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# NASA TECH BRIEF

*Langley Research Center*



## Photosensitive Plastic Used to Produce Three-Dimensional Casting Patterns

### The problem:

The lower size limit and intricacy of lettering and designs on cast plaques is restricted by the requirements that conventional patterns be three dimensional and that they be prepared in the same size as the final casting.

### The solution:

Using two-dimensional artwork, photographic reduction techniques, and Dycril (a commercially available, photosensitive-plastic relief printing-plate material), three-dimensional casting patterns with much smaller lettering and more intricate designs can be prepared.

### How it's done:

Two-dimensional artwork of convenient size is prepared in the form of a line drawing, printer's proof, or commercially available "rub-down" lettering. The two-dimensional artwork is then photographically reduced to a high contrast ortho-negative of the desired size. Using the negative and high intensity collimated light, the photosensitive plastic is exposed. The plastic is then developed in a 0.18% aqueous solution of sodium hydroxide, forming a three-dimensional male pattern for the conventional female sand mold. Plaques and related products can be cast and finished using conventional techniques.

The use of photosensitive plastic in preparing casting patterns for plaques has several advantages: Two-dimensional artwork and photographic processes replace the conventional relief work; the size of the two-dimensional artwork is a matter of convenience and does not restrict the size of lettering and designs in the casting; more intricate detail in the casting is possible; and, the process is inexpensive.

### Note:

Requests for further information may be directed to:

Technology Utilization Officer
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Reference: TSP71-10127

### Patent status:

No patent action is contemplated by NASA.

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