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TO: W. P. Wilson, Jr., A-833

FROM: J. N. Brown, A-833

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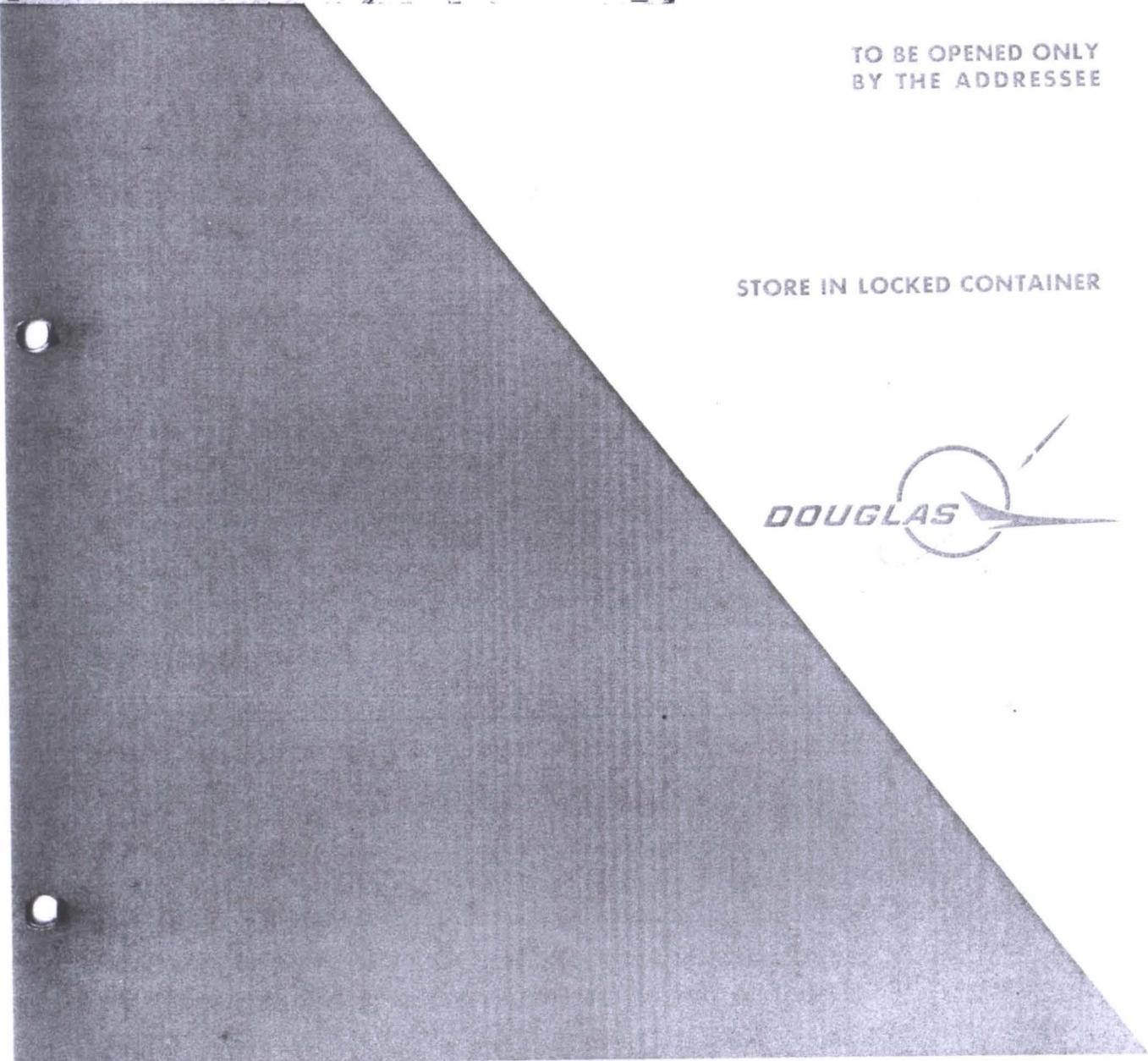
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W. P. Wilson Jr. A-833

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MEMORANDUM

DATE: 8-22-68
A-830-BB01-JMB-6

TO: R. M. Wood, A-830

FROM: J. M. Brown/D. B. Harmon, Jr./W. P. Wilson, Jr., A-830

SUBJECT: GA PROPULSION SYSTEM

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REFERENCE:

INTRODUCTION

This memorandum contains a description of a GA (Gravity Amplification) propulsion system that may have applicational possibilities. The significance of this presentation is that a complete propulsion system is described which has the two properties:

1. The system agrees in general concept with the kinetic particle theory of physics.
2. The components of the system consist of known and available pieces of hardware.

From certain viewpoints the above statements may not seem too important, but in consideration of the advanced concepts goals the descriptions presented here are significant. The utility expected of this memorandum is for guiding further analyses and experiments.

CONCEPTUAL DESCRIPTION OF THE SYSTEM¹

All matter, and only matter², is believed to set up a gravitational field. In the kinetic particle theory the mechanism of the gravitational field is presumed to be due to the collection by matter of basic particles from the free field and then ejecting the basic particles in the form of a composite, non-matter and non-radiation interacting particle. This composite particle is the graviton which moves at the speed of light and has an angular momentum of $2\hbar$. In general, the basic particle collection is from an omnidirectional field and the composite particle emission is omnidirectional. A net force can be obtained by emitting all the gravitons in a given direction - the force on the emitter will be opposite the graviton emission direction.

Such a force for a vehicle on the earth's surface would be twenty orders of magnitude less than the earth's gravitational force. In order to obtain a 1 g propulsion system, for example, it is thus necessary to increase the graviton production rate by twenty orders of magnitude.

¹ This gravitational mechanism used in this system is described in Reference 1.

² Anti-matter is a form of matter.

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An electron is the smallest piece of matter which has been identified. An electron is believed to have a gravitational field. The gravitons emitted by an electron probably either are along the spin axis (and, if so, hopefully only in one direction) or are perpendicular to the spin axis. Directionality of the graviton emission presumably can be obtained by aligning the electron spin vectors, using a magnetic field, all in the same direction (and sense). An additional magnetic field may be required to assure graviton emission in a particular direction. Graviton production rate presumably can be increased by using extremely large steady state magnetic fields (megagauss, or more) with a small, very high frequency component. A frequency corresponding to the rate at which light goes around the electron classical circumference may be required, i.e., 10^{23} cps, for this high frequency component.

SYSTEM HARDWARE

The system consists of an electron source to supply initial electrons and to replace electrons which leak out, an electron polarizer to align the electron spin axes, a torroidal electron accumulator which contains the aligned electrons all moving in a circular path, and a magnet external to the electron accumulator, see Figure 1.

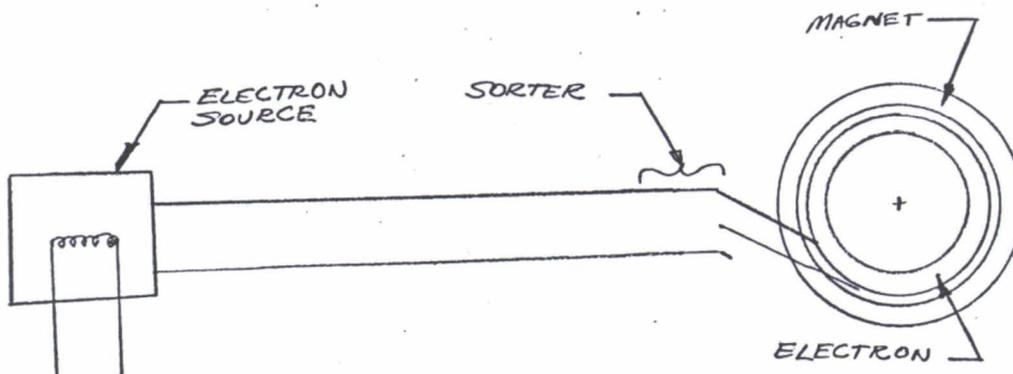


FIGURE 1

GRAVITY AMPLIFICATION PROPULSION SCHEMATIC

R. M. Wood, A-830

A-830-BB01-JMB-6
8-22-68
Page 3

The electron source is simple. It must supply electrons to fill the accumulator initially. Subsequent demands are made only to resupply electrons which are accidentally lost from the accumulator.

An electron polarizer is used in g-factor experiments on the electron. The polarizer aligns the electron spin axes all in the same direction but not in the same sense. A sorter at the right end in Figure 1 takes those with one sense and inserts them tangentially into the accumulator. The ones in the other sense are either dumped or turned around and sent into the accumulator in the same direction as the other electrons.

The accumulator keeps the electrons moving all at one prescribed speed at a given time and parallel to the centroidal axis of the torroid. The electrons are presumed to consist of small time varying density regions so that the electrons themselves form the high frequency component of the magnetic field. The motion of the electrons produce a large magnetic field.

The external magnet produces the directionality of the graviton release - presumably normal to the paper in Figure 1, either in or out of the paper, but not in both directions.

CONCLUDING REMARKS

There are a large number of conjectures in the conceptual system described. Many of these conjectures for the various components are amenable to analytical and experimental checks; some can be checked only by an experimental model of the complete system. It is anticipated that further definitive work will be accomplished.

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References:

1. "Proposed Vehicle R&D Program (Project BITBR)"
2. Memorandum A-830-BB01-JMB-2, 27 June 1968, to R. M. Wood from J. M. Brown