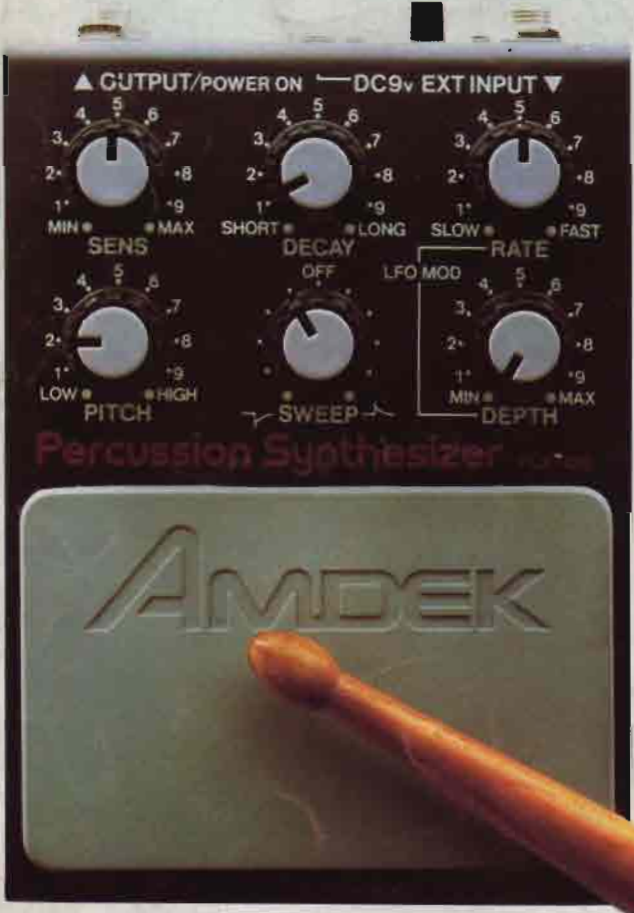


**NEW**

**Creative Kits  
for Creative Musicians...**

# AMDEK

## Percussion Synthesizer Kit (PCK-100)



● A sensor is built into the machine, so it can be simply connected to the amplifier without any other unit. (with a hitting board)

● The machine has a jack for external trigger input, so it can be connected to output signals from a microphone, guitar, sequencer and others rather than hitting the board.

● The attack circuit allows reproduction of the tam-tams of the real leather. ● Powered by a 9v battery (006P x 1) or by an external power source.

● Dimension: 94(W) x 64(H) x 143(D) mm (3.7" x 2.52" x 5.6")

Consumers: Questions, Problems, Suppliers?, Retailers: Supplies and Re-orders?

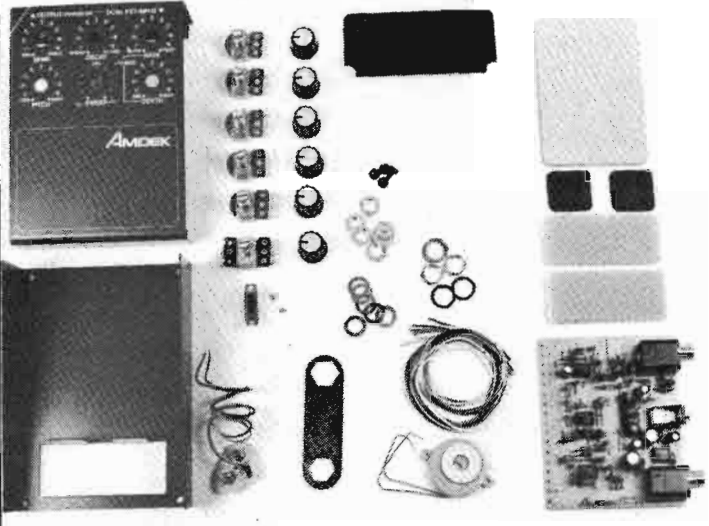
**USE THE AMDEK  
HOTLINE!**

# AMDEK

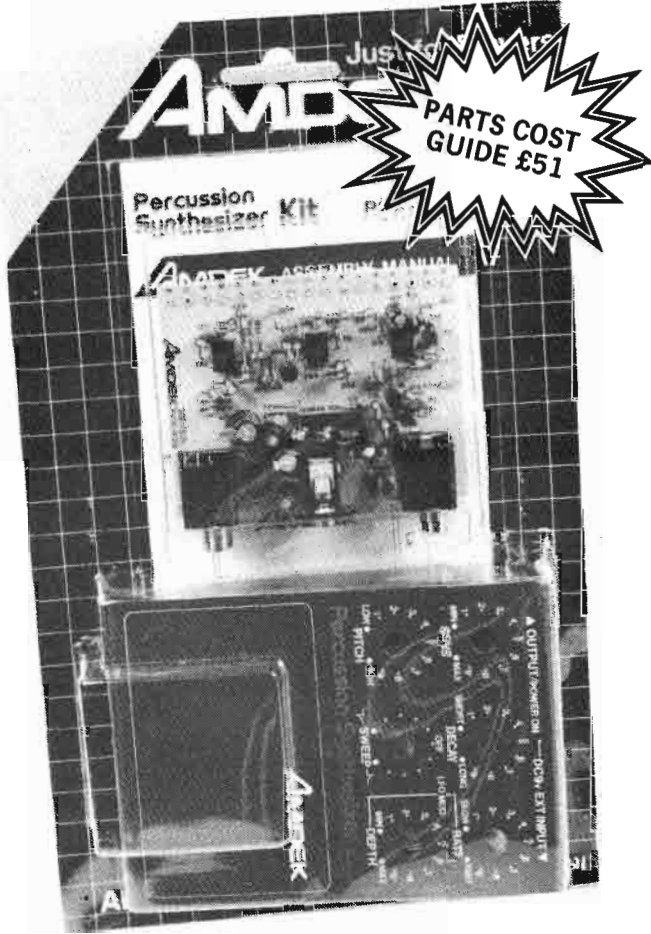
Roland (UK) Ltd., Great West Trading Estate  
983 Great West Road, Brentford, Middx. TW8 9DN

from the manufacturers of: Roland / BOSS

**AMDEK  
HOTLINE!  
01-847 1671**



All the parts laid out ready for checking.



# AMDEK

## Percussion Synthesizer

This month's Amdek Kit is the Percussion Synthesizer, a versatile drum synth which can, like all the other Amdek units, be built and customised with the minimum of technical difficulty and E&MM's research department has again provided details of a modification project which extends the facilities available on this exciting project.

- ★ Variable decay time
- ★ Sweep up or down
- ★ Pitch and Sensitivity controls
- ★ Modulation speed and depth
- ★ Pre-assembled circuit board
- ★ Complete kit with detailed instructions

The 'syndrum sound' became popular a few years ago on a host of disco records, but since that time the real potential and versatility of manual electronic percussion has become much clearer. Bands such as Ultravox, Talk Talk and Depeche Mode use Pearl, Simmons and other electronic percussion to provide a powerful, yet clear rhythm sound which can give your music a touch of technological sophistication.

The Amdek Percussion Synthesizer is versatile enough to provide conventional acoustic-type sounds such as tom-toms and woodblocks, ultra-modern disco ornamentation or abstract special effects and ring modulator type sounds. In addition its external trigger input gives it the potential of interfacing with a sequencer, computer, E&MM Synclock or even a guitar.

### The Kit

The Percussion Synthesizer Kit is available in a bubble pack complete with all parts, wire, a spanner for tightening nuts and a detailed description and assembly sheet. The only extra tools required are a soldering iron (a 15 watt model with a small bit is quite sufficient), wire cutters and/or stripper, a small cross-head screwdriver and possibly a small pair of pliers.

The unit can be powered by a 9 volt PP3 battery or an external 9 volt

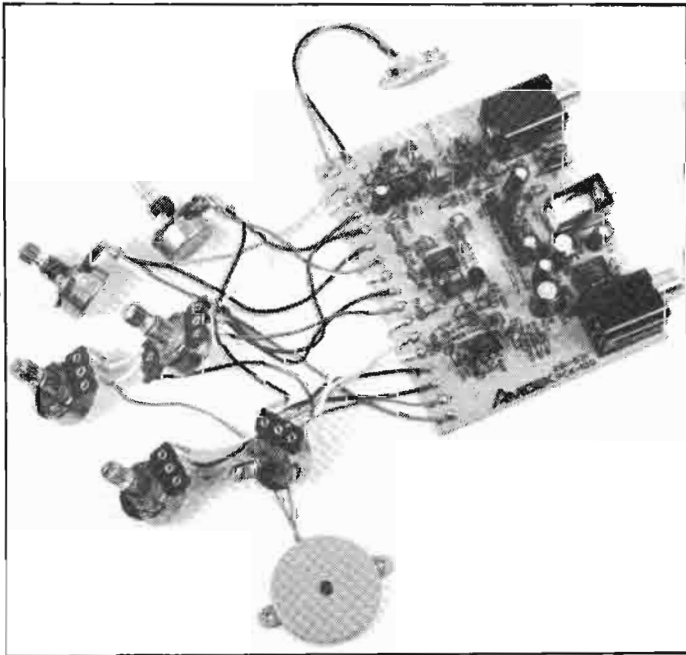
power supply such as Roland's own model or the E&MM Synpac.

The very clear line drawings make identification of all the parts quite straightforward; as usual the PCB is ready-assembled, and so the first task of laying out and checking off all the components is quickly done.

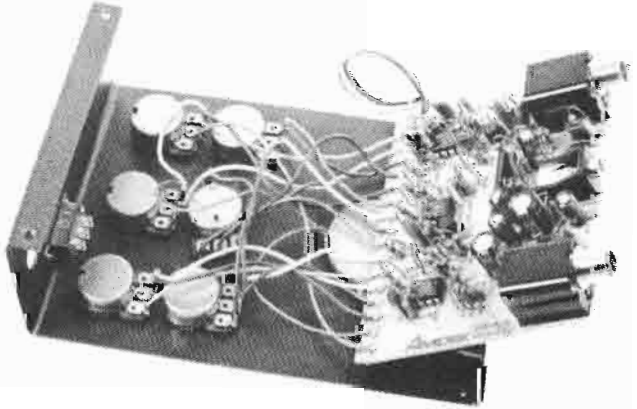
Assembly begins with the preparation of lengths of connecting wire for the pots and the battery connector. The piezoelectric pickup which activates the percussion synth when struck has wires ready connected, and this together with the six control pots can be soldered to the PCB and fitted onto the case (Steps 2-9).

The PCB is already fitted with input/output sockets, and is ready for installation in the case. The piezo pickup is stuck in place using a double-sided adhesive insulating pad, then the rear panel 'user' switch is screwed into place. The function of this switch can be decided according to a number of possible options (Steps 10-11).

After the PCB is fitted it is isolated from the case using a self adhesive transparent insulator and a foam pad. Another foam pad is installed to cushion the battery. There are self adhesive rubber pads which are attached to the base of the case to prevent slipping on a flat surface or damage to other equipment. Once the battery and the knobs have been fitted the large self adhesive rubber



Steps 2-7. Battery clip, piezo pick-up and pots wired to the board.



Steps 9-11. User switch, pots and pick-up fitted to the case.

pad can be fitted to prevent damage to the case when struck with a drumstick, or striking implement! (Steps 12-19).

## The Circuit

The circuit diagram is shown in Figure 1. The trigger signal is derived from a Piezo pickup or external source if connected. This signal is amplified and used to charge a capacitor which discharges through the Decay control. This 'sweep' voltage is used to control a VCO and VCA. The VCO, based around IC4 and half IC5, can be swept up or down via the Sweep control. The VCA is a transconductance amplifier based around IC2. Modulation is provided for the VCO by a triangle/square wave oscillator built around half of IC1 and half of IC5.

## Operation

The Percussion Synthesizer was assembled and worked first time with no significant difficulties. If you do have any trouble, Roland UK have a 'Hot Line' at their factory on 01-847 1671, and can lend a hand if necessary.

The unit produces a very wide range of sounds from powerful bass drum to unusual ring modulator-like effects achieved with very fast modulation, several sample settings being given in the construction leaflet.

E&MM have expanded the range of effects available with some modifications, which can be made at the reader's own risk as neither E&MM nor Amdek can provide a guarantee against any possible circuit damage.

## Modifications

**Mod 1.** Both the VCO and modulation oscillator provide square or triangle output waveforms but the kit comes with triangle VCO output and square wave modulation selected. The 'user' switch supplied can be used to select between square and triangle for the VCO or modulation, by attaching leads to the track side of the PCB (details on the Amdek sheet).

**Mod 2.** To give the sound a 'bite' to the attack a short pulse from the sweep voltage is mixed into the VCA. This can be disconnected if required by breaking a pad on the track side of the PCB.

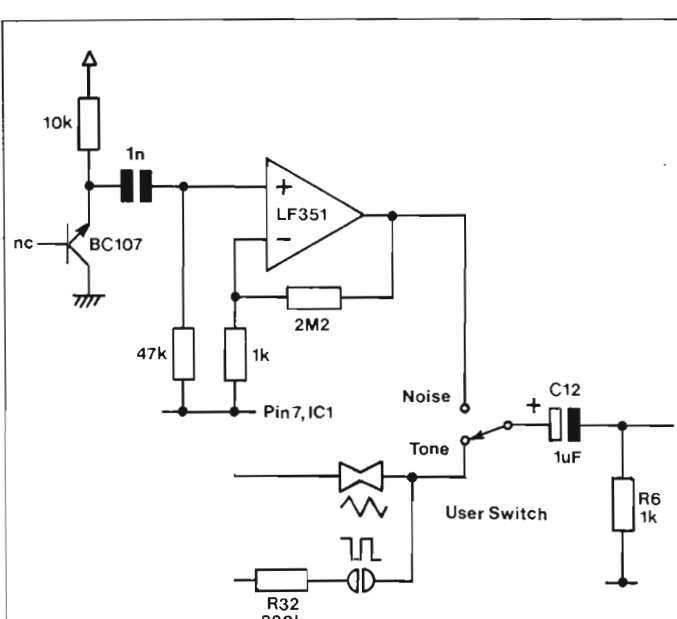


Figure 2. Noise generator modification.



Steps 18-19. Knobs and protective pad fitted to complete the unit.

**Mod 3.** To simulate many percussion sounds the sound source required is noise, not a pure tone. So the noise generator circuit shown in Figure 2 was added. The 'user' switch is used this time to select between

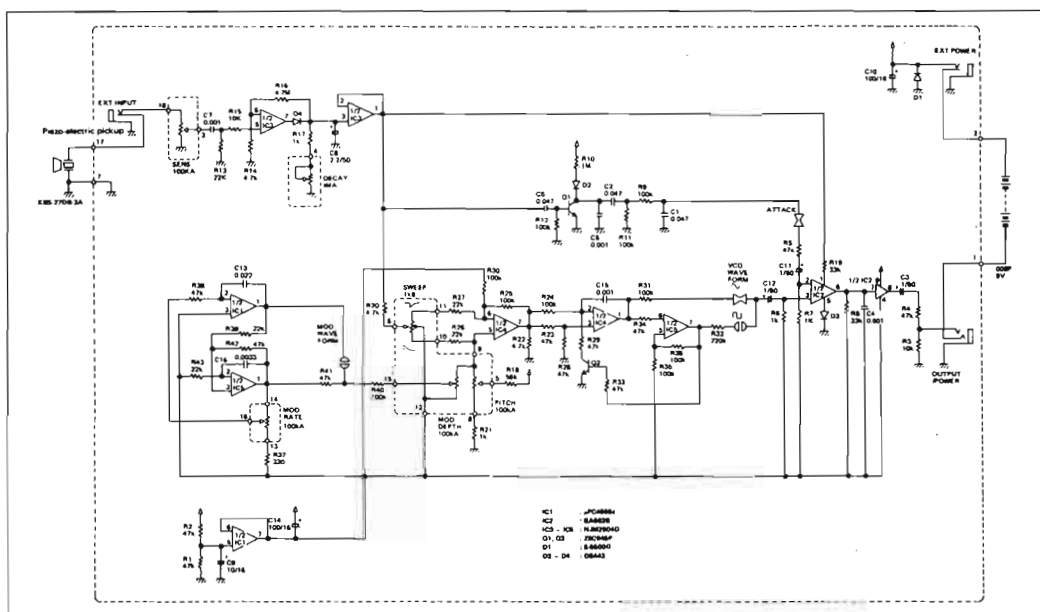
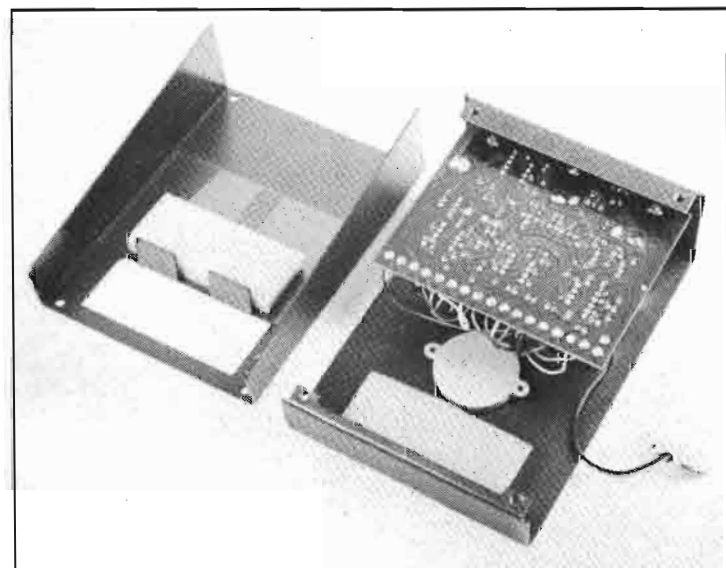


Figure 1. Percussion Synthesizer circuit diagram.



Steps 12-14. Completed case halves with insulation added.

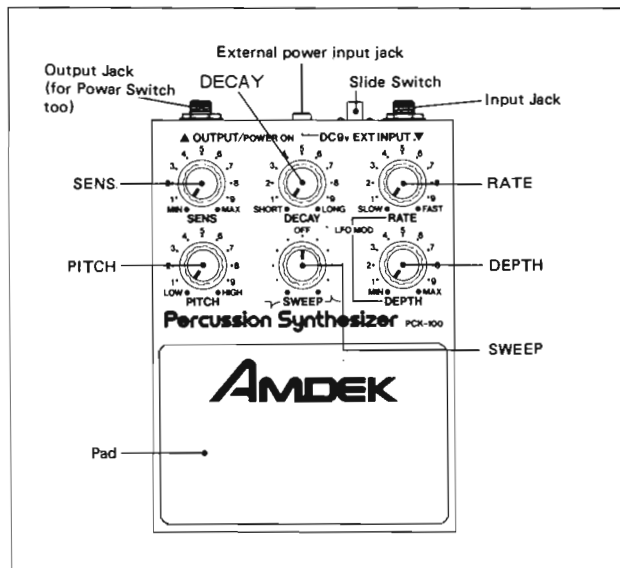


Figure 3. Panel description.

E&MM's special offer price for the Amdek Percussion Synthesizer Kit is £51.00 inc. VAT and P&P. Please order as: Amdek PCK-100 kit.



Noise and Tone. The noise is derived from a Zener breakdown by reverse biasing the transistor (note that the base is not connected). This is decoupled and amplified to around 1V. This output goes to the switch.