Approved for Release: 2017/03/06 C05100103

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THE WHITE HOUSE
WASHINGTON

April 14, 1959

Major Eisenhower:
General Goodpaster:

These may appear as Staff Notes; but I want you to see them while they are still fresh.

2d paper is of interest.

A. P. Toner

Attachments
Orig. Defense summary 4/14/59: Items No. 2 and No. 3 with its attachment. (S)

Declassified 7/23

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2. DISCOVERER II Launch and Operation (Secret)
(Reference Item 1A, April 7, 1959 and
Item 3, April 6, 1959 Reports)

DISCOVERER II was launched from Vandenberg AFB at 1318 PST 13 April 1959. Local and telemetry data provided early indication that insertion into polar orbit was successful with preliminary deduction of Perigee at 158 statute miles, Apogee 445 statute miles, period 94.2 minutes. On first pass Alaska, Vandenberg AFB and Hawaii acquired and tracked the satellite. On pass two Kodiak acquired on doppler and radar at 1615 PST. Hawaii acquired on doppler and radar at 1624 PST.

Orbital parameters were refined during the night. By 0400 PST these were established to be: Perigee 152 statute miles; Apogee 220 statute miles; period 90.5 minutes; and inclination angle 90.02 degree, almost exactly polar.

Confirming tracking data were obtained by the east-west surveillance fence across southern United States and by Millstone radar in Massachusetts on passes seven and eight south to north.

Command contact with the vehicle for 17 minutes during each revolution was dependent on a control timing sequence in which a predicted period of 94.56 minutes was set into the system prior to launch, to be reset for actual period by command on second or third pass. Reset command was sent to the vehicle on second pass but timer failed to reset. Failure of timer reset has resulted in drift of receiver availability for command to the south along the orbit, advancing about four minutes with each revolution around the earth, by the fourth turn taking vehicle command control out of reach of both Alaska and Hawaii.

The recovery operational sequence was based on the timing program. Objective was to reset the timer to achieve delivery of the recovery capsule near Hawaii. A remote possibility remains that on revolution fifteen the receiver may be reached by the Vandenberg AFB transmitter to achieve this objective. However, if this is not accomplished the accumulative error of approximately four minutes per revolution will result in programmed capsule delivery to earth near North Pole at approximately 1600 PST the 14th of April. In this case, recovery attempt will be cancelled.

(Carbon destroyed 7/27/59)
(Thermofax made & destroyed 4/20/59)

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4/14 Orig. to DDR&E, Hand in SSN #/ES-28 (continued w/ advance item #5 4/15)

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Item 2. DISCOVERER II Launch and Operation - Continued

Achievements of test so far to be noted are as follows:

Complex lift-off, first and second stage functions achieved.

Polar orbit objective achieved with orbital parameters within goals set with vehicle burnout weight of 1631 lbs.

Vehicle stabilization achieved.

System tracking and computation capability proven.

4/14 orbits w/ obj & used in SSN # 165-28

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3. Ground-Effects Machines (Secret)

News accounts based on testimony given April 13 and 14 before House Committee on Science and Astronautics have called attention to DOD research project seeking to take full advantage of what is called "ground-effect." This refers to the cushion of air ~~sent~~ sealed between a machine a short distance above the ground and the ground itself.

Applications are:

1) The aerial-vehicle type of VTOL aircraft that operates within the ground cushion as a vehicle riding on air but, after obtaining a minimum velocity, functions as an aircraft and is supported by aerodynamic forces generated by its forward motion.

2) A vehicle, sometimes called a minimum ground-pressure vehicle, that operates at all times within the ground cushion over open land or sea areas. The movement of this vehicle is not restricted by mud, snow, ice or other similar surface obstacles that impede the movement of wheeled vehicles.

3) A vehicle that operates on the air-bearing concept, which is that friction with the surface terrain is significantly reduced by a thin film of air between the surfaces of the vehicle and the support.

Principal project currently being pursued is the "Secret" AVRO project now planned in two major phases:

The first - to develop a subsonic air vehicle capable of flight at low altitudes only, sponsored by Army. First flight vehicle has been nearly completed and is shortly to undergo preliminary flight tests. Has a circular plan form about 18 feet diameter with over-all height of about 5 feet and a general appearance resembling the popular conception of a "flying saucer." It is powered by 3 jet engines which are utilized as gas generators. These engines are symmetrically disposed about the vertical center line of the aircraft with their exhaust directed tangentially through ducts to drive a large axial flow fan located in the center of the vehicle. The fan called a "turbo rotor" draws large

4/14/59 Chief to H. w/att w/attached leaflet & used in Supt##s 30 (Apr 4 '59)

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DoD # 3 Cont'd

quantities of air through an intake on the upper surface of the vehicle and exhausts it downward through annular passage beneath the outer rim of the vehicle. Feasibility studies and wind tunnel tests have shown that the vehicle will have ability to take off and land vertically, hover, and fly horizontally at speeds up to about 200 knots.

If this program proves successful, Air Force plans additional research and development on a supersonic vehicle of somewhat similar configuration. Feasibility studies of the supersonic version indicate a performance potential, on the order of Mach 3 and 100,000 ft. altitude utilizing conventional turbojet power plants.

Supt to # 520

Press mentions potential military applications of the ground cushion effect vehicle in the form of flying tanks and aircraft carriers which could move rapidly above the surface of the water. These practical applications of the idea may be possible at some remote future date. However, at present work is in the early exploratory stages, and it is apparent that solutions to a number of major technical problems must be found before the practical applications will be achieved in operational military vehicles.

Attached booklet is sent primarily for illustrations starting page 12. Figure 4 (Ford Glideair Scooter) is admittedly impracticable since it would require rails or similar completely smooth surface to operate on. Figures 4 to 8 give saucer appearance of aerial vehicle. Once lift has been accomplished through ground-effect, aerial dynamics of the design would enable a vehicle to move like a jet plane. Problems of maneuverability may exist.

Booklet
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Brtd on 7/23.

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(Sup to SN#496)

4. Emergency Planning (Unclassified)
(Reference Item 3, January 27, 1959 Report)

Sup to SN#512

A joint committee of medical department personnel operating through the Single Manager for Medical Materiel has developed a list of standard items which relate directly to the Office of Civil and Defense Mobilization (OCDM) list of "survival" items in the health and medical area. These are items which would be required following a nuclear attack, to sustain life at a productive level.

This list has been translated into electronic procedures available to all medical depots. In addition to the standard identification numbers, the items have been classified by category for correlation with activities of other governmental agencies. In the event of nuclear disaster, this procedure provides for:

a. Immediate reaction by Defense medical services in the area of emergency management.

b. A disaster catalog for use until medical production facilities are stabilized. This covers some 700 items as compared to 7000 in the current medical materiel stock list.

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