brought to you by CORE

NASA TECH BRIEF

NASA Pasadena Office

NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

Automatic Solar Tracker

A new solar tracker requires no servo power and needs minimal maintenance. It uses solar energy directly to keep the axis of a Sunfall collector pointed at the Sun. The tracking mechanism uses differential pressure of a condensable fluid such as Freon against a fixed piston to equalize the radiant energy on a pair of blackbody elements. The blackbody elements are used to heat the fluid to generate the expansion.

The illustration shows the tracker with a typical energy converter attached. The tracker axis is pointing slightly away from the Sun, and the radiant energy falls more directly on the blackbody near the Sun. This blackbody rises in temperature, heating the working fluid in contact with it. The working fluid on the warmer side expands against the piston more than the fluid on the cooler side. This causes the tracker axis to move toward the warmer side until both blackbodies receive equal radiant energy and the axis of the tracker points directly at the Sun.



Automatic Solar Tracker

(continued overleaf)

This document was prepared under the sponsorship of the National Aeronautics and Space Administration. Neither the United States Government nor any person acting on behalf of the United States Government assumes any liability resulting from the use of the information contained in this document, or warrants that such use will be free from privately owned rights.

Note:

Requests for further information may be directed to:

Technology Utilization Officer NASA Pasadena Office 4800 Oak Grove Drive Pasadena, California 91103 Reference: TSP75-10237

Patent status:

NASA has decided not to apply for a patent.

Source: Bruce L. Conroy of Caltech/JPL (NPO-13630)

Categories: 03 (Physical Sciences) 06 (Mechanics)