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UNITED STATES PAVILION: SUNSHADES

Hickok Cardmatic Readers will trigger the solar tracking action and animation effect of 4,700 sun shades mounted on the interior of the transparent bubble-shaped geodesic dome. The shade action is necessary to protect the interior of the 20 story high structure from the direct rays of the sun. The dome covers an area of 141,000 square feet — nearly as large as three football fields.

Two Cardmatic Readers have been installed at the Pavilion. One is operated by an automatic tape-feed, the other is manually operated by the insertion of plastic cards containing punched commands. Both readers have 540 separate switches through which orders are carried out.

The Hickok reader is a direct-circuit program activator which does not require the use of relay switches to complete commands.

The tape-fed model will control the solar tracking action of the shades. As the sun traverses the sky, shades needed to shield the theater and exhibit areas under the dome from direct rays will close, while shades no longer needed for shielding will open.

This solar tracking will be a continuous action of the shades, comparable in speed to the minute hand of a clock. It will begin at 9:00 a.m. when the Pavilion opens and continue to sunset each day.

The shades are made of a metallized plastic material which looks like chromium. From outside the dome, the movement of the shades beneath its green-tinted exterior surface will produce a chameleon-like change of color. The shades are triangular shaped and mounted on window-shade-type rollers on the interior of 783 of the 1,900 hexagonal sections of the dome.

Power to move the shades is provided by 261 motors mounted in the center of each three-section group of shade-equipped hexagons. Each motor controls the shades in the three-section groups or 18 shades in all.

The manual Cardmatic Reader will permit the operation of the shades for demonstration purposes. When one of the cards, about the size of a data processing card, is inserted into the reader, the shades in the selected area of the dome will open or close, depending on the orders punched on the card. Operation of the manual reader

will not interfere with the automatic shade action controlled by the tape-fed model.

The Cardmatic Reader has found many applications in industry. It is used in flight training to simulate instrument panel situations pilots-to-be might encounter and is also used to mix various blends of gasoline and other petroleum products for tank truck delivery.

"But", Robert D. Hickok, president of Hickok Electrical notes, "the use of our reader to control the solar tracking and animation effect of the surface of the U.S. Pavilion is the most dramatic application of the instrument."