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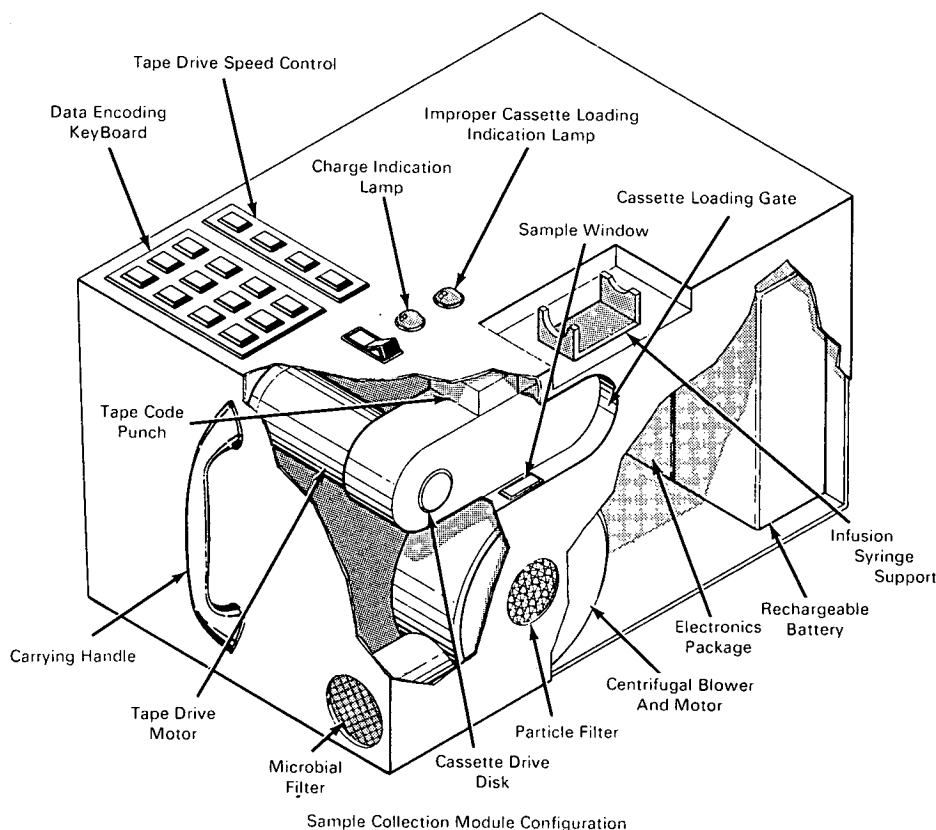
Brief 69-10223

NASA TECH BRIEF



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Automated Microorganism Sample Collection Module



A modified Gelman Sampler has been designed to examine microbial environments. This technique may be particularly useful to hospitals and health services to facilitate rapid air and swab sampling or water sampling for bacterial content.

The problem:

To develop a sampling device capable of obtaining a representative sample of microorganism population involving an efficient "hands-off" means for air and swab sampling.

The solution:

The proposed Sample Collection Module is based on direct inoculation of selected solid growth media spread in parallel bands on a transparent tape which is encased in a cartridge at all times except during inoculation. Bands of media provide various substrates which support or inhibit the growth of certain microorganisms, and can be selected in accordance with experimental requirements.

(continued overleaf)

Air samples are drawn into the Sample Collection Module by a small centrifugal blower and first pass through an open-foam particle filter. Once filtered, the air passes into the blower where mild centrifugation forces the bacteria and any unfiltered particles toward the outer wall. The impinging air stream directly inoculates the growth media through the sample window. The tape is moved within the cartridge by a tape drive motor and a mechanism is provided to control the speed of the tape. Swab samples, after dilution in an emulsion tube, can be automatically inoculated onto the media tapes. Data such as source, date and swab dilution for both air and swab samples are encoded along one edge of the tape by a simple tape punch. After the tape has been inoculated and encoded, the operator can conveniently transfer the cartridge to the incubation module with no danger of contaminating the tape or himself. Further analysis of the tape requires no direct exposure of the operator to the bacteria.

Notes:

1. The design of the Sample Collection Module has not been reduced to practice.

2. This item is one part of a proposed automated microorganism enumeration system which would also include an incubation module, a colony sensing module and a serological data collection module, each module being independent and completely portable, and all of which are discussed in the available documentation.

3. Documentation is available from:

Clearinghouse for Federal Scientific
and Technical Information
Springfield, Virginia 22151
Price \$3.00
Reference: TSP69-10223

Patent status:

No patent action is contemplated by NASA.

Source: L.S. Gall, M.D. Graham and W. Umbreit of
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