Korg Trident Polyphonic

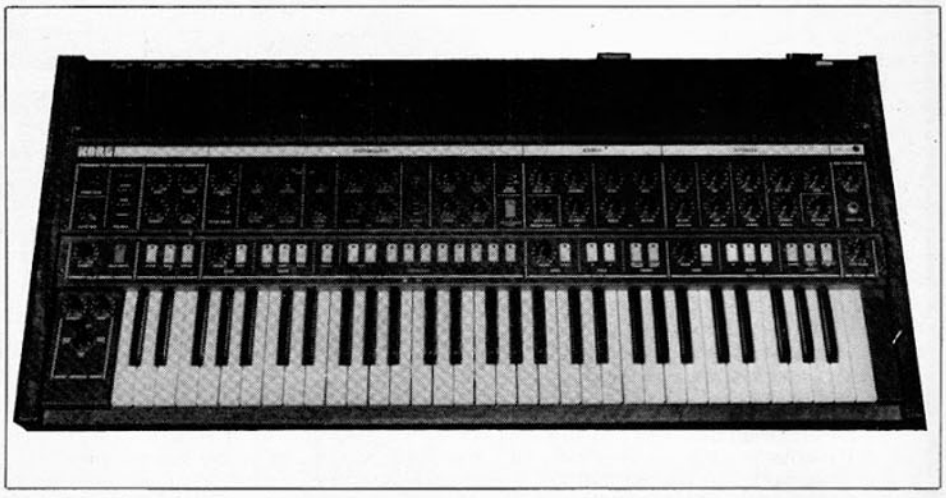
RECORDED ON CASSETTE NO. 6

It really must be quite difficult for musicians to assess the more expensive large scale polyphonic synthesisers. Not too many shops can afford to have demonstration instruments for customers to try out, and since these instruments often have multiple outputs (and no built-in echo or reverb) it certainly makes hearing realistically the true potential of sound sources and treatments unlikely. Of course, many dealers are aware that the 'non-musically educated' salesman is just *not* on - no 'genius at the keys' is called for, simply people who know the instruments' functions well enough to demonstrate them. The larger instrument manufacturers (and shops) often hold regional seminars which are always worth attending and usually free as well. Reading our reviews should help, and listening to the E&MM cassette should give a lot of people a chance to hear the instruments not at their local shops. You may hear an instrument being played at a concert. Rick Wakeman played a stack of Korg instruments recently at Hammersmith, London (see the December 1981 E&MM feature) and out of the mêlée of instrumental music suddenly came this big orchestral sound - all issuing forth from one instrument, the Trident!

So I'll take a closer look at this impressive synthesiser and perhaps the review will set a few musical minds tingling. Actually, it's been quite a while since I've had that 'shivers down the spine' feeling one usually gets with classical music from a synthesiser - but here it is! So many musicians are still experimenting with multi-tracking, drum machines and effects, that it's easy to overlook the importance of dynamics and subtle layering to enhance the emotional levels that music has always been capable of. There's no criticism implied here - there is so much to learn about the applications of electro-music that it can be a lifetime study, as I'm finding out!

The Trident is really 3 main instruments in one, with 8-voice programmable polyphonic synthesiser, brass and strings. The synthesiser section can be programmed with sounds that are stored in 16 preset memories and it also contains 3 presets for piano tones. Both brass and strings have their own independent sound shaping sections and strings have a unique bowing effect treatment. In addition, a flanger is built into the instrument for on-board treatment for one or more sections. Although the keyboard is not touch-sensitive, there is an 'octave split' facility that lets you place the 3 sections in upper, lower or both keyboard ranges. Further performance effects can be obtained with the joystick controller and delay vibrato.

The instrument is well constructed in the shallow angled style adopted for most of the Korg range except the large 'studio' synthesisers, with rosewood end pieces and plastic/metal panels, measuring 1012(W) x 52(H) x 520(D)mm. It is easily portable at 21 kg and consumes some 40 watts. Nice Korg touches are the main cable tie-up brackets at the rear and also the top panel legending which is useful in the confines of a small studio for locating sockets.



Korg Trident Polyphonic Synthesiser.

The Trident's sound generation is by eight VCOs, which are controlled by the keyboard via microprocessor based key assigner. The VCOs are actually linear types, which have superior stability and tracking; there is only one antilog converter which is multiplexed between the VCOs so that they all have exactly the same characteristics.

The VCOs feed eight separate VCFs (based on the SSM 2044 IC) and eight VCAs for the synthesiser section; the string section also has eight VCAs and VCFs, but the filters are simple single-pole types in this case. The brass section also uses eight VCAs, but only one common filter (an SSM 2044), and the bowing effect is also achieved with a single VCA and VCF common to all the voices.

Widespread use is made of 'bucket brigade' analogue delay (BBD) devices; three are used in a 3-phase ensemble generator, with a fourth to provide vibrato. A compressor/expander system is used in this section to reduce noise. A SAD 1024, which has a longer delay time, is used in the flanger section to produce an intense flanging effect.

All the control sections are located in one main block above the keyboard (from left to right): Key Assign, Flanger, Synthesiser, Brass, Strings and Output; the joystick is in the usual position to the left of the keys. On the rear panel is a memory protect switch which ensures 'permanent' storage of your 16 preset synthesiser sounds, along with 13 jack sockets for signal outputs and various control options. It's worth noting these initially as they offer several useful functions. First, volume pedals (such as Korg MS-01,04) can control a mixed volume output or any one or more of the 3 main sections with low/high level output jacks sockets provided. The Brass and Synthesiser sections' VCFs can have their cut-off frequency modulated via a pedal - making a possible five pedals usable in a working situation! There is a damper jack for foootswitch control of piano presets (Piano 1,2,Clav) sustain and extension of synth release time. A Brass external trigger IN gives that extra control from a sequencer, drum machine, footswitch or trigger controller (e.g. Synclock).

Key Assign

The Trident uses micro circuitry to process information from the keyboard and controls 8 separate synthesiser units for polyphonic 8-note playing. A total tune control sets the keyboard pitch ± one semitone for matching to other instruments.

An Assign mode switch gives two options of playing action for the synth section: either employing a different VCO Circuit Module for each key, so that long release settings will continue for each note; or where the same module operates for each key (unless additional notes are played), so that only the last notes have the release. The first mode is ideal for harp, guitar and piano style playing, whilst the second effectively emulates an ensemble. One little irritation however is that no change of mode must be made whilst notes sound or you'll have a temporary drop in pitch to the lowest note!

Synthesiser

This section consists of 2 VCOs, VCF and VCA programmable controls which are coloured orange. VCO1 contains 16',8',4' pitch selection of sawtooth, square wave, pulse width (PW) and pulse width modulated (PWM) waveforms. So anything resembling a sine or triangle is obtained by filtering one of these. In fact, the waveforms on an oscilloscope showed slight impurity in the stated waves (with a reversed sawtooth used), although it was not really noticeable when listening. There's also PW/PWM basic pulse 'shape' and PWM 'speed' controls. The speed varies from 2 cycles per second to a fast buzz. Some slight jitter of the waveform was noticed when pulse width was manually changed.

VCO2 can be added to VCO1 at 16',8' and 4' pitches and it's nice to see a programmable 'detune' pitch control (± one semitone). Often, this has to be done manually on other synthesisers. Korg takes this a step further by providing a 'detune' switch that lets you readjust VCO2 detune, yet still holds programmed settings.

No noise generator is provided, which is a surprise on an instrument of this calibre.

The VCF is a low pass type with cut-off