

# THE HORTEN IV

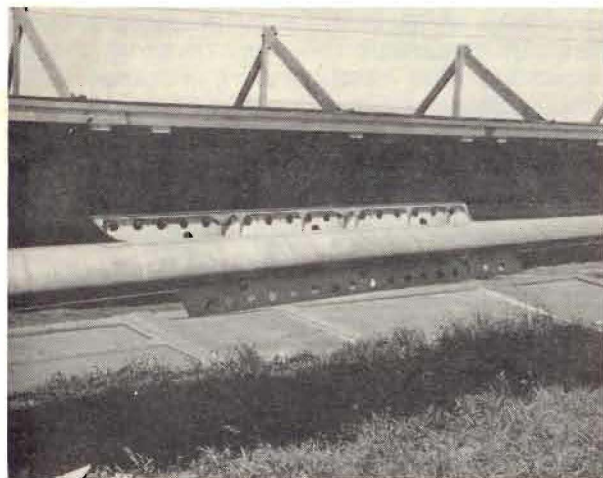
## ANOTHER SAILPLANE CATALOGUE ITEM

By DR. AUGUST RASPET

The Horten IV was one of the two outstanding German sailplanes, the other being the Darmstadt D-30.

A drag reducing feature of the Horten IV was the "Praying Mantis" pilot accommodation. By this configuration the frontal area was reduced and, as a result, the extremely low drag coefficient of 0.01 was achieved. This minimum drag coefficient is a world's record for sailplane aerodynamics. Until a comparison flight test was run by Facher and Scheidhauer between the D-30 and Horten IV the maximum glide ratio claimed for the Horten was 37:1 based on computation. However, the Horten IV does have better climbing performance in circling flight and above 81 mph it begins to perform better than the D-30. In other words, the Horten IV would probably be a better cross-country machine than the D-30. We are pleased that there is now a Horten IV in the United States. It should prove a formidable contender in our National contest and in International competition.

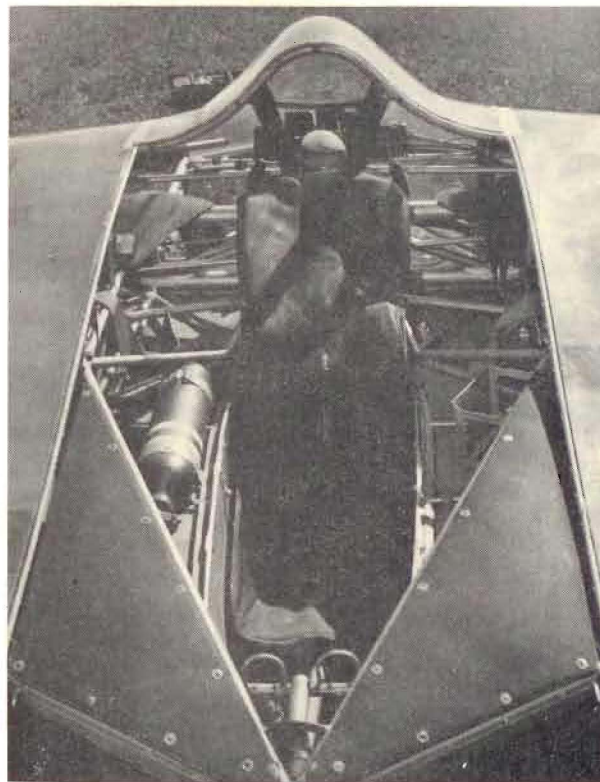
The three photos on this page are by Hollis E. Button, of his ship at Valley City, N. D.



The Spoilers Extended



Head-on view. Note droppable wheel and frame attached to retractable skid.



View of cockpit from rear showing the "Praying Mantis" cushion.

### MEASUREMENTS

|                        |           |                       |          |
|------------------------|-----------|-----------------------|----------|
| Span .....             | 65.6 feet | Fuselage Width .....  | 2.4 feet |
| Length (Overall) ..... | 12.5 feet | Fuselage Height ..... | 2.4 feet |
| Height (Overall) ..... | 3.6 feet  |                       |          |

### AREAS IN SQUARE FEET

|                                     |      |                                 |      |
|-------------------------------------|------|---------------------------------|------|
| Fuselage Cross-Sectional Area ..... | 2.4  | Flaps (Total) .....             | 0    |
| Wing Area (With Aileron) .....      | 227  | Spoilers (Total) .....          | 9.4  |
| Aileron (Total) .....               | 31.7 | Vertical Stabilizing Area ..... | 7.05 |

### WEIGHTS, POUNDS

|                       |     |                   |      |
|-----------------------|-----|-------------------|------|
| Empty .....           | 506 | Total .....       | 770  |
| Pilot .....           | 242 | Pilot/Empty ..... | 0.46 |
| Extra Equipment ..... | 22  |                   |      |

### WING

|                     |           |                       |           |
|---------------------|-----------|-----------------------|-----------|
| Wing Platform ..... | Tapered   | Half Span Chord ..... | 4.10 feet |
| Sweepback .....     | 19.3°     | Tip Chord .....       | 0.98 feet |
| Dihedral .....      | 3.6°      | Aspect Ratio .....    | 20.9      |
| Gull .....          | None      | Taper Ratio .....     | 7.35      |
| Root Chord .....    | 7.21 feet | Load Factor .....     | 14        |

### AIRFOIL SECTIONS

|   |                                      |           |
|---|--------------------------------------|-----------|
| Wing Root Horten IV, See Soaring Jan.-Feb. 1949       | Vertical Tail .....                  | None      |
| Wing Half Span, Horten IV, See Soaring Jan.-Feb. 1949 | Angle of Incidence to Fuselage ..... | 0°        |
| Wing Tip, Horten IV, See Soaring Jan.-Feb. 1949       | Washout .....                        | 6°        |
| Horizontal Tail .....                                 | Airplane Tow .....                   | To 75 mph |
|   | Aerobatics .....                     | No        |

### PERFORMANCE

|                                    |         |                                  |           |
|------------------------------------|---------|----------------------------------|-----------|
| Glide Angle (Maximum) .....        | 32      | Maximum Design Speed .....       | 124 mph   |
| Minimum Sink .....                 | 1.8 fps | Wing Loading (Test Flight) ..... | 3.5 psf   |
| Airspeed at Best Glide Angle ..... | 45 mph  | Span Loading (Test Flight) ..... | 0.167 psf |
| Airspeed at Best Sink .....        | 35 mph  |                                  |           |

### CONSTRUCTION AND MATERIALS

|   |                     |                  |
|---|---------------------|------------------|
| Wing—Wooden Structure, Outer wing all metal | Vertical Tail ..... | None             |
| Fuselage .....                              | Landing Gear .....  | Retractable Skid |
| Horizontal Tail .....                       |                     |                  |

### AERODYNAMICS CHARACTERISTICS

|   |       |  |
|---|-------|--|
| CDmin .....   | 0.01  | Results of the flight measurements of the German Sailplane D-30, preprint of paper given Elmira SSA-IAS Technical meeting, 1949. |
| Efficiency Factor .....   | 63.5% |  |
| Source of Flight test data: Hans Facher, DUL Mitteilungen der PFG, Fulge 6, 1944. |       |  |
| English translation:—Some re-   |       |  |

For Performance Curves See Back Cover

SOARING