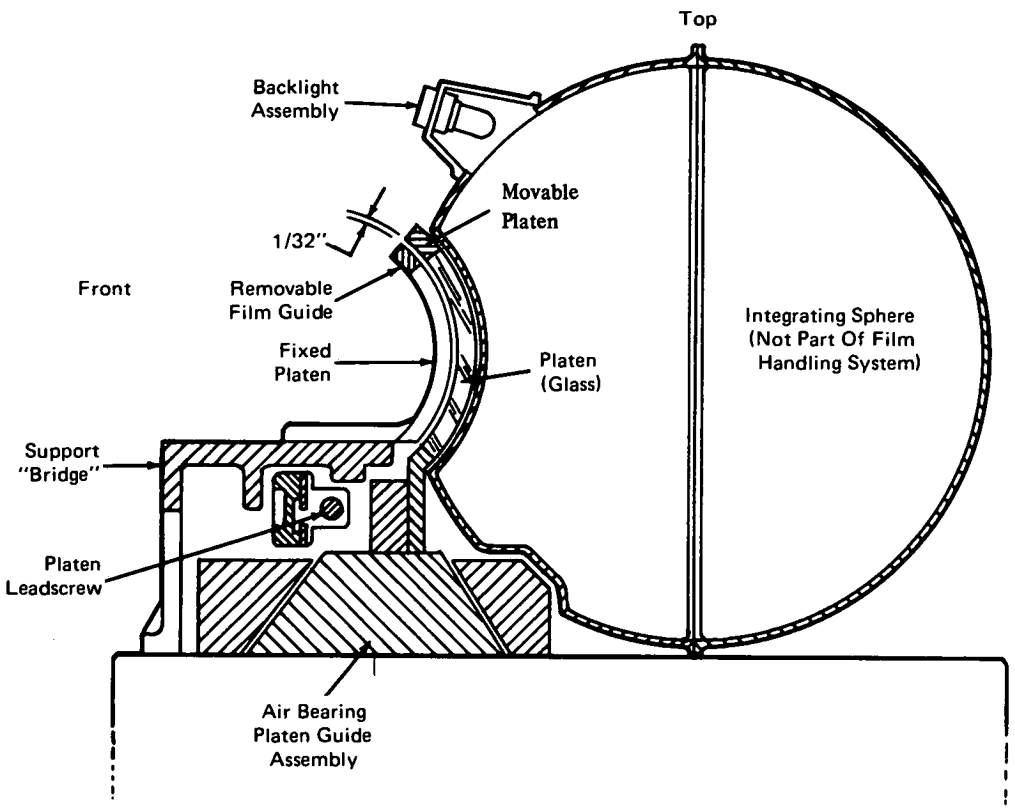
NASA TECH BRIEF

Manned Spacecraft Center

Film Handling System for Laser Scanner/Recorder



The problem:

Film handling systems for laser scanner/recorders have used peripheral vacuum grooves which were positioned just inside the edge of the film frame for holding the single frame and cut films. Such systems required a separate and removable platen for each film size. Since rotating-mirror laser scanners require precisely positioned, cylindrically shaped platens, replacement of platens has become an extremely critical task.

The solution:

A system was developed for transporting and holding cut or roll 35-mm, 70-mm, 5-in (12.70-cm), and 9.5-in (24.13-cm) films without replacement of platens or the use of tools of any kind.

How it's done:

The supply and take-up film transports apply a low uniform tension to the film, regardless of width or spool radius, by means of suitable servo circuitry. Continuous low uniform tension allows the platen to move accurately against nonvarying resistance. Spacers (these spacers must be manually changed as film size changes) of appropriate length are used on the film spool spindles to center films of various widths on the system centerline and "parking" brakes are provided on

(continued overleaf)

each transport to facilitate threading. The system also has a safety interlock to prevent film damage if the parking brake should fail to release.

The face of the fixed platen shown in the diagram is hollow in cross-section and contains hundreds of small holes through which a large quantity of low-pressure compressed air is ejected. This air pressure serves to lubricate the film which moves against the metal face of the fixed platen and also to assist in vacuum-clamping the film to the movable platen directly opposite. At both the fixed platen and fixed guide clamps, the correct air vacuum chambers for the film size will be selected by manual valve settings.

The supply film transport includes a lighted window with cursor (use of the cursor and knowledge of distance to platen allows automatic positioning of desired frame) across the film to allow the system operator to preview the film in advance of its passage past the scanner platen. The window is equipped with movable shades to limit backlighting to the area covered by each of the various film widths.

Notes:

1. This innovation could be applied to the photographic industry wherever high-speed film transport is required.
2. Requests for further information may be directed to:
   Technology Utilization Officer
   Manned Spacecraft Center
   Code JM7
   Houston, Texas 77058
   Reference: TSP72-10539

Patent status:

NASA has decided not to apply for a patent.

Source: A. Maciel, Jr. of
Singer - General Precision, Inc.
under contract to
Manned Spacecraft Center
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