

# NASA TECH BRIEF

## Goddard Space Flight Center



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### Alphanumeric Character Generator for Oscilloscope

#### The problem:

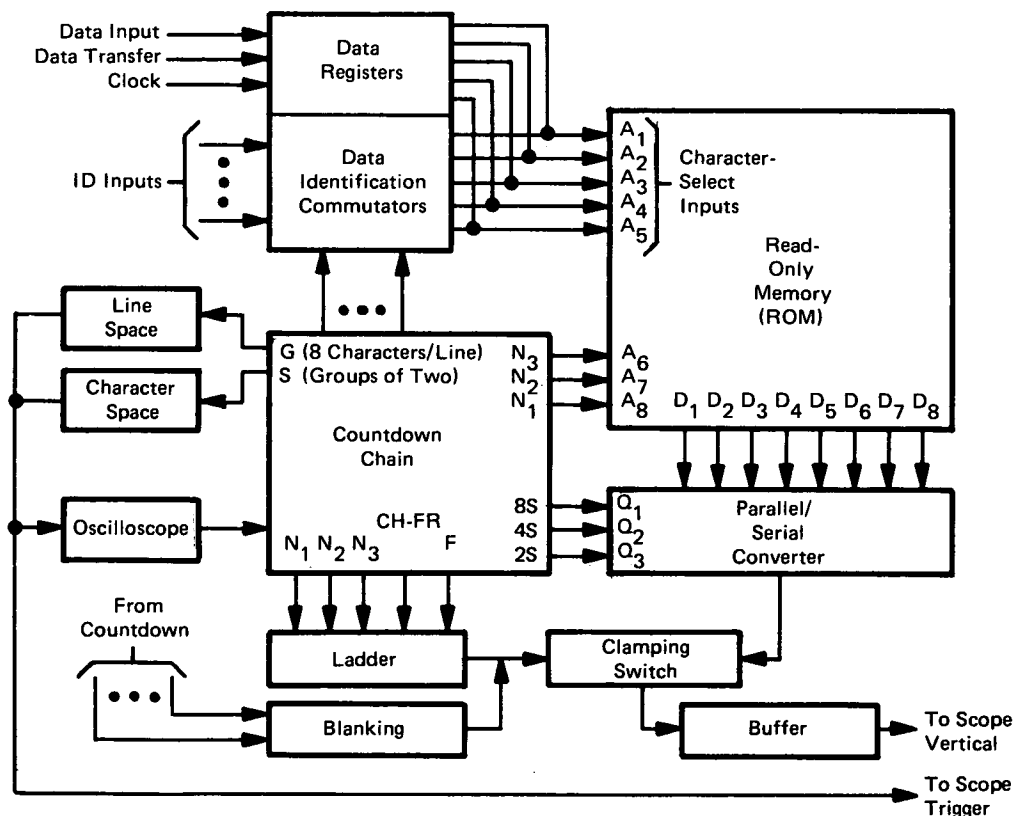
Printers and cathode-ray-tube (CRT) display terminals have been the most popular devices for presenting systems data. They are expensive, limited in application from model to model, and not truly portable.

#### The solution:

A compact portable alphanumeric character-display device can be used with any general-purpose externally-triggered oscilloscope without need for Z-axis modulation.

#### How it's done:

The figure shows the character generator in block diagram. The generator pulses the oscilloscope external trigger, initiating a horizontal sweep of the scope trace. If no character segment is to be displayed, the vertical signal is inhibited by the clamping switch. When a segment is to be displayed, a pulse is generated in the desired position on the oscilloscope in the form of a short dash (segment). The vertical position of this segment is determined by the state of the ladder network. The alphanumeric characters are thus formed



Block Diagram of Basic Character Generator

(continued overleaf)

on the oscilloscope faceplate by the quantity and arrangement of these short dashes (segments). A read-only memory (ROM) contains the microprogram used to determine whether a segment is to be displayed or inhibited.

Factors that limit the size of the display are: output line capacitance, ROM speed, and persistence of the CRT. Capacitance must be kept to a minimum, because the output must switch very rapidly between the clamping voltage and the segment levels, in order to avoid annoying flicker.

**Note:**

Requests for further information may be directed to:  
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Reference: B73-10370

**Patent status:**

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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