

# NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151..

## Photographic and Drafting Techniques Simplify Method of Producing Engineering Drawings

A combination of photographic and drafting techniques has been developed to simplify the preparation of three-dimensional and dimetric engineering drawings. Manual drawing methods which include the use of standard drafting machines and foreshortening scales are tedious and time consuming. The use of the new technique should save time and provide accurate renderings.

Three-dimensional and dimetric engineering drawings may be prepared as follows:

1. Photograph the equipment (or part), and check the ground glass camera image so that measurements can be taken on three axes: two horizontal and one vertical. All measurements are made on the actual camera ground glass before photographing the equipment. By manipulating camera-to-subject distances, true measurements can be achieved. This step eliminates the rough layout, and provides a photograph containing the elements of a dimetric drawing.
2. Make a tracing from the photo print to provide a dimetric illustration without the complicated maneuvers required previously.
3. The photo print can be made to appear as a line

drawing, if it is processed in either of these two ways:

- (a) Use a high contrast litho film to obtain a high contrast negative line print. The artist should trace the image and complete the drawing from the line print.
- (b) Develop conventional panchromatic film in a high contrast soda developer to obtain a high contrast line print. The artist should then trace the image from this print which can be enlarged or reduced to any specific size.

### Notes:

1. Conventional photographs can be converted to line drawings by making copy negatives on high contrast film.
2. This is in conceptual stage only, and as of date of publication of this Tech Brief, neither a model nor prototype has been constructed.

### Patent status:

No patent action is contemplated by NASA.

Source: Henry Provisor  
of North American Aviation, Inc.  
under contract to  
Manned Spacecraft Center  
(MSC-716)

Category 02