

2 SEP 47

Analytical Report

TRMD-2E/AC

2 September

SUBJECT: Flying Saucer

TO: Commanding General
Air Materiel Command
Wright Field
Dayton, Ohio
ATTN: AC/AS-E
Brig. Gen. C.F. Cabell
Headquarters, Army Air Forces
Washington 25, D. C.

1. As requested by your letter of 16 July 1947 this office has produced its conclusions on the manufacture, function and possible origin of the above referenced subject. On-site preliminary study data provided by personnel of T-2 and E-3, search and recovery team of the AFSOP, 'Paper Clip' personnel, select personnel of the Army Air Forces Scientific Advice Group and personnel of the Atomic Energy Commission Advisory Committee was utilized in the construction of our analyses.

2. The analyses of the Office of Research and Development are:

a. Aerodynamics and design evaluation studies performed by the Aircraft, Power Plant and Propeller Laboratories of Engineering Division E-3 personnel, has concluded that some notion has reached a stage of flight development in which the present ideas are entirely obsolete.

b. A notable advance in reducing drag and high-lift, wing load is evident in the "cleaned up" refinements in the extreme. The absence of riveting and surface over-lapping indicates a "simplistic" concept that confronts our technology to match the "careful and well-considered compromises in respect to weight, aerodynamic refinement, and design."

c. The designers have managed to effect Bernoulli's theorem that allows the "total pressure in a flow" to be less at all points; we can liken this to the concept of 'conservation of energy' and thus negating friction losses, which would dissipate heat.

d. The airfoil design of the circular wing is similar to the NACA 230 series with the exception to the wing plan form and thickness ratio requirements. The parasite drag appears to be controlled by the refinement of the design and the elimination of protrusions. The induced drag decreases with the circular span inversely with the low aspect-ratio of the wing.

e. The fuselage/nose appears to fall into the seaplane type in concept by manifesting excellent hydrodynamic characteristics of low

"porpoising" tendencies. Conventional surface controls are absent in the wing and cabin portions of the recovered sections though what appears to be tabs or flaps are identified. Because there are no vertical or horizontal stabilizers on the craft, there are no fore-and-aft positions of the wing relative to the fuselage/hull. Wing incidence seems to be pre-selected via an in-flight trim computer to reduce drag attitude when the wing is at the angle of attack required at high speed and provide stability to lift the weight of the craft.

Basic ltr fr R&D, to CG, AMC, AFHQ HQ, AAF, WASH. D.C., AC/AS-2, MAJIC EYES, subj "Flying Saucer".

I. A general description of the craft is presented:

- (1) Metallic skin of a high polished finish. A comparison of AISI K1112 steels indicates that the metals used to construct the craft exceed structure, chemical composition and mechanical properties currently under development. Metal specimens were subjected to AISI 8620, AISI 3140, AISI 4140, AISI 4340, AISI 5140, AISI 8640, AISI E52100, and AISI 430, 410 and 347 machining tests with negative results.
- (2) Craft designed for high altitude flight. Automatic exhaust orifices were identified. A gyro-controlled wing stabilizer apparently maintains craft in a hover mode.
- (3) Power plant may consist of a spherical reactor (hydrogen isotopes type) connected to propulsion motors.
- (4) 100 ft. in diameter with central section approximately 30 ft. Central cabin may have three flight decks: top level for flight control; central section for equipment and lower section for power plant and landing gear. Circular wing may have rotating section and adjustable leading edge.
- (5) Top (dome) may have the ability to recede into central section for high performance operations. Observation blisters are retract to provide observation top and bottom of wing.
- (6) Construction is based on a 6:1 ratio.
- (7) Flight instruments and controls are activated by optical wave guide fibers similar to glass rods except they are flexible and have a plastic cladding wrap. All functions may be operated by touch sensitive or texture sensing stimuli. Instruments are covered by a plastic plate and seem to be color coded.
- (8) Craft may have all weather navigation capability to allow 'blind flying'. Possible television viewing used.

Research and Development
Laboratory

Analytical Report

IJXAD-2B/AO

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