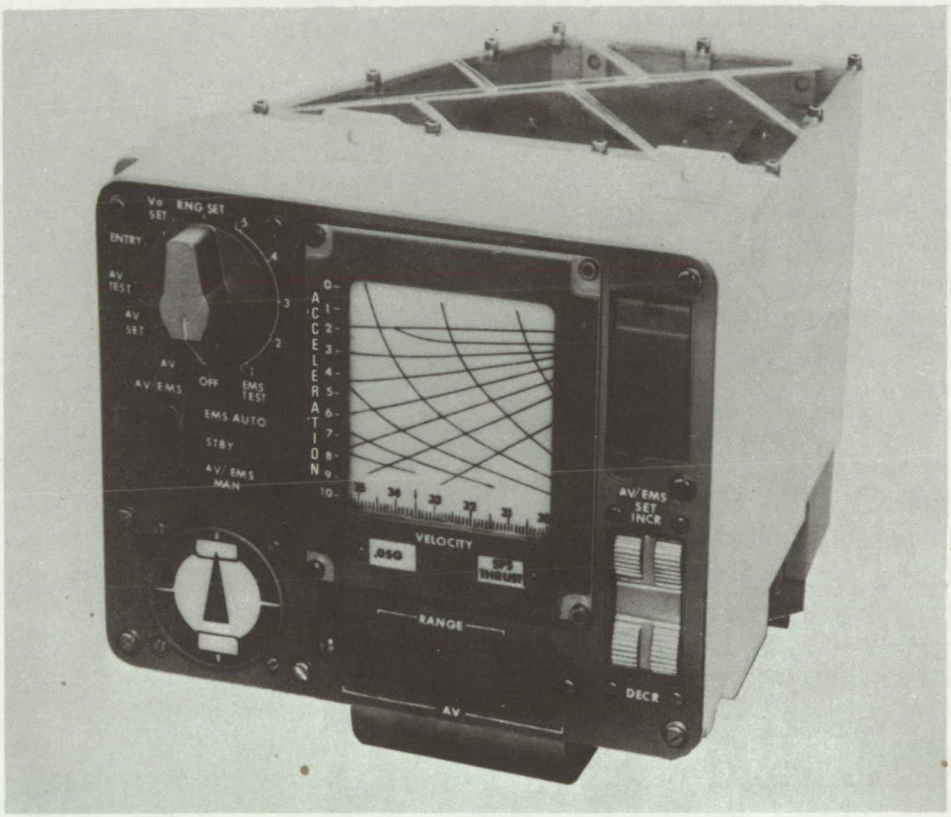
NASA TECH BRIEF

Rectilinear Display Gives Acceleration Load Factor and Velocity Information



A spacecraft entry monitoring system (EMS) is developed to provide a rectilinear display of acceleration load factor and velocity information to which an astronaut may respond with manual spacecraft attitude corrective maneuver commands.

The display is derived from a commercially available tape that has a pattern corresponding to critical flight data imprinted on one side and an emulsion bonded to the other side. The tape is contained in a scroll-type assembly and is driven horizontally according to electrical inputs to the X-axis motor. A vertical device (Y-axis) is located at a point behind the tape on which a scribe is driven proportional to electrical inputs to the Y-axis motor. The scribe removes the emulsion from the tape to produce the X–Y trace as the tape translates in the X- (horizontal) direction and

(continued overleaf)

the scribe moves in the Y- (vertical) direction.

Notes:

1. Application of this display technique is practically unlimited since it rectilinearly displays two variables. Nature of the variables impose no limitations so long as the axes of the display are properly driven. Criteria imprinted on the tape may be color coded if desired and their nature is limited only by the terms of the two variables used to drive the display axes. Because the display employs a scroll technique, criteria on the tape could include multiple variables and scalings, provided the inputs to the driven axes are compatible.
2. Inquiries concerning this invention may be directed to:
   Technology Utilization officer
   Manned Spacecraft Center
   Houston, Texas 77058
   Reference: B67-10248

Patent status:

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

Source: A. J. Frank and B. C. Johnson
of North American Aviation, Inc.
under contract to
Manned Spacecraft Center
(MSC-1045)