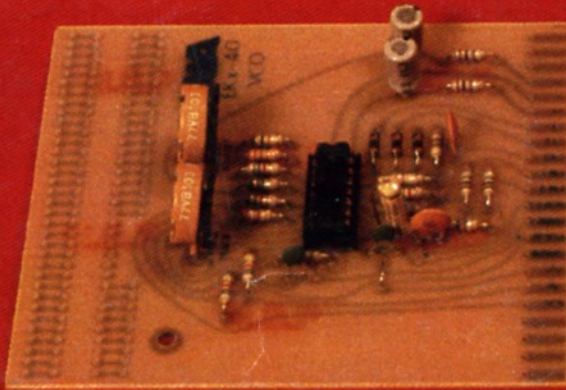


BAIA Electronics, Inc.

MUSIC & RECORDING ELECTRONICS

1984



1020 W. Wilshire Blvd., Oklahoma City, OK 73116 (405) 843-9626

UNIVERSAL KEYBOARD CONTROLLERS

PAIA's new series V Keyboard controllers offer enough standard features like pitch and modulation wheels, smooth Pratt-Read action, small size and light weight to make you fall in love with them the first time you lay your hands on one. And there are options available to make these controllers compatible with practically any synthesis system from any manufacturer.

Begin by selecting 37 or 61 note actions. In either configuration the basic unit is a scanning matrix encoder that delivers parallel digital outputs — six bits indicating the key being examined and a strobe bit indicating the up/down status of that key. A jumper selectable eighth line serves a hand-shaking function with a computer if needed. The parallel data appears on a standard DB-25 connector on the rear of the case.

If you're going to be using the keyboard to control lv./Oct. exponential response equipment such as PAIA's EKx series of cards or systems manufactured by Roland, Serge, Synton and

others, simply add the low-cost KDAC option. This option provides not only linear control voltage output, but also implements low note priority with retriggering and gives industry standard gate (high logic when any key is down) and trigger (short pulse when new key is pressed) outputs. The digital outputs are not disabled by this addition, in fact they are also expanded because you can now use the 8 digital data lines either as output from the keyboard to a computer or for driving the control voltage output from a computer — completely under software control.

To use the controller with linear response synthesizer modules such as PAIA 4700 or 2700 series equipment, also select the KEX option. This addition generates the exponential control voltage required by this series of equipment



47D SYNTHESIZER PACKAGES OFFER MODULAR VERSATILITY AT LOWEST POSSIBLE PRICES

There is no better place to begin learning about electronic sound production than with a modular synthesizer. Seeing the physical connections between modules and being able to re-route

and still maintains the outputs outlined earlier.

One keyboard can simultaneously control exponential and linear response equipment, and you still have the 8 bit bi-lateral computer port.

- K37 37 note digital keyboard controller \$188.00 [16lbs.]
- K-61 61 note digital keyboard controller \$289.00 [21lbs.]
- KDAC Digital to Analog Converter Add-on \$15.95 .. [1lb.]
- KEX Exponential Converter Add-on \$15.95 .. [1lb.]

signals by plugging the output of one into the input of another makes clear what functions individual processing and control elements perform in a very physical and obvious way. At the same time, modules are frequently the system of choice of the most advanced synthesists because the versatility of modules can never be matched by an "axe-in-a-box".

These 47D packages are a particularly nice place to start not only because of their low cost, but since they feature our new Series V Keyboard Controllers (see description above) they can serve as the foundation of a system which can grow to be as eclectic as you like with digital, linear or exponential equipment from many different manufacturers.

Modules included with the system are: 2-4710 Voltage Controlled Amplifier/Balanced Modulators, 1-4720 Voltage Controlled Oscillator, 1-4730 Multi-Modal Voltage Controlled Filter, 1-4740 ADSR Transient Generator, 1-4750 Control Oscillator/Noise Source, 1-4712 Reverb Module, 1-4771 Power Supply. The modules are housed in a 4761 Wing Cabinet.

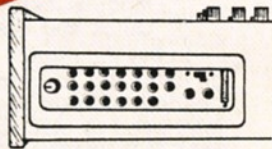
Available with either 37 or 61 note keyboard controller, the package prices represent about a 10% savings over separate component prices.

- 47D37 Synthesizer with 37 note controller \$429.00 [32 lbs.]
(467.55 if purchased separately)
- 47D61 Synthesizer with 61 note controller \$517.00 [37 lbs.]
(574.55 if purchased separately)



**EXPAND YOUR SYSTEM WITH
PAIA MODULES**

SEE PAGES 10 & 11



PROTEUS I

PROGRAMMABLE PRESET LEAD SYNTHESIZER

Proteus I provides wide range precision and quiet, pure performance. 12 Octave Oscillator and Filter range, 30 second long transient generator segments and the exceptionally low noise and clean sound that you need for serious production work.

16 presets let you get the sound you're after at the touch of a single button. Natural programming lets you play with the sound before assigning the setting of every knob and switch to a preset. Generous patch over hardware points let you integrate external processing elements into Proteus' signal path and interface to a wide variety of analog sequencers and function generators.

The parallel computer port accesses both panel controls and keyboard to set new standards for versatility and ease of use. There's nothing to rewire or remove. To use a computer, just plug it in.

Yet despite its high-tech complexity Proteus I is easy to assemble and service. The 3 book manual set breaks assembly down into small easily digested chunks with simple tests to monitor your progress along the way.

If you're not convinced yet, the Evaluation Package with its complete manual set and Demo tape will really make a believer of you. Order yours today.

I-8750 Evaluation Package \$10.00 ppd.
 No. 8750 Proteus I Kit \$449.00 (25 lbs.)

SYNTHESIZER MEETS COMBO ORGAN THE RESULT: ORGANTUA

Forget about the "thin" sound of single voice combo organs, ORGANTUA has three individual ranks, each with a five position octave switch, for a thick, textured sound. The multi-voice feature allows ranks to be detuned slightly for flanging or chorusing effects, or ranks can be tuned to wider intervals such as 4ths or 5ths to simulate drawbar organ or multi-oscillator synthesizer effects. Super wide-range sound is possible by tuning the ranks apart in increments of an octave, with up to 5 octaves between voices.

The master rank utilizes a voltage controlled clock to allow pitch bending, vibrato (two waveforms), and percussion effects. The two slave ranks can each be synchronized to either the master clock or an alternate tunable clock. The output amplifier allows variable attack time and overdrive control. A master level control is also provided.

Optional footpedals and foot switches allow the musician to bend pitch up or down, introduce vibrato or trilling, and switch the slave ranks in and out. ORGANTUA also features a unique "octave jump" footswitch capability, which raises all ranks one octave.

If you're not convinced by now that ORGANTUA represents the first major advance in combo organs in 10 years, send for the evaluation package which includes the assembly/using manual and a demonstration tape, it tells the full story. It's cost is refundable upon purchase of the kit.



THE STRING SYNTHESIZER THAT'S MORE THAN JUST STRINGS: STRINGZ 'N' THINGZ

Over the years, the STRINGZ 'n' THINGZ STRING ensemble has been one of our most popular and widely accepted kits. Little wonder, since it offers features that you won't find in other instruments in this price range; Violin, Cello and Piano voices, separate mixable piano output, synthesizer interface, variable chorusing, variable sustain controls, jacks for foot controls, keyboard split, dual violin/cello mixers and many, many more.

And while full, rich string textures are one of the hallmarks of the Stringz 'n' Thingz, the stereo option adds a second, separate chorusing circuit that allows violin and cello voices to be generated in synthesized stereo in two switch-selectable modes.

No. 1550 Stringz 'n' Thingz Kit \$299.00 (35 lbs.)
 No. 1551 Stereo Add-on \$44.95 (11lb.)

For the full story order the evaluation package below. The cost is refundable upon purchase of the kit.

No. I-1550
 Manual/Demo Tape Package
 \$10.00 ppd.

No. 6780 Organtua Kit \$299.00 (33 lbs.)
 No. I-6780 Manual/Demo Tape \$10.00 ppd.

**NOW YOU CAN RETROFIT STRINGZ & ORGANTUA
 FOR JUST INTONATION. SEE EK-10 ON PAGE 9.**

IDEAL FOR MULTI-TRACK STUDIO USE



The DRUM PERCUSSION SYNTHESIZER

At PAIA, we've always thought that your instruments should provide the maximum power and versatility available from the technology. That's why where others give you only two options, on and off, the DRUM provides infinitely variable control of: waveform (fade from triangle to square wave or stop in between, sine wave switch selectable), Noise filter, corner frequency (white to various shades of pink), Oscillator/Noise mix (get just the sound you're after).

Add to this innovative PAIA touches like filter modulation setting that lets the filter track the drum envelope and convenience features that include:

- * Variety of sensor mounting options (use your own drum set or practice pads.)
- * Power indicated LED on each card.
- * Trigger LED

- * Multiple rear panel interfacing and control options.
- * Modular expandability
- * Quick and easy kit assembly.

In the multi-track studio the sensor can be played with pencil or finger tip to produce complete drum tracks or add just the needed fill-in riff to complete a piece. The DRUM is also easily interfaced to electronic control devices such as the PAIA 6770 MASTER SYNCHRONIZER.

For the whole story, order the Evaluation Package with manuals and Demo tape.

I-5700 Evaluation Package \$10.00 ppd.

No. 5700 The DRUM Card Kit \$59.95 (2 lbs.)

PACKAGE OFFER - Buy four cards and the power supply and we'll throw in the case (\$34.95 value)

No P-5700 Four Channel Drum Synthesizer Package Kit \$269.95 (14 lbs.)

As used by Willie Wilcox on the road with UTOPIA



High Fidelity Magazine describes the 3750 as "An easy project . . . fun to do and yields delightful results . . . an excellent educational tool and versatile aid to the musician who can't afford a live rhythm section."

And Peter Gabriel, former vocalist for "Genesis" and solo recording artist on Atlantic Records, says "I like it a lot. I think of it as a composer's tool. It has helped me with my recent songwriting. I like to set up complex timings, and then play against it to find words and music that work well with the pattern."

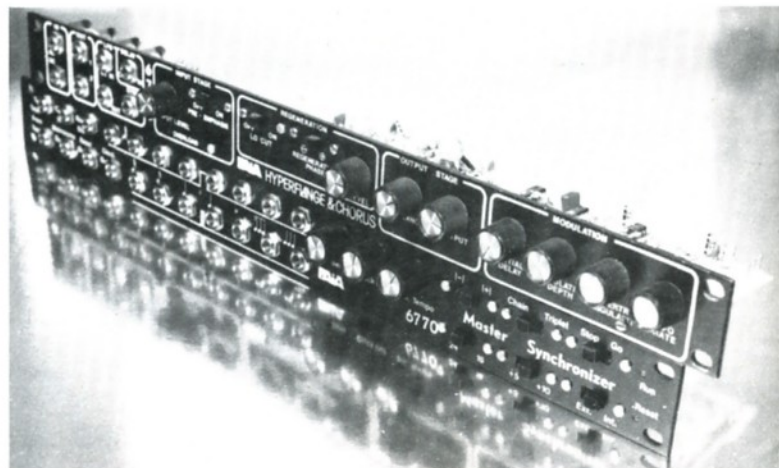
**DON'T MISS OUR
COMPUTER DRUMS
EXPERIMENTER'S KIT
ON PAGE 9**

THE PROGRAMMABLE DRUM SET

While most electronic rhythm units offer only a limited choice of pre-determined rhythm patterns, the PAIA Programmable Drum Set allows you to select percussion sounds - Heavy Bass, Light Bass, Snare Drum, Tom-Tom, Conga, Wood Block or Clave - and structure pattern and time signature in any conceivable combination. And touch sensitive electronic controls allow scores to be entered in seconds with no programming knowledge required.

Without question the Programmable Drum Set advances the state of the art in automatic percussion units with features and abilities too extensive to cover completely, including: Score editing, bridges and intro's, external sync. to sequencers or foot controls, memory save switch and many more.

No. 3750 Programmable Drum Set Kit \$79.95 (5 lbs.)



SOUND VALUES

THE PAIA STUDIO SERIES



HOT SPRINGS REVERB

In general, spring reverbs don't have the best reputation in the world. Their bassy "twang" is only a rough approximation of natural room acoustics. That's a pity because it means that many people will dismiss this exceptional product as "just another spring reverb." And it's not. In this extraordinary design Craig Anderton uses double springs, but much more importantly "hot rods" the transducers so that the muddy sound typical of most springs is replaced with the bright clarity associated with expensive studio plate systems.

Kit consists of circuit board, instructions, all electronic parts and two reverb spring units. User must provide power (± 9 to 15 v.) and mounting (reverb units are typically mounted away from the console).

No. 6740 Reverb Kit \$59.95 (2 lbs.)

PARAMETRIC EQUALIZER

For either studio or live performance work, a parametric equalizer is the most powerful and versatile tone control available with applications that range from notching out the feedback howls in an unruly venue to taming that one note in a run that just won't quit pegging the meters. And this PAIA unit is a true parametric that gives you complete and independent control of frequency (40 Hz. — 16 kHz.), bandwidth (resonance .2—4 octaves) and continuously variable boost or cut.

The 4 separate graphic equalizer sections behind this 1 1/4" rack panel may be used independently or in any combination. Requires ± 9 to 15 volt power supply such as PAIA 4771.

No. 6760 Parametric Equalizer Kit \$59.95 (3 lbs.)

HYPERFLANGE & CHORUS

Careful design and input/output compansion make this an incredibly quiet analog delay unit useful both in the studio and as a live effect.

But continuing the PAIA trend to quiet quality isn't the only thing that makes the Hyperflange & Chorus an exceptional value. The Hyper-triangular control oscillator based on a Curtis 3340 VCO chip allows both linear time sweeps (the way everybody else does it) and the exponential sweeps (which is the way your ears really prefer) both over a 72:1 range. And an exclusive Resonance Lock Circuit lets you hang regeneration "on the edge" without having to worry about breaking into feedback howls.

More? OK, how about control features like a pan pot for dry and processed signal, + or - flanging, clipping indicator LED for precise setting of optimum input signal level, separate external control inputs for both LFO and time delay... even a sync input for the control oscillator.

The Hyperflange & Chorus comes in a standard 1 1/4 in. rack mount configuration compatible with other products in the 6700 series of equipment and requires a ± 12 to 15 volt 200 ma. power supply.

No. 6750 Hyperflange & Chorus Kit \$149.95 (3 lbs.)

DUAL LIMITER

Until now, low noise, low distortion, quality limiters have been priced beyond the reach of budget studios—just the place where they're most useful. Like a safety valve, a limiter does nothing as long as everything's going as planned. But, when that unexpected loud transient tries to sneak in and ruin hours of careful preparation, the 6790 is there to unobtrusively hold the signal at a level that prevents distortion in the rest of the audio channel.

Craig's design features the new Signetics 570 Componder chip in a configuration that allows switch selection of either two Independent limiters or a "dual" mode which allows the signal on one channel to limit both channels, thereby preserving stereo imaging. The limit point is controllable from the front panel of this 1 1/4 inch high standard rack panel package over a range of approx. -10 to +3 dB. LED indicator shows when limiting is taking place.

The limiter is also useful as a special effects device for guitar, etc.

SPECIFICATIONS: Power: +12v. @25 ma., -12v. @ 8 ma. nominal (external supply such as 4771 required); Frequency response: ± 1 dB., 20 Hz. —20 kHz.; Attack time: less than 1 ms.; SNR referenced to 0 dB. output: greater than -65 dB.

No. 6790 Dual Limiter Kit \$49.95 (2 lbs.)

MASTER SYNCHRONIZER

Craig Anderton's "Synchro-Sonic" Controller as featured in KEYBOARD MAGAZINE.

Today, a "Master Synchronizer" is not as universal a piece of studio equipment as EQ and Reverb. But for the more progressive electronic musician working in a multi-track environment it can easily become indispensable because this module takes the concept of a click track the next logical step by providing a means of generating and recovering an electronic clock signal to tape.

When the clock signal is recovered and divided into musically significant intervals from 1/32 to whole notes it can be used to precisely lock newly recorded material to tracks already in place. With the MASTER SYNCHRONIZER you won't hesitate to lay down expanded or improved sequencer or drum set parts—the hassle involved in trying to synchronize manually is gone.

Using the MASTER SYNCHRONIZER to tie the sweep rates of traditional effects to the tempo of music imparts a "Synchro-Sonic" coherence and rhythmic complexity to the sound that is difficult to achieve otherwise.

Other features of the MASTER SYNCHRONIZER include square wave and pulse trigger outputs; Run, Reset and Clock outputs allow easy interfacing and control of a variety of equipment from different manufacturers. Front panel switch selectable +5 and +10 volt logic levels. Accent metronome output with 50—750 Beats Per Minute tempo range. Requires +/- 15 volt 35 mA.

6770 Master Synchronizer Kit \$74.95 . . . 3 lbs.

NEW

RACK PACK PROCESSING CENTER

PAIA's RACK PACK is a terrific low cost solution to the audio processing needs of the working musician. In one convenient ROAD RACK CASE, this system provides the processing most needed to deliver the cleanest, fullest possible sound. System includes: 1-6790 Dual Limiter, 1-7710 Stereo Mixer, 2-6760 Parametric Equalizers, 1-6750 Hyperflanger & Chorus, and a 7700 Power Supply to run it all. Buy the entire system and we include the Rack Case at half price and throw in the case's travel cover for free.

No. 7700/a Rack Pack Processor \$466.95 [29lbs]

ROAD RACK CASE

Here's a sturdy, attractive case for your rack mount equipment that's as at home on the road as it is your studio. Thick vinyl covering protects against abuse. Holds up to 8 standard single high (1-3/4") rack panels. 7 inch depth holds all present and planned PAIA equipment as well as most other commercial equipment. Includes 32 large headed screws for equipment mounting.

No. 7760 Road Rack Case \$57.88 (15 lbs)

When you take your rack on the road, the handiest thing to have is a cover to protect front panels and controls. This one is specially made to match the case above and is deep enough so that you don't have to un-patch to travel. Includes reinforced metal corners, slip hinges and a convenient carrying handle.

No. 7761 Road Rack Case Cover \$18.88 (8lbs)



STEREO MIXER

Home studios and multi-megabuck film/video production facilities have at least one thing in common — neither ever seems to have enough mixers. You always need to bring in just one more signal.....

But, now you can be forever done with that problem with PAIA's cost-effective new 7710 Stereo Mixer. This sturdy, rack-mount unit is physically and electrically compatible with other products in our studio series. Designed for clean, quiet performance in any studio or live mixing gig, the mixer features low-noise op-amps and the shortest possible signal runs for minimum extraneous signal pickup. Front panel controls include individual level and pan pots for each channel and master gain controls for left and right channels.

And the same features that make this mixer quiet and reliable also make for quick and easy assembly — all controls and jacks mount directly on the circuit board with no flying wires from the guts to the panel. Power: $\pm 15v$. @15 ma., Input Impedance: 100K ohms, Output Impedance: less than 5K ohms. Freq. Response: 20 Hz. - 30 kHz. No. 7710 Stereo Mixer Kit \$59.95 (2 lbs.)

NEW



RACK POWER SUPPLY

This simple 1 Amp. bipolar power supply is the ideal complement to the PAIA 6700 and 7700 series of studio equipment. Standard double high rack panel features front accessible fuse holder and twin adjustable control voltage outputs, one with a range from 0 to +10 volts, the second with an output from 0 to -10 volts. A combination of PC Board and lead mounted Molex connectors make for quick and easy connect and disconnect from equipment. Bipolar power outputs are adjustable from 9 to 15 volts.

No. 7700 Rack Mount Power Supply \$59.95 (4lbs)

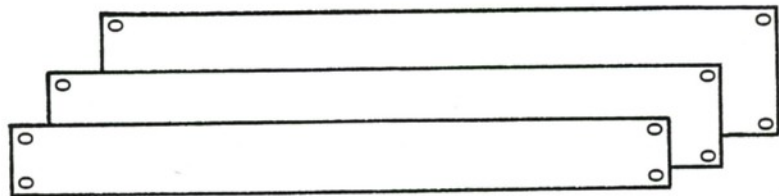
NEW



QUADRAFUZZ

The Quadrafuzz, designed by Craig Anderton, is an entirely new and highly sophisticated type of fuzz. It splits the guitar signal into four specially equalized channels and fuzzes each one separately for a smooth, clean, sustaining sound with minimum harshness. Includes separate level and resonance controls for each channel, two pole tunable low pass filter, loop send and receive jacks, tapped channel audio outputs, line or low level operation and electronic switching with status indicator. If you've been looking for a new and exciting fuzz sound here it is! Requires external supply from ± 5 to ± 20 volts. Featured in the June 1984 issue of Guitar Player Magazine.

No. 6720 Quadrafuzz kit \$39.88 (3 lbs)



BLANK RACK PANELS

Easily machined 1/8 inch unfinished aluminum rack panels (you may mix sizes for discount pricing)

	Quantity 1	3 or more
Single size — 1-3/4"	\$5.25	\$3.95 (1.00)
Double size — 3-1/2"	\$9.25	\$7.95 (1.00)
Triple size — 5-1/4"	\$12.95	\$11.95 (1.00)

6 COST EFFECTIVE RACK MOUNT EQUIPMENT

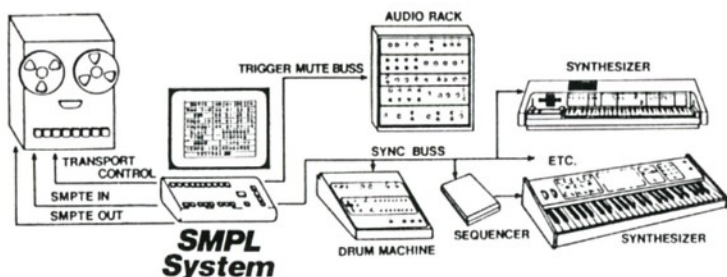
**AT
LAST!**

COMPUTER AUTOMATION FOR THE SMALL STUDIO

THE SMPL SYSTEM BREAKS THE PRICE BARRIER FOR SMPTE TIME CODE

Synchronous Technologies' SMPL System is the only time code device specifically designed to solve the problems of the smaller recording studio. In one integrated package it provides functions and features which can't be duplicated with existing time code equipment even at many times the system's low price. Functions include:

- SMPTE Time Code generator
- SMPTE Time Code reader
- Automatic Punch In/Out
- Drum and Synth Synchronizer
- Programmable 8 event sequencer
- Autolocator
- Time Code Metronome
- Recorder Remote Control



IT'S THE ENGINEER YOU ALWAYS WANTED

With the SMPL System, insert editing no longer requires the combined skills of engineer, musician and juggler. During review, Punch In and Punch Out points are set on the fly and saved in the computer's memory. Separate Rehearse and Take modes allow you to rehearse and preview the edit points as many times as necessary before committing to tape.

Eight programmable event outputs are useful for triggering effects, changing instrument presets, fractional measure channel muting and much more.

The eight autolocator points let you get from section to section with a minimum of hassle and wasted time. And a separately programmable CUE point controls the recorder for a looping function at the end of rehearsals and takes. You concentrate on the art, the system attends to details.

SYNC-LOCK THE NEW GENERATION OF INSTRUMENT/RECORDERS

Through the SMPL System's MIDI standard 24 tick/beat synchronizing buss, an ever increasing number of Polyphonic Synthesizer Sequencers and Electronic Drum Sets can be precisely synchronized to material on tape. Many pre-MIDI instruments also conform to this standard and other non-standard sync formats can be handled with modest additional equipment.

Unlike tone or click-track type synchronizers, the SMPL System can be started at any arbitrary point in the work and the computer instantly calculates the correct phase of both metronome beat and synchronizing signal. You save time and aggravation by not having to play through the entire work to do an edit at the end.

MORE, HIGHER QUALITY "TRACKS"

Since much of today's commercial music involves digital drums and sequencer controlled polyphonic synthesizers, the SMPTE track can replace numerous tracks which might otherwise be recorded as audio. Not only does this effectively increase the number of tracks available, it allows these tracks to be mixed first generation to the master tape. No more loss of quality from ping-ponging and dubbing.

AN OFF LINE TERMINAL FOR THE ENTERTAINMENT INDUSTRY'S SYNCHRONIZING NETWORK

The benefits of using industry standard non-drop format SMPTE Time Code can't be overstated. With the SMPL System, tapes produced in the small studio will transport to larger studios and be compatible with automatic mix-down and chase-locking equipment.

Even if you never need to sync audio to video, this compatibility has compelling economic advantages. Tapes produced on machines with limited tracks can be "pyramided" to 24 and 40 track studio machines, allowing you to create in your own environment at your own pace and still have easy access to expensive studio facilities on an as-needed basis. In many cases, your savings in billed studio time will quickly pay for the SMPL System.

A VERY HUMAN INTERFACE

Either a Color or B/W Monitor or TV set can be used as the display device for the SMPL System. The easily readable display provides all current information on the operation of the system including operating mode, metronome tempo, current time, In/Out points, CUE point, recorder status and more. And the SMPL System doesn't require an advanced engineering degree to operate, all functions are straight forward and obvious.

IT'S A COMPLETE, LOW COST SYSTEM

Not only is the SMPL System itself low in price, it's designed to be used with lower cost multi-channel cassette or open reel recorders by simply plugging into their normal remote control jacks. Neither tachometer output nor speed control input are required. Even recorders without remote control jacks can usually be modified for use with the system.

The complete SMPL System consists of: Personal Computer with keyboard modified for SMPL functions, SMPL System Software/Interface cartridge, 12' recorder interface cable with stripped tinned leads ready to install compatible recorder remote control plug, VHF channel 3/4 modulator, power supply and Using and Installation manual.

SMPL System.....\$995.00 (12 lbs)

It's impossible to go into all of SMPL's time and money saving features in a single page. For the full story, order your copy of the Installation and Using manual. It's like a short course in Time Code and the cost is refundable with your order.

I-SMPL.....SMPL System Installation and Using manual.....\$15.00 ppd.



No representation that SMPL is a product of Commodore Business Machines, Inc. or an affiliated or related company is intended; nor is there any representation that there is any source of origin of Commodore Computers other than Commodore Business Machines, Inc. or its affiliated or related companies.

AUDIO/SYNTHESIZER I.C.'s

The Curtis Electromusic Specialties line of integrated circuits for audio processing and electronic music are wide range, exponential response, low noise, second generation devices which represent a significantly higher degree of integration than similar units available from other sources.

Unmatched features of the Curtis chips include: virtual ground summing nodes on most inputs eliminate external summing amplifiers; internal temperature compensation eliminates the need for "Q81" or similar tempco resistors; design excellence provides exceptionally low control voltage

LOW NOISE PREAMP

The 2011 is an ultra low noise preamplifier which excels in high quality audio applications (such as low impedance balanced mic amplification). The input stage uses optimized biasing and geometries to yield a 2.4 nV per root Hz equivalent input noise, and a 110 dB common mode rejection ratio over a $\pm 5V$ input range. A single compensation capacitor provides a 200 MHz gain-bandwidth product (Gain=1000) and a 200 kHz

feedthrough. If you've tried other synthesizer IC's and found them temperamental or difficult to work with, try the CES chips — you'll be pleasantly surprised.

CEM 3310 ADSR	.....	\$7.95
CEM 3320 VCF	.....	\$8.95
CEM 3330 DUAL VCA	.....	\$7.95
CEM 3340 VCO	.....	\$10.00
CEM 3350. Dual VCF	.....	\$7.95
CEM 3360. Dual VCA	.....	\$6.95

(Add 2.00 shipping and handling charge for each order for CES Chips whether you order one or the whole set)

EKx MODULE SERIES

Whether you want to evaluate the Curtis chips, expand your present exponential system or custom design your own studio quality synthesizer or laboratory grade audio processing system from the ground up, the PAIA EKx series is for you. Each kit comes complete with all the components required to produce a fully functional high quality voltage controlled module card. All audio and control voltage inputs and outputs are brought out to the edge of the card in a configuration compatible with either Molex connectors or standard 22 pin .156 center edge connectors. All modules require $\pm 15v$. nominal regulated supplies (PAIA 4771 or equivalent). Each card is a trim 3 1/2" x 4".

EKx-10 ENVELOPE GENERATOR

Voltage controlled ADSR Envelope Generator with exponential control of attack, decay and release times and linear control of 5v. peak sustain voltage. Time ranges are typically 250,000:1 (2ms. to 20 seconds guaranteed) with particular attention paid to high accuracy, repeatability and tracking of

full power bandwidth at Gain=10. The level detector selection consists of a precision rectifier, two internally biased comparators, and two LED drivers. One LED output lights at 3 dB below a 5V peak output level, while the other lights only when the signal is within ± 10 dB of nominal output level.

No. 2011 SSM Microphone Preamp/Level Detector IC.
..... \$5.75 (2.00)

parameters. The Curtis IC's are unique in that they provide for all practical purposes no control voltage feed-through.
EKx-10 Voltage Controlled Envelope Generator \$24.95 (2.00)

EKx-20 VOLTAGE CONTROLLED FILTER

The CES 3320 VCF chip features 4 low or high pass sections in a single chip with onboard temperature compensation and resonance control cell. The EKx-20 provides exponential voltage control of pole frequency over greater than a 10 octave range and voltage control of resonance from 0 to low distortion oscillation. This card is a programmable filter element that can be wired by the user for high pass, low pass, band pass or all pass operation with 4 pole (24 dB/octave) response. Forget about noise, this filter is specified at a quiet -86 dB below maximum rated signal output. EKx-20 Voltage Controlled Filter \$26.95 (2.00)

EKx-30 DUAL VOLTAGE CONTROLLED AMPLIFIER

There's no need to run out of VCA's when you get them with these features at these prices. EKx-30 card provides two independent low noise, low distortion, wide bandwidth VCA's with high control scale accuracy and low control voltage feed-through. Both exponential and linear control voltage inputs are provided and may be used simultaneously.
EKx-30 DUAL VCA \$24.95 (2.00)

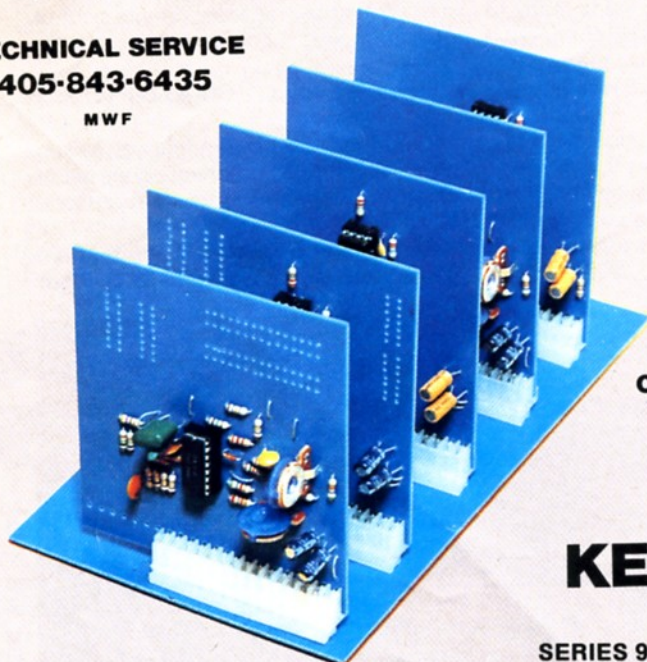
EKx-40 VOLTAGE CONTROLLED OSCILLATOR

Because of the CEM 3340's minimum support circuitry requirements we can offer this card at an exceptionally low price. But, don't be fooled; this is a full feature oscillator providing ramp, triangle and pulse outputs. The card provides such outstanding features as exponential frequency control over a highly accurate and temperature stable 100,000:1 range, voltage controlled pulse width, linear FM input and provision for both hard and soft sync inputs. EKx-40 VCO ... \$29.95 (2.00)

TECHNICAL SERVICE

405-843-6435

MWF



CUSTOMER SERVICE
405-843-9626
9am 5pm
Mon. - Fri. CST

KEYBOARDS

SERIES 9000 AGO KEYBOARDS

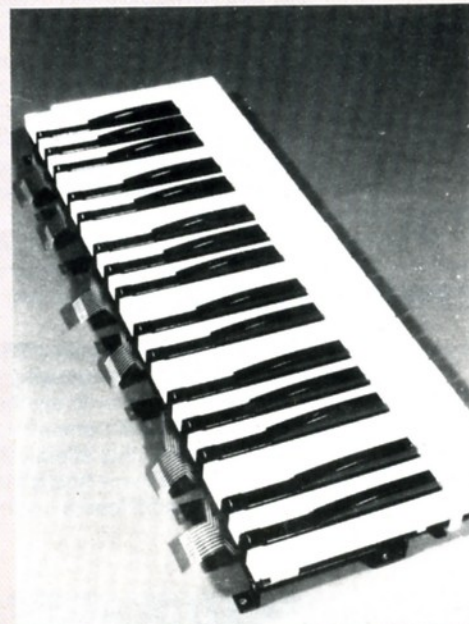
Pratt-Read's lightest, most reliable keyboard ever, these new Series 9000 Keyboards offer several advantages over previous models.

Low-Bounce membrane switches (single Normally Open contact per key) are positive acting for low electrical switch noise — Switch Bounce problems common in interfacing are practically non-existent. Since the switches are completely enclosed, you'll never be troubled with erratic operation caused by dirty contacts.

Key switches are organized in groups of 8 for easy digital matrixing but common lines may be joined for switched voltage divider or direct tone selection applications.

New flexible circuits from the key switches mean easy termination to circuit boards. Flex circuit connectors are provided and allow the keyboard to be easily disconnected and removed from other circuitry.

AGO37 — 37 Note Keyboard	.....	\$ 98.50	... (8 lbs.)
AGO61 — 61 Note Keyboard	.....	\$159.95	... (10 lbs.)



EXPERIMENTERS KITS

LIGHT ON CONSTRUCTION DETAILS - HEAVY ON THEORY AND APPLICATIONS

TOP-OCTAVE EXPERIMENTER'S KIT

A full octave of equally tempered semi-tones plus one note from a single LSI circuit. Instructions outline use as a simple organ, push-button chord box, random voltage source, random melody generator, more. Includes 50240 type top-octave divider circuit, 4001 CMOS quad nor gate (for clock signal generation), circuit board with space for additional components. Requires common value resistors and capacitors.

No. EK-1 TOP OCTAVE EXPERIMENTER'S KIT . . . \$15.95 (2.00)

3-OCTAVE TONE BOARD

When we first introduced the EK-1 top octave generator experimenter's kit people loved it and right away and started using it to build mini-organs, bass pedals, chord boxes, random voltage generators, etc. (there's a lot you can do with one as it is pointed out in its instruction manual) but many people had a common complaint — not enough notes.

So now, here's the EK-6, very similar to the EK-1 but with three times the notes simultaneously available. And at a reasonable price. Provides 3 octaves (37 notes) of equally tempered pitch using a 50240 type IC for the top octave and 4013 type dual flip-flops for lower octaves.

The EK-6 is identical to the tone boards used in Craig Anderton's *Organtua* and can be used with that instrument to provide additional tone ranks, or use it to develop your own *Organtua*-type instrument customized to your specific needs at absolutely minimum cost.

Requires clock frequency in the range of 1 mHz to 50 kHz, depending on pitches desired.

EK-6 3 OCTAVE TONE BOARD \$34.95 (2.00)

EK-10 JUST INTONATION GENERATOR

According to basic music theory, scales based on just intonation are more "in-tune" than scales based on even-tempered tuning. In fact, some people think just intoned music sounds purer and more harmonious than even-tempered music. Now you can investigate alternate tuning with JIG (Just Intonation Generator), a just intoned top octave generator board. JIG easily retrofits any 50240 based keyboard (Stringz 'n' Thingz, *Organtus*, OZ, Chord Egg, etc.) to just intonation; simply run a header cable from the JIG board to the 50240 socket. Or use JIG as the basis of a custom instrument. Includes circuit board and all parts plus a comprehensive article reprinted from *Polyphony* magazine on the theory and applications of Just Intonation.

EK-10 Just Intonation Generator Kit \$49.95 (2.00)

COMPUTER DRUMS

The ultimate electronic percussion unit-drum oscillators interfaced to your computer/micro-processor. Provides seven drum sounds: Heavy Bass (down beat), Light Bass, Snare Drum, Tom-Tom, Conga, Clave and Wood Block. Circuitry includes hand-shaking logic with data ready and data accepted lines. Theory text includes both analog and digital analysis and multiple programming examples for a variety of machines. Useable on even the smallest system. Kit includes circuit board and ALL parts. SEE DRUMSYS PROGRAM

No. EK-2 COMPUTER DRUMS \$24.95 (2.00)

EK-3 KEYBOARD ENCODER EXPERIMENTER'S KIT

Up-date PAIA (or other) keyboards to the new digital format. Consists of encoder circuit board and all parts required to modify your present keyboard for use with computers and/or the 8785 D/A Converter. Off-print instructions from "Computer Music Without the Computer", *POLYPHONY* 4/76.

No. EK-3 Keyboard Encoder Experimenter's Kit. \$19.95 (2.00)

EK-7 DUAL DIGITIZER

Of course, you can always enter parameter data into a computer from some kind of keyboard; but in cases where real time control is needed, it's hard to beat an analog controller. The EK-7 digitizes the position of knobs, joysticks, etc. to 16 levels (4 bits) and packs a pair of them into a byte. This is a flash type converter which operates for all practical purposes instantaneously with no conversion software overhead required. The output is compatible with parallel input ports on popular microcomputers. Liberal software examples illustrate reading values, scaling, multiplexing and other tricks that make the EK-7 useful in both low resolution applications.

EK-7 Dual Digitizer. \$15.95 (2.00)

EK-8 HEX VCA

Lots of Voltage Controlled Amplifiers for very little money. Six independently controllable amplifiers mix to a single output. Invaluable in computer assisted synthesis or for use as voltage controlled mixers. Circuit board fits behind normal PAIA double width module space. Kit consists of circuit board, instructions and all electronic components. Does not include jacks or other hardware items. Requires $\pm 9v$. nominal power supply.

EK-8 \$15.95 (2.00)

EK-9 SHEPARD FUNCTION GENERATOR

In 1964 Roger Shepard used a computer program written by Max Mathews to generate a tone which appeared to increase in pitch eternally, without ever reaching an upper limit. An audio analogy of the illusory stripes on a barberpole.

This intriguing and versatile digital function generator for the electronic sound professional or hobbyist produces 8 sets of precisely phased ramp and triangle control voltage waveforms which allow the Shepard Tone to be produced with analog pitch sources. But that's not the best part.

When Shepard Functions are used to control analog processors like filters, flangers, VCA's, and the like, the result is a whole new class of effects that don't simply swing back and forth, but sweep eternally up or eternally down. And when you start separating individual effects outputs into Quad or Stereo, you're into the totally uncharted territory of spatial effects where sound sources move in strange but predictable ways.

Synchronizable to external events or to tape click tracks with the Paia 6770 Master Synchronizer.

Documentation includes John Simonton's instructive and entertaining *Polyphony* article, "LAB NOTES: Shepard Functions"

EK-9 Shepard Function Generator Kit. \$24.95 (2.00)

EK-5 ANALOG DELAY EXPERIMENTER'S KIT

This kit provides a circuit board which holds a Reticon SAD-1024 analog delay IC, a 4013 clock conditioner, and several passive components required to set up the SAD-1024 for proper operation. Spare IC locations are provided for on-board clocks, output filters, mixers, companders, or other types of features which will vary from one application to the next. The circuitry supplied exploits Reticon's use of dual 512 stage delay lines in their SAD-1024. Thus, two complete delay lines are provided which can be used independently or strapped together in various configurations.

Additional user supplied components vary with application, but generally consist of a bipolar power supply, clock components (4001, 4011, 566, etc. ICs), and op amps for signal conditioning. Any additional components required are common and easily available experimenter's parts.

EK-5 ANALOG DELAY EXPERIMENTER'S KIT \$24.95 (2.00)

SYNTHESIZER MODULES EXPAND.

BALANCED MODULATOR/VCA

Balanced modulators (also known as "ring" modulators) allow the synthesist to construct sounds with non-harmonic frequency components. Signals applied to the carrier and modulation inputs of the module are suppressed and in their place appears a new output signal containing only the sum and difference frequencies of the original inputs. Essential for realistically producing the sounds of large gongs, railroad type chime horns and many other natural and purely electronic effects. Can also be used as VCA or frequency doubler. Light Emitting Diode warns of signal overload when processing piano, guitar or other electrified instruments. Requires +18, $\pm 9v$. supply.

No. 4710 Balanced Modulator Kit \$22.50 (1 lb.)

STEREO MIXER

As the synthesist's talents progress beyond "waa-waa's" and bleep-bleeps" a good mixer becomes essential to realize the subtle, almost natural sounds that express today's music. Op-amp circuitry is significantly better than passive mixers. Individual level controls for each input; pan pots allow each signal source to be placed left, right or in between. Master gain controls for left and right outputs. 10K impedance is compatible with common sound sources, 100 ohm output impedance will drive most loads. 6 db max. gain; 20 Hz - 20 kHz. frequency response. Requires $\pm 9v$. supply.

No. 4711 Stereo Mixer Kit \$29.88 (1 lbs.)



REVERB

A reverberation unit is a natural addition to any Synthesizer system since it provides an electro-mechanical equivalent to the delays and echos that define the accoustics of a large auditorium. The 4712 optimizes control flexibility by allowing for the mixing of two separate input signals, as well as post-mixing of the input signals with the processed reverb signal. Front panel switch allows for instantaneous, pop-free termination of reverb effects without affecting normal signal flow through the module.

Consists of two units, control head electronics and reverb spring assembly. Control head occupies single module space in standard PAIA equipment and reverb spring assembly fastens to rear of cabinet (mounting hole drilling required).

No. 4712 Reverb Module Kit \$26.95 (2 lbs.)

WIDE RANGE VCO

If you're particular about specifications, this is the oscillator for you. Features 16 Hz. to 16 kHz. guaranteed minimum frequency range, simultaneous ramp, triangle, sine and voltage modulated variable duration pulse outputs. Front panel initial pitch control allows multiple oscillators to be chromatically offset from one another while tracking a keyboard.

No. 4720 VCO Kit \$34.95 (1 lb.)

ENVELOPE FOLLOWER/TRIGGER

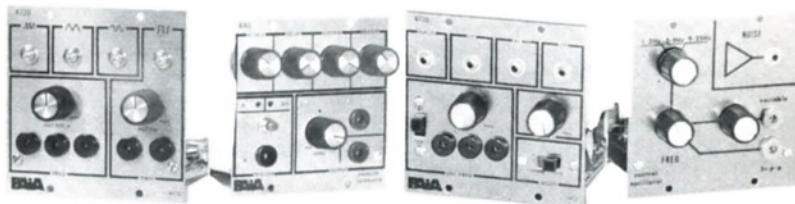
The Envelope Follower/Trigger module allows any electrified musical instrument (including microphones) to serve as signal, control voltage and trigger source for synthesizer. The low level output of the instrument is converted to a DC voltage by a precision full wave rectifier built around two operational amplifiers. A Schmitt trigger circuit provides step and pulse outputs whenever the output level of the instrument exceeds a preset level.

No. 2720-11 Envelope Follower/Trigger kit. \$19.95 (1 lb)

ENVELOPE GENERATOR

ADSR - Attack/Decay/Sustain/Release. Voltage step or manual push-button causes output voltage to rise at a rate set by attack control, then fall at decay control rate to constant level set by sustain control. Releasing push-button or terminating trigger causes output to fall to Ov. at a rate set by release control. Level control varies output. Light Emitting Diodes indicate module status. Times variable from 2 ms. to 2 seconds, 5v. peak output level. Requires +18v. supply.

No. 4740 Envelope Generator Kit \$25.95 (1 lb)



MULTI-MODAL VCF

A filter for the purist, the 4730 multi-filter features simultaneous lowpass, high pass and band pass outputs with Q adjustable from .5 to over 150. Guaranteed corner frequency range from 16 Hz. to 16 kHz. Linear control voltage/frequency characteristics provide keyboard tracking and front panel initial frequency control allows multiple filters to be chromatically offset. Requires ± 9 , +18 volt supplies.

No. 4730 VCF Kit \$37.95 (1 lb.)

CONTROL OSCILLATOR/NOISE SOURCE

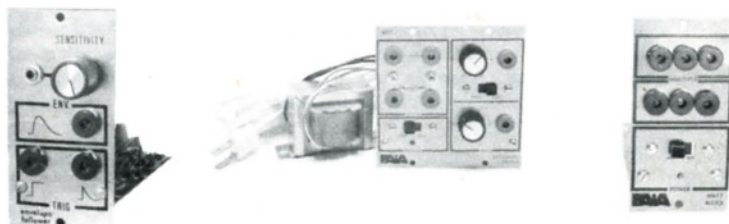
Typical applications of the control oscillator are as a source of tremolo and vibrato or a means of cyclicly sweeping filters. Frequency range of the oscillator is 1 to 25 Hz. in three ranges and both fixed 5v. peak to peak and variable amplitude outputs are available.

The noise source provides unpitched sound used in wind/surf sounds, cymbals, snare drums, steam and many other special effects. **No. 4750 Control Osc./Noise Source Kit. \$21.95 (1lb)**

4771 REGULATED POWER SUPPLY

Provides the three supply voltages commonly required by the PAIA synthesizer modules, plus several front panel convenience features. Voltages available include: +18 volts unregulated, and positive and negative regulated voltages adjustable to provide from ± 5 volts to ± 15 volts. Each supply line provides up to 200 mA. This variable voltage feature makes the 4771 an excellent choice for low cost precision power supplies for your homebrew projects, or a variable supply for your workbench. Front panel features include two variable bias supplies, each can be trimmed to provide exactly 0 to 5 volts. One bias provides only positive voltage, the other is switch selectable for positive or negative bias. A patch bay section allows AC coupling of control voltages, and conversion of audio signals to control lines. Front panel power switch and LED provide positive indication of power status. Line cord included. Power transformer must mount on the enclosure.

No. 4771 Regulated Power Kit \$29.95 (3 lbs.)



...OR BUILD A CUSTOM SYSTEM

WATT BLOCK

300 ma. power supplies may be wired to provide either +18v. or ±9v. Power requirements vary from module to module but on the average 300 ma. is sufficient for 30 of the 2720 series or 20 of the 4700 series modules. Light Emitting Diode power indicator. Multiple jack panel consisting of 3 pin jacks and 3 phone jacks aid in complex patches.

No. 4770 Watt Block Kit\$14.95 (1 lb.)

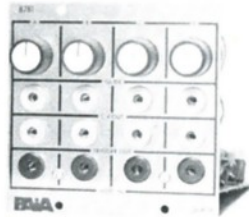
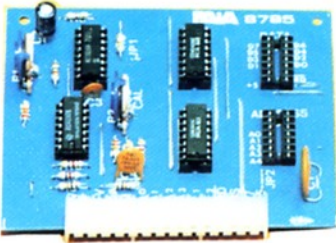
Since Watt-Block will often be used in groups of 2, line cords for above are sold separately.

No. LC-6 6 ft. line cord\$1.00 postpaid

QuASH [Quad Addressable Sample and Hold]

The least expensive way to provide multiple control voltage channels in a computer based synthesizer system is to multiplex the output of the D/A using multiple, computer addressable, sample and hold circuits. The QuASH provides four of these outputs in a single module. Other features of the module include: adjustable glide rate for each channel with the glide selected or de-selected under computer control, individual trigger "gate" signal associated with each output channel and an individual modulation input for each channel that is non-interactive with other channels. On-board address decoding allows up to four QuASH to be bussed together in a single system without external logic and Bank Select input allows external logic expansion beyond this point. NOTE: THE QuASH MUST BE OPERATED UNDER COMPUTER/PROCESSOR CONTROL.

No. 8781 Quad Addressable Sample & Hold Kit\$34.95 (1 lb.)



8785 LINEAR DIGITAL TO ANALOG CONVERTER

There are a lot of ARP and MOOG fans around. But we wouldn't want past allegiances to stand in the way of your realizing the maximum that your equipment has to offer when teamed with PAIA's leadership in digital control.

This linear digital to analog converter matches the output structure of popular microcomputers at one end and QuASH bus at the other. Behaves according to all PAIA protocols to provide over 5 octaves of control voltage output plus software control of glide and gate signal. Up to 16 channels easily supported, more if you like. Can be modified to provide over 10 octaves control. Requires regulated +5v. (tapped from computer in most cases) and ±15v. @ 50 ma. nominal (±9v. from PAIA 4770 works well also)

No. 8785 Linear DAC Kit\$24.95 (1 lb.)

PATCH CORD SETS

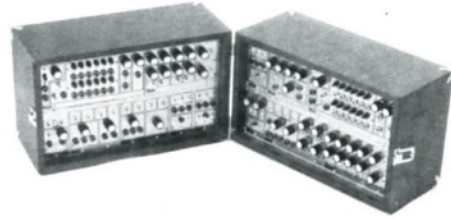
... Something you never seem to have enough of. Set consists of 16 audio and 24 control voltage connectors with 15 ft. of cord.

No. PTCH KIT\$15.00 (1 lb.)

ROAD CABINETS

Anyone who doesn't have their equipment nailed down needs the protection that these sturdy vinyl covered cases provide. The 4761 road cabinets have space for 13 single width modules and include power buss, interface panel (for power distribution) and all hardware. Buy two and we throw in hinges, latch and carrying handle for a fold-up portable package.

No. 4761 Road Module Cabinet Kit\$24.95 each (9 lbs.)



VELOCI-TOUCH™ CONTROLLER

The new Veloci-Touch controller from PAIA adds what may be the two most important parameters that any electronic keyboard can have—velocity and second touch pressure sensitivity.

Velocity is a control voltage proportional to how hard you play. Pianissimo and the voltage is low. Fortissimo and it's high. Use this parameter with a VCA and presto... output level changes that follow your playing.

But, since "loud" and "soft" mean more in human terms than just level changes, the Veloci-Touch controller also provides a velocity sensitive transient generator with variable decay time and an output control that's continuously variable from normal to inverted transients. Use as a filter parameter control for the most natural timbral changes ever.

Even that's not all. The Veloci-Touch controller also provides an output proportional to the pressure you apply to the key after it's down (second touch). Imagine—tremolo the natural way.

The best part of this minor miracle from PAIA is that it's non-denominational. You can retro-fit it to essentially any synthesizer from any manufacturer.

Get the full story in the Veloci-Touch assembly and using manual, it's only \$5 post paid, and is fully refundable upon purchase of the 8786 or 4786 Kit.

No. 4786 VELOCI-TOUCH™ CONTROLLER MODULE KIT\$44.95... 2 lbs. (PAIA 4700 Series Compatible)

No. 8786 VELOCI-TOUCH™ CONTROLLER KIT\$69.95 3 lbs.



**ORDER TOLL-FREE
WITH VISA OR MASTERCARD
1-800-654-8657**

Outside Oklahoma...within the continental US.

PAIA STOMP BOX EFFECTS DELIVER MAX BANG PER BUCK

These stomp boxes from PAIA are designed to give electronic guitarists the highest quality effect at the lowest possible price. Cases are formed of heavy steel and covered with the most scuff-resistant baked-on finish available. All feature heavy duty switches for long life and electronic effect switching for pop-free punch-in and punch-out. All are high input impedance, low output impedance, non-inverting, low noise devices designed to meet all proposed FX standards. Each provides hour after hour of operation from a single 9 volt battery and provide automatic power switching; you'll never have to worry about forgetting to turn them off.

HOT LYX SUSTAIN

Probably the most used effect by any electronic guitarist, a sustain unit is essentially an amplifier that automatically increases its gain to compensate for a guitar's normal decay characteristics. The result is the ability to hold notes and chords much longer than would otherwise be possible.

Hot Lyx gives you all the control you need, continuously variable sustain from just enough to make your Silvertone sound like a Les Paul to "pedal to the metal" controlled feed-back settings that give rock-guitar its "all-out" quality. Level control allows for either lower or higher volume levels when you're punched into the effect and can also be used as an over-drive control to give you the sweetest fuzz/sustain sounds you've ever heard.

No. 5710 HOT LYX Sustain \$39.95 (3 lbs.)

MOTION FILTER

An envelope follower/filter combination translates the normal dynamic properties of your axe into modulated timbral changes as well, the effect is like a wah-wah pedal being used by someone with magic feet. The first time you get your MOTION FILTER working you won't believe that so much funk and soul can be squeezed into such a tiny box.

Independent Initial Frequency and Sensitivity knobs give you the control you need to realize a wide range of effects and allow the MOTION FILTER to be used with either electric bass or guitar.

No. 5720 MOTION Filter Kit \$34.95 (3 lbs.)

GATOR™ Noise Gate/Envelope Controller

The almost un-noticeable "hiss or swish" that each unit in a multiple-effects system adds to your music can sum to annoyingly noticeable background noise just when things are supposed to be quiet. GATOR listens while you play, and when you stop, electronically isolates your effects from your amplifier, zapping noise completely.

And despite its low cost, GATOR has added features that let you do more than just make other effects sound good. It's an important effect in its own right.

The ATTACK control lets you re-shape the normal percussive envelope of your guitar for bowed string and organ effects with attack times up to 1.5 sec. and an AUXILIARY TRIGGER SIGNAL INPUT allows the dynamics of one instrument to be gated by another (drums, for example) to impart unique "synchro sonic" rhythmic characteristics to your sound.

Other features include High Impedance In/Low Impedance Out, Electronic Footswitch for quiet punch in/out, wide range Threshold Control, Single 9v. battery supply (not included).

GATOR (tm) Cat. No. 5730 \$39.95 3 lbs.

MIDRANGER™ Midrange Equalizer

Sure, your amp has bass and treble controls — but what about the all important midrange? When you need more sound from your axe than most amps can give, but don't have the bucks for a fancy equalizer, the MID-RANGER is for you. Featured in Craig Anderton's June 1982 Guitar Player column, this special purpose equalizer gives more presence and "punch" by providing continuously variable boosts of up to 12 db. at switch selectable frequencies of 90, 200, 1000, 2000 or 4000 Hz.

Designed for guitars, voice, rhythm boxes and keyboards, the MIDRANGER features High Input/Low Output Impedance, quiet electronic switching and single 9v. battery supply (not included).

MIDRANGER (tm) Cat. No. 5740 \$37.95 3 lbs.

5750 — AXE GRINDER(tm)

A classic fuzz to FX standards.

The AXE GRINDER might be a pretty routine fuzz if it weren't for a couple of subtle but significant features. Like a Distortion Intensity Knob that provides smooth control of clipping from just a hint when you really get it on to pure square waves when you even think of picking.

And the Distortion Tone, Distortion Level, and Clean Level controls are like having a built in mixer and E.Q., letting you precisely set the amount of distortion and its tone as well as the mix of clean and distorted signal. You probably never realized you could get so many sounds from a "simple" fuzz.

The AXE-GRINDER also features totally pop-free electronic switching and adherence to uniform FX standards that allow any Effect to work with any other without concern for mismatch noises or phase incoherence. 9 volt battery power (not supplied).

5750 Axe Grinder(tm) Kit \$34.95 3 lbs.

5760 ROCKTAVE DIVIDER(tm)

Whereas most effects that alter the harmonic content of a signal can only produce or accentuate frequencies higher than the fundamental frequency produced by the instrument, the ROCKTAVE DIVIDER fills out your sound by adding in wave-forms that are sub-harmonics of those produced by your axe.

Companor stages are used to stabilize input for reliable triggering of the divider circuitry and to impress the original dynamics of your playing onto the newly created subharmonics.

Independent level controls on the extracted fundamental and first and second sub-octaves allow you to produce just the mix you're after and master tone control lets you round the square wave sub-octaves off to near-sinusoidal purity.

The ROCKTAVE DIVIDER also features automatic power switching when in use, pop-free electronic cancel function and single 9 volt battery power source (battery not supplied).

5760 Rocktave Divider(tm) \$44.95 3 lbs.



**QUALITY
EFFECTS
AFFORDABLE
PRICES**

I-5760 Manual/Demo Tape Evaluation Package — \$10.00 ppd

When it comes to small amps

PAIA PERSONALS PERFORM

Nobody needs to tell you what's so hot about personal amps. Portable and light weight, they're great for practicing on the road, jamming with friends, headphone listening while others sleep, stage monitors — you name it! Both of these amps feature efficient operation with 6" acoustic suspension speakers and provide weeks of use from their internal battery packs (8 "AA" penlight batteries — not included). Their roady-proof cases are covered in thick vinyl that will take years of abuse and the detailed step-by-step instructions make for quick and easy assembly. If you've been wondering whether you can really assemble your own equipment, here's a chance to prove to yourself that you can. And you'll love the results.

GEMINI

The Gemini amp is loaded with the kinds of features that cost big bucks in music stores. Twin speakers allow really creative miking. Built-in distortion and three-band boost/cut EQ give you the kind of timbres you'd expect from hundreds of watts thundering through stacks of speakers. Three separate mixable inputs so you can jam with friends or rehearse with recorded material. A variety of pre- and post-EQ effects loops let you add your favorite signal processors. Power rated at 2 watts RMS, up to 14 watts peak. **No. 1760 GEMINI AMP KIT\$79.00 (15lbs.)**

NEW

PYGMY

This little amp is small enough to hang from a guitar strap (we don't supply the strap, but the buttons to hang it from are there) and delivers a room-filling 1.2 watts RMS — up to 8 watts peak.

No. 1750 PYGMY AMP KIT \$44.95 (6lbs.)



USE YOUR PYGMY AMP TO GET "TALKING GUITAR" EFFECTS

Convert your Pygmy Amp to produce the "Talking Guitar" effects. Modification kit includes a replacement speaker bezel which concentrates the sound from the speaker and emits this higher pressure signal from a small hole. The sound pressure is then fed through a 6 ft. length of tubing to your mouth for formant processing.

ELECTRO/LARYNX RETRO-FIT\$10.00 (1.00)



PING PONG

An outa site effect for live performances. The Ping-Pong accepts an input from any electronic musical instrument and alternately routes it to two separate amplifiers. Independent left and right depth controls allow for a gentle undulation of the sound back and forth or a fantastic stroboscopic jump from one end of the stage to the other. Front panel switch allows the sound to be routed to one or both of the amps then the unit is switched out. Effect can be initiated or terminated with either front panel switch or optional foot switch plugged into the rear panel jack. Powered by a single 9v. transistor battery. Complete kit includes case with hardwood end panels, circuit board, all parts and hardware, step-by-step instructions. Battery not included. **No. 3712 PING-PONG KIT \$39.95 (wt. 3 lbs.)**

PEDAL VOLUME CONTROL

We've made special arrangements with Rowe/DeArmond to sell their model 1600 as a PAIA/DeArmond foot pedal. If you're familiar with this pedal you know that it's one of the toughest made and is an industry standard. We've made it available in a volume control expression pedal configuration for use with synthesizers, guitars, or whatever you've got. Included with the pedal are two interesting and informative articles from POLYPHONY. The first, by Marvin Jones describes a multitude of ways to use foot pedals with synthesizers as well as simple modifications that provide foot operated control voltage sources. The second, "Build a Wa/Anti-Wa Pedal" by Craig Anderton describes a unique special effects unit that can be housed in the pedal. DeArmond's recommended list price is \$54.00 but we sell them for \$39.95. **No. 1600 PAIA/DeARMOND FOOT CONTROL\$39.95 (4 lbs.)**

SYNTHESPIN MKII

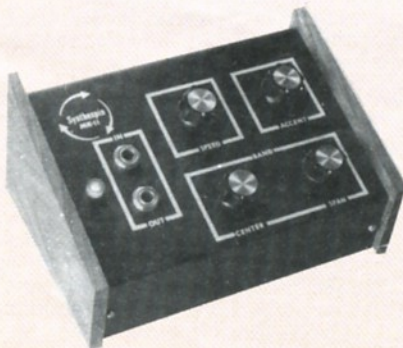
For years electronic organs have used mechanical rotating speakers to produce a tremolo effect. Recently these speakers have gained added popularity with musicians because the sound they produce is totally unlike electronic forms of tremolo. However, mechanical speakers are too bulky and heavy to be conveniently carried from one date to the next and their cost puts them beyond the means of many amateur and semi-professional musicians. The synthespin was designed as a low cost, portable electronic simulator of the rotating speaker effect.

The Synthespin MK-II is an updated and improved version of a similar unit sold by PAIA for several years. In addition to the rotating speaker effect the MK-II also produces numerous effects ranging from very slow phasing type sounds to a bubbling pseudo-reverb. Electrical inputs on the rear of the case provide for optional foot pedal control of the rotating effect as well as allowing for instantaneous foot switch cancellation and bypass functions.

Complete kit includes: circuit board, all parts, wire & hardware, pre-finished case and step-by-step instructions.

No. 1702K Synthespin MK-II Kit \$39.95 (3 lbs.)

Note: The 1702K is not a Phaser.



ENVIRONMENTAL SOUND EFFECTS

LOW COST BATTERY POWERED USE WITH ANY HI-FI AMP

SURF SYNTHESIZER

The roar of the ocean is one of the most relaxing sounds imaginable. Now you can have the sound of the surf electronically synthesized and played through your hi-fi. Complete in this low cost package is a special purpose synthesizer consisting of a pink noise source, random voltage generator, voltage controlled attenuator, and voltage controlled low pass filter. Use as a background sound generator, mood setter. An unbeatable conversation piece. Powered by two 2U5 type batteries (not supplied).

Complete kit includes: circuit board, all parts, battery connectors and clips, miniature type phone output jack and plug, detailed instructions.

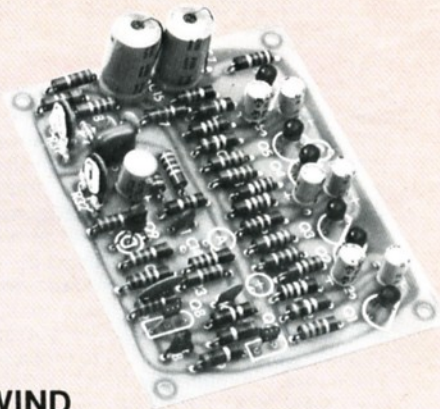
No. 3711K Surf Synthesizer Kit \$19.95 (2.00)

ELECTRONIC WIND CHIMES

You'll feel like you've been transported to the Mikado's palace for the afternoon tea ceremony as you settle back and relax to the gentle random tinkling of these electronic wind chimes. Internal trimmer adjustments allow you to select either the ring of brass chimes or the percussive resonance of bamboo rods. The wind chimes are completely self contained, battery powered (battery not supplied) and may be used with any hi-fi or musical instrument amplifier.

Complete Kit includes circuit boards with parts placement designators, all parts, hardware and wire, power switch, co-ax output lead with RCA type plug, detailed instructions.

No. 3721 Wind Chimes Kit \$24.95 (2.00)

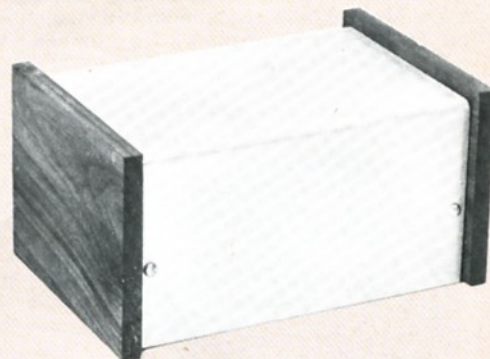


THE WIND

Don't be surprised if you feel like running for your coat when you hear the wind, it's so realistic that people who have heard it report they actually feel cooler. Trimmer adjustments provide a range of effects from moderate breeze to full gale. Great for background sound, special effect accessory for organs or other musical instruments, or just as a party starter. May be used with any hi-fi or musical instrument amplifier, powered by two standard transistor batteries (batteries not included).

Complete kit includes: circuit board, all parts, hardware and wire; battery connectors and clips, miniature type phone output jack and matching plug, detailed instructions.

No. 3730 Wind Kit \$19.95 (2.00)



A CASE FOR YOUR FINISHED PROJECT

This attractively styled case houses the Surf Synthesizer, The Wind or the Wind Chimes interchangeably. Heavy aluminum body with oiled hardwood end pieces blends with contemporary audio and hi-fi equipment. Aluminum top and bottom are completely pre-punched with provision for power switch and output jack on the rear apron of the case. The case is supplied unpainted. **No. 3711-C \$5.50 (1 lb.)**

STEREO CHORD EGG*

The EGG plugs into any stereo amplifier to create soothing, flowing environmental sound textures — and through headphones it's incredible. The chords and notes exist in your mind, they pan and swell and phase their way through your psyche in unpredictable patterns, never repeating.

The combination of LSI organ technology with synthesizer-type processing and digital randomizing/control elements make the EGG and altogether intriguing package from either technological or metaphysical viewpoints. Kit includes: circuit board, all parts and step-by-step instructions. No case available — requires 8 "AA" penlight batteries.

No. 3790 Stereo Chord EGG Kit \$29.95 (2.00)

*EGG Encephalo-Gratification Generator

Shut out noise pollution and keep your cool with the CHATTER JAMMER

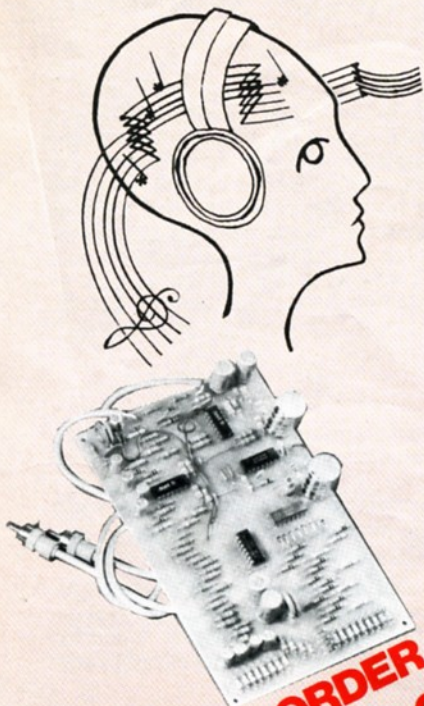
We make only one claim for the Chatter Jammer; if you must work in a noisy environment the Chatter Jammer will help you to concentrate by blocking out distracting outside sounds and substituting the gentle "rushing" sound of pink noise. Thousands of these units have been bought by students and businessmen. Hundreds have been sold to doctors of various disciplines (MD, DDS, PHD, etc.).

Technically speaking, Pink noise is an equal probability distribution of an all frequencies within a given bandwidth.

If you still have trouble visualizing what it sounds like there are many natural phenomena that come close to being pink noise. The sound of falling rain and the roar of the ocean are two good examples. Strangely enough, most people find these sounds relaxing.

The Chatter Jammer is shirt pocket size, completely self contained and can be assembled in less than an hour. Kit includes circuit board, case, earphones, selected noise diode and instructions. Requires two 9 volt transistor batteries (not supplied).

No. 111 Chatter-Jammer Kit \$9.95 (2.00)



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ELECTRONIC PROJECTS FOR MUSICIANS

BY: CRAIG ANDERTON

THE BOOK

Even if you don't know an ohm from a volt, Craig Anderton's newly revised and expanded book shows you how to build 27 accessories that enhance your sound and broaden your musical horizons.

If you're an old hand at musical electronics, you'll really appreciate that all of these processors, from Tube Sound Fuzz to Phase Shifter are compatible and work together without creating noise, signal loss, bandwidth compression or any of the other problems

Cat. No. EPFM \$14.95 plus \$1.00 postage

common to interconnecting effects from different manufacturers. There's even a complete chapter on how to modify and combine effects to produce your own custom pedal board.

Low cost project kits available from PAIA help make even your first exposure to electronics a pleasant, hassle-free experience and thanks to the sound sheet demo record bound into the book you know just how the completed device will sound before you even start.

THE KITS



Proj. #	Title	Price	Proj. #	Title	Price
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2	Metronome	\$19.95	15	Electronic Footswitch	\$19.95
3	Passive Tone Control	\$16.95	16	Tuning Standard	\$39.95
4	Headphone Amp	\$19.95	17	Super Tone Control	\$29.95
5	Mini-Amp	\$29.95	18	8 in, 1 out Mixer (less XLR)	\$28.98
6	Ultra-Fuzz	\$19.95	19	No kit available	
7	Bass-Fuzz	\$21.95	20	Practice Play Along	\$24.95
8	Compressor/Limiter	\$27.95	21	Phase Shifter	\$54.95
9	Ring Modulator	\$29.95	22	No kit available	
10	Dual Filter Voicing Unit	\$29.95	23	No kit available	
11	No kit available		24	Tube Sound Fuzz	\$22.95
12	No kit available		25	Envelope Follower	\$26.95
13	Bipolar AC Adapter	\$34.95	26	Spluffer (less optional parts)	\$14.95
			27	Noise Gate	\$32.95

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These are kits of parts and circuit board only, to allow maximum flexibility in their application no cases or enclosure are included. Instructions for the assembly of each item are part of the book Electronics Projects For Musicians and are not duplicated with the kit.

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SUPER INEXPENSIVE PRE-AMP

A single stage transistor amplifier that will find numerous applications in the audiophile/musician's shop. Useful as a signal booster for many electronic music processing elements

and a sure cure for problems associated with low signal levels into special effects boxes. This kit includes ALL parts, circuit board and step-by-step instructions.

No. 1710 PRE-AMP KIT \$4.95 (1.00)

BANANA QUARTZ GUITAR TUNER

Accurate, easy to use, unbelievably inexpensive that's our new Banana Quartz guitar tuner. Thru-jacks let you tune electric guitars without unplugging. Acoustic guitars tune with built in condenser mic. Internal speaker produces by-ear tones if you want them.

Two easy to use tuning indicators — a meter to indicate pitch deviations up to 1/2 semi-tone and LED go-no go indicators, both with quartz accuracy.

Runs for months on a single AA penlight and one 9v. battery.

Not a kit but completely assembled, tested and ready to use.

No. 9700A Banana Tuner \$39.95 (1lb.)

NEW GUITAR TUNER



HAVE FUN WITH THE VOCAL ZAPPER

Want to practice and improve your singing, feel like a rock star for a few minutes, or just have fun at your next party? The Vocal Zapper is just the thing. This low cost device can be used with any conventional stereo system to remove the lead vocal from most stereo records and tapes. Plug in almost any dynamic microphone and you're ready to put your voice where the lead singer was. And there are more serious uses, too; with the lead vocal gone you can hear and study harmony parts you've never known about before. Some singers have used the Vocal Zapper to make demo tapes featuring their voice in place of another singers. Easy to use, easy to build.

No. 6730 Kit \$24.95 [1 lb.]
 6730 Also Available Assembled & Tested \$39.95 [1 lb.]



NEW



MUSIC TEACHER IN A BOX?

To get ahead in music, you need to know music theory. PAIA's Chord Computer helps you understand both music and keyboards better by cramming the equivalent of pages and pages of music theory into a compact, calculator-style package.

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Serious about music? The Chord Computer could be the best investment you'll ever make. Not a kit, but completely assembled and tested. (9v battery not included.)

No. CC-1 Keyboard Chord Computer \$59.95 (1lb.)

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Quick. Think of 3 ways to play a D flat 9th chord. Give up? The **GUITAR CHORD COMPUTER** shows you all three in less than 10 seconds. Virtually every guitar player can use one of these. Here's what it will do: **CHORDS** Major, Minor, Dominant, Augmented, and Diminished; **SCALES** Major, Harmonic Minor, Melodic Ascending, and Melodic Descending; **ALTERNATES/INVERSIONS** 3 and 4 alternates are shown for most chords (Easiest to play is displayed first); **TRANSPOSE** Up or down by half-steps; **6th, 7th, 9th CHORDS** Displayed at the touch of a button. Play better and easier guitar in minutes. Order yours today!

No. CC-2 Guitar Chord Computer \$59.95 (1 lb.)

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Every day more people discover that the GNOME is the most versatile, cost effective special effects device on the market today.

The Gnome has two function generators (one with repeat for cyclic effects), VCA, VCF and VCO. Use alone with its built in ribbon controller or modify to interface to guitar, electronic piano, polytonic keyboards, etc.

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Complete kit and well illustrated step-by-step instructions and using manual make the GNOME the perfect introduction to electronic music synthesis.

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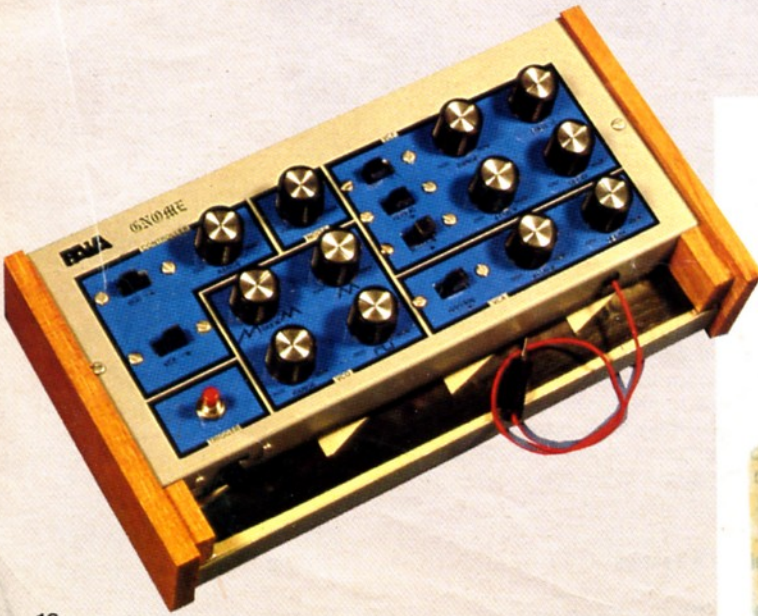
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