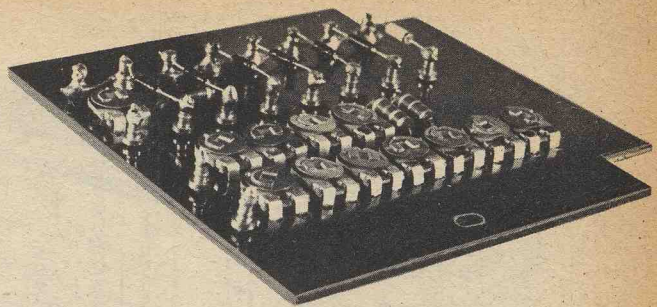


Fig. 8.1. UNIT "C" function generator circuit diagram



Function generator circuit panel

example it is desired to reduce the number of breakpoints, or combine a curved and straight line function. It is advisable to check the polarity of all diodes with a meter before mounting them on the circuit panels.

After completing the underside wiring, bolt the two circuit panels on the plywood frame, as in Fig. 8.5, and make sure that the front panel holes are aligned with the pre-set miniature potentiometer slots.

SETTING UP THE FUNCTION GENERATOR

Patching leads for the function generator should preferably be terminated at one end by miniature plugs, to permit connection to the UNIT "A" computing component sockets. As the generation of powers and roots is the main area of interest, functions related to the square or cube of a number are used in the following setting-up instructions.

To patch the function generator to OA1, join FG/SK5 to S1/I1/SK3, FG/SK8 to S1/I1/SK4, S1/SK5 to OA1/SK8, and link together OA1/SK9, SK10, and SK4. Insert a 100 kilohm computing resistor into OA1/SK11 and SK12. Take a patching lead from S1/I1/SK1 to VS1/SK2, and ensure that S6 is off.

The task of setting up the function generator is made easier if two voltmeters are used, one for E_{in} connected to S1/I1/SK2, and the other for E_o to OA1/SK13. The Unit "B" readout meter is ideal for monitoring E_o because it can indicate voltages down to 0.01V. Switch on the computer power supply and zero OA1 by means of its balance control VR15. Set all function generator slope and breakpoint potentiometer sliders to mid-track, and connect the red and blue wires from the function generator to the power supply terminals on the side of the UNIT "A" box (TL1 and TL2). Adjust VR12B (zero-set) for zero output from OA1.

Because of the interdependence of slope and breakpoint adjustments, a systematic approach is called for when setting up a function. Start with the lowest E_{in} and VR1 and proceed in an orderly fashion towards VR11 and the maximum E_{in} value. It is a help to tabulate specific input and output voltages and relate them to particular slope or breakpoint controls. To assist the reader, two tables have been prepared covering square and cube functions, Table 8.1 and Table 8.2.

If a square function is to be set up on the function generator, switch on S6 (Voltage Source) and set VS1 for an output of -0.2V, then adjust VR1B for an OA1 output of 0.04V. Next set VS1 for -0.5V and adjust VR2B for an output of 0.25V, and so on, according to Table 8.1. After application of $E_{in} = -2.0V$, and adjustment of VR4, change the 100 kilohm computing resistor in the feedback loop of OA1 to 10 kilohm, to prevent the amplifier overloading when E_{in} exceeds $\sqrt{10}$.