a single session, the material must be down-loaded to a backup medium; but also this process requires real time. And the final product must be copied onto another recording medium.

The enormous advantage of fast access during editing is offset by the fact that much time is lost by changing the recording media.

b) Systems with tape-based recording media.

Editing systems with tape-based media employ two or three machines and a RAM buffer into which the audio information to be edited is loaded.

In a three-machine configuration (also referred to as A/B roll), the source material is available on two machines. If, for example, the audio is to be taken from the first machine up to a certain point (edit point A) and subsequently the signals from the second machine are to be taken (edit point B), the tape decks are shifted relative to each other (heavy arrow in Fig. 1) until the two edit points coincide.

This control is achieved by means of the time code information available on the two machines. Editing is then performed in two steps: First the data from Player A are transferred, subsequently the data from Player B.

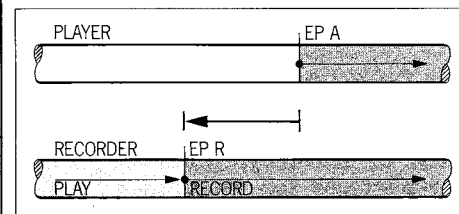


Fig. 1

In a configuration with two machines the source material is initially available on only one machine, the second machine is used for recording. The usable signals are copied until the first edit point is reached. The reproduce machine is then parked at the start of the next usable audio information (edit point A) and the record machine is parked at the end of the last usable information (edit point B). The machines are again positioned (arrow) at the correct address by means of the time code and the record machine switches from play to record at the precise moment (Fig. 2).

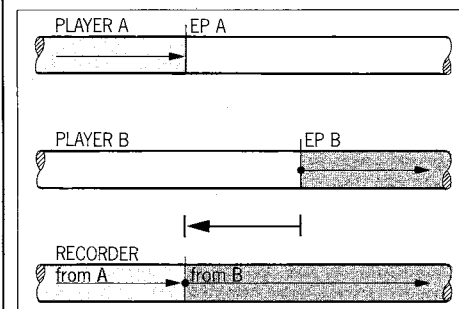


Fig. 2

In both cases the RAM memory serves as an aid for determining the exact edit point. The audio information is loaded into the RAM in such a way that several seconds of audio are available before and after the approximate edit point, which means that the desired edit point can be accurately searched by playing from the RAM. Once the audio information is in the RAM, this process is even faster than in Winchester based systems. The edit function can be rehearsed: both machines switch to play; changeover from one to the other machine takes place at the right moment with intermediate activation of the RAM in which also crossfade operations can be stored.

Advantageous in this method is that there is no need for media change. Disadvantageous is, however, that only a few edit points can be stored in the RAM and that the editing speed depends largely on the shuttling time of the tape decks. If the widely popular U-matic tape decks are used, this will result in significant delays, because the omega drive (the tape is almost completely wrapped around the head drum) is not ideally suited for rapid changes between play mode (head drum wrapped) and reproduce mode (omega drive open).

The work can be performed much faster when DASH machines are used.

The Studer solution

An obvious solution to this problem is to use very fast tape decks which on the one hand eliminate the need for media change and on the other hand avoid the long search times of video decks. These requirements are fully met by the Studer D820X. Its drive corresponds largely to the A820 analog machine. Its refined microprocessor control achieves exceptionally fast shuttling times while treating the tape very gently, which is of utmost importance for digital tape decks.

The DE4003 digital editor (Fig. 3) is a control unit which has been designed to fully satisfy the requirements of practical applications, particularly with respect to time-saving.

- The capacity of the RAM memories can be adapted to the type of modulation.
- The pre-roll and post-roll times of the machines for edit rehearsals can be adjusted as desired.

- For CD mastering, the PQ information can be prepared simultaneously with the editing by means of a PQ editor.
- The edit points are searched with a thumbwheel that performs several rapidly changeable functions:
 - Manual searching of the edit point by slowly shifting the audio information (jogging) as is done with analog tapes (cueing).
 - Defining the frame of a window in which the audio information is continuously repeated (loop).
 - Changing the monitoring speed, particularly useful for music in which the rhythm can be retarded, but the speed remains constant.
- The operation is logically arranged in the form of a menu tree which means that the procedure is easy to learn and to memorize.

The operator console (Fig. 3) also includes the machine controls, the input fields for the crossfade times (not just

different times for drop-in and drop-out slopes but also different characteristics are selectable), fader for adjusting the copying level, as well as a display field for user prompts that greatly simplify the work with the editor.

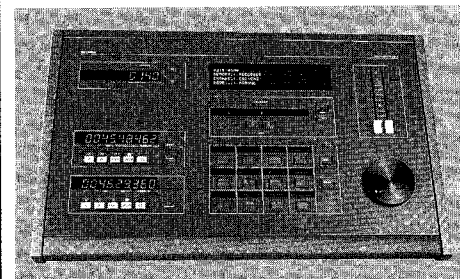


Fig. 3

Fig. 4 illustrates the block diagram of a 3-machine configuration. It is also possible to connect A820 analog machines if they are time code controlled, as well as other sources with time code capability. A typical example is the Studer A730 CD player for inserting sound effects.

Karl Otto Bäder

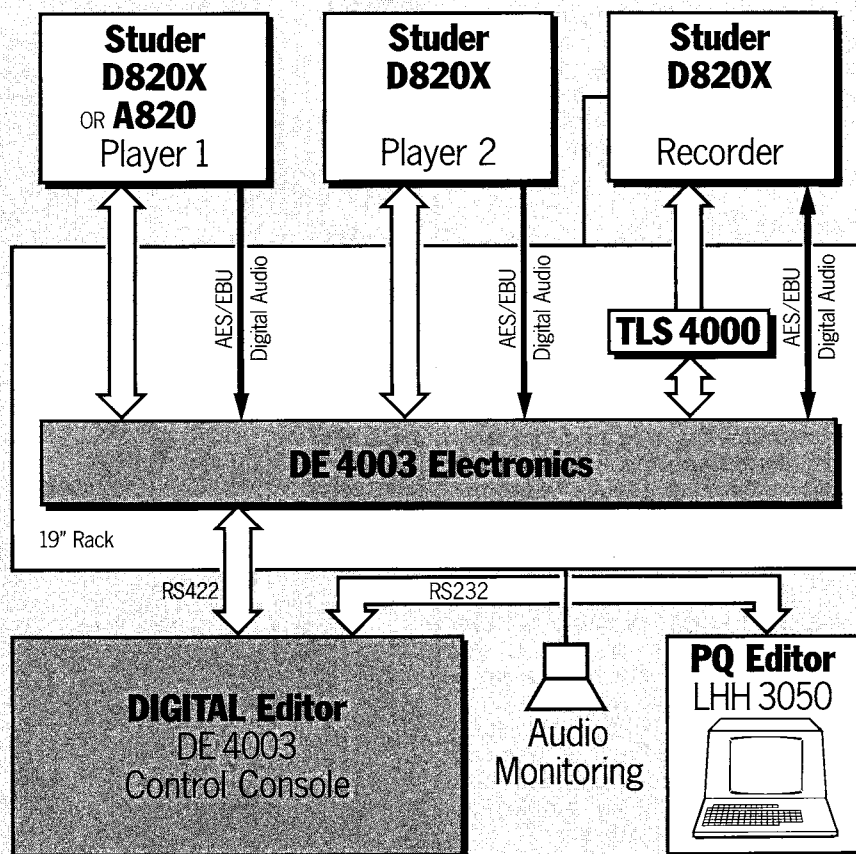
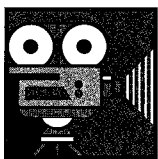


Fig. 4



The EDP network of Studer, Regensdorf

The nerve center

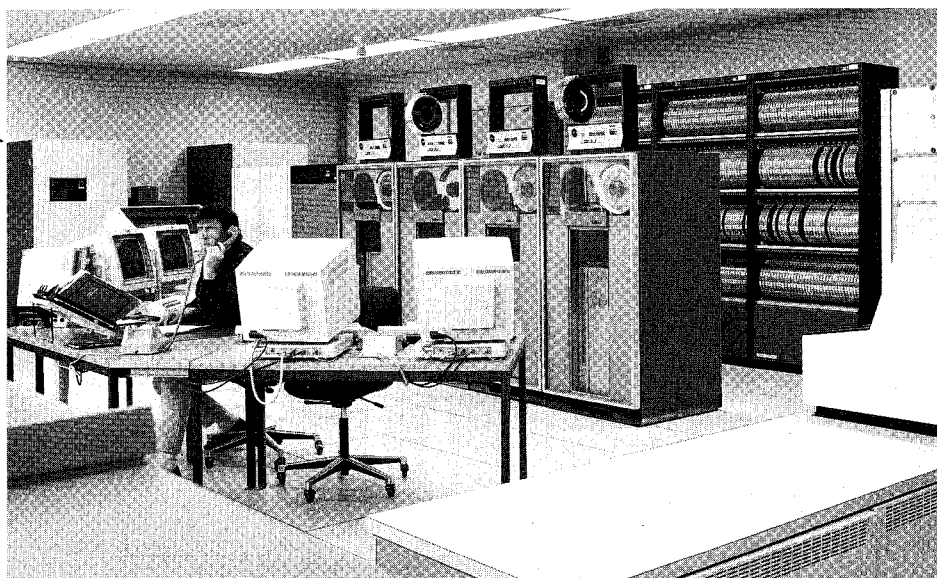
In 1976, when Willi Studer AG decided on on-line processing, nobody had a network in mind. Data communication over long distances was not being widely used yet. Except for the major computer manufacturers, only a few large companies or external EDP centers had connections via leased or dial-up lines to remote users. Most companies had an in-house computer and were very proud of it. Some of them even went so far as to actually 'exhibit' their EDP systems in their windows. Computer crime and sabotage were virtually unknown.

Our technical-scientific EDP group made its first acquaintance with remote data processing as far back as 1969. With a rented IBM 1050 terminal the first Fortran programs were transmitted to IBM's computer center in Bern. The IBM/360-20 computer system, which was installed in 1966 and kept in service until mid 1979, was not suited to on-line applications. In the spring of 1977 a more modern and powerful IBM/370-115 was installed. When the new building in Althardstrasse 30 planned, a computer room with a raised floor was planned on the 6th floor.

Why on-line

In the past all computer users at Studer had to request their listings and analyses from the EDP department in writing by means of so-called keypunch forms. Changes, such as including new parts in the inventory master file, also had to be introduced in this way. The turn-around time for punching, processing, and distributing the lists and logs was long. Often the results were not available to the departments until the following day.

With the display terminal, i. e. on-line processing, it became possible to make such things available directly at the place of work. The advantages were sensational: the elimination of the cumbersome workflow resulted in big time savings. Changes could now be made as they occurred, and the results were immediately visible to all other employees working with the same data set.



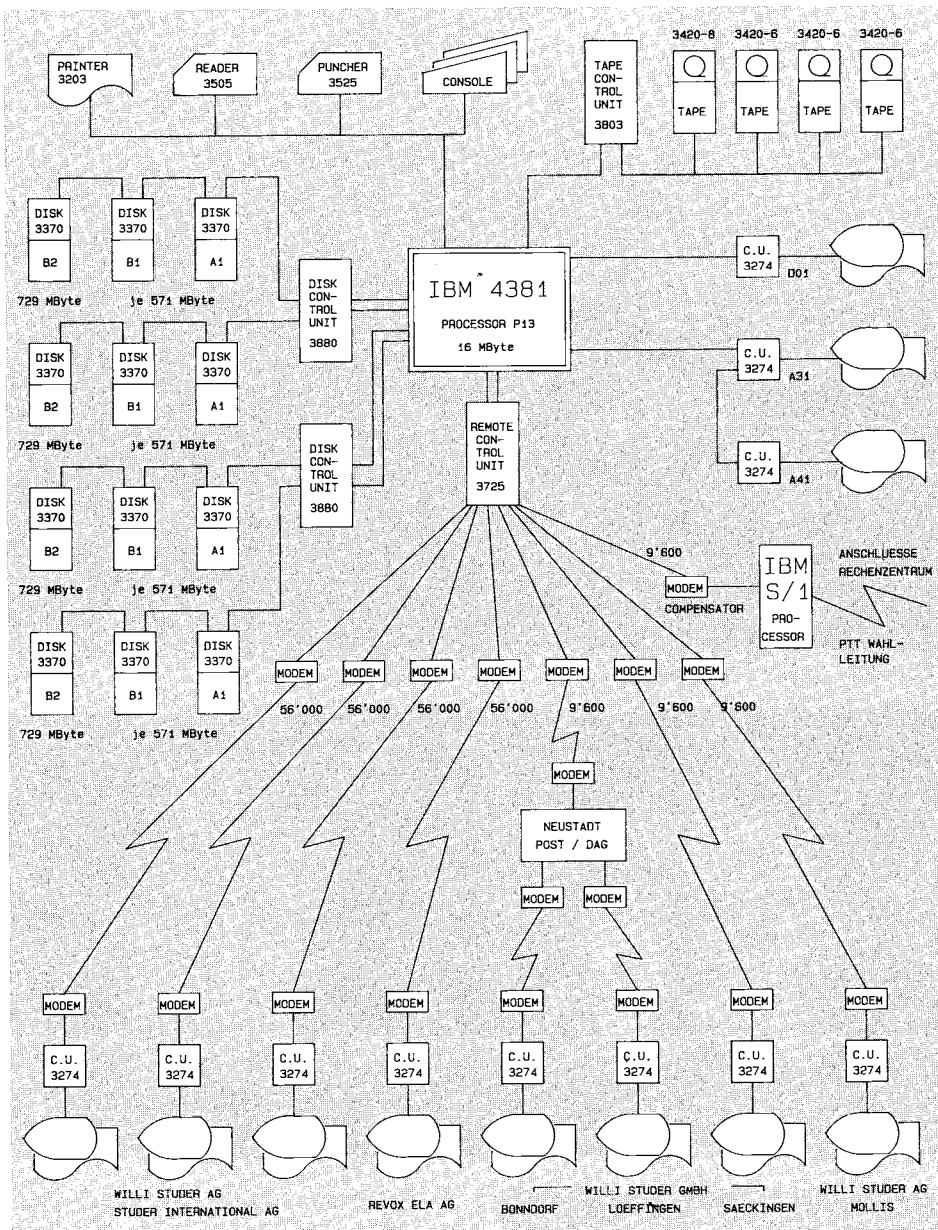
In the fall of 1977, the first display terminals were installed at WST in the operations scheduling, purchasing, and production planning departments to supply information concerning the inventory master file and bills of materials.

Network

In mid 1978 the 'network age' in our EDP center began. By connecting Studer International AG, then still located on Althardstrasse 150, the computer capacity was for the first time transported over an extended link consisting of a leased line operating at 4800 baud (bits per second). It was first used for inquiry and updating of STI's own inventory master file. Two years later, in August 1980, Revox ELA AG was interfaced to the same line. The financial accounting system introduced in January at WST thus became available also to ELA. The network now started to grow very quickly. By June 1981 already 31 display terminals and 2 printers were connected to the central computer.

EDP in Löffingen

Since 1971 the Löffingen factory has also had its own computer system, an IBM/360-20 which was, however, not suited to on-line processing. The requirement for a more efficient financial accounting system at WST and in Löffingen resulted in the connection of Löffingen to the net-



Modernization

With the relocation of Studer International AG to the new building on Althardstrasse 10, in September 1982, the operation of the network was also modernized.

Up to that time BTAM (Basic Telecommunications Access Method) was used as the communication protocol.

With the introduction of VTAM (virtual) and SDLC (Synchronous Data Link Control), the network operation became more efficient and less sensitive to malfunction. At the same time the transmission rate was increased. The line to STI now operated at 19200 baud, the line to Löffingen at 9600 baud. 63 display terminals and 7 printers were in operation.

Additional requirements for display terminals and data lines, and the bottlenecks in the network controller led to a far-reaching expansion of the network in June 1986. A modern and powerful network computer IBM 3725 with eight data lines was put into service in order to satisfy additional requirements such as the connection of Mollis in September. The line to the building on Althardstrasse 10 and to ELA now operates at 56000 baud since the Swiss PTT no longer restrict the data transmission within the local telephone area. Only the lines to Mollis, Löffingen, and Bad Säckingen are still subject to certain regulations, and still operate at 9600 baud.

Concurrently with the network expansion in June 1986, the processing power of the mainframe was considerably boosted with a new IBM/4381-P13. Today we have a modern and powerful EDP system.

PC boom

By mid 1984 the incipient PC boom had caught up also with us. The first PC (personal computer) was installed at Revox ELA AG. It featured 128 KB, 2 diskette drives, and an IRMA board. The IRMA board allows the PC to be connected to a central mainframe as a normal display terminal. Now it became possible to combine two units into one: an individual workstation computer for autonomous functions, such as word processing with French character set, and a normal display terminal. The IRMA board also supports file transfer, i.e. files can be sent from the PC diskette or fixed disk to the CMS (Conversational Monitoring System) or from the CMS to the PC. Most fre-

System configuration

work. The ever-growing utilization by all the German factories and the discontinuance of the computer maintenance by its manufacturer gave rise in 1984 to a detailed study of the potential and the future of EDP in Löffingen. The choice narrowed down to two alternatives: A larger in-house system in Löffingen, or central processing of all applications in Regensdorf.

The decision in favor of Regensdorf was principally influenced by two important considerations: Firstly, the entire EDP and programming infrastructure was already available there and did not have to be reestablished. Secondly, the existing EDP in Löffingen would have no

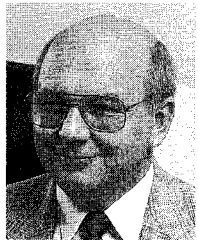
difficulties in adapting their programs to the new environment.

The decisive criterion, however, was the fact that all the production departments required the information available in the computer. Many employees had a genuine need for access to the inventory management and scheduling programs at the same time.

Organizational aspects would also be much better satisfied by central management. In summer 1985 the entire processing was consequently transferred to Regensdorf, and the network considerably expanded by interfacing Säckingen and Bonndorf.

quently this facility is used for backing up the PC files. Today 240 terminals are connected to the network of which 20 are printers and 28 PCs.

Walter Amstutz

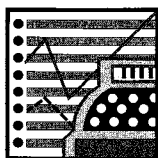


Walter Amstutz (47)

After his apprenticeship as a typographer he continued his professional training in cost accounting, trade school, industrial electronics, and mathematics. 1969-1971 work planning and inventory manager in an envelope factory. In 1970 first attempts at programming. 1971-1977 programmer, then computer system manager for a large paper wholesaler, and subsequently in self-employment responsible for the introduction of an on-line system of a large milk processor. Since 1978 at Willi Studer AG. Largely responsible for the introduction of on-line processing. Today responsible for the operation and support of the computer center and the data communication network.



Docklands Spectacular: eight A820 multi-track recorders acting simultaneously.



Great Britain

Jean-Michel Jarre chooses Studer Revox for Docklands spectacular

After months of uncertainty, the Jean-Michel Jarre spectacular finally lit up the skies of the London Docklands.

Over the 2 days, nearly 200000 people watched the two shows. Very much part of the visible show were high power lasers and twelve enormous World War II searchlights, that had been specially brought over from America. Behind the scenes much of the success of the show depended on the eight Studer A820 multi-track recorders specially provided for the event by F. W. O. Bauch Limited.

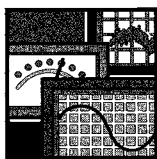
Perfect synchronisation of the lights, fireworks, 40 musicians and a choir of 120 people was achieved using cue tracks played back by 2 of the Studer A820's whilst four A820s, fitted with Dolby SR, recorded the on-stage performance and the mixed-down ambient sound for later release.



F. W. O. Bauch Limited engineer, Martin Bastin, was present for the ten days leading up to the shows and was responsible not only for the faultless performance of the Studer recorders during the show, but was also involved in setting-up the synchronisation of all the equipment and of personally laying some of the 40 miles of cable used in the Docklands site.

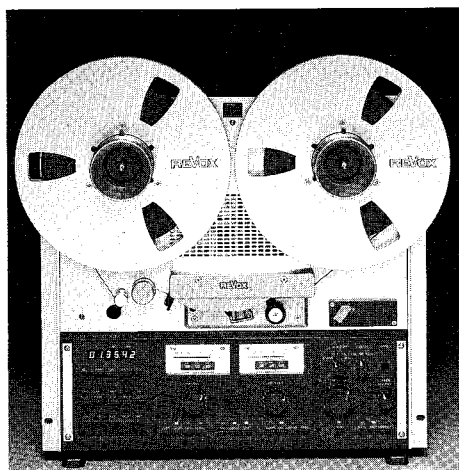
Jean-Michel's choice of Studer was based on two main factors. Firstly the inherent reliability of the Swiss manufactured equipment, with the high quality support from F. W. O. Bauch Limited, and secondly the fact that Jean-Michel chose Studer A820 multi-tracks for his own French Studio.

Michael Cooper
F. W. O. Bauch Ltd.



The new analog C270 tape machines from Revox

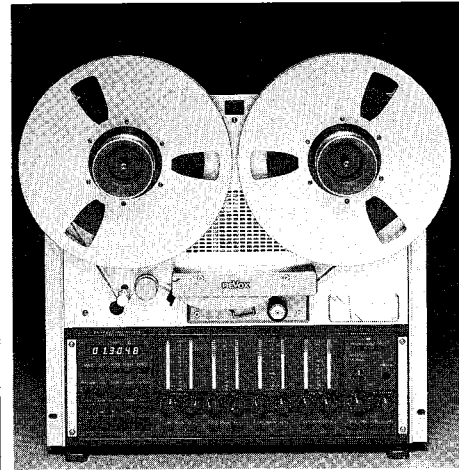
Cut from the same mould



Revox C270 - the standard model from the new series with 2 channels and VU-meters.



Revox C274 - the 4 channel model with Bargraph VU/Peak meter combination.



Revox C278 - the 8 channel model with 1/2" bandwidth and Bargraph VU/Peak meter combination.

With the introduction of a new generation of analog tape machines, Studer Revox is now able to present the latest state of the art in magnetic recording which has proven itself and is not afflicted with any compatibility problems. From the beginning, the objective was to develop a complete range of equipment. The result, the interesting Series C270/C274/C278, is subsequently presented by the product manager.

This series as we know it today is a novelty for Revox. For the first time we are constructing not only 2-channel machines for 1/4" tapes but also machines with 4 channels for 1/4" tapes and 8 channels for 1/2" tapes. This decision was carefully made and the equipment had to live up to the traditionally high expectations of the Revox users. And it is no secret that this new series was to establish a link to the Studer product range. In the semiprofessional C270 Series, many features available only on the big analog tape recorders have been implemented. So it comes as no surprise that it has been placed into a superior price category. This means that the existing PR99 had to survive without overlapping the market niche planned for the new equipment.

Common styling and mechanical features

The standardization or the interchangeability of many tool-dependent parts was

decided upon for economical reasons. Only in this way is it possible to manufacture in lots sufficiently large for amortizing the high initial investments. For this reason, all units of this series have an identical basic chassis, identical cast parts, an identical housing, as well as an identical basic chassis for the operating front.

This standardization does not stop here. Identical spooling motors and the capstan motor are used, which in all models are supplied by identical power transformers. Identical components are also used for the tape tension sensors, the front panel and the diecast head-block parts.

If we penetrate to the «soul» of this equipment, we can see microprocessors of the same family which consequently operate with virtually identical software.

Of course, these characteristics also make it possible to support a uniform range of accessories efficiently.

Accessories - The interface concept

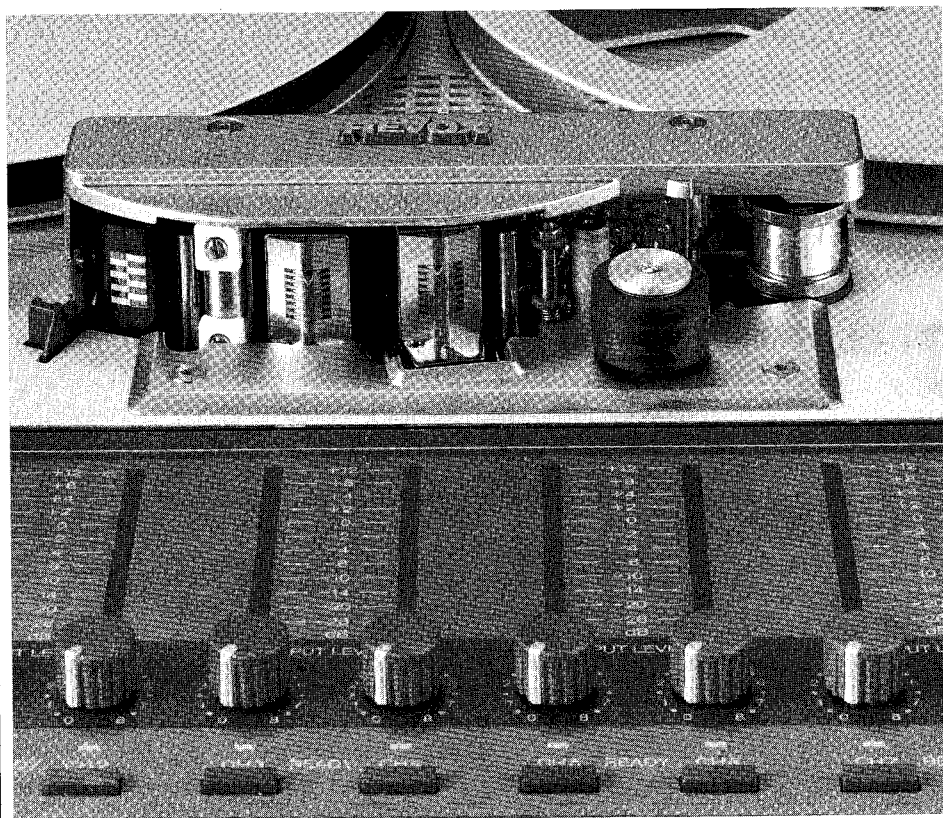
Let us dwell on the accessories for the moment. It is not their quantity that counts but their practicality and quality. At first sight the offer may seem meager, but on close examination it proves to be almost infinitely expandable. We are talking about the serial interface which features a comprehensive, fully defined

protocol which, by the way, is totally compatible with the commands of the Studer equipment.

General design of the C270

Let us first examine the basic model of this series, i.e. the 2-channel C270. Its basic design can be described with a single sentence: **Modularity wherever it is required for a variety of models.** The unit is built around a rigid chassis that supports the entire infrastructure, independently of the specific configuration. This infrastructure comprises the transformer with the power supply, the complete control PCB with the microprocessor system, as well as the control and regulating circuits for the tape transport. These circuit elements are only accessible for service work. However, various selectable parameters can be set either by software or internal DIL switches. Access to the audio section is possible by unfastening only 4 screws and by tilting down the hinged front panel. The proven design with functionally dedicated circuit boards has been adopted for the benefit of many versions of the same basic model can.

With a completely new capstan drive, a speed range from 1 : 4 can be mastered with an identical motor (and identical shaft). Each machine can process tapes at speeds between 3 3/4 and 15 ips. In order to minimize the complexity of the alignment, all models are

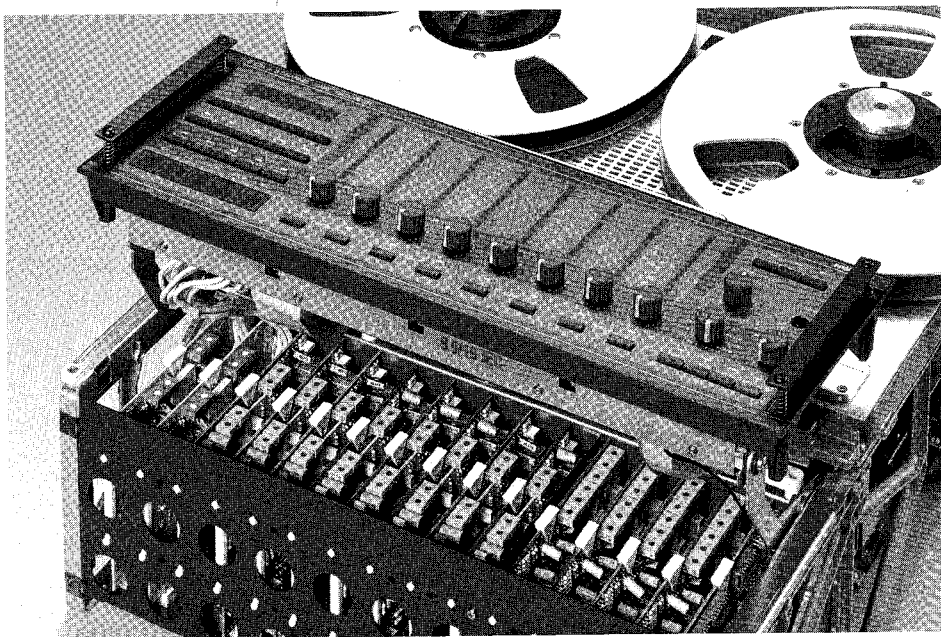


8 channels on 1/2" band and high stability in the head assembly for professional audio quality.

implemented as 2-speed machines. A so-called «field conversion» is a relatively simple process. The technique employed can be briefly described as follows:

- The logic of the tape deck control as well as the tape handling (including monitoring of the tape tension in any situation) is fully coordinated by a microprocessor system.
- The timing of the analog audio section is coordinated by the microprocessor system. However, conventional control elements, i. e. trimmer potentiometers are used for the setting of the audio alignment.

This means that not only the tape transport functions but also the status of the audio functions of the individual channels can be made easily accessible with a remote control device. The usefulness of this concept will appear in connection with the autolocator which has just been developed. This installed in a desktop housing, can control the principal operating processes of the tape recorder.



By raising the front panel the complete audio electronic section becomes accessible.

Specific design features of the C274

Although the basic design is the same as for the 2-channel machines (except for the more complex audio electronics), it was still necessary to find various other solutions for the 4-channel machine. For example, the entire plug-in board technique for the audio electronics was retained, but the circuits had to be adapt-

ed to the specific requirements of this application and had to be allocated to different boards.

Basic features such as the standard Dolby HX Pro system for optimum headroom extension or the phase-corrected record electronics were retained. An important and conspicuous difference is the change from conventional moving-coil instruments to a LED bargraph output meter which offers not only high 24-step resolution but also a practical combination between VU and PPM characteristic (peak hold).

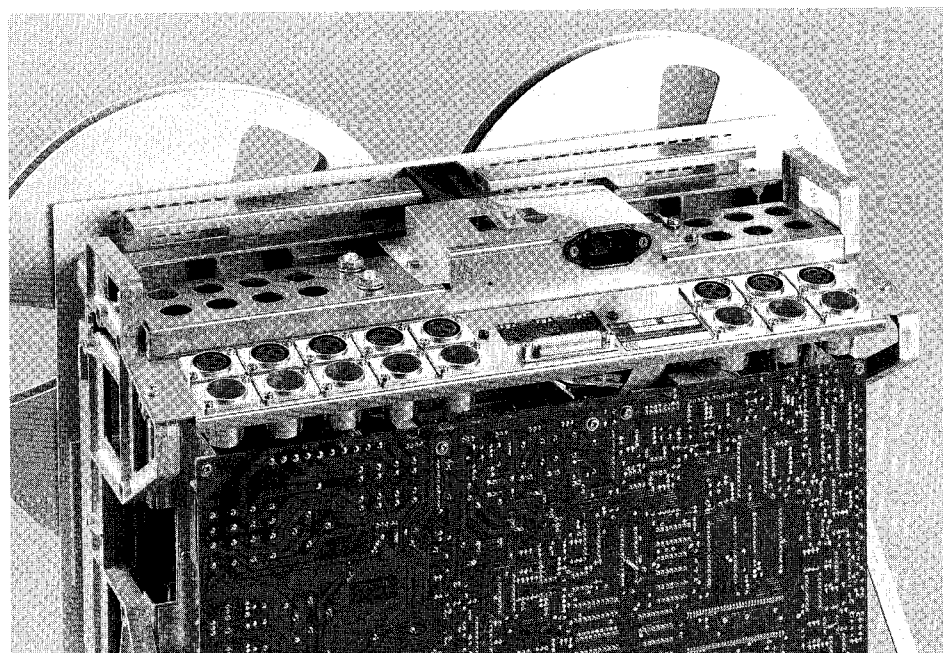
Probably the most important «internal» difference to the 2-channel C270 is that the 4- and 8-channel versions are equipped with integrated electronic circuits for recording and reading data on one of the audio channels.

The data is recorded at a relatively low rate which in numerous applications is more than adequate. This solution is not expected to compete with established data recording standards such as SMPTE/EBU. The additional parallel interface is an excellent prerequisite for extended applications with a separate

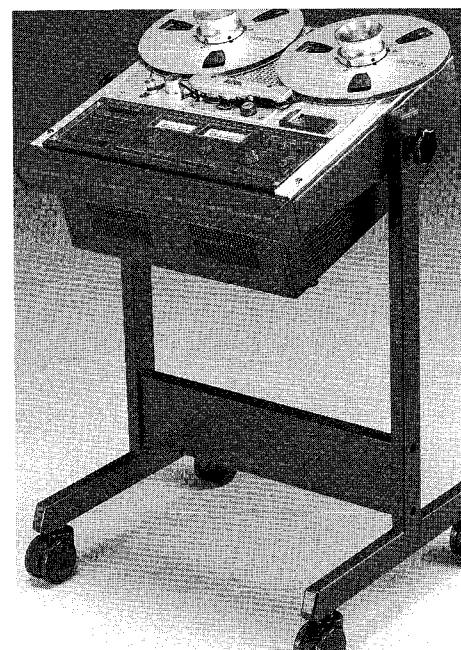
time code data head, external machine control, and specially adapted synchronizer.

Specific design features of the C278

What has been said about the C274 basically applies also to the 8-channel machine. In order to maintain the audio



Stability and XLR connectors indicate the professional approach of the C270 series.



A console is available for professional use.

quality, the 1/2" tape format had to be selected, the tape transport design is however identical. Due to the generously rated drive elements throughout the entire equipment family, only minor adaptations of the software were required to accommodate the wider tape. The internal design, up to the infrastructure of the microprocessor control, has remained the same. But the operator surface had to be changed to support the application requirements of an 8-channel machine. For example the audio tracks are not cumulatively connected via the monitor but selected individually. Even if internal data recording is used, 7 channels are still available for audio information.

Upgradability - configuration of work systems

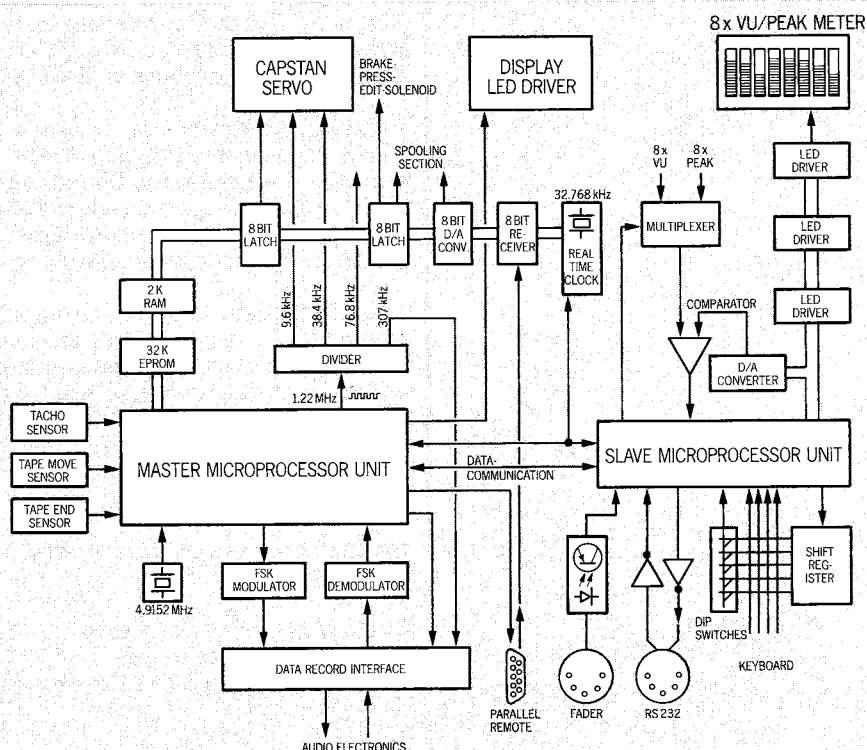
The basic structure of the machine and the previously mentioned new capstan drive make it possible for the first time to process tapes reliably on Revox equipment at the extremely low speed of 15/32 ips (also for recording data). With these new ultra-slow versions (15/32... 1 7/8 ips) the new market segment of documentation can be penetrated.

The term «work system» may appear to be new in the Revox equipment category. But in fact this application has been successfully covered for some time, although a considerable amount of work «behind-the-scenes» was neces-

sary. This work, which in the past had to be performed by the marketing companies, will be greatly simplified in future. Customer requirements will be conveniently defined in a high-level computer language and translated into corresponding functional sequences. There will be both a factory-produced hard- and software section (system con-

trol) as well as user-specific software which permits access to the sequence control by means of a transparent protocol.

Various applications are thus feasible, e.g. broadcast monitoring which, due to the enormous increase of private and local stations is continually growing



Blockdiagram of microprocessor control for tape deck and keyboard.

in importance, or broadcast automation and even documentation for the radio press and for catalog production.

The data recording capability of the C274 and C278 is particularly useful for this purpose. Due to the supported search criteria, elaborate external circuits will in many cases be unnecessary. The addressability of the machine, including specific status inquiry, makes for highly convenient handling in conjunction with a PC user surface.

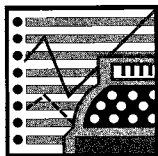
With these capabilities, the analog C270/C274/C278 have significantly narrowed the gap to the digital world, in other words attractive synergies are feasible when analog and digital technologies are combined.

Marino Ludwig



Marino Ludwig (44)

Received his degree in electrical engineering in 1970 from the Swiss Federal Institute of Technology (ETH), Zurich. Development engineer at Studer since 1970; first in the field of language labs, subsequently with the A77 analog machines. Since 1975 project manager for the B77 tape recorder and B710 and B215 cassette tape recorders. Since 1985 product manager responsible for all Revox products.



USA

Studer Console goes Hollywood



Thanks to special efforts made by all the groups concerned, namely the console department at Studer in Regensdorf, the Lufthansa Airlines, the Panalpina transport organisation and last but not least the Studer LA crew, the Studer 900-Series Console was installed at the promised time on Friday October 28th at Studio Lighthouse in Hollywood.

Eduardo Fayad and I visited the Studer factory in Regensdorf about a year ago. It was clear to both of us that the LA market needed an alternative for a music recording console. And the choice for Eduardo was clearly Studer.

At the Studer console department we convinced the engineers of the necessity of special functions and routing, as well as patch field configurations and insert points for a world class audio recording studio here in LA. We also learned about new mixing console modules, which was most useful for us.

We finally agreed on the following configuration:

- 62 inputs with 10 aux sends
- 24 bus and 2 master bus
- 24 side monitors with 10 aux sends

- 62 + 24 bargraph VU-meters for input and side monitors
- 8 aux sends VU-meters
- 2 master output VU-meters
- Special solo and mute functions
- GML (George Massenburg Lab) Fader Automation System for the 62 inputs.

In mix mode, the side monitor can be added to the stereo output and therefore supply an additional 24 inputs, which adds up to a total of 86 inputs. With this configuration, Studio Lighthouse is fully equipped to accommodate double 24 track or more mixdowns.

Originally Lighthouse made a name for itself as a recording studio. Eduardo Fayad was not satisfied with this and therefore expanded the control room facilities, so that he is now able to book any type of session from tracking, overdubs to mixing including 4-track film work, for which he has added a special 4-track monitor in his new console.

Best wishes to Eduardo Fayad, Studio Lighthouse, North Hollywood California and success with the largest recording console ever built by Studer.

Thomas Jenny
West Coast Manager SRA

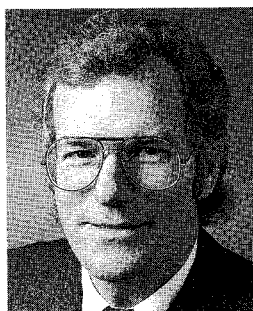


The Studer Group
of Companies

'Who's who'

This column has been reserved for introduction of personalities of our companies and representatives in Europa and Overseas.

Introducing:



Michael Roger Bauch

Director of F. W. O. BAUCH LIMITED, London • born 1945 in Berlin, West Germany • went to school in London from 1950 to 1963 • practical training at Siemens AG Munich for one year • 1964 to 1967 studied physics and mathematics at St. Andrews University, Scotland • joined F. W. O. BAUCH LIMITED in July 1967 • married, two sons aged 10 and 8.

Of today's 65 representatives selling STUDER REVOX equipment exclusively in Europe and Overseas, F. W. O. BAUCH LIMITED was one the first companies back in 1960 to take over distribution rights of Studer professional audio equipment for the U.K. market. Michael Bauch entered the company in 1967, joining his father F. W. O. Bauch and his brother John who, together with one sales engineer (Werner Wahl) and one secretary were marketing Studer tape recorders along with Neumann, EMT and Albrecht products, and Sonnenschein batteries.

During the following years, the company expanded rapidly and in January 1970, left the 100 sqm of office space in Cockfosters to relocate to the present head-office in Boreham Wood, north of London. In 1987, the growing battery division was moved to the nearby Stevenage, allowing for the necessary expansion of the other three divisions, namely professional audio, Revox hifi, video systems and their system group for the execution of complete turnkey installations.

From 1975 to 1987, the range of products expanded with Revox hifi equipment, CMX videotape editing systems, Ikegami broadcast television cameras and Magni video test equipment; in addition, F. W. O. Bauch Limited distributes several other professional audio and broadcast video product lines. In the course of the steady growth, a solid, competent team has been established with many staff members exceeding their 10-year service milestone - a sure sign that there is job satisfaction and a good team spirit. Thus prepared, Michael Bauch not only looks after general company management, but is also responsible for sales, marketing and profitability of the four divisions and works in the forefront of all business activities.

The professional audio market in the United Kingdom can be divided into two sections: the recording studios, primarily located in the Greater London area (reputedly the world's foremost recording centre) and the radio and television broadcasters situated in all regions of the kingdom. From the outset Bauch has been successful in both markets in establishing a solid base for the sales of the Studer product range; for example, the British Broadcasting have been prime user of Studer tape recorders of all generations since their first selection of the C-37 back in 1963, and rank among the most reputed and long-standing Studer customers.

Michael Bauch sees the distributor's role as an important communication link between manufacturer and customer: assisting an overseas manufacturer in selling suitable products to a distant market, and enabling the customer to purchase reliable equipment of international manufacture. This can only be achieved and supported by solid before and aftersales service - essential for a distributor of first-class products and a responsibility given a high priority by Bauch Limited.

In his spare time, Michael Bauch plays tennis, squash, golf and enjoys skiing and sailing. In 1984, he started playing the piano, mainly classical music. He attends concerts for which London is supreme and likes to listen to music in general. He also enjoys travelling, whether to visit exciting towns with the varied food and fine wines, to revel in the peace of open spaces or delight in antiquities.

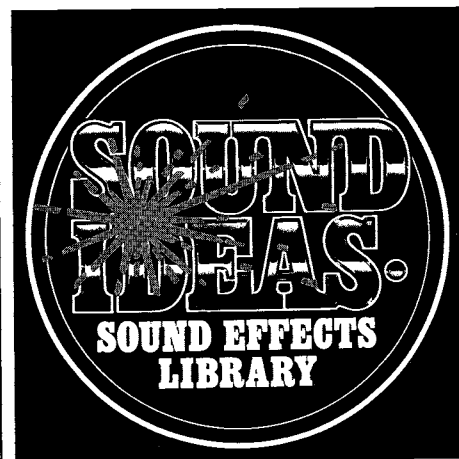
Michael Bauch emphasizes that his principle in business is 'to ensure fairness, honesty and integrity in all matters and to pursue what he believes is right, without consideration of diplomatic constraints'. And he adds: 'But in all dealings to maintain a sense of humor. For if we do not enjoy our occupation, what is the point? It would be deathly to take everything too seriously!'

Renate Ziemann



New: Sound Ideas CD Library

Library expansion with ATMOS



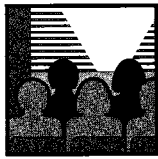
Our customers have often expressed the wish to have a wider variety of atmospheric sounds. In cooperation with Sound Ideas we have now been able to satisfy this wish and expand our library.

The new library - digital recorded in stereo - contains more than 200 atmospheric sounds including town and country, harbour and airport, restaurant and pub, in English, French and German.

The library, called SERIES 3000, consists of 12 CDs and is already available - it comes together with a catalogue.

Order number: 10.241.110.00

Jan van Nes



Studer Revox Training Courses

STUDER Training Courses

16.02. - 17.02.89 English
Th 09.00 h - Fr 16.45 h

D820X 1/4" / A820 1/4" Tape Transport
Tape transport features, data ports, disassembling/assembling and alignment of tape deck, explanation of circuits on block diagram level.

20.02. - 24.02.89 English
Mo 09.00 h - Fr 16.00 h

D820X Tape Recorder
Application and features, signal flow, layout of circuits and trouble shooting on digital audio section.

Remark:
The D820X course will concentrate on the audio section only. Therefore a course on A820 1/4" tape transport has to be attended previously.

03.04. - 07.04.89 English
Mo 09.00 h - Fr 16.00 h

Combined course on:
A812 1/4" / A820 1/4" Tape Recorders
Tape deck features, ports, disassembling/assembling and alignment of tape deck, explanation of circuits, trouble shooting, audio circuits and alignment.

10.04. - 12.04.89 English
Mo 09.00 h - We 12.30 h

A807 Tape Recorder
Tape deck features, ports, disassembling/assembling and alignment of tape deck, explanation of circuits, trouble shooting, audio circuits and alignment.

12.04. - 14.04.89 English
We 13.45 h - Fr 16.00 h

A810 Tape Recorder
Tape deck features, ports, disassembling/assembling and alignment of tape deck, explanation of circuits, trouble shooting, audio circuits and alignment.

17.04. - 21.04.89 English
Mo 09.00 h - Fr 16.00 h

A820 MCH Tape Recorder
Tape deck features, ports, disassembling/assembling and alignment of tape deck, explanation of circuits, trouble shooting, audio circuits and alignment.

24.04. - 26.04.89 English
Mo 09.00 h - We 12.30 h

A727 / A730 CD Players
Features, ports, explanation of circuits, transport alignment.

REVOX training courses

Also in 1989 technical REVOX training courses are planned for our foreign agencies. The 3 courses are split up as follows:

HiFi 1

Tape recorders - cassette recorders - turntables - mixing console - IR-applications
6.3. - 10.3. German
3.4. - 7.4. English
22.5. - 26.5. French

HiFi 2

Active loud speakers - multiroom- and AV-concept - Tuner-Amplifier - CD player
13.3. - 17.3. German
10.4. - 14.4. English
29.5. - 2.6. French

884

Language laboratory
6.2. - 10.2. German + French
20.2. - 24.2. English



8-Channel editor interface

Remote-controlled mixdown

Even mixing consoles can be remote controlled - to simplify the control of audio channels in film/video editing.

When films or television dramas are to be dubbed, the audio sources are usually available on several channels. A typical configuration could be as follows:

- 2 channels for the dialog,
• 2 channels for the music,
• 2 or more channels for sound effects.

Of course the mixdown of the audio sources depends on the picture content. In larger productions this is accomplished in a separate operation, the audio mixdown. But in smaller productions and productions for which there is a severe time pressure, it is frequently desirable to combine the audio mixdown with the film/video editing.

This meant that not only efficient editing procedures were necessary but also that the audio channel should be remotable. Certain video editing stations such as the SONY video editor BVE 900 are capable of outputting a corresponding control signal.

In most cases eight audio channels will suffice; however, mixing consoles with this number of channels are generally not equipped with VCAs. Studer has now developed a solution that establishes the connection to the video editing station without requiring any modifications to the standard mixing consoles.

This new unit (designation: 8-CHANNEL EDITOR INTERFACE 1.918.199/37) contains a total of 8 VCAs that can be connected via the insert points to the individual channels of the 961 or 962 mixing consoles. The connection is established via bantam patch cables and is consequently very easy to implement.

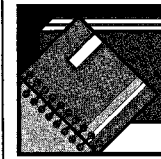
The connection to the video editing station is established via a 15-conductor flat cable; on the video editor side it is plugged into the so-called mixer interface BKE 916. A monitor link between the 8-CHANNEL EDITOR INTERFACE and the mixing console completes the cabling.

For Studer audio mixers in console version, a 19" module (4 height units) is available as an option. This module can be installed between the pedestals. Because the interface is designed as a 19"

rackmount module of 1 height unit, the physical installation is very easy.

A Studer interface is available also for the SONY video editor BVE 9000; its part number is 1.918.199/40.

Karl Otto Bäder



New printed matter

Table listing Studer-Brochures, Studer Service Manuals, and Revox-Brochures with corresponding language codes (G, E, F, I, D, SP).

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Publisher: Willi Studer AG, Althardstr. 30, CH-8105 Regensdorf.
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Printed in Switzerland by WILLI STUDER AG 10.23.8210 (Ed. 0189)