

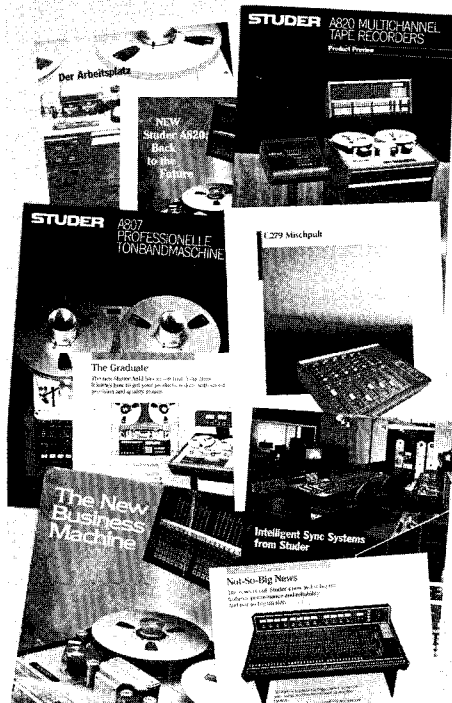
SWISS SOUND

VIEWS AND NEWS FROM SWITZERLAND

A PUBLICATION BY STUDER REVOX

No. 18
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Editorial



With these and other headlines new Studer and Revox equipment was announced recently by the trade press and also presented at exhibitions and shows.

Newly introduced were the following models:

- A 820 Multichannel, the alternative to digital multitrack recorders
- A 812, a compact recorder for heavy-duty use by broadcasters
- A 807, the budget-priced recorder offering most advanced technology
- 963, a mixer, small in size but great in dynamics, technology ready for the digital challenge
- C 279 compact 6-input audio mixer
- Revox
- SC 4008 and SC 4016 synchronizer systems

This impressive list of new equipment, for which production is in full swing by now, enlarges and complements the existing range of Studer Revox products.

We here, at the home base, are very proud about this great success, fully realizing that it was possible only, thanks to the many colleagues who are busy 'behind the scene', beginning with research and development, operations-scheduling and production-control through to parts manufacturing, assembly and testing including quality

control, who have all contributed their part to make these new and feature packed products available on time.

Many enthusiastic comments were received already from those who have seen this new equipment, therefore - especially in the name of our customers - we would like to express our thanks to these wonderful teams for the work they have done to make this possible.

It will now be up to the sales organizations world-wide to acquaint prospective clients with this state-of-the-art equipment and to make it available to them so they can take the full benefit from working with it.

Eugen Spörri
Eugen Spörri



Studer A 820 multichannel

Analog without analogy

Multichannel machines are essential to music production and dubbing. Today's production technique for records, compact discs, film or television sound would not be feasible without such machines. This means that a multichannel recorder must have not only the required capabilities but it must perform all tasks with the greatest possible quality. This is the reason, particularly in view of the now existing digital technology, that prophets have already relegated analog machines to the museum.

It thus may come as a surprise not only to digital enthusiasts to be now confronted with a new, superanalog sound because the new Studer A 820 multichannel machine clearly answers the subliminal question concerning the possible evolution of the analog technology.

The digital challenge thus was one of the fundamental reasons that raised the question as to how the analog tape technology should progress. Studer's decision, taken already a number of years back, to pursue both technologies was equally farsighted as costly. But now, the rewards of this innovative entrepreneurial spirit become fully manifest.

The new A 820 multichannel machine rounds off the top end of the range which in addition to the already established A 820 2-channel recorder includes also smaller machines such as the A 812, A 810, and A 807, all of which follow the same system concepts.

The development engineers laid the foundation for the new concept with the

A 820 2-channel version: an advanced tape deck of exceptional stability and speed, combined with a flexible micro-processor control and fully digitally programmable and controllable audio electronics to satisfy the most exacting demands of professional studio engineering.

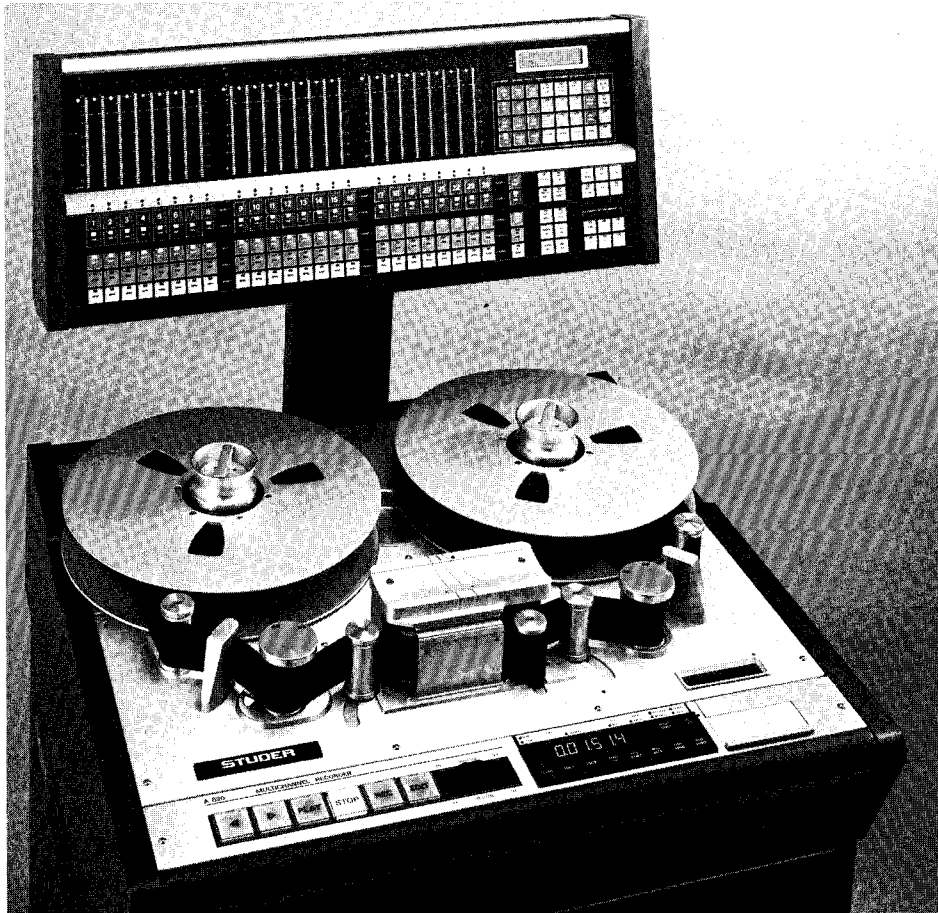
New multichannel concept

For the new multichannel machine based on these requirements, the specifications called for implementing an optimum solution, which would set a new standard with respect to reliability, production capacity, format compatibility, and audio quality - without pricing the product out of the market! One of the attendant objectives was to develop a compact machine that would surpass anything available so far with respect to operating and display facilities as well as remote control and synchronizing capabilities. And lastly, new criteria for quick and easy audio parameter alignment and enhanced ease of maintenance were defined.

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The new 'superanalog' Studer A820 multichannel tape recorder is a direct challenge to the digital multis.

Since the multichannel version is based on the proven A820 2-channel deck, its footprint is not much larger.

Aside from the removable display and operating panel, the machine height is the same as on the A800. The base houses the entire tape transport electronics and the audio electronics for up to 24 channels (3x8 channels in rack drawers), including space to accommodate plug-in noise reduction system cassettes.

Fast and rugged transport mechanism

The practice-oriented requirements concerning speed for efficient operation and stability for enduring precision have decisively influenced the design concept of the tape deck. The extremely stable die-cast aluminum alloy chassis accommodates tape reel diameters up to 14" (356 mm) and is convertible for 2" or 1" tape width (24 or 16-channel version). Disc rotor DC motors that produce very high torques are used for spooling.

In conjunction with the microprocessor servo control and switched motor

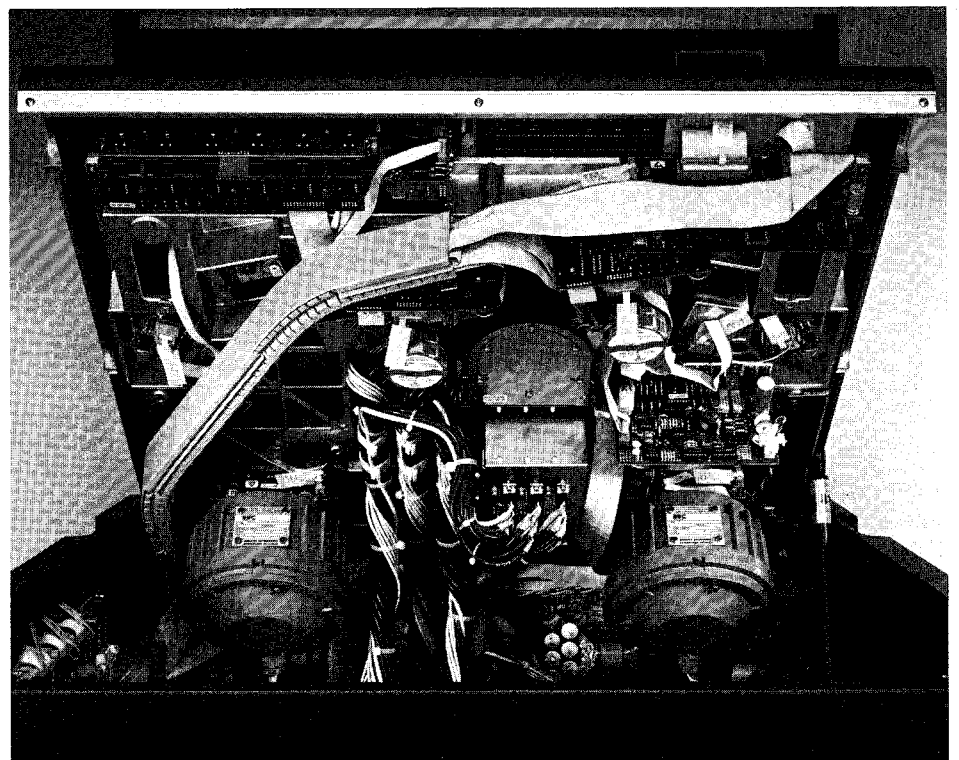
output stages, unrivaled acceleration and deceleration performance is achieved.

Since the moments of inertia are detected automatically, different reel sizes can be used without difficulty. Quick searching of cue and edit points is also possible by means of the programmable spooling speed of up to 15 m/sec.

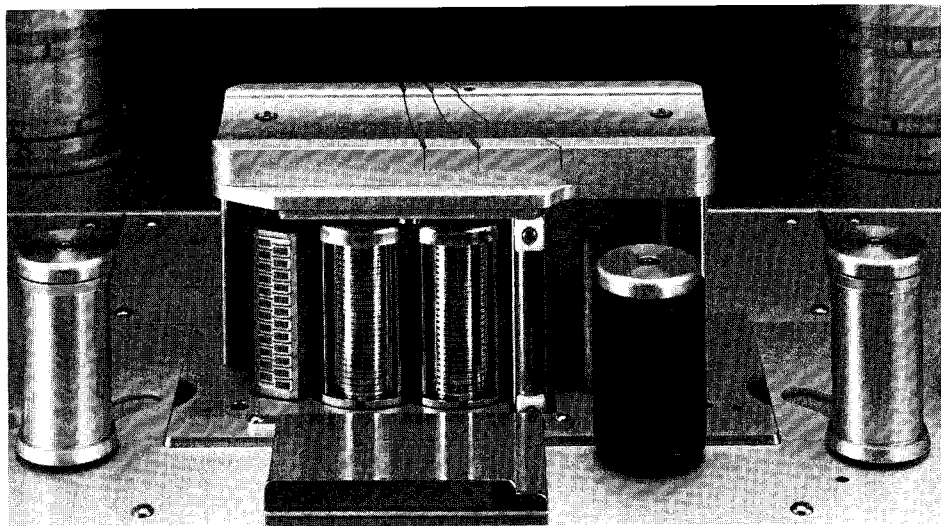
This extraordinary speed has also a positive effect when modern synchronizing systems are used. An additional benefit is the excellent control of the tape tensions, and software monitoring of all operating parameters. As a consequence the A820 is not only very fast but treats the valuable tapes very gently.

Shuttling is performed gently and simply with a one-hand cueing control (as on the A820 2-channel machine). For finding a specific tape address, the tape can be steplessly shuttled forward and backward by means of the shuttle controller. This function can also be operated from the remote control. The tape transport control with the large-surface command panel, programmable via a secondary key field by means of a menu with over 40 additional functions, is identical to the proven A820 control.

The brushless DC capstan motor (Hall commutation) with particularly low rotor mass features very short acce-



This is how the A820 drive concept of the multichannel version presents itself: extremely stable, powerful and - typically for Studer - in optimally accessible modular architecture.

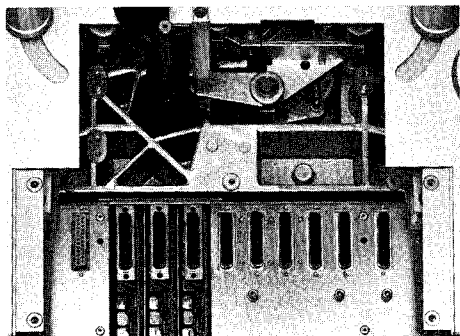


Exchangeable headblock systems with electronic indexing, close head spacing, and new, very hard soundheads made of an amorphous metal alloy (so-called vitrometal).

eration times and permits optimum matching in synchronizing operations.

Three speeds – 7½, 15, and 30 ips – are standard equipment, and reverse play is possible at any tape speed.

Built-in locator and varispeed functions render the A820 multichannel machine extremely versatile and satisfy-

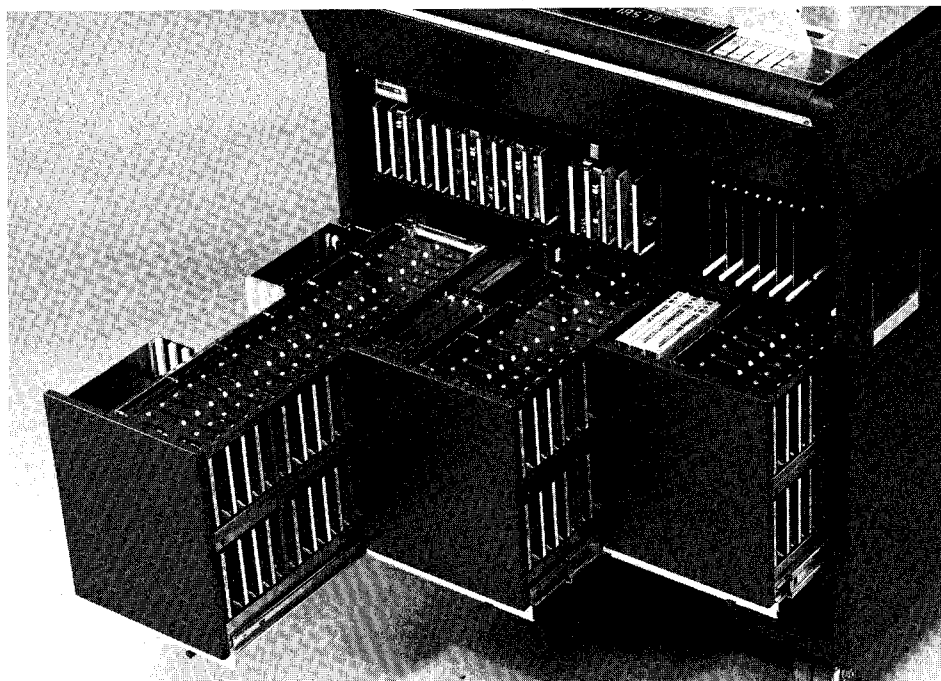


The removed headblock allows a glimpse at the mechanical stability of the head region and shows the connectors (the headblock system features self-centering connectors) and the three reproduce preamplifier boards for 8 channels each.

ing in practical use. The high efficiency of the switched motor output stages prevents unnecessary heat loss which means that the machine remains cool even without ventilators.

High-precision, plug-in headblock systems

All A820 multichannel headblock systems feature electronic indexing for automatic adaptation of the corresponding audio and tape transport parameters to 8, 16, and 24-channel configurations. The compact headblock assemblies



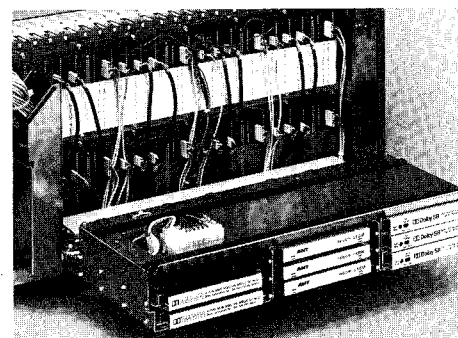
The A820 multichannel machine excels not only through its compact design (the complete audio electronics for 24 channels, including NR systems fits into the rack drawers) but also compares favorably with respect to accessibility of the audio and control electronics.

feature soundheads made of an extremely hard, amorphous metal alloy (so-called vitrometal). This alloy provides not only a high abrasion resistance and consequently long service life, but also improves the dynamic range because of greater efficiency. For optimum channel separation the head block system supplies a control variable that acts on a special electronic compensation circuit in the reproduce amplifier.

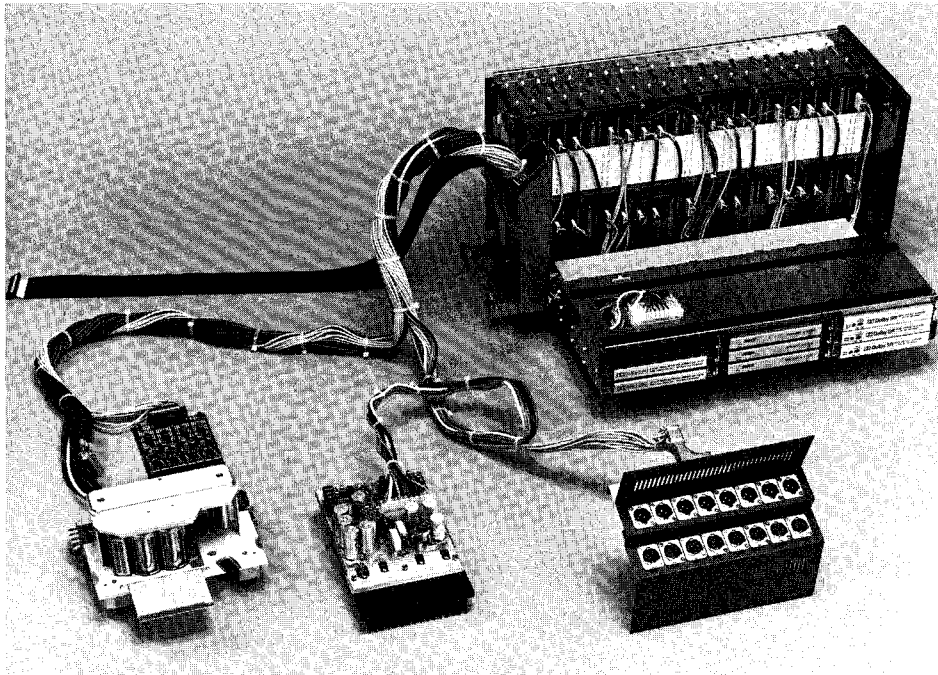
Audio electronics for excellent master recordings

The entire audio electronics for 24 channels is housed in optimally accessible pull-out drawers located in the base of the deck. These drawers for 8 channels each also feature cassette compartments for accommodating noise reduction systems. As options either Dolby® A, the new revolutionary Dolby® SR or Telcom® modules can be integrated. The signal levels for the plugged in noise reduction system modules are set and stored by the audio control microprocessor system.

In order to achieve economical PCB compatibility, the audio electronics correspond largely to the circuitry of the A810, A812 and A820-½" and ¼" tape recorders. Outstanding dynamic values



Room for plug-in NR system modules is available in separate (tiltable) cassettes of the rack drawers.



The rack drawer and its transparent periphery: a simple cable harness interconnects the XLR connection unit, the supply voltage regulator, and the headblock system/reproduce preamplifiers.

are achieved because the plug-in reproduce preamplifier modules are recessed directly behind the headblock system. Moreover the newly developed record amplifiers with Dolby® HX Pro circuits produce supertransparent master recordings with optimum treble response even at the lowest tape speed.

For synchronizer operation an optional high-speed time code reader can be inserted in place of a channel module which means that any channel can be designated as the TC channel.

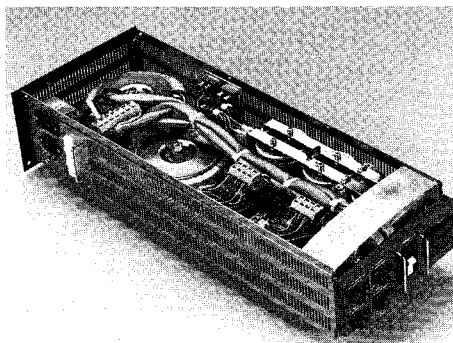
Integrated automatic audio alignment

If desired, all audio parameters can be automatically aligned within a few minutes and subsequently stored. The parameter memory holds the values for two tape types, individually separated for 8, 16 and 24-channel headblock systems. Of course, manual alignment according to conventional methods is still possible. The values for NAB/CCIR equalization are stored in separate registers. The levels of the noise reduction systems can also be set via software.

Via the biphasic interface, all alignment programs can be stored on tape, read from tape, or verified with the loaded values.

Meter panel - serially controlled

The panel with the level meters and the complete channel control with feedbacks as well as command key fields



The modular technology of the A820 multichannel system: the functional modules really deserve their name, as exemplified by the power pack which supplies a filtered but unregulated voltage to the switching stabilizers for the audio and control electronics.

are controlled by means of serial 2-wire communication. This simple wiring eliminates all audio lines which means that the circuitry is more economical and reliable - in addition the remote control autonomy is extended up to 100 m! The meter panel, i.e. the display and control unit, can thus be positioned where it is needed, independently of the machine location. The 50-segment bar graph displays feature a high resolution and can be selectively programmed for either VU or PPM indication. For accurate level alignment of the channels, the bar graph instruments can be switched over to a lower display range of ± 2.5 dB (zoom), yielding a resolution of 0.1 dB! A built-in

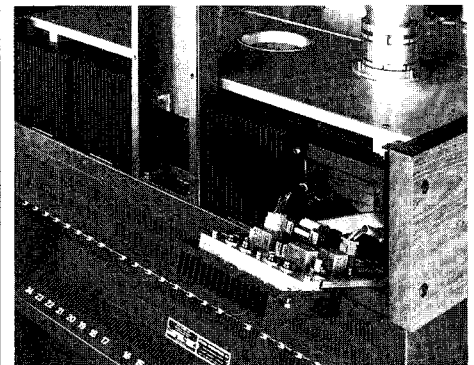
digital audio oscillator with wobble function can be used for this level alignment.

With the audio control keys assigned to each channel, the functions SAFE, READY, INPUT, SYNC, and REPRO can be selected individually. The momentary functional states of all channels can be stored in registers - and the stored configuration retrieved with the push of a single button!

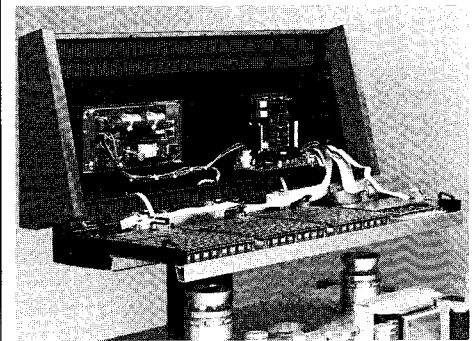
Access to the comprehensive automatic and memory functions is possible via logically arranged command key fields, color-coded, with active feedback in the individual keys. All states, including self-test functions but also the menu selections are written on an alphanumeric LC display.

Fully integrated, advanced remote control concept and versatile interfaces

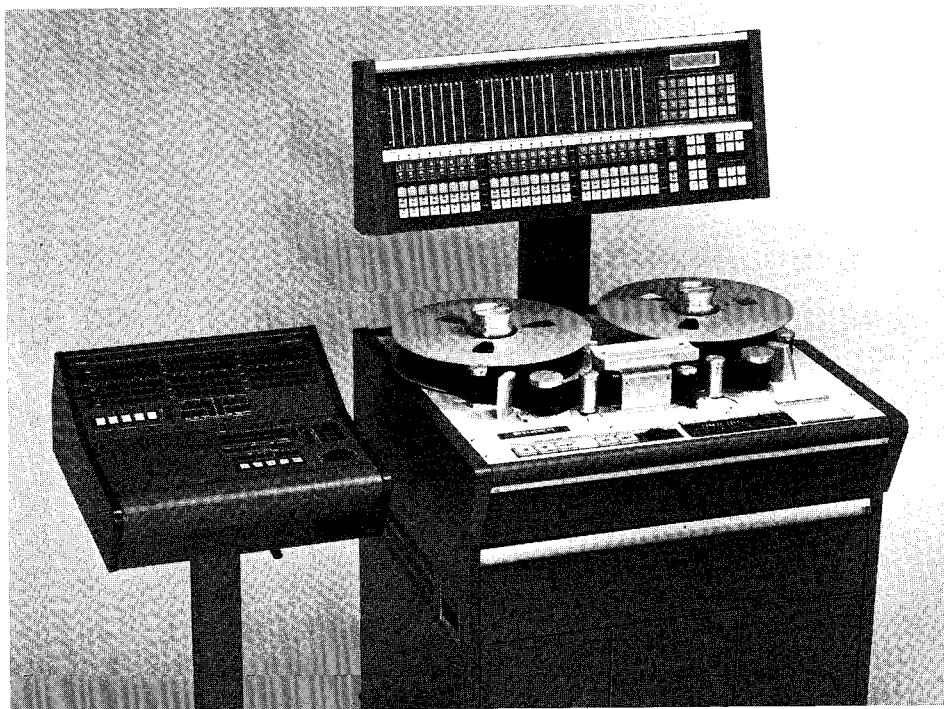
The compact remote control for tape transport and channel control is coupled via serial data communication and has also an autonomy of 100 m.



The power electronics - here a switched spooling motor output stage - is also readily and neatly accessible. The two rear heat sinks in the middle belong to the switching stabilizers for the audio electronics and for the control electronics.



The removable meter penthouse makes no exception with respect to optimum serviceability: tilt down the display front and the serial data preparation electronics for the display and operating elements becomes accessible.



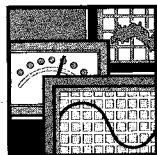
The machine and its remote control constitute a functional unit. Because of serial data transmission the remote control autonomy has been extended to 100 m. The same applies to the meter penthouse which can be used as a luxurious remote control unit.

The A820 multichannel machine accesses the various types of peripherals over parallel and serial interfaces. The parallel interfaces for tape deck and synchronizer are identical to those in the models A820-¼" and -½" and the A812 machines. Serial ports are available for tape transport control, autolocator, remote counter, and channel remote control.

Serial RS 232 interfaces (according to ASCII or binary protocol) and RS 422 (according to SMPTE/EBU standard) as well as an NRS interface for external noise reduction systems can be installed as options.

A parallel interface is also available for external channel control.

Marcel Siegenthaler



Demagnetization of microphone transformers Optimum recording

Modern mixing consoles no longer require periods realignment because extremely stable mechanical and electronic components are used which means that recalibration is only necessary after a defect. But this otherwise perfect image has a minor flaw. Despite their many advantages, microphone transformers (transformers with line level are not critical) have also a disadvantage: their sensitivity to microphonic noise.

Let us illustrate this by giving an example (Fig. 1): through a fault (ground contact in this case) a DC current can flow through the input transformer.

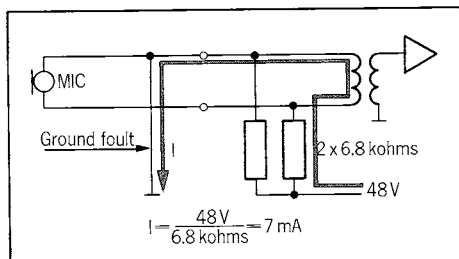


Fig. 1

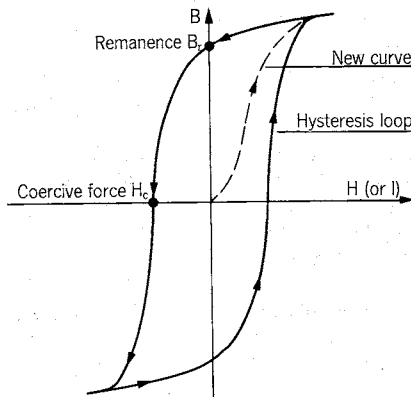


Fig. 2

This current consequently flows through the input winding and magnetizes the transformer according to:

$$H = \frac{N \cdot I}{l}$$

Although high-quality, magnetically "soft" materials with small hysteresis loop are used for input transformers, a small amount of residual magnetism B_r remains (Fig. 2).

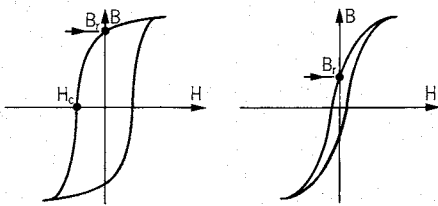
The remanence B_r has two effects:

- The possible control range $\pm B_{max}$ is reduced asymmetrically by the remanence B_r . This results in even-numbered harmonic distortions: a phenomenon which occurs particularly at low frequencies and high levels.
- Mechanical vibrations cause the coil wires to move in a weak magnetic field (to express it in simple terms), and thereby produce a low voltage. The transformer acts as a (poor) microphone (microphonic noise).

These two effects are not serious, however, they can readily be detected through measurements.

Suggested remedy

From time to time the microphone input transformer should be demagnetized. A simple way of accomplishing this is by means of an erase function similar to the one used in tape recorders. The transformer is fed by an AC voltage, the frequency response and level of which are dimensioned in such a way that the transformer is driven into saturation.



Magnetically "hard" material, e.g. for:

- Speaker magnets
- Magnets in dynamic microphones
- Oxide powder in tapes
- Permanent magnets

Magnetically "soft" material, e.g. for:

- Transformers
- Chokes
- Relays
- Electromagnets
- Power transformers
- Soundheads

Subsequently this voltage is slowly and continuously decreased and finally brought to zero. This procedure requires approximately 5 to 10 seconds during which the magnetic-level control follows the curve illustrated in Fig. 5.

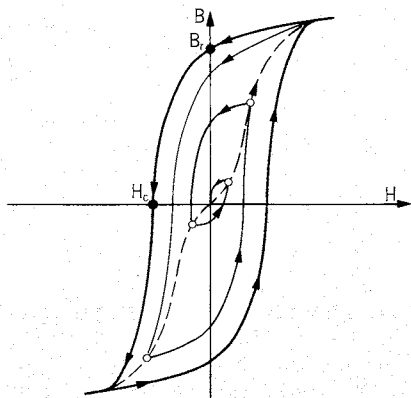


Fig. 5:

A corresponding demagnetization circuit is illustrated in Fig. 6.

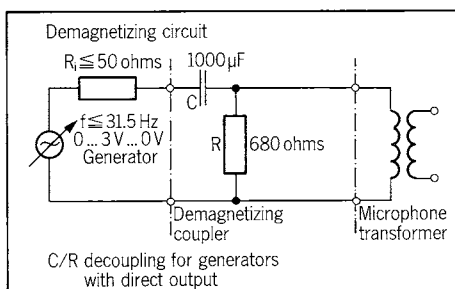


Fig. 6:

The moral of story

Through periodic, preventive demagnetization of microphone input transformers it is possible to achieve optimum recording quality.

Peter Frigo



Revox E88 Cassette tape deck

For enhancing linguistic proficiency

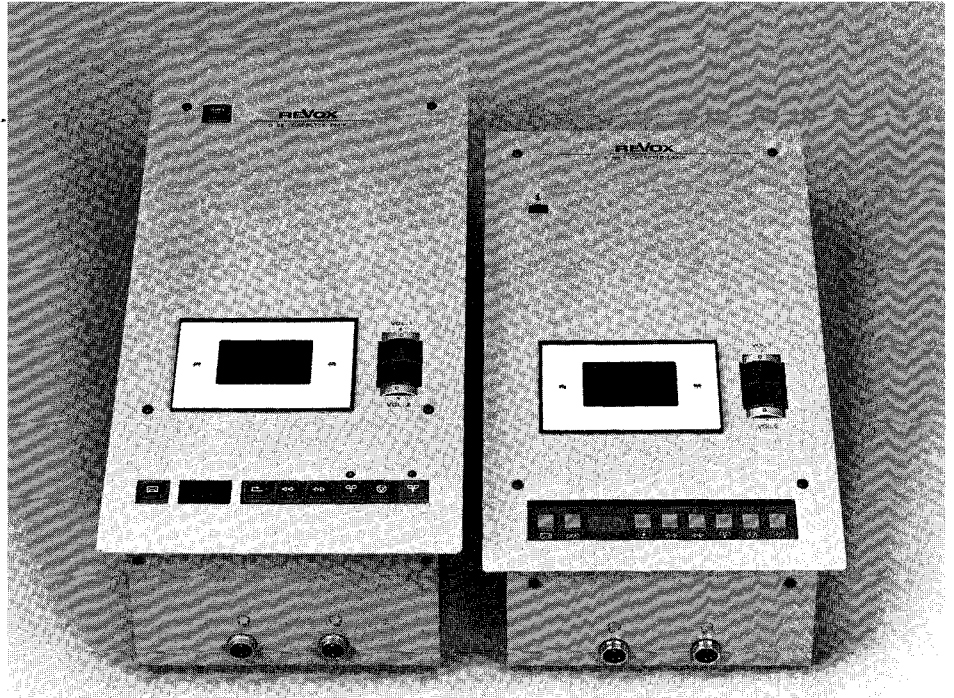


Fig. 1: Revised design and smaller dimensions characterize the new Revox E88 externally from the predecessor model D88.

Language training is a typical application for compact cassettes because they are easy to handle. This outstanding simplicity is one of the key prerequisites for a cassette recorder used in language training.

Characteristics such as reliability in continuous operation and low power consumption are also important. If the cassette deck is intended for universal use, it must also be highly flexible. In the following report, the developer of the new Revox E88 points out the difference to its predecessor, the D88.

The E88 differs from the old D88 in the following points:

- **Size**
The width and the height are smaller by 20 mm each.
- **Power consumption**
Various steps have been taken to cut the power draw to less than half, i.e. from 25 W to 12 W.
- **Tape transport**
In contrast to the D88, the new tape transport is a complete in-house

development which means that it was possible to fully incorporate the Studer quality concept.

- **Microprocessor control**
Because of its design featuring three microprocessors, this tape deck is not only conveniently compact but it now supports a number of additional monitoring functions and its flexibility has been optimally enhanced.
- **Central power unit**
The central power unit (24 VDC) for up to eight cassette decks achieves much greater overall efficiency. In addition, the installation wiring is limited to low-power circuits which cause far less hum pickup.

Compact, logically arranged, and convenient

The controls of the more compact E88 (Fig. 1) have intentionally been arranged in the same way as on the predecessor model. However, the new, pleasantly 'soft' keypad has been expanded: a separate button is now available for resetting the counter. Above the row of keys a miniature keypad (Fig. 2) has been arranged through which the main function keys can be changed into soft keys. This means that maintenance set-

things such as the head positioning and the counter reduction ratio (according to D88 or a standard based on two pancake revolutions per counting pulse) can be programmed by means of software.

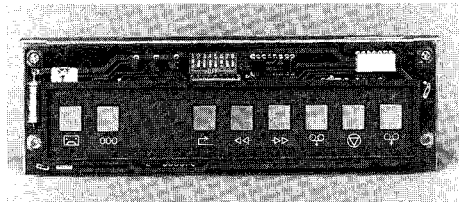


Fig. 2: In addition to the expanded key set there is a miniature keypad for defining up to 128 service settings.

It is also possible to program whether the record function is to be activated by pressing the record key alone or concurrently with play + record.

Also redesigned has been the terminal configuration on the rear panel (Fig. 3). Since the terminals for bus connections and supply voltage are coded, confusion is precluded.

Professional audio electronics

For the sake of optimum service accessibility, the complete audio electronics board of the E88 can be swung out (Fig. 4). For greater clarity this circuit board is strictly subdivided into function blocks.

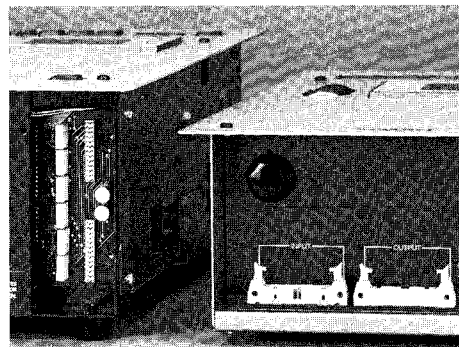


Fig. 3: Confusion of the terminals is no longer possible because of coded connectors.

As mentioned, 24 VDC power is supplied by a central unit for 1 to 8 cassette tape decks. For the audio electronics the power pack supplies a specially stabilized voltage of 18 VDC. Any power outage is detected by the monitoring electronics of the cassette tape deck. In the event of a power failure the energy stored in a capacitor is used to retract the headblock in order to protect the cassette tape from uncontrolled conditions.

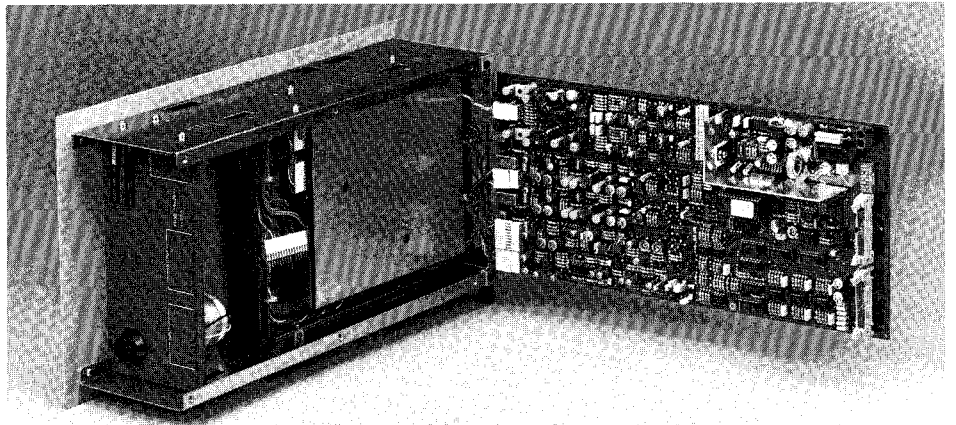


Fig. 4: Professional circuit board layout and block-structured arrangement of the electronic assemblies for simple and easy servicing.

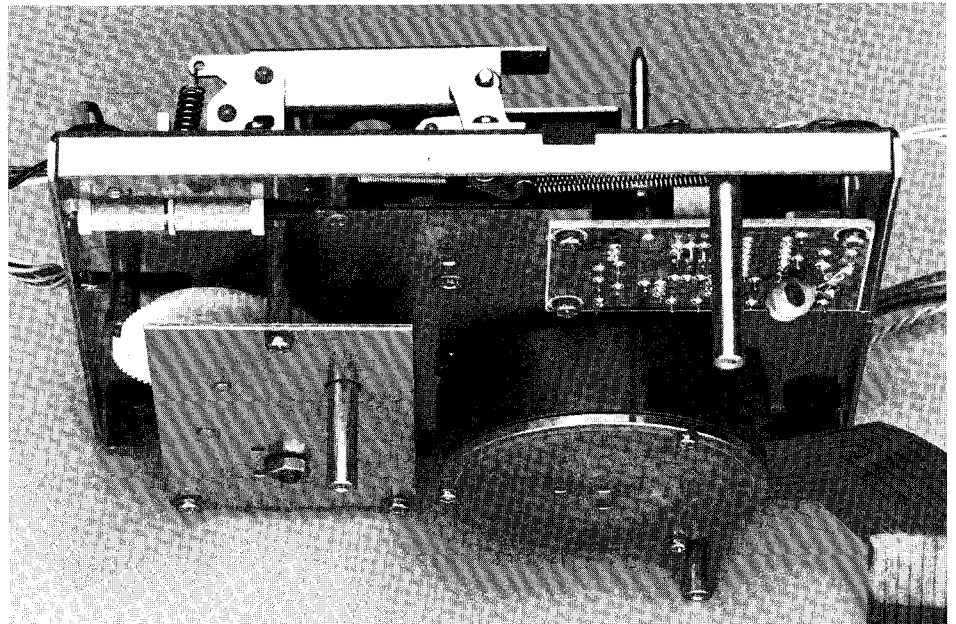


Fig. 5: Visible from the bottom of the deck are the tape sensor electronics (front right), the encapsulated capstan motor, and on the left the headblock driven via servo motor and helical gear unit.

To prevent hum loops, all externally arriving lines are coupled via differential amplifiers. As in professional equipment, the audio electronics are strictly arranged in function blocks. This circuitry, for example, features a separate RF oscillator for each channel.

This design offers the best guarantee for optimum channel separation. The RF oscillator has been redesigned, and its implementation with power MOS or VMOS results in outstanding symmetry and controlled transient and final oscillation response. The preamplifiers are designed for high suppression of bias components in order to prevent intermodulations that would be amplified in the subsequent stages. To prevent further intermodulation, all clock signals are synchronized.

High-performance deck

The compact deck includes the capstan motor, spooling motors, servo motor and tape-end switch. Together with the keypad the deck is a fully functioning unit (Fig. 5).

The end of the tape is monitored by an optical tape end sensor which is largely insensitive to extraneous light. This sensor functions with modulated red light and is also equipped with a special synchronous demodulator.

DC spooling motors:

As all other motors, the DC spooling motors are designed with noncontacting Hall commutation where the Hall elements in the spooling motor also serve as sensors for the counting pulses. This means that the tape counter is also non-wearing.

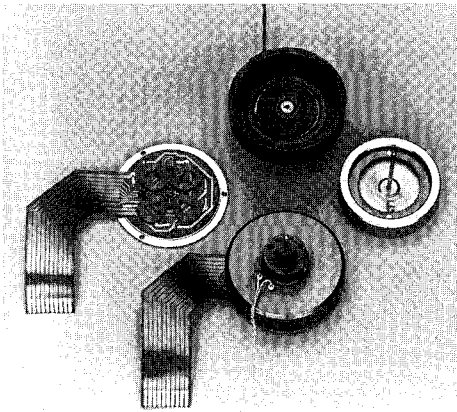


Fig. 6: The precision miniature capstan motor – an inhouse development of Studer Revox – and its hardware components: disc winding, rotor with ferrite magnets, and tacho sensor.

The spooling speed is stabilized by the microprocessor control in order to obtain the smooth pancakes required for gentle tape processing. In addition the spooling motor torques can be programmed separately for each operating mode in order to optimize the tape transport.

● DC capstan motor:

A real engineering bijou is the small capstan motor (Fig. 6). This brushless direct-drive precision motor is responsible for excellent wow and flutter performance. Without any hardware change this motor can cover a speed range from 1.19 cm/sec (one quarter of the nominal speed) to 19 cm/sec (four times the nominal speed). This corresponds to a speed variation ratio of 1:16 which is accomplished by a high-resolution tacho generator (approx. 900 Hz) and correspondingly large control dynamic range. With a new bearing concept, friction losses have been minimized so that full exploitation of the stabilizing rotating mass is achieved. The capstan motor is fully encapsulated in order to prevent noise radiation.

● Servo drive for head position:

The headblock is positioned by means of a servo motor that moves a sliding mechanism (Fig. 7) via a low-noise helical gear unit. A coupled differential transformer serves as a position transducer.

This measuring system which is also frequently used in the measurement technology, supplies an absolute position with respect to magnitude and sign. As a result the headblock position can be defined completely by software, i.e. it is programmable.

This solution with a servo drive eliminates 4 individual lifting magnets (functions: play, cue, eject) which ultimately has a beneficial effect also on the power consumption.

● Nonvolatile parameter memory:

On the control PCB of the deck (Fig. 8), the sensor electronics is arranged in the immediate vicinity of the sensors so that only processed and consequently non-critical signals are transmitted over the lines. A distinctive feature worth men-

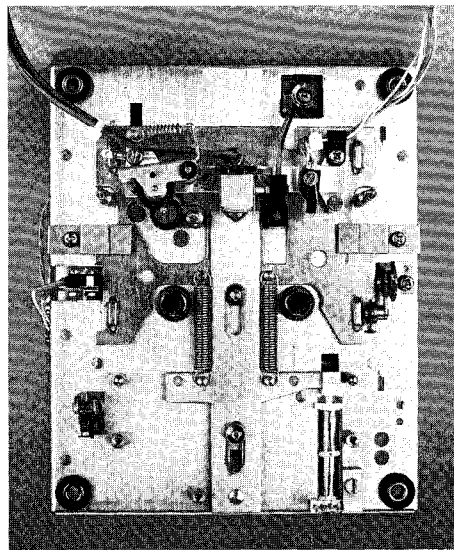


Fig. 7: Sliding mechanism for the headblock, with differential transformer for accurate positioning.

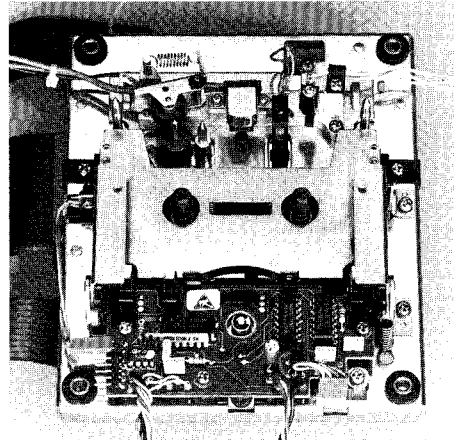


Fig. 8: Sensor electronics and digital parameter memory (EEPROM for 128 parameters) are an integral part of every tape deck.

tioning is the nonvolatile parameter memory in the form of an EEPROM (capacity: 128 parameters). All programmed tape deck settings are concentrated here in digital form. The most important ones are:

- Position of the headblock for all operating modes.
- Tape speed (capstan speed)
- Spooling motor torques for all operating modes
- Tolerance limits and automatic overload protection

When a tape transport is removed from a unit, its typical parameters are taken with it which means that interchangeability is assured down to the smallest detail.



Kurt Heinz (34):

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

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

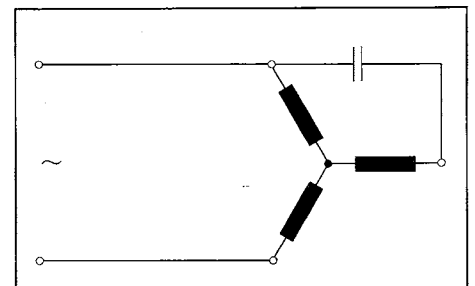
Kurt Heinz
Marcel Siegenthaler

Correction

Concerning editon 17-86, topic:

Turbodrive in μ P time

Attentive readers will have noticed that the illustration: Asynchronous motor (ASM) in 'Steinmetz connection' contained a short circuit in the form of a superfluous connecting line. We therefore reprint the correct diagram. We apologize for our mistake.



Asynchronous motor (ASM) in "Steinmetz connection"



Omega Studios

A Capital Idea



As the capital city of the USA, Washington D.C. ranks as the nation's number one center for politics, government, diplomacy, bureaucracy, espionage, and much more. Washington is not, however, America's number one music recording center. Not even close. As a hit-making city, Washington ranks somewhere between Muscle Shoals, Alabama and Dayton, Ohio. So why would anybody bother to build a brand new, 12,000 square foot world class recording facility in the Washington suburb of Rockville, Maryland?

Some of my friends said I was crazy to build a new studio here", admits Bob Yesbek, owner of Omega Studios. "Those who owned small studios said I was doubly crazy to build one with a big room covering so much expensive real estate. But we're making it work!"

The basic thrust of Omega's strategy for success can be summed up in one word: diversify. Make sure you have everything you need to satisfy any paying client who might walk through the door. "Before we designed this new facility we drew up two lists", says Yesbek. "One list was our wish list, the type of clients we wanted to attract. The other was current clients we wanted to keep. Then we designed the new Omega to satisfy all of them. We have three completely different rooms - different sizes, different acoustics, different capabilities. The only thing they share is first rate equipment, and naturally that means Studer tape machines."

As a teenage musician, Yesbek began by making recordings of his own band and other musical combos in the Washington area. Finally, in 1968 he opened the first Omega facility, initially equipped with a 3-track stereo recorder! (Yes, there were some peculiar standards even in the pre-digital era). The operation flourished, progressing from 3 to 4 to 8 to 16 track capabilities. The music recording was quickly supplemented by advertising jingles, industrial A/V soundtracks, and eventually some audio production for major television networks. Yesbek even started a Recording Arts School to pass on his knowledge to aspiring young engineers.

When Yesbek decided to move up from 16 to 24-track, he first reflected on the experience he'd had with his "brand X and brand Y" 16-track machines. "We burned through those other machines", he says. "We'd run all night and then come in early in the morning and expect them to work every time. Alas, too often they didn't. That's one reason we went with Studer. But we also love the sound. As far as I'm concerned there's nothing that sounds like a Studer." Omega purchased two A80 VU MKII 24-track decks, an A80 VU 1/2" 2-track, and two A810s. Six B67 were already on hand.

The new Omega, opened in October of 1985, offers a 60 by 40 foot recording area with 18 foot ceilings. This room is ideal for large orchestras, jazz bands and rock bands. The smaller studio B offers a more intimate setting for pop music recording and overdubbing. Studio C

is primarily a production room used for voice-overs and A/V production.

Being relatively close to the Big Apple is Omega's blessing and curse. Previously, when Washington clients wanted a world-class facility, they'd head to New York. And the people in New York had little incentive to leave for Washington. But Omega is changing that through word-of-mouth recommendations and aggressive promotion. "We're getting about 20% of our current business from New York", Yesbek claims. "We also landed a major deal to record Washington National Symphony. Up to now they'd always gone to New York."

"Our staff treats people like royalty", Yesbek says. "We have all the creature comforts, everything is ready to go, the coffee is always hot, the ashtrays are clean, and everybody here is dedicated to making sure that the client is happy." Very diplomatic.

Bruce Borgerson, Nashville TN.

14th Tonmeister-tagung - Munich 1986

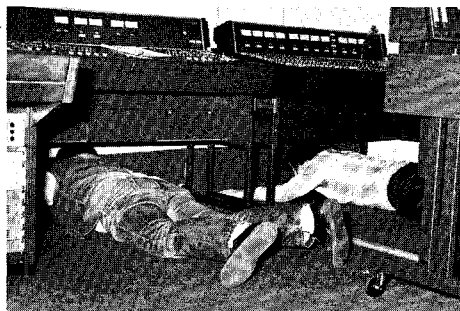
On the occasion of the 14th convention of the German association of sound engineers («Bildungswerk des Verbandes deutscher Tonmeister, Gemeinnützige GmbH»), 35 professional lectures, 20 reviews on novelties and 19 excursions were organized and created an excellent link between man and technology. Numerous manufacturers and representatives of the professional



Many visitors, interesting talks...

audio industry have contributed to this by wholly participating in the event.

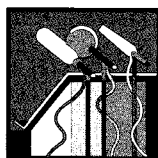
Studer saw appropriate opportunity to present the new multichannel machine, the A820-24, shown in Europe for the first time. A review on the range of Studer mixing consoles confirmed that there is more than a complete line of tape machines and synchronisation systems Studer can offer today.



Our mixing consoles under special service by our 'ground crew'.

Lively communication at the Studer booth, and many interesting talks made this 14th convention of sound engineers great success.

Jules Limon

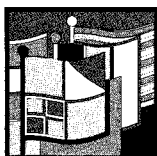


'Hi-Fi master' for Revox B285

On November 21, 1986, the German technical magazine 'HI-FI VISION' has awarded the 'hi-fi master 86' to several hi-fi units. The selection was based on a large-scale readership poll. In the category receivers above DM1000 the Revox B285 was the clear winner with the highest number of votes collected by any unit. Rolf Neumaier,



managing director of the German Studer Revox GmbH received the award on the occasion of a ceremony held in Stuttgart by HI-FI-VISION's managing editor Dr. G. Dick.



FIRATO '86 in Amsterdam



It was already the second time that Heynen B.V., the Studer-Revox distributor for the Benelux countries, has participated with a big booth at the Firato in Amsterdam. This national consumer electronics exhibition takes place every two years.

Some 160 companies demonstrated their products from August 27 to September 7 and 310 403 visitors plus 10 552 dealers and members of the press were registered.

The attractively designed stand of our distributor was virtually jammed with predominantly younger but also senior hi-fi freaks who wanted to get in aural and physical contact with the operational Revox equipment. Even for professional visitors there were some novelties to be seen, for example the Revox C279 mixing console and the Studer tape recorders A807, A810, and A812. Heynen

Audio video BV was the only exhibitor who also showed professional audio equipment at this typical consumer fair.

A special attraction on the stand of our dealer was the functional Studer ministudio from which the 'Concertzender' of Amsterdam was on the air each day for several hours with a program of classical music. This studio was equipped with a Studer mixing console 900 HEX, with A807, A810, and A812 tape recorders, an A710 Cassette recorder, an A725 CD player and two EMT 948 turntables, etc.

Our partners in the Netherlands are very pleased with results of the Firato '86 and expect this exhibition to have a positive effect on the end users and dealers over many months. We wish them the big success they deserve.

Ferdinand Fuchs



Two D820X synchronized to composite video

Digital Recording of New Year's Concert

This year Herbert von Karajan conducted the famous Wiener Philharmoniker orchestra in Vienna's Musikverein concert hall. The live performance was recorded by the ORF (Austrian Broadcasting Corporation) with two D820X digital tape recorders on January 1 and broadcast over several

European radio and television stations. With 6 hour time difference it was also relayed to American TV stations. For this purpose, the recorders had to be synchronized to composite video sync and genlocked SMPTE time code was recorded.

The main objective was to preserve the excellent signal-to-noise and distortion specification of the D820X, since for this a maximum jitter of approx. 500 picoseconds can be tolerated for the sample and hold control signal. It was possible to maintain the specifications by means of a novel sync extractor circuit and by exploiting the smoothing effect of the main phase-locked loop.

But in the end it still was the music and the technical skill of the ORF which made the broadcasting a memorable event.

Marcel Schneider



The Studer Group "Who is who"

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



Takeo Asano

Managing Director of Studer Revox Japan Ltd., subsidiary company of Studer International AG • born 1943 in Kanagawa Prefecture, Japan • after elementary school, graduate of Kanazawa High School of Technology • Additional studies of the English language and graphic design • married.

Takeo Asano left his home town and schooling area right after graduation from Ishikawa high school and moved to Tokyo to take the plunge into the hard world of business activities. Starting as a maintenance engineer with Polydor Records, he promptly practised sound engineering. In the course of gaining more and more experience as a studio engineer, he designed and built a mixing console according to Polydor's special requirements – one of the largest consoles made in Japan at that time.

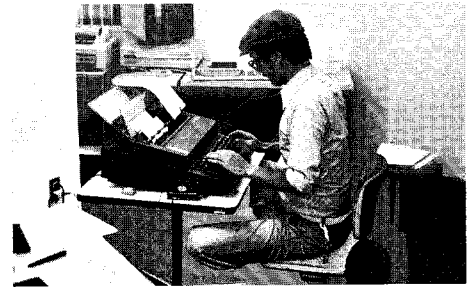
Takeo Asano left Polydor after twelve interesting and creative years with the intention to study English and graphic design to complement his technical know-how and create a good basis for his future career.

1975, he joined the former Studer Revox distributor in Tokyo as chief engineer, and was also actively engaged in sales matters; he thus changed from Studer client to Studer distributor. It should be mentioned here that Studer had already been well established in Japan for a number of years despite the strong competitive influence dominating the national market.

In 1982, Studer International AG established Studer Revox Japan Ltd., an affiliated company in "the very land of electronics". Takeo Asano was appointed Managing Director and is also partner of the new operation; he signed henceforth responsible for sales and service of Studer professional audio equipment in Japan. An affiliated branch in Osaka assists him in area distribution and service. The new company's main area of activities moves in the music recording market, the broadcast sector and the video post production field. Very good results in business were achieved in the music recording market, where Studer Revox Japan held a leading position ever since the company was founded. There is nevertheless tough national competition on account of domestic manufacture, and business life is getting harder than ever.

Takeo Asano regards this with a critical mind and keeps his eyes open not to miss the unexpected. Contrary to the activities in other markets, there are no over-dimensioned turnkey projects to be realized in Japan. Studer Revox Japan Ltd. has nevertheless designed and furnished numerous studios in various areas of the market. The Japanese customer is well aware of his freedom of choice, and mixes systems with a variety of equipment of different manufacture and origin. This also applies to the music recording and broadcast clientele.

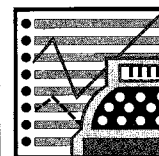
Seeing no possibility to invest more time in his hobbies, Takeo Asano considers skiing his most enjoyable pastime which he practises with great enthusiasm. It seems to be a good omen that the home country of his parent company is Switzerland, offering some of the loveliest skiing resorts in the world. Whilst fancying motorbike riding and trekking in his twenties, he did nothing but work in his thirties. Skiing today is a luxury with which he fills his rare spare time in the winter season.



Takeo Asano is still a "workaholic"; his dedication to work is occasionally accompanied by somewhat unorthodox working methods – however, great results have been obtained in business under his management. He values the cooperation of his SRJ team and despite his directorship, acts as the partner of both crew and customers.

Asked about any principles he may have regarding his part in business life, Takeo Asano emphasizes that he believes in the "interface theory" where his company forms the perfect link between manufacturer and client. Acting at both ends, he feels primarily responsible for keeping the manufacturer fully informed about the requirements of the market and vice versa. Although in his opinion such linkage of parent and daughter company is continuously improving, the general business attitude of protecting one's own interest grows stronger and will finally endanger communication in general. In spite of this, Takeo Asano not only invests work in his daily routine, but also a great deal of enthusiasm and optimism in order to reach the goals the "leader" has set for his company.

Renate Ziemann



Right on Success

**Studer
worldwide**

Greece

ERT-2

The second programme of the Greek broadcasting company, ERT-2, received four Studer A810 tape recorders – the first of this range to be operated at the second programme.

North Korea

In January this year, a multichannel studio in Pyongyang was equipped with 2 professional tape recorders and a TLS 4000 synchronizer – a promising entrance to a new market.

Taiwan

Chung Cheng Memorial

Two 40-ft containers filled with Studer equipment and installation material left Switzerland in December to reach their exclusive destination – the "Centre of Culture" in Taipei. The building accommodates among others large-dimensioned theatre and concert halls.

The shipment contained seven mixing consoles Studer 900 for multi-track recording purposes, as well as various Studer A810 tape recorders and the multichannel Studer A800-24 machine. The memorial, technically projected by Philips Holland, will be ready for inauguration in August '87.

Switzerland

Télévision Suisse Romande

The west Swiss television company TSR of Geneva bought a Studer synchronisation system with SC 4008 controller, as well as three tape recorders Studer A810 APV.

Music Conservatory Zurich

Supplied were one mixing console Studer 901 A, a multichannel tape recorder A820 and a listening device that includes a power amplifier Studer A68 and loudspeaker systems 2706.

Studio Godard, Rolle

The Jean-Luc Godard Studio in Rolle now sports a Studer synchronisation system SC 4008 and a multichannel tape recorder A800-24, both operated together with 1/4" and sprocket film machines.

Malaysia

RTM

In successful competition to a number of well-established manufacturers, Studer received an order for supply of 18 tape machines A810 from the Malaysian Radio and Television Company, RTM. Studer Revox Audio Pte. Ltd. and the Studer representative for Malaysia were main contributors to the realization of this pilot order.

England

British Broadcasting Corporation (BBC) London

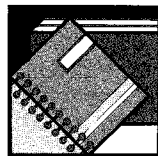
The very first tape recorder sold of the Studer A820 multichannel series went to BBC mid-November '86, with a second machine to follow in December. In addition, some 60 Studer A810 tape recorders have now been supplied to BBC within the last two months.

Denmark

Danmarks Radio

A Studer synchronisation system ASC4008 and a total of ten tape recorders A810 were supplied to this prominent customer in December '86. Danmarks Radio also received two 901 mixing consoles recently.

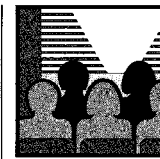
Sweet Silence Studio of Copenhagen, another Danish customer, received a Studer A820-2-1/2" VU tape recorder with conversion kit for 1/2" to 1/4" two-track facilities.



From the printers

10.26.0550	Brochure 961/962 (j)
10.26.0540	Brochure A812 (j)
10.26.0480	Brochure Remote controls A807, A812, A820 (g)
10.26.0490	Brochure Remote controls A807, A812, A820 (e)
10.26.0560	Brochure A820 Multichannel (g)
10.26.0570	Brochure A820 Multichannel (e)
10.26.0510	Brochure A807 (g)
10.26.0452	Brochure A807 (e)
29.0800	Brochure Revox accessories (g)
29.0810	Brochure Revox accessories (e)
29.0820	Brochure Revox accessories (f)
29.1040	Brochure Revox C279 (g)
29.1050	Brochure Revox C279 (e)
29.1060	Brochure Revox C279 (f)
90.1770	Brochure Revox loudspeakers (g)
90.1780	Brochure Revox loudspeakers (e)
90.1790	Brochure Revox loudspeakers (f)
90.1800	Brochure Revox loudspeakers (d)

For further information please contact



Studer Training courses 1987

A807 (e)	24.-27.2.
A810 (e)	02.-05.3.
TL5 4000 (e)	05.-06.3.
900 (g)	23.-26.3.
A820/A812 (e)	30.3.-03.4.
A820 Multichannel (e)	06.-10.4.
TL5 4000, SC 4008/16 (e)	13.-16.4.
D820 X (e)	21.-24.4.
A725/A727, LHH 2000 (e)	27.-29.4.

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.

Revox Training courses 1987

For 1987, the following training courses for Revox equipment have been planned to take place at Regensdorf:

	German	English	French
Hi-Fi 1	30.3.- 3.4.	15.-19.6.	11.-15.5.
Hi-Fi 2	6.-10.4.	22.-26.6.	18.-22.5.
884	16.-20.2.	16.-20.3.	2.- 6.3.

Training covers:

Hi-Fi 1:

B77, B215, PR99 MK II, B791, B795, B270, B274

Hi-Fi 2:

Agora B, B261, B285/286, B251, B225, B226, IR, Piccolo Bass, B203

884:

Teacher's console electronics, B795 and R88, E88, D88

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