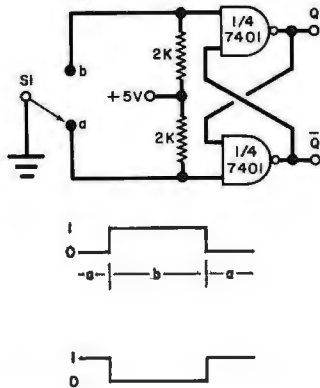# Hobby Scene

LOGIC LEVEL GENERATOR

Q. *I am interested in digital electronics but have yet to find a simple pulse 1 and pulse 0 circuit for my breadboard. Do you have a simple circuit I could use?*—D. Michelson. N. Vancouver, BC.

A. A simple, manually operated logic 0 and logic 1 generator is shown here.

When S1 is in the "a" position, Q is logic one and Q̄ is logic zero. When the switch is thrown to "b" the states change—Q is logic zero and Q̄ is logic one. Be sure to use a well-regulated, five-volt supply for this circuit, which is really an S-R flip-flop, or you may not get an accurate logic-one level. A 5.1-volt zener and limiting resistor used with four "C" cells or with a 6-volt battery eliminator would work fine.

CHU MARKER

Q. *Can you furnish a schematic for a 7.335 marker generator to allow me to home in on the time signals of CHU when WWV is not copyable. I tried to modify my 1-MHz marker, but it won't oscillate at this frequency.*—S. Bloomsfield, Rutherford, N.J.

We really don't think such a marker is necessary. If your 100- or 1000-kHz marker generator is even halfway decent, it won't need frequent trimming against WWV. Use it to locate 7000 or 7300 kHz, set the zero marker on your dial, and tune upward. During the day and early evening at my location (New York City) CHU's carrier is very strong and needs no other means of announcing itself. At night, as the skip zone increases, the signal drops out. Even if I had a marker for this frequency, I still couldn't copy the time information.

SYNTHESIZER KEYBOARDS AND CRYSTALS

Q. *I am planning to build an electronic organ/synthesizer. Where can I get an organ keyboard, preferably a split-level plastic type with DPST contacts? Also, where can I get a 2.00024-MHz crystal for a top-octave generator? Can the outputs of non-synchronous CMOS gates be connected together, or through isolation resistors?*—G. Kim, N.Y., N.Y.

A. See "How to Select EM Keyboards" (POPULAR ELECTRONICS, July 1974). Inquiries on crystals may be made to PAIA (Box 14359, Oklahoma City, OK 73114) or Southwest Technical Products (219 W. Rhapsody, San Antonio, TX 78216). It is not advisable to tie nonsynchronous CMOS gate outputs together either directly or through isolation resistors since low outputs will act as current sinks.

TRANSISTOR TESTER

Q. *I have a number of old, unmarked transistors. Do you have a relatively simple circuit for a tester that could tell me if the transistors are shorted, open, npn or pnp?*—P. Stys, Montreal, Quebec.

A. The circuit shown here will allow you to check the polarities and junction conditions of unmarked or
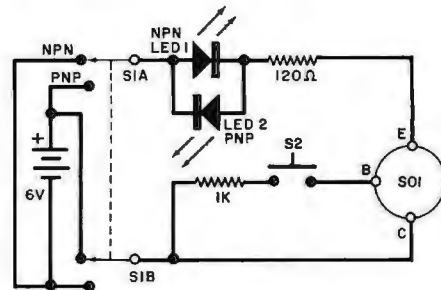
"grab-bag" transistors. Insert a transistor in the socket. While depressing S2, switch S1 between both positions. Only one LED should light up, indicating the polarity of the transistor. If both LED's alternately light up when S1 is varied, the transistor is exhibiting large leakage under reverse bias or has broken down. If the LED lights up when S2 is released, the collector-base junction is shorted. If neither LED lights when S2 is depressed, the transistor is open.

HOBBY SCENE SCHEMATICS

In the Transistor Tester circuit shown in the March 1975 Hobby Scene, I believe that the npn and pnp LED's are transposed. *LED1* should be pnp, while *LED2* should be for npn indication.

DEAN ISLER
Blocksburg, S.C.

The Mobile CB Power Supply featured in the April 1975 Hobby Scene column will not work as shown. The addition of a connection between the anode of the bottom diode and negative plate of the lower filter capacitor and the negative output terminal will make the power supply operational.

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