

ELECTROGRAVITICS:
AN ENERGY-EFFICIENT MEANS OF SPACECRAFT PROPULSION

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Description. The proposed propulsion technology would replace the energy-intensive rocket technology presently used for propelling spacecraft. The technology, called electrogravitics, has already been developed in "black" defense research programs, programs so highly classified that their existence is not publicly acknowledged. Electrogravitics may appear to violate certain assumptions about gravity commonly held by physicists and aeronautical engineers, so the reader is requested to keep an open mind. The technology does exist; it has been under development for the past 40 years; and it has been shown to be feasible both in carefully controlled laboratory experiments and in actual test flights.

Basically electrogravitics is a technology that allows a spacecraft to artificially alter its own gravity field in such a manner that it is able to levitate itself. This is accomplished by applying a megavolt pulsed DC electric potential across the outer hull and wing of the spacecraft. The craft would be designed to have a relatively large body surface area, similar to the flying wing concept employed in the B-2 bomber. Alternatively it could be discoidal in shape with a lenticular cross-section. Thrust would always be in the direction of the craft's positively charged surface. To quote a February 1956 Air Force intelligence report (now declassified), such a craft "can perform the function of a classic lifting surface--it produces a pushing effect on the under surface and a suction effect on the upper, but unlike the airfoil, it does not require a flow of air to produce the effect."⁽¹⁾

Payoff. The value of this technology is that the craft may achieve Earth orbit flight at a much lower velocity than conventional rocket propulsion and without the huge fuel expenditure. It would eliminate the hazard of polluting the Earth's stratosphere and space environment with aluminum oxide spherules, which has become an increasing problem with the solid fuel boosters currently in use. The fuel requirements for electrogravitic

propulsion are less than one percent of those presently used to lift the space shuttle into orbit. Problems typically encountered with the Space Shuttle's rocket propulsion technology (e.g., liquid hydrogen leaks, exhaust leaks around O-rings in the solid fuel booster) would not be present in this technology. Due to its much lower power demands, electrogravitics is much safer and more economical.

Performance Characteristics. As early as 1956, an Air Force study estimated that a manned electrogravitic craft could achieve Mach 3 flight capability with a 50,000 kilowatt power requirement. Such airborne electric power generation is within the reach of present technology. It would require two General Electric superconducting generators powered by two 50,000 horsepower rocket turbine engines. The superconducting generators mentioned here were developed for the Air Force in the late 1970's for use in high-altitude aircraft. Incidentally higher efficiencies are achieved in space due to reduced ion leakage from the hull's charged surface.

Other enabling technologies. All enabling technologies have been developed. As early as 1958, a small scale model of an electrogravitic powered aircraft was able to lift 110% of its weight. Since then manned vehicles have been secretly developed and are presently being test flown.

Relation to major mission objectives. Electrogravitics would allow NASA to make frequent flights into space without the numerous delays presently plaguing the Space Shuttle launchings. (The present three year wait for repairing the Hubble Telescope could be cut to 3 weeks.) It would allow flights directly from Earth to Mars without the necessity of laboriously constructing a Mars spaceship in Earth orbit. Such a flight would no longer be contingent on the preexistence of a space station. Moreover the high speeds potentially achievable with electrogravitics would allow travel to Mars to be made in under a month.

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Back-up Paper

Previous history. The electrogravitic phenomenon was first discovered by Thomas Townsend Brown in the mid 1920's. In 1929 he published an article that described his preliminary findings about this effect, which later came to be known as the Biefeld-Brown effect.⁽²⁾ In 1952 Brown demonstrated the electrogravitic propulsion by energizing two 1-1/2 foot diameter disks with 50,000 volts and flying them around a 20 foot diameter course at speeds of 20 miles per hour. A few years later he flew a set of 3 foot diameter disks about a 50 foot diameter course under a charge of 150,000 volts. The results were so impressive that they were immediately classified.⁽³⁾

A considerable amount of historical information on the early development of electrogravitics may be found in the 1956 Air Force intelligence study entitled Electrogravitics Systems: An examination of electrostatic motion, dynamic counterbary and barycentric control.⁽⁴⁾ It defines the term "dynamic counterbary" as "the manipulation of gravitational force lines," and "barycentric control" as "the adjustment of such manipulative capability to produce a stable type of motion suitable for transportation."

In 1952 the Pentagon was presented with a proposal that called for an extensive effort to develop a "Mach 3 combat type disc" by means of a Manhattan District type of project. By September of 1954 the Pentagon had launched a secret government program to develop a manned antigravity craft based on electrogravitic technology. Commenting on this, an October 1954 Air Force intelligence report states:⁽⁵⁾

"...the indications are now that the Pentagon is ready to sponsor a range of devices to help further knowledge...Tentative targets now being set anticipate that the first disc should be complete before 1960 and it would take the whole of the 'sixties' to develop it properly, even though some combat things might be available ten years from now... The frame incidentally is indivisible from the "engine." If there is to be any division of responsibility it would be that the engine industry might become responsible for providing the electrostatic energy (by, it is thought, a kind of flame) and the frame maker for the condenser assembly which is the core of the main structure." (emphasis added)

By 1956 several major aircraft companies had become involved in electrogravitics research. The list includes: Glen Martin, Convair, Sperry-Rand, Sikorsky, Bell, Lear, Clark Electronics, Douglas, Hiller, and General Electric. The electrogravitics report states:⁽⁶⁾

"...in the trade much progress has been made and now most major companies in the United States are interested in counterbary. Groups are being organised to study electrostatic and electromagnetic phenomena. Most of the industry's leaders have made some reference to it. Douglas has now stated that it has counterbary on its work agenda but does not expect results yet awhile. Hiller has referred to new forms of flying platform, Glenn Martin say gravity control could be achieved in six years, but they add that it would entail a Manhattan

District type of effort to bring it about. Sikorsky, one of the pioneers, more or less agrees with the Douglas verdict and says that gravity is tangible and formidable, but there must be a physical carrier for this immense trans-spatial force. This implies that where a physical manifestation exists, a physical device can be developed for creating a similar force moving in the opposite direction to cancel it. Clarke Electronics state they have a rig, and add that in their view the source of gravity's force will be understood sooner than some people think. General Electric is working on the use of electronic rigs designed to make adjustments to gravity - this line of attack has the advantage of using rigs already in existence for other defence work. Bell also has an experimental rig intended, as the company puts it, to cancel out gravity, and Lawrence Bell has said he is convinced that practical hardware will emerge from current programs. Grover Leoning is certain that what he referred to as an electro-magnetic contra-gravity mechanism will be developed for practical use. Convair is extensively committed to the work with several rigs. Lear Inc., autopilot and electronic engineers have a division of the company working on gravity research and so also has the Sperry division of Sperry-Rand. This list embraces most of the U.S. aircraft industry. The remainder, Curtis-Wright, Lockheed, Boeing and North American have not yet declared themselves, but all these four are known to be in various stages of study with and without rigs.

A December 1957 issue of Product Engineering magazine reported that the Air Force was encouraging research in electrogravitics.⁽⁷⁾ A February 1958 issue of Business Week magazine mentioned the names of a number of companies and institutions backing gravity research, a list that included the Martin Co., Grumman Aircraft, Lockheed, and Sperry-Rand.⁽⁸⁾ In January 1955, G.S. Trimble vice-president of advanced design for Glenn Martin was quoted as saying:⁽⁹⁾

"Unlimited power, freedom from gravitational attraction, and infinitely short travel time are now becoming feasible."

Also Dr. Walter Dornberger, a guided missile consultant for Bell Aircraft, predicted that airliners would eventually travel at speeds of 10,000 miles an hour (Mach 13).

By 1958 Townsend Brown had succeeded in developing a saucer model that, when energized with between 50,000 to 250,000 volts of direct current, was capable of lifting itself up with a thrust equaling 110 percent of its weight.⁽¹⁰⁾ Since that time manned vehicles using the electrogravitics principle have been built and flown.

How to proceed in discovering information on electrogravitics. Hughes Corp. is currently considered to be the world leader in electrogravitics technology. So it is advisable to begin with them in securing information on the current state-of-the-art in the electrogravitics field. It would also be worth contacting some of the other companies mentioned above. Whether they disclose much about what is going on is another question. Seeing the benefits to NASA of using this technology, perhaps the federal government will realize that the time is ripe to begin declassifying this technology. All along, the aircraft industry has been interested in commercializing the technology. So the opportunity of developing a new propulsion system for NASA might serve as the needed catalyst to bring this technology out of the closet and into public use.

If this approach initially fails, NASA officials might try exerting political pressure on the appropriate government agencies to bring about a change in the technology's classification. The National Security Agency might be a good place to start. It is uncertain whether the Pentagon or Whitehouse would have much say in this matter. There is no point in contacting the director of the Air Force Office of Scientific Research, since he is not likely to have been briefed on the existence of this "black" technology. NASA might begin by putting together a group to gather information about electrogravitics and to lobby for a change in its classification status. There are people presently working at NASA who would be good candidates for such a group and who would be knowledgeable about whom to contact. I could provide the name of at least one person who could be helpful.

The technology's likelihood of success and the classification issue. Until more is known, it would be premature to say whether there are any outstanding engineering problems in applying the technology to space travel. The main problem appears to be political, rather than engineering in nature. Namely, the need to change the government's present stance on keeping the technology under wraps. With the present move toward the democratization of the Soviet Union, cold war arguments that formerly were used to justify keeping this technology secret, now more than ever, would be treading on thin ice. There is some speculation that the B-2 stealth bomber utilizes electrogravitics technology. If so, perhaps now that a fleet has been built and test flown, the military sector may feel that it is one step ahead of everybody and be more willing to release some information.

To allay fears about keeping antigravity technology classified, one could point out that the automobile probably posed a similar technological advance at the turn of the century. Although it could be argued that gasoline powered vehicles had an advantage over the horse and buggy in that they allowed enemy troops to mobilize a more forceful attack. On the other hand, it might also be argued that the same technology made it possible for defensive forces to effectively ward off attacks. So in the long run the automobile was not politically destabilizing, although it did bring about major changes in the structure of society. The same could be said to be true of electrogravitics.

Estimated cost. Because of the difficulty of finding out cost information on this secret technology, it is not possible at this time to make a definite estimate of the cost to construct an electrogravitic spacecraft. Perhaps \$500 to \$600 million might be in the right ball park. Considering that the vehicle does not require the use of expendable booster rockets, a considerable savings in operating cost would be realized after just a few flights.

Applications beyond space exploration. Electrogravitics holds great benefits for society, beyond its obvious ability to revolutionize space exploration. Taking a historical perspective, it may be seen that mankind's standard of living has accelerated following the introduction of innovations in three principle areas: energy production, transportation, and communications. In the terrestrial transportation area, the widespread use of gravity control technologies would revolutionize our way of life. Commuters would be able to travel vertically as well as horizontally. Rush hour traffic jams would be a thing of the two-dimensional past. Although, increased air traffic would necessitate the introduction of technologies to prevent midair collisions. Transport speeds would be vastly increased with considerable economy in fuel consumption. Antigravity vehicles would

revolutionize farming, mining, building construction, and shipping, stimulating the world economy beyond our wildest dreams.

Electrogravitics would bring the world closer together. It would erase the distance barriers that currently separate the nations of the world. The ability to travel from New York to Perth, Australia in one hour would make the peoples of the world more internationally oriented. With the ability of cheap high speed travel, national boundaries would begin to dissolve. People would begin addressing world problems from a more planetary perspective, rather than from a regional perspective, thereby aiding the development of world peace.

Electrogravitics would also bring about a new mode of energy production. By arranging electrogravitic capacitor elements around the spokes of a wheel, all aimed in the same rotary direction, when energized they would create a rotational gravity field, which in turn would cause the wheel to turn like a pin wheel. In effect, the wheel would rotate in a state of circular free fall. A device of this sort was patented by Brown in 1934 (U.S. #1,974,483) and tested in 1955 in vacuum chamber experiments he conducted in Paris under the auspices of a French aeronautics corporation. When energized with 200,000 volts, the speed of his rotor began to increase unchecked, reaching such a high rotational velocity that the voltage had to be reduced to keep the rotor from flying apart. An ion wind could not be responsible for this propulsion since the air pressure in the vacuum chamber was less than one billionth of an atmosphere. By connecting the rotor's shaft to a generator, theoretically the rotor could generate more electric power than it consumed, thereby supplying an unlimited source of energy. Hazards such as are typically associated with fossil fuel and nuclear energy generation technologies would be avoided. Given the impending global CO₂ build-up an argument could be made that it is a matter of human survival that we declassify and commercialize this technology as soon as possible.

Related gravity technologies. Several approaches to gravity control have been proposed. Some background may be learned by perusing the patent literature. Townsend Brown had applied for numerous patents on his electrogravitic propulsion designs. His U.S. patent #3,187,206 filed in 1958 and granted in 1965 is of particular interest. However, the patents do not give any details on the variable frequency pulsed DC power supply which is a key to the technology. Also of interest are patents by Agnew Bahnsen: 2,958,790 (1960), 3,223,038 (1965), 3,227,901 and 3,263,102 (1966). After they were issued, the rights to them were a hot item for purchase by certain corporations who sold and resold them to companies whose names are kept confidential. Henry Wallace presents a different approach to gravity control which utilizes mechanical motion. This is disclosed in his U.S. patents: #3,626,605 and #3,626,606 (1971). Sandy Kidd of Scotland also has devised a mechanical gyroscopic device that is able to achieve a state of complete levitation. He is now developing this technology in Dandenong, Victoria in northwestern Australia, under the sponsorship of millionaire Noel Carrol.

In summary, if NASA were to push for the development of gravity control technologies, they would not only be moving closer to a means of efficiently accomplishing their own objectives, but they would also be doing a great service to humanity.

References.

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- 2) Brown, T. T. "How I control gravity." Science and Invention Magazine, August 1929.
- 3) Burrige, G. "Another step toward anti-gravity." The American Mercury 86(6) (1958):77-82.
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- 5) Ibid., pp. 25 - 27.
- 6) Ibid., pp. 9 - 10.
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- 8) "How to 'fall' into space." Business Week, Feb. 8, 1958, pp. 51 - 53.
- 9) Keyhoe, Major D. E. The Flying Saucer Conspiracy. New York: Henry Holt & Co., 1955, pp. 251-252.
- 10) Brown, T. T., Letter dated February 9, 1982.

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* Only one library has an original copy of this. This is kept at the Wright-Patterson Air Force Base Technical Library in Dayton, Ohio. If the panel has difficulty getting a copy, contact me and I will send a copy that I have.

Submission by P. LaViolette to NASA's
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