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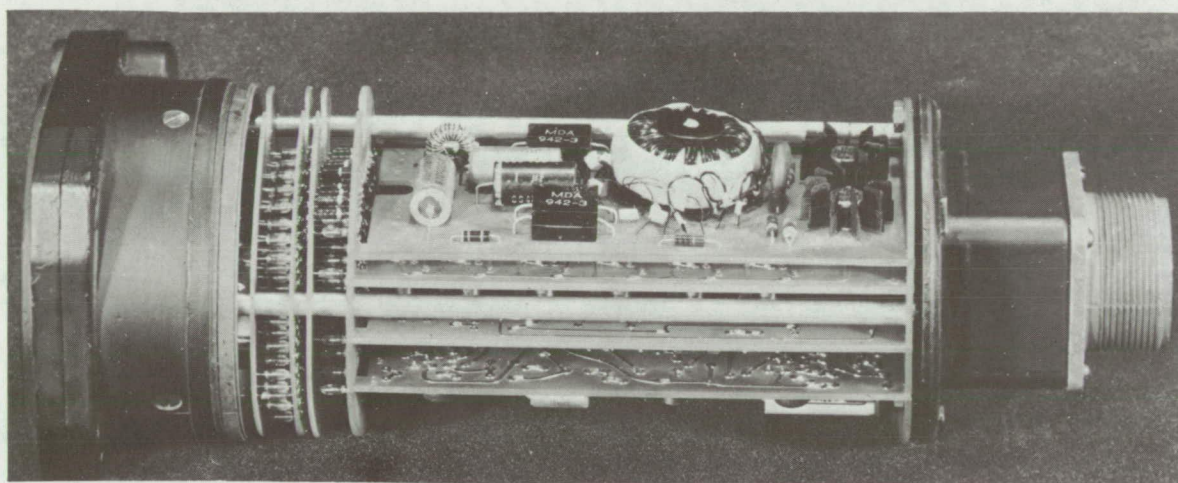
Brief 69-10479

# NASA TECH BRIEF



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## Literal Readout of Identification Signals in Morse Code



The 3-inch-diameter prototype with part of the housing removed

### The problem:

To devise a method of displaying, in literal form, identification signals received in Morse from VOR or ILS transmitters. For navigation by aircraft the United States is covered by a pattern of very-high-frequency omnirange (VOR) stations; flying across the country an aircraft transfers from one station (as it passes out of range) to the next. Each station is identified by a three-letter signal transmitted in Morse code.

### The solution:

A new instrument, designed for mounting in the instrument panel, decodes each letter as it is received and displays its literal equivalent; each letter remains on the screen until it is superseded by the next letter. The identification system used for VOR is used for the localizer (LOC) portion of the instrument-landing system also, as well as for low-frequency marker beacons; connected to the aircraft's

audio bus, the instrument identifies these services also. Without elaboration it cannot decode numbers.

### How it's done:

These identification signals are transmitted on a modulated 1,020-Hz tone. The VOR receiver used with the prototype of this unit has audio distortion at very high levels of output, resulting in some spurious signals. Weather reports on the VOR voice channel also cause spurious response, the human voice having a sufficient component at 1,020 Hz to activate the reader.

The unit requires 5 W of direct current at either 14 or 28 V. Integrated circuits could be used much more extensively in later models in which large-scale integration (LSI) should be applied to the character decode. The unit would be useful as an aid in radio communications, as well as for pilots, and as an audiovisual aid in teaching of the Morse code.

(continued overleaf)

**Note:**

Requests for further information may be directed to:  
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Reference: B69-10479

**Patent status:**

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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