

# NASA TECH BRIEF



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## Projection Transparencies from Printed Material

### The problem:

The usual method for preparing project transparencies, or view graphs, is to deposit ink on a transparent sheet of plastic in the desired pattern. This is accomplished by (1) a variety of photographic processes, (2) by means of a Xerox #4 camera transferring the image to vellum from which it is retransferred on to film by the diazo chrome process, or (3) manually by an artist (this is rarely done because of the time and expense). Except for the latter, these methods all result in a black deposit on a clear or colored plastic background.

### The solution:

A method that permits the use of almost any expendable printed material, whether it be pictures, charts, or text, or whether it be in unlimited color or black and white. The method can be accomplished by either of two techniques, with a slight difference in materials. Each technique has some advantage over the other, and one material may be more readily available than the other.

### How it's done:

**Method A:** Remove the protective covering from one side of a sheet of double faced acetate adhesive and apply the exposed face to the desired subject material. With the printed matter on a smooth firm surface, and the protected side of the acetate uppermost, smooth out all the air pockets between the two. This can be done with an artist's hand burnishing tool, or any rounded, smooth surfaced object. The entire area should be rubbed thoroughly in this manner to assure the best possible bond between the adhesive and the ink of the printed matter. Remove the protective covering from the second side of the acetate adhesive. The printed side is thoroughly soaked with water, either in a pan or a running

stream. When all dry or opaque spots are gone, the paper can be peeled from the plastic film, leaving the ink from the paper adhering to the film. It may be necessary to carefully wash the film surface to thoroughly remove fibers, glue, clay, etc., which remain from the original printing process. When thoroughly clean, the majority of the adhering water can be removed from both film surfaces by wiping gently with a nonlinty cloth, or a soft, photographic type plastic sponge. The transparency can now be mounted by the adhesive face to an appropriate holder. Both faces of the transparency are next evenly coated with a lacquer fixative from a spray can. This seals the adhesive, making it smooth to the touch, and smooths the surface with the printing attached, to improve its transparent characteristic.

**Method B:** The subject printed material is transferred to the plastic sheet by either of two means: (1) The preferred equipment if available is a dry mounting machine, a press-type machine with firm but compressible bottom platen and a hot metal top plate, with controlled heat. A sandwich is prepared in the following manner: the printed page, with the desired material up, is covered with a sheet of "Thermo-Fax" laminating film, cloudy side down, and this in turn is covered with a sheet of the interleaving paper from the film pack. This sandwich is placed between the plates of the hot press in the order described above. Then the plates are clamped shut and held at 270°F. for 3 to 5 minutes, longer if need be, to remove all air bubbles between the plastic and the printed page. (2) Instead of the dry mount press, a "Thermo-Fax" copying machine may be used. In this case, a sheet of card stock, furnished in the film pack, is added to the bottom of the sandwich described above. This grouping is run through the copying machine as a unit. It may be necessary

(continued overleaf)

to run the sandwich through the machine several times to completely remove all air bubbles.

The laminated material cools so rapidly that it is not a consideration, and the interleaving paper may be stripped off immediately. The printed side of the laminate is thoroughly soaked with water, either in a pan or a running stream. When all dry or opaque spots are gone, the paper can be peeled from the plastic film, leaving the ink from the paper adhering to the film. It may be necessary to carefully wash the film surface to thoroughly remove fibers, glue, clay, etc., which remain from the original printing process. When thoroughly clean, the majority of the adhering water can be removed from both film surfaces by wiping gently with a nonlinty cloth, or a soft, photographic type plastic sponge. The transparency can now be mounted with some pressure sensitive tape to the back side of an appropriate holder. The printed face of the transparency is next evenly coated with a lacquer fixative from a spray can. This smooths the surface and improves its transparent characteristics.

**Notes:**

1. This technique involves only inexpensive materials and standard equipment, no expensive art department or highly skilled personnel are required, and time required for end product preparation is very short.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B68-10112

**Patent status:**

No patent action is contemplated by NASA.

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