Memorandum
————————————

Dec. 5, 1986

Stockholders
Collins Energy Corp

Paul Drown
2702 Reno Way
Boise, ID 83704
208-322-3498

RE: Demo Power Unit

For most of this year 1986, I have been developing the Demo Power Unit (DPU) based upon the principle and technology of kinetic magnetism. Their have been many technical engineering problems, mostly related to the hazardous nature of the neodymium alloy used in these kinetic magnets.

Without disclosing the true nature of the project, I have used consultants on the project. The AC modulating circuit (for the polarization) was designed and assembled by the Univ. of Wisconsin, while the DC pulsing circuit was designed and built by Tektronics of Oregon (also for the polarization), the magnetization coil* was designed by myself and fabricated by I&K Electric, and the neodymium alloy parts were molded by the Univ. of Ohio (machine work performed by ACE Machine, etc.). However, I performed the polarization and assembly of miscellaneous parts into the DPU.

Overall, the DPU measured 12 inches outside diameter by 2 3/4 inch tall, the main components being:

1	5"OD X 4 1/2" ID X 1 1/2" tall Nd Alloy plate
24	1/2" X 1" Nd alloy rollers
24	9/16 X 9/16" cross section, .003" M5 laminated silicon steel C-cores, 1 1/2 X 1 1/2 X 1 1/2" wound with 1,000 turns of #38 magnet wire, and 200 turns #28 magnet wire.
48	.05 uFd, 6 KV capacitors
6	.2 uFd, 10 KV capacitors
2	1/2 X 12" Weldwood
48	Aluminum L-bracket mounts
212	#6 brass machine screws
212	#6 brass nuts

The output was three phase, high frequency AC current and I had expected about 1,000 watts of power. I made some fine tuning improvements during preliminary testing to yield a best performance of 950 V, 300 mAmp at 2.88 MHz, or about 250 watts but the current was out of phase. I changed the capacitors to bring the current into resonance.

On Nov. 6, 1986 at approximately 4:00 pm, i succeeded in bringing the current into phase and the DPU immediately began producing power—and lots of it. In fact, the power output was far greater than anticipated. Quickly, I tried to shut down the DPU by shorting it to ground, however, it was

too late, the DPU had gone into a runaway condition. Within a few seconds, the #10 solid copper inductor to ground began to glow red from excessive current and electrical discharges were aplenty from the DPU due to the voltage exceeding 40,000 volts. The heat from the red hot conductors or the discharges from the plate across the rollers, or possibly the combination, ignited a fire. The Nd alloy burned with an intensity comparable to burning magnesium. The runaway condition lasted about 15 minutes before the fire destroyed the unit.

Unfortunately, the DPU was lost, but we did achieve a dramatic demonstration of the power potential. Low estimates of the electrical power generated solely by the DPU are 40,000 volts at 30 amp, or more than 1,000 kilowatts of power! That is one megawatt of electrical power from a source the size of a telephone book!

This was my problem. I was not prepared for such a large amount of power or the heat which needs to be dissipated in such a situation. The power potential from this technology is comparable to nuclear energy in energy density. I am currently involved in rebuilding the DPU using a new control method for regulating the DPU.

Kinetic magnetism is the birth of a whole new technology that has the potential to improve the general well-being of all of humanity.

* 6" X 6" air core, 200 turns of .102 X .408" PTZ solid wire provided with #4 stranded leads for the DC and .064 X .128 PTZ 3 MHz resonant AC coil with #10 stranded leads. The signal source for the AC is an Hewlett Packard HP 8165A Programable Signal Source run through a class-C amplifier and an HP 200 amp, 40 volt power supply through parallel MOS-FET based pulsing circuit into the DC winding.

** . The polarization is a unique magnetizing process where DC is pulsed into a coil at the self-resonant frequency of the AC coil which is tightly coupled to the DC winding. The pulsed DC alone produces a fringing pattern in a blank magnet due to the field not being fully saturated. A standing wave pattern is simultaneously set-up in the blank magnet due to the resonating AC coil and field. The end result is a permanent magnet with a conventional north and south pole along with a unique track of poles proportional to the applied frequency.

Sincerely,

Paul Brown

Zero Point R & D

12-19-83

Dear Mr. Searl,

I have not heard from you since 4-7-82. I have moved since then, my new home and business address are below. Previously, my I.D. number was IND/2I/B/3/448. What is the subscription price for the news letter? What have you been doing since April '82?

I believe I mailed a few of my papers to you earlier this year describing some of my work and I made a presentation Sept. 9, 83 at the Second International Symposium on Non-Conventional Energy Technology held in Atlanta, Georgia, USA. At present, I am working with an ironless motor/generator design. The preliminary testing indicates that the finished product shall exhibit many phenomena. Basically, the design utilizes a segmented disc flywheel with alternately oriented permanent magnets(alnico type) using spaces of insulator of equal dimensions between each permanent magnet. The flywheel is the armature while the perpindicular electric field is produced by the charge stored on the generators body(which amounts to the rotation of a segmented disc flywheel betwe the plates of a charged capacitor). Of particular interest is the field produced by the device which is essentially as shown;
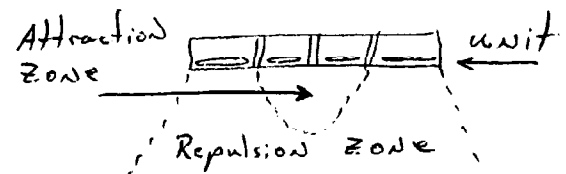
This data has been collected from a small 5 inch diameter device and another 12 inches diameter, both of very simple design. The unit under construction will have a 24 inch flywheel and the overall device shall be 26"X 1" and very light due to the lack of iron in its construction. Preliminary data suggests that the power output and efficiency of this device shall be phenomenal. More later, after the completion of this unit.

Sincerley,

Paul Brown

Zero Point R & D

DOC-10-FT-SNRC/6, Part 1 (S:*ated, 1975)
Aerodrome Manual Part 1

Advanced Airline Report (traffic) Demo Craft, Oct. 1977

Advanced Airline Traffic Report Supp; 3/. Dec 1977

Please, I would like the following;

SNRC Journal Vol. 1, Sec. 6

The complete set of photos (26) (preferrably negatives) taken by John Hockwell for the story by Phil Sanders published July 4, 1969 by the Hawks & Berks Gazette.

Any and all other info not listed including any correspondence with/from John Searle.

Please forward this information on to Mr. Sainsbury. Keep in touch. I have not yet recieved a letter from Tom Dunn.

Later,

Paul

Paul Brown

OFFICE:
(208) 344-5485
3131 Harvard
Boise, Idaho 83705

RESIDENCE:
(208) 352-4685
P.O. Box 146
Bliss, Idaho 83314

Zero Point R & D

3-28-84

Dear Mr. Searl,

(or whomever is reading this letter.). I keep writting, but you don't reply; what is the story? The rumor here in the states is that John Searl is in jail for some reason, or that he may even be dead. Someone must be reading this letter in any case, please respond so that I may know the status of J. Searl and your organization. Previously, my ID number was IND/2I/B/3/448, but I have moved. My new mailing address is

        Paul Brown
        Zero Point R&D
        3131 Harvard
        Boise, Idaho 83705
        USA   (208) 344-5485

Enclosed are some notes and materials outlining my work here. These materials will be made public by May 1984. It is of great importance for me to recieve your response (John Searl or family or whomever is running the organization). I have built the design I designate the 1952 generator (photo of armature 24 inches diameter is enclosed) and the pieces for the 1965 design are being machined now. In any case, these plans are to be included in my book(some of the notes are inclosed), unless you advise me otherwise. Enclosed are two international postage reply coupons, you have no excuse.

OFFICE:
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3131 Harvard
Boise, Idaho 83705

RESIDENCE:
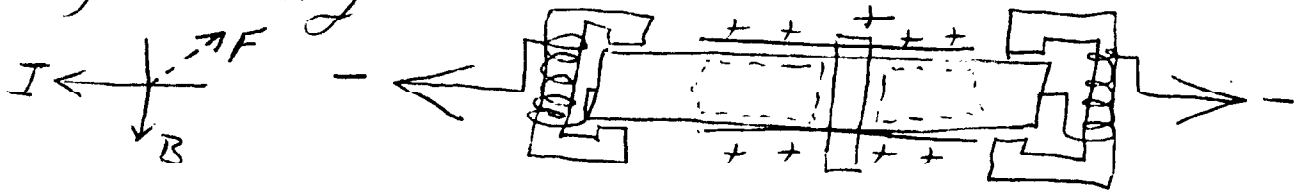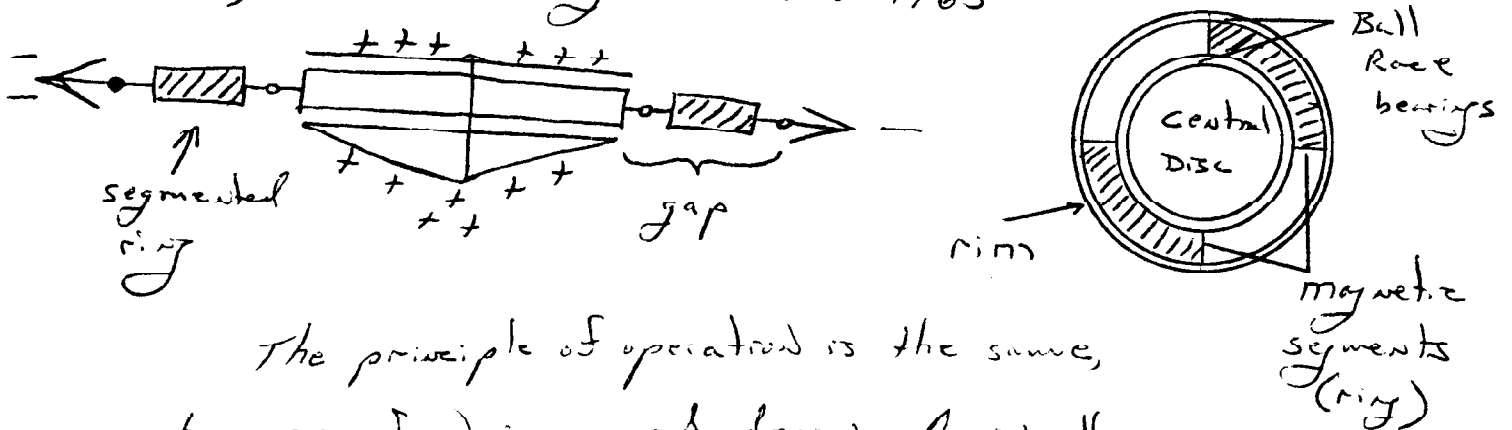(208) 352-4685
P.O. Box 146
Bliss, Idaho 83314

Plans for Searl Levity Disc-Generators
(A Homopolar/Electrostatic Machine)

1.) The first generator : 1952

A flywheel with permanent magnets imbedded in it to become
a homopolar disc generator. Positively charged stator plates
induce a negative charge in the armature to free electrons.
Current is directed through rim electromagnets, to produce
a magnetic field perpendicular to the current, on its
way to the rim electrode where electrons are sprayed away
as ions. Lorentz force drives armature.

2.) The second generation : 1965

The principle of operation is the same,
however of an improved design. As in all

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ZP

3-28-84

High voltage and homopolar machines; a large radius is necessary not a large diameter. The central disc is stationary while the segmented middle ring performes the same function as the armature in 1952. The lower stator plate is provided with a central point to allow positive ions to concentrate and ionize the air, producing thrust.

3.) The large disc design (big enough for a crew): 1971)

multi-segmented
Disc-rings ↓
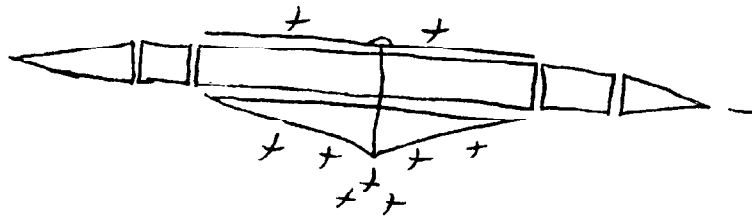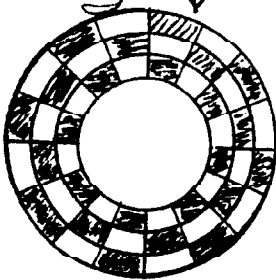
I am working on the blueprints for each of these designs now. But I am sure you can appreciate these sketches. My publisher eagerly awaits my final plans. The print is already in the word processor.

9-25-84

Dear Mr. Compton,

Due to the nature of this project; please keep the enclosed material confidential. We are building the craft as outlined elsewhere and , expecting some difficulties, I am seeking assistance from someone such as yourself (who has worked with Searl). As I told you on the phone; we are building a 36 inch diameter disc on a $ 10,000.00 budget. I already have the 32 samarium cobalt rare earth 18 permanent magnets ½ X ½ X 2 and SKF Bearing Co. is fabricating the ball-race bearings which should be ready in Dec.'84. The rotating annular ring is of aluminum ½ inch thick by 31.0 inch outside diameter and 26.0 inch inside diameter with 32 radial slots ½ X ½ X 2 to accomodate the alternately oriented permanent magnets. Housed within the craft body are 16 electromagnets each with a core measuring ½ X ½ X 2½ inch of M5 transformer silicon steel. The main body of the craft is electrically conductive as is the outer ring and the outer ring is electrically insulated from the craft main body.

The 16 electromagnets are pulsed and act as a stator to motorize the permanent magnets of the annular ring armature to a speed of 2,500 revolutions per minute (that is a tip speed of approximately 140 meters per second). Electrons migrate from the center towards the rim of the rotating conductive ring to produce a negative polarity at the rim and the positive polarity at the craft main body. The high frequency magnetic field produced by the rotating ring magnets induces eddy currents in the air which causes the air to ionize around the gap. The charge polarity produces a capacitor electric field at right angles to the moving magnetic field and the resultant Lorentz force aids in lifting the craft. The ionic thrust also adds to the lift of the craft.

Please consider the circuit of the motorizing circuit, this is a cloudy area in my design which I am shure we will work out quickly(there being only a few options) but I have yet to decide on what circuit to try first. If you would consider working as a consultant on this project we will negotiate an appropriate fee. However, I must ask that the details of this project be held in confidence with the exception of a disclosure to Dr. George White.

Please look over the enclosed plans carefully, and consider modifications and the motor circuit. I am awaiting your reply. We are making arrangements to meet with you personally but do not have a date as of yet. Please outline your experience with John Searl in your reply. Would you be willing to work with Searl on this project?

Sincerely,

Paul Brown

Enclosed are selected pages from my 75 page notebook. If you state your confidentiality in your reply, then I shall send the full & complete disclosure plus plans.

Nov. 3, 1986

Paul Brown
2702 Reno Way
Boise, ID 83704

Dear Brian,

I have had a new development here at Nucell. My resonant nuclear battery was successful in its analysis and testing by an independent agency which opened the door to a new group (the backers of the testing agent). After demonstrating the bench model to them, they have now provided 5 million in research and development funds. All of this is great for Nucell, but the implications for our project follow.

This group of investors is made up of ten of the wealthiest men in America (one is the president of a major oil company, another is the president of a major savings & loan bank, etc.). Not only can these guys provide financial backing, they also carry a lot of clout. They are well known-infuential people who want to remain behind the scene. In my case with the nuclear battery, I still own the major portion of it.

I have met another engineer/inventor associated with the group who has been working with them for more than seven years. This guy is still happy to work with them and he still reaps the rewards of his work.

Now, I spoke with their man about our project in private conversation and he strongly advised me to address the investor group on this issue. So, I did. I also showed photos of you and the flying model.
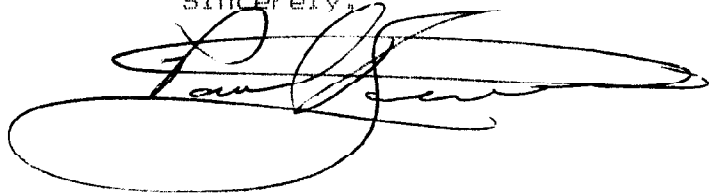
Here is the bottom line, if we can (or I should say, as soon as we can) demonstrate a small flying model (proof of feasibility) they will immediately put up 5 million in R&D money and are in a position to further fund up to 100 million for production/manufacture of any size craft. All the while, you still retain the major interest. Actually, they said I did not even have to provide a flying model, just something that would lift off the bench would be adequate.

We have a vehicle now available to us to achieve both our goals and more. The demonstration of an electrical craft to this group will be greatly more beneficial than the upcoming NEC show and will provide funds to make the NEC show an even bigger success. Together, we can do it! I will build the demo model (I already have most of the necessities) according to your instruction, and we will provide you with round trip air-fare to be present for the demonstration and testing. After this demonstration, we (you and I) will negotiate our contract with the group. Remember, at this point of negotiations, they have only seen the demonstration and have no idea of the technology involved. We still have the secret, and keep it even through the R&D stage. You stand to loose nothing (the demo model will probably be lost but I am paying all costs for it) and have everything to gain. We can set everything up in England, if

you wish, to conduct the R&D and manufacture of domestic power plants of various sizes, and flying craft. Lets do it, together.

I am too excited for words. We stand on the threshold of tomorrow with Searl Technology to benefit and improve the general well being of all of humanity. You asked me to join you "through development and beyond". The time is now!

Sincerely,

Dec. 1, 1986   Paul Brown
                                                2702 Reno Way
Brian Williams   Boise, ID 87304
DISC LTD   208-322-3498
Dear Brian,

        Enclosed is a copy of the letter I am sending to Mr.
Sandberg today and its enclosures.
        I must explain the confusion of the November phone call
I made to you. You see, in my last letter, I told you about
this group of investors and their engineer, Dave Farnsworth,
to whom I showed the photos of your flying disc but I gave
no technical data. I merely told him it was an
electro-dynamic craft and that its principle of operation
was relatively simple. He wanted to speak with you very
badly over the phone, and I made the mistake of telling him
I have your number. Well, we made the call so that he could
see that you really exist, but I left him under the
assumption that the disc consists of permanent magnets and
induction coils in resonance. I did not at any time even
hint at the true nature of the craft. Any way, it was for
his benefit that we called and he is more confused now than
ever. At this time, I feel this is best, for our own
protection.
        From the enclosed letter, you will see that the result
of my last series of tests yielded permanent magnets with a
strange fringing pattern apparently due to the field not
being fully saturated. Is this desirable? I figure it must
be and that the AC superposed field acts upon the
unsaturated magnetic field to produce pole patterns of Searl
Tech magnets.
        Thus far, we have been unable to observe any alteration
of the magnetic field due to the AC field on the spectrum
analyzer. I have come to the conclusion, this is due to the
AC winding not being resonant, which causes it to act as a
direct short. We are now designing the AC winding to be
resonant at 3 MHz. My question is, in your original tests,
was the 1 to 3 MHz frequency chosen by you before ever
trying the degausing coil or was the degausing coil AC
winding resonant at say 2.5 MHz and you applied your AC
current at this frequency? Again, it seems the latter must
have been the case because only at resonance are you going
to achieve currents of enough magnitude to effect the DC
field.
        Well, I received my passport this week. Now I will
schedule my trip. Is their anything you would like me to
bring with me?
        When you accepted me as your right-hand man, you still
have not defined how I may contribute to the cause. I
understand our goal to be; the introduction of Searl
Technology to the world for the betterment of mankind. What
can I do to help achieve this goal? I am sure you need some
help in preparing for the upcoming NEC show, and I will help
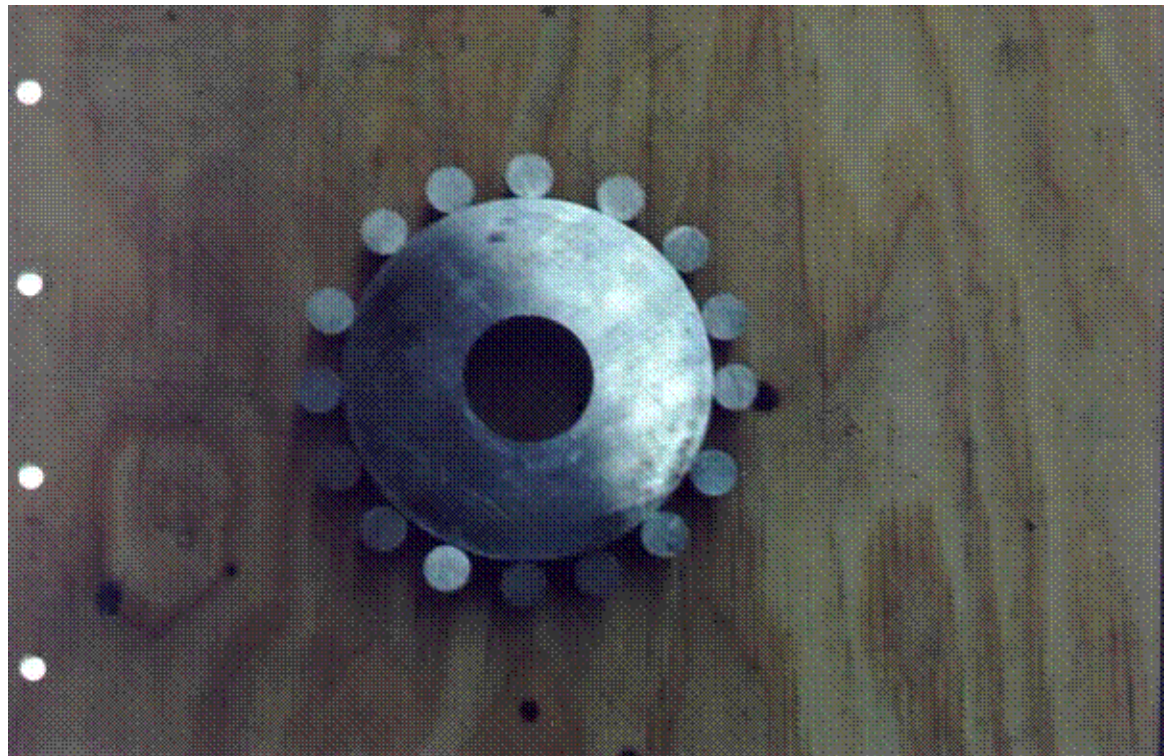in any way I can.
        I hope you were not offended by my last letter.

                                        Sincerely,
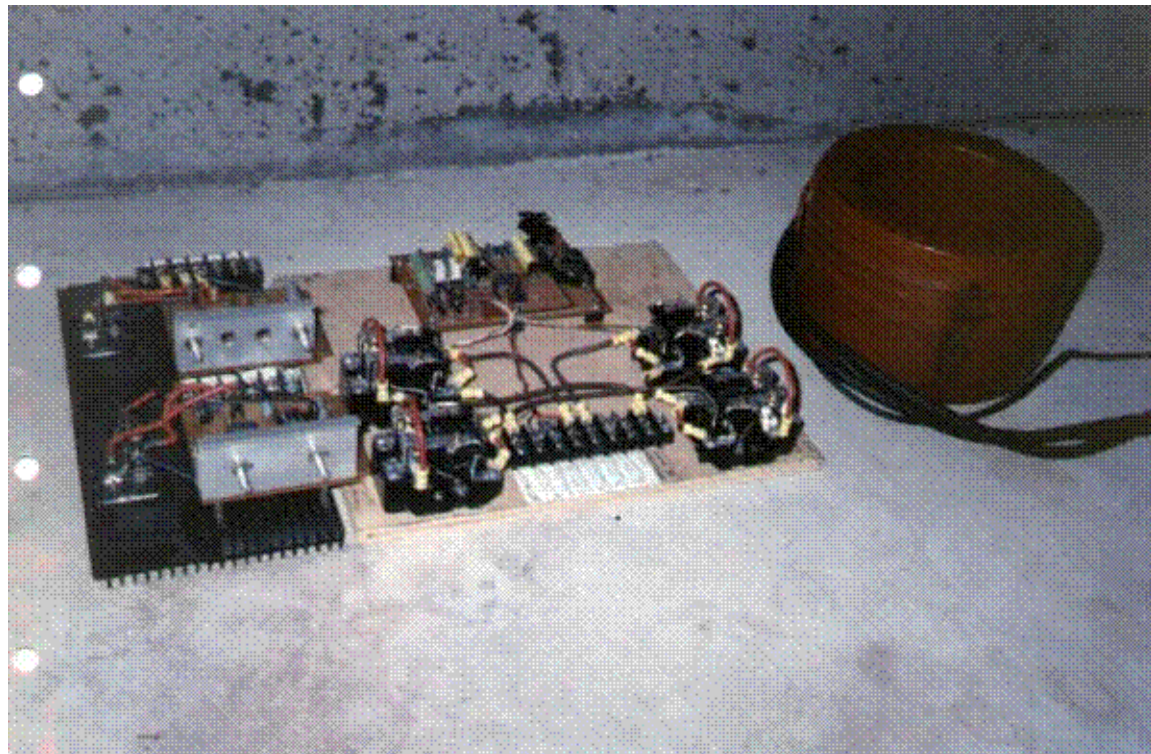
SCHOOL OF ENGINEERING
& APPLIED SCIENCES

UNIVERSITY OF SUSSEX

THE SEARL-EFFECT GENERATOR

Design and Manufacturing
Procedure

The contents of this document are confidential
and must not be disclosed to third parties.

S. Gunnar Sandberg

S. Gunnar Sandberg
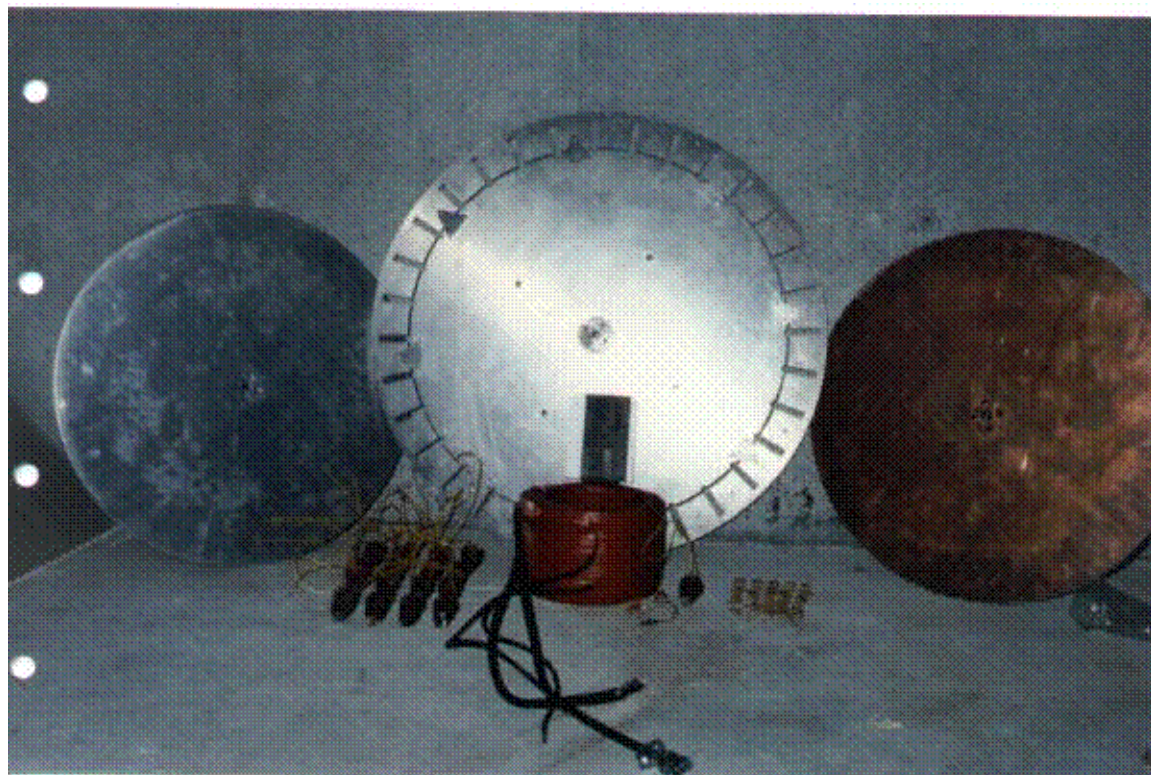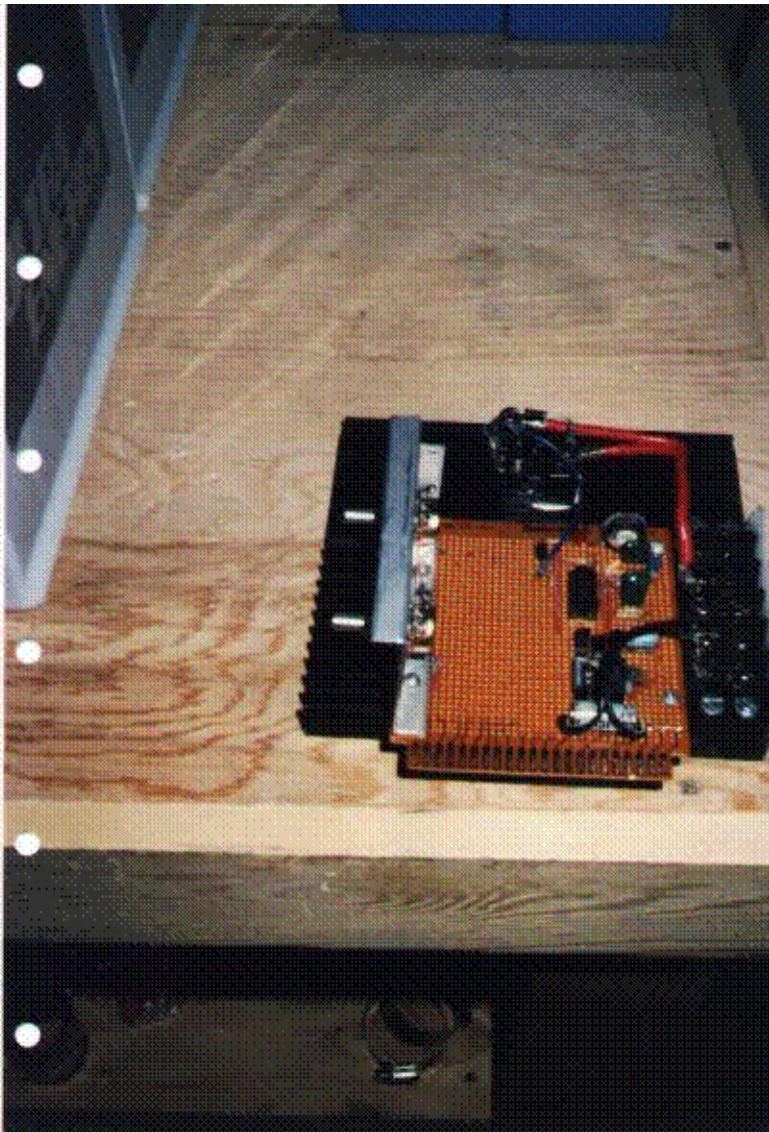School of Engineering &
Applied Sciences,
University of Sussex.

The Searl-Effect Generator

Design and Manufacturing Procedure

The objective of this report is to reconstruct the experimental work carried out between 1946 and 1956 by John R. R. Searl that concerns the geometry, materials used, and the manufacturing process of the Searl-Effect Generator (SEG).

The information given here is based on personal communication between the author and Searl and should be considered preliminary as further research and development may give reason to alter and/or update the content.

The Gyro-Cell

The SEG consists of a basic drive unit called the Gyro-Cell (GC) and, depending on the application, is either fitted with coils for generation of electricity or with a shaft for transfer of mechanical power. The GC can also be used as a high voltage source. Another and important quality of the GC is its ability to levitate.

The GC can be considered as an electric motor entirely consisting of permanent magnets in the shape of cylindrical bars and annular rings.

Fig. 1 shows the basic GC in its simplest form, consisting of one stationary annular ring-shaped magnet, called the plate, and a number of moving cylinder-shaped rods called runners.
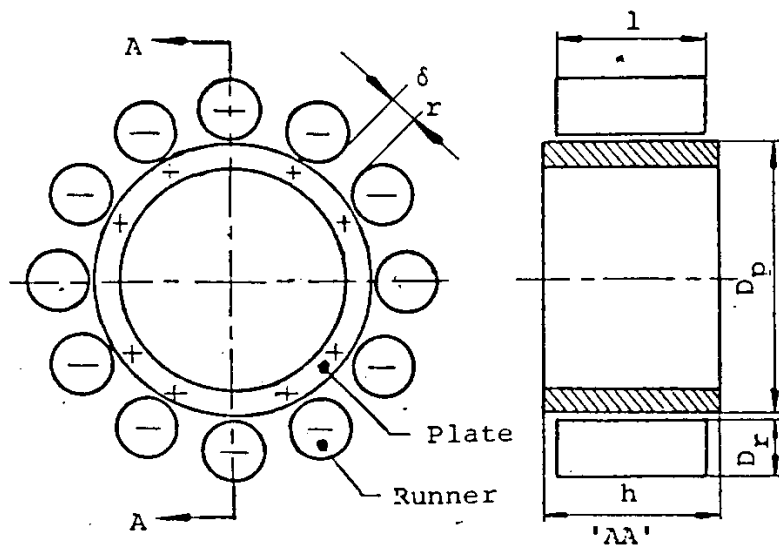

Figure One

During operation each runner is spinning about its axis and is simultaneously orbiting the plate in such a manner that a fixed point p on the curved runner surface traces out a whole number of cycloids during one revolution round the plate, as shown by the dotted lines in fig. 2.
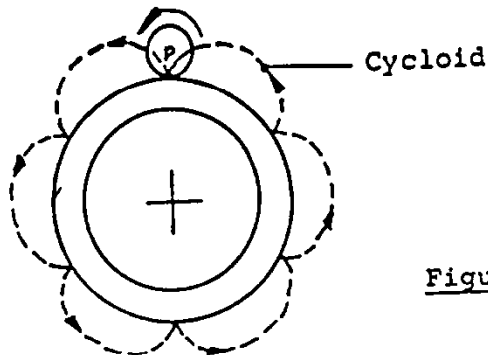
Cycloid

Figure two

Measurements have revealed that an electric potential difference is produced in the radial direction between plate and runners; the plate being positively charged and the runners negatively charged, as shown in fig. 1.

In principle, no mechanical constraints are needed to keep the GC together since the runners are electromagnetically coupled to the plate. However, used as a torque producing device, shaft and casing must be fitted to transfer the power produced. Furthermore, in applications where the generator is mounted inside a framework, the runners should be made shorter than the height of the plate to prevent the runners from catching the frame or other parts.

When in operation, gaps are created by electromagnetic interaction and centrifugal forces preventing mechanical and galvanic contact between plate and runners and thereby reducing the friction to negligible values.

The experiments showed that the power output increases as the number of runners increase and to achieve smooth and even operation the ratio between external plate diameter D_p and runner diameter D_r should be a positive integer greater than or equal to 12. Thus

$$\frac{D_p}{D_r} = N \geqslant 12 \ (N = 12, 13, 14, \ldots) \tag{1}$$

The experiments also indicated that the gaps δ_r between adjacent runners should be one runner diameter D_r as shown in fig. 1.

More complex Gyro-Cells can be formed by adding further

plate GC consisting of three sections, A, B and C. Each section consists of one plate with corresponding runners.
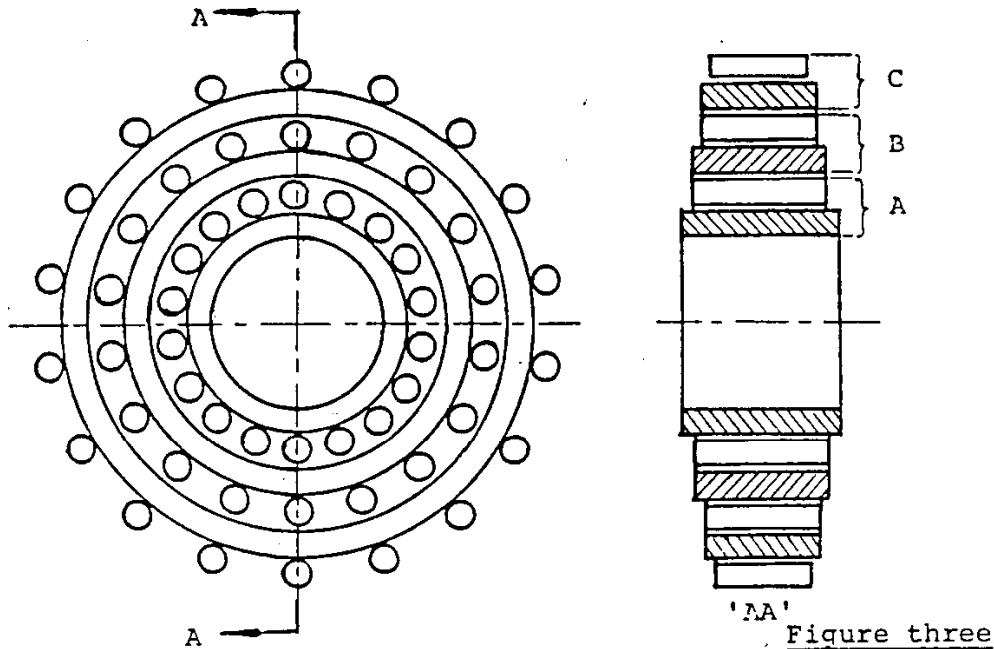

'AA' Figure three

The experiments showed that for stable and smooth operation all sections should be of equal weight. Thus

$$W_A = W_B = W_C \tag{2}$$

where

W_A = weight of section A,

W_B = weight of section B,

and W_C = weight of section C.

The Magnetic Field Configuration

Due to a combined DC and AC magnetising process, each magnet acquires a specific magnetic pole pattern recorded on two tracks consisting of a number of individual north-poles and south-poles, as illustrated in fig. 4.

Magnetic measurements have revealed that the poles are approximately one millimetre across and evenly spaced. It was also found that the pole density δ - defined as the total number of poles N per track divided by the circumference, πD - must be a constant factor specific for a particular generator. Thus

$$\delta = \frac{N_p}{\pi D} = \frac{N_r}{\pi D} = constant \tag{3}$$

where N_p is the total number of poles per track on plate and N_r is the total number of poles per track on runner.
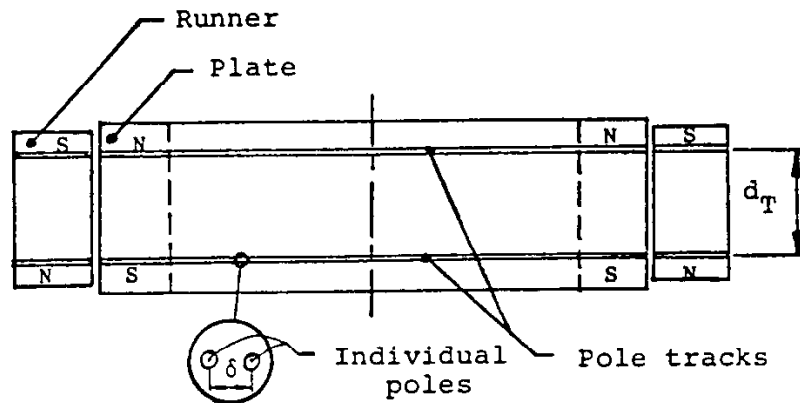

Figure four

Furthermore, the distance d_T between the two pole tracks must be the same for all runners and plates which are parts of the same GC.

The pole tracks allow automatic commutation to take place and create a turning moment. Exactly how this is achieved is not understood and will require further research efforts. Likewise, the source of energy is at present unknown. Further research is also needed to establish the exact mathematical relationship between output power, speed; geometry and material properties, such as mass density and electromagnetic properties of the materials used.

Magnetic Materials

The magnets used in the original experiments were made of a mixture of two types of ferromagnetic powders imported from the USA. One of these magnets, still in existence, has been qualitatively analysed and was found to contain the following elements:

1. Aluminium   (Al)
2. Silicon   (Si)
3. Sulphur   (S)
4. Titanium   (Ti)
5. Neodymium   (Nd)
6. Iron   (Fe).

The spectrogram is illustrated in fig. 5.
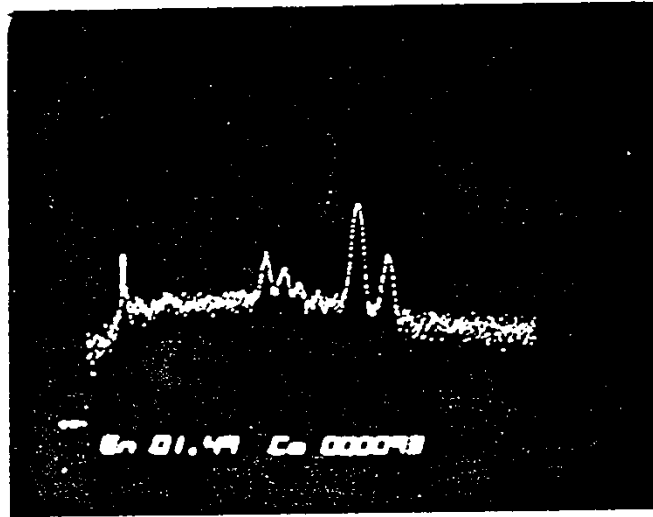
Figure five

The Induction Coils

If the SEG is used as an electric power plant a number
of induction coils must be fitted to the GC.   The coils
consist of C-shaped cores made of soft steel (Swedish steel)
or high μ-material (mμ-metal).   The number of turns and wire
gauge used depends on the application.   Fig. 6 shows the
basic design.
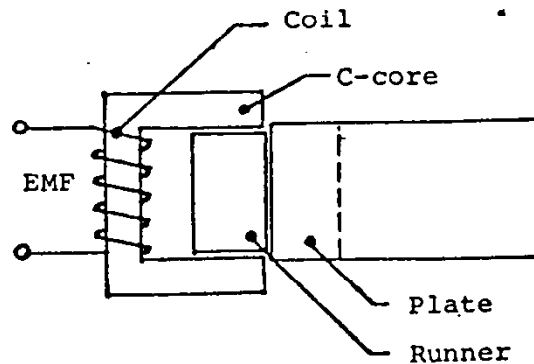
Figure six

Manufacturing Procedure

The block diagram in fig. 7 illustrates the main stages
in the manufacturing process.

Stage 1   Magnetic materials and bonding agents

magnetic raw materials to be cheaper and/or more efficient than the ones used in the original experiments. It is also possible that other types of binder may improve the performance.

Stage 2   Weighing

In general, to produce efficient magnets the right amount of each element contained in the ferromagnetic powder is crucial. It is therefore reasonable to suggest that when mixing different types of powders an optimal weight ratio does exist that will produce a 'best' magnet.

At present, however, this weight ratio is not known for the powders used by Searl in his past experiments. Together with new magnetic materials and optimisation of generator geometry, this is an area in which research efforts could be profitable.

In general, the amount of binder used should be as small as possible to achieve maximum mass density of bonded magnets. However, the possibility that the binder is taking an active part in the generation of the Searl-Effect must not be excluded. For instance, the dielectric properties of the binder may play an active role in the electromagnetic inter-actions taking place in the SEG. If that is the case, then a further amount of bonding material may be beneficial.

Stage 3   Mixing

The mixing is an important process which will decide the homogenity and reliability of the finished product. A homogeneous mixture can be achieved by using turbulent air flow inside the mixing container.

The experiments did show that an improved performance was achieved if all magnets for the same generator were made from the same batch.

Stage 4   Moulding

During the moulding process the compound - consisting of ferromagnetic powders and thermoplastic binder - is compressed and simultaneously cured by heating. Fig. 8 illustrates the tool used for making 'blinds'. A 'blind' is an unmagnetized runner or plate/part of plate. When manufacturing large plates ($D_D > 30$ cm) it may be necessary to make them in segments rather than in one piece.

Manufacturing Process

Selection of magnetic materials	→	Weighing	→	Mixing	→	Moulding
Stage 1		Stage 2		Stage 3		Stage 4

Inspection	←	Magnet- ization	←	Inspection	←	Machining
Stage 8		Stage 7		Stage 6		Stage 5

Assembling	→	Final Control
Stage 9		Stage 10

Figure seven

F

Steel plunger
Steel cylinder
Ceramic insulation
Steel body
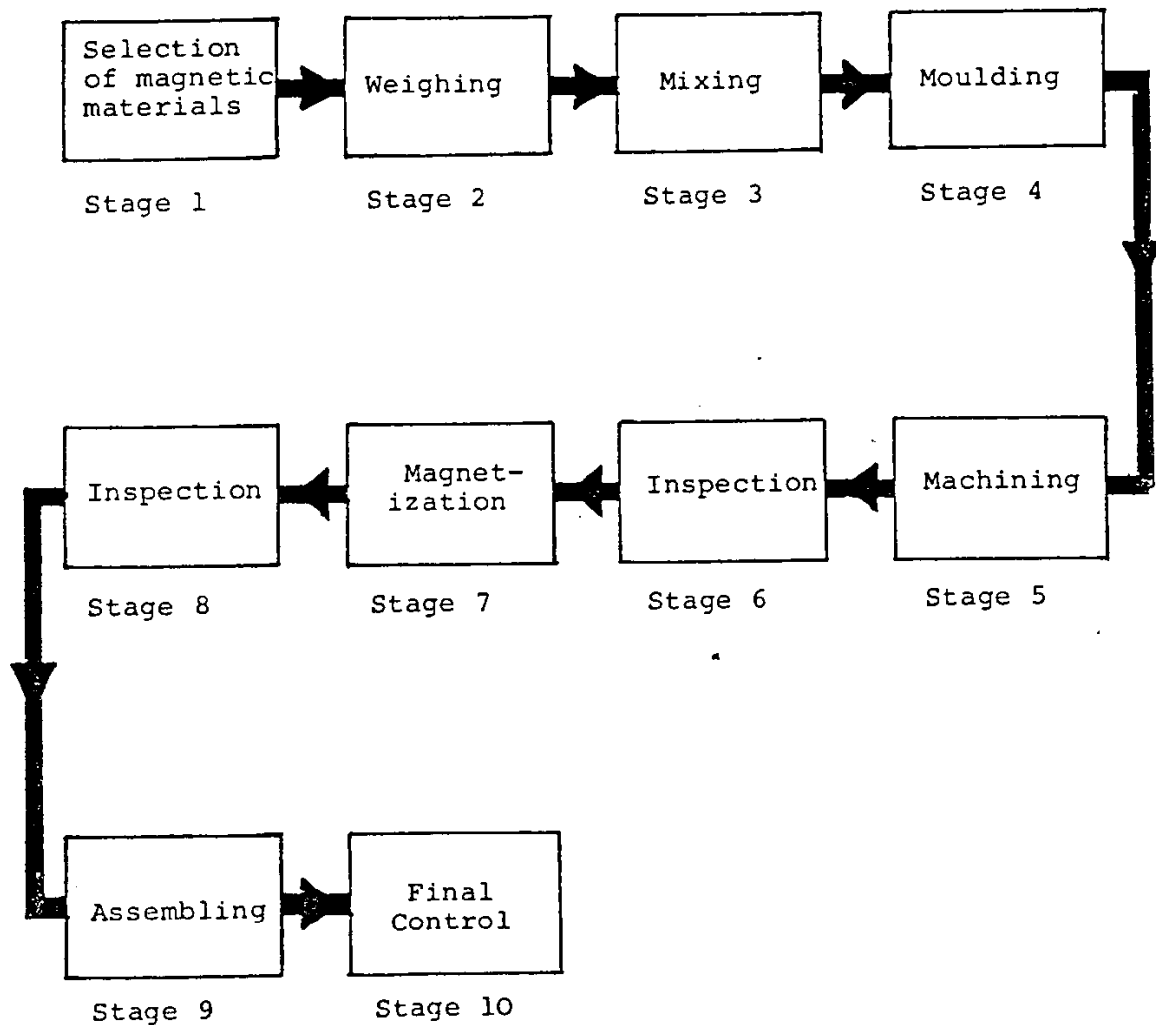
Water cooling
chamber
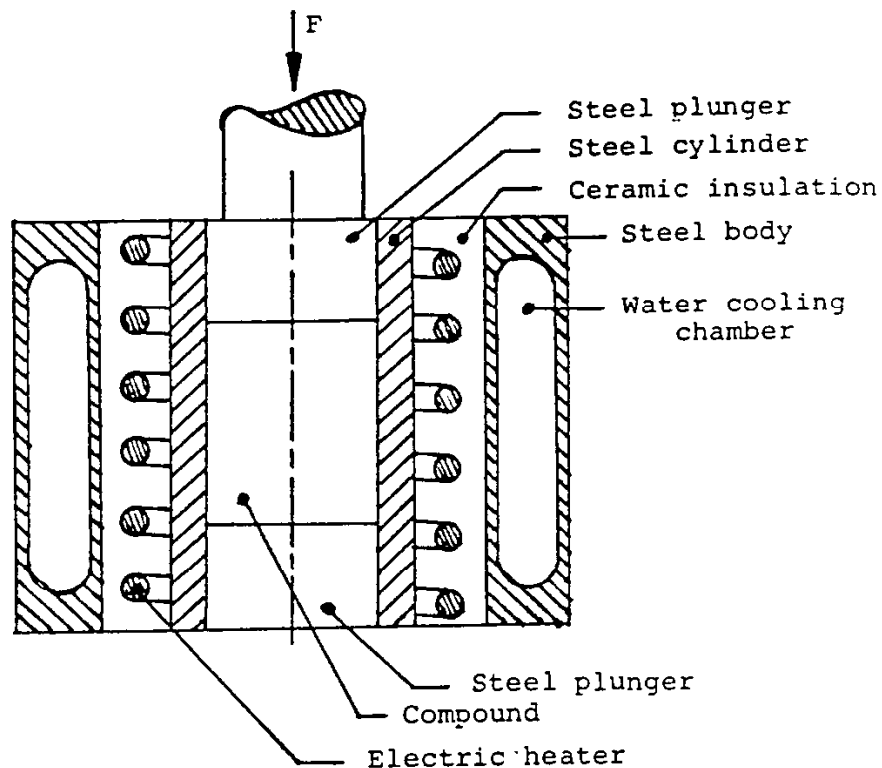
Steel plunger
Compound
Electric heater

<u>Figure eight</u>

The figures given below should be considered as guide
lines only, since correct data are not available
regarding the influence of the moulding process on
the Searl-Effect.

1. Pressure: 200-400 bars
2. Temperature: 150°C-200°C
3. Compression time: ≳ 20 minutes.

Before releasing the pressure the mould must be
allowed to cool.

Stage 5   <u>Machining</u>

This process can be bypassed if the weighing and
moulding procedures are carried out correctly.
However, it may be necessary to polish the cylindrical
surface of runners and plates.

Stage 6   <u>Inspection</u>

Control of dimensions and surface finish.

Stage 7   <u>Magnetization</u>

Runners and plates are individually magnetized in a
combined dc-field and ac-field during one on-off duty
cycle.   Fig. 9 illustrates the magnetizing circuit.
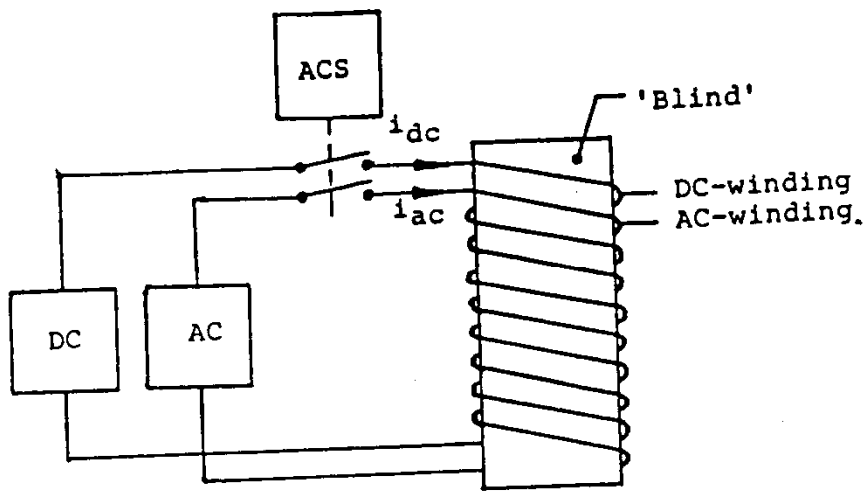
<u>Figure nine</u>

The function of the automatic control switch (ACS)
is to simultaneously switch on the dc-current,
i_{dc} and the ac-current, i_{ac} at such a time, $t = t_{on}$,
that the instantaneous value of the total magneto-
motive force (MMF) is always positive.   Thus

$$MMF = i_{dc}N_1 + i_{ac}N_2 \geqslant 0$$

where N_1 is the number of turns in the dc-winding
and N_2 is the number of turns in the ac-winding.

Fig. 10 shows the total MMF as a function of time.
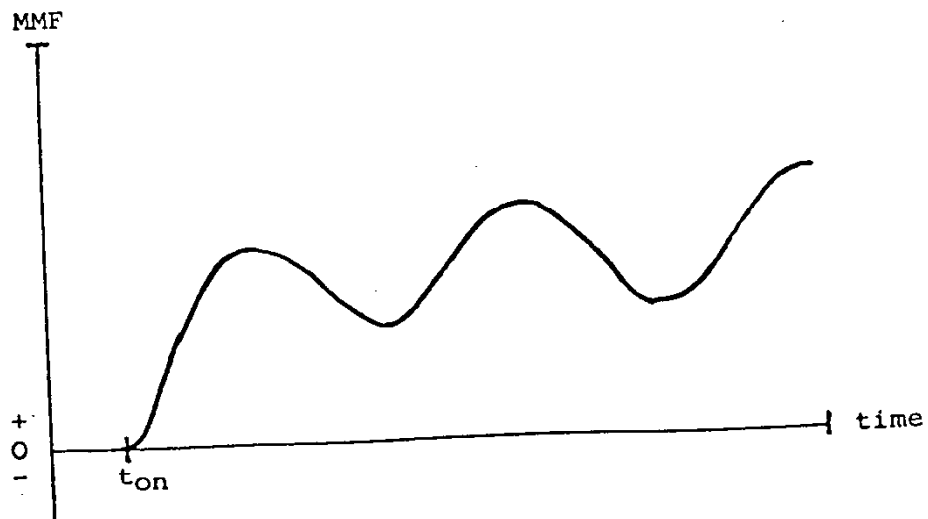
The magnetization coil consists of a dc-winding containing approximately 200 turns of heavy copper wire and an ac-winding containing approximately 10 turns of copper strip wound on top of the dc-winding. Fig. 11 shows a cross section of the coil and its dimensions.
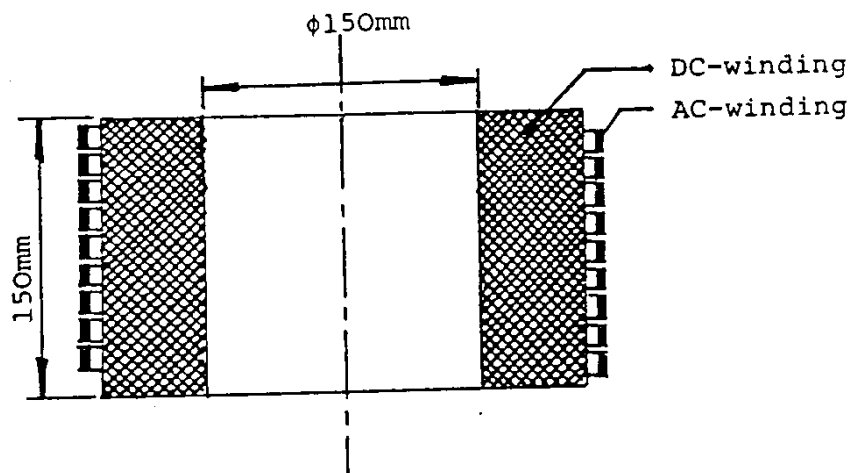
Figure eleven

Recommended parameter values:

dc-current, i_{dc} = 150A to 180A
ac-current, i_{ac} = unknown
frequency, f = 1 - 3 MHz.

Stage 8   Inspection

The purpose of this control is to test for the existence of and the correct spacing of the two pole tracks. The measurements can be made with a magnetic flux density meter in combination with a set of control magnets.

Stage 9   Assembling

The assembling procedure depends on the application. Used as a mechanical drive unit the magnets must be mounted inside a framework and fitted to a drive shaft. Used as an electric power plant, induction coils must be fitted to the framework.

Equipment used by Searl

Hand-press No data available.   Used for making plastic bonded blinds.

Magnetising equipment

DC-coil Consisted of approximately 200 turns of insulated heavy cooker wire. The coil had been used for degaussing turbine and generator shafts.

AC-coil Consisted of 5 to 10 turns of copper wire wound on top of DC-coil.

DC-switch Hand operated.

AC-switch Hand operated.

The two switches were connected together mechanically and operated simultaneously.

DC-source Westinghouse 415V, 3-phase 50Hz mercury rectifier, o/p 180A, voltage unknown.

AC-source Marconi Signal Generator type TF867, o/p $0.4\mu V$-4V, $Z = 75\Omega$, o/p from 2-4V.

An Analysis Of The Resultant Magnetizing Field Generated By Superimposing An Alternating Current and An Exponentially Increasing Direct Current In A Coil With Two Windings.

General Considerations.

The coil consists of two windings. Winding 1 carrying the dc-current and winding 2 carrying the ac-current. see fig. 1.
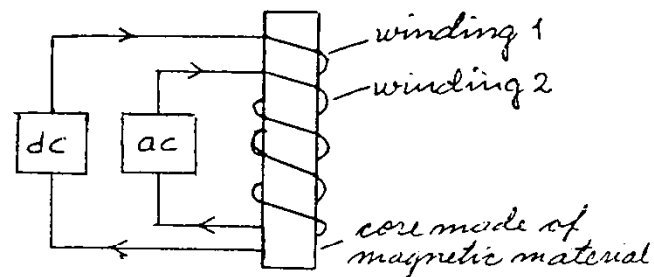
Fig. 1

N_1 = Number of turns in winding 1 (t)

N_2 = Number of turns in winding 2 (t)

R_1 = Resistance in winding 1 (ohms) (Ω)

R_2 = Resistance in winding 2 (ohms) (Ω)

L_1 = Inductance in winding 1 (Henrys) (H)

L_2 = Inductance in winding 2 (Henrys) (H)

U_{dc} = DC - voltage (Volts) (Potential difference) (V)

U_{ac} = AC - voltage (Volts) (Potential difference) (V)

i_{dc} = Instantaneous value of dc - current (Amperes) (A)

i_{ac} = Instantaneous value of ac - current (Amperes) (A)

t = time (Seconds) (s)

f = Frequency of the AC - voltage (Hertz) (H_z or c/s)

T = Periodic time (Seconds) (s)

ω = Angular velocity (Radians/second) (Rad/s)

H = Magnetizing field (Amperes/meter) (A/m)

B = Magnetic induction (Weber/meter^2) (Wb/m^2)

μ = Magnetic permeability (Henrys/metre) (H/m)

IN = Magnetomotive force (ampereturns) (At)

We neglect the mutual inductance M and the capacitance of the windings.

The equation describing the resultant magnetizing field $H_{res.}$ is found by first solving the differential equations governing the currents in the coil.

The DC-circuit, (Fig. 2).

At the time $t = t_{ON}$ a voltage $U_{dc} = $ constant, see fig. 2, is supplied to winding 1 and the instantaneous current i_{dc} is governed by the differential equation

$$\frac{di_{dc}}{dt} + \frac{R_1}{L_1} i_{dc} = \frac{U_{dc}}{L_1} \quad \dots \dots \dots \quad (1)$$
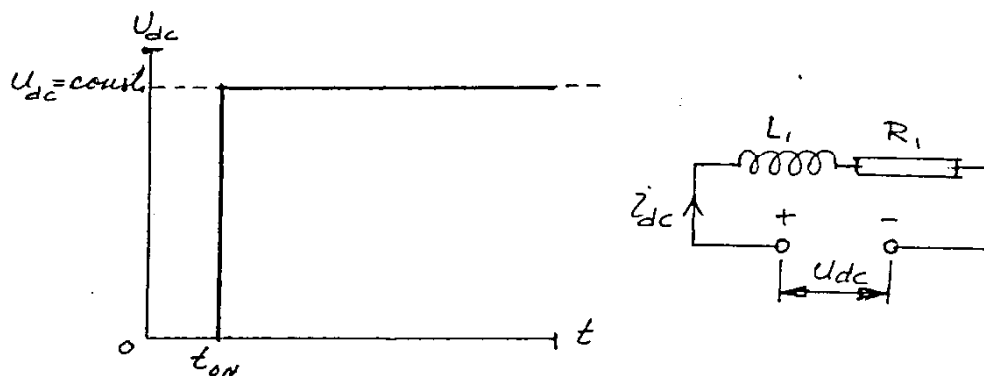

Fig. 2

The solution of the diff. equation 1 is the well known exponential increase of the current i_{dc} from the time $t = t_{ON}$, see fig. 3, and equation 2.

$$i_{dc} = \frac{U_{dc}}{R_1}\left(1 - e^{-\frac{R_1}{L_1}(t - t_{ON})}\right)$$
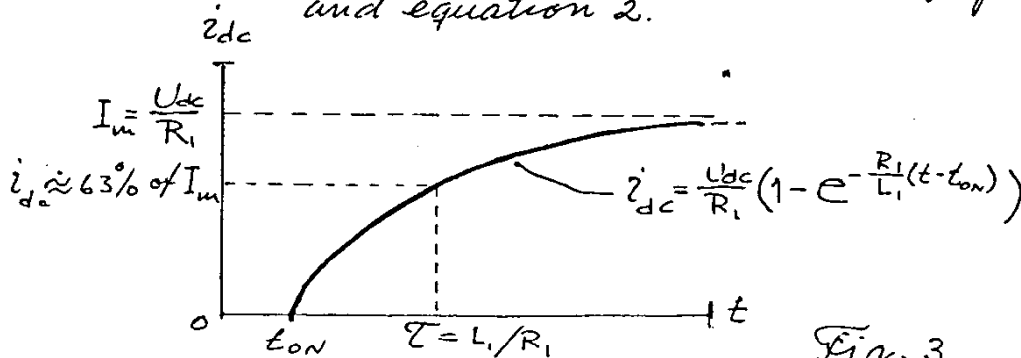
Fig. 3

$$i_{dc} = \frac{U_{dc}}{R_1}\left(1 - e^{-\frac{R_1}{L_1}(t-t_{on})}\right) \quad \ldots\ldots\ldots (2)$$

The AC-circuit.

At the time $t = t_{on}$ a voltage $U_{ac} = \hat{U}\sin\omega t$ is applied to winding 2, see fig. 4. In this case the instantaneous current i_{ac} is governed by the differential equation

$$\frac{di_{ac}}{dt} + \frac{R_2}{L_2} i_{ac} = \frac{\hat{U}}{L_2}\sin\omega t \ldots\ldots\ldots (3)$$
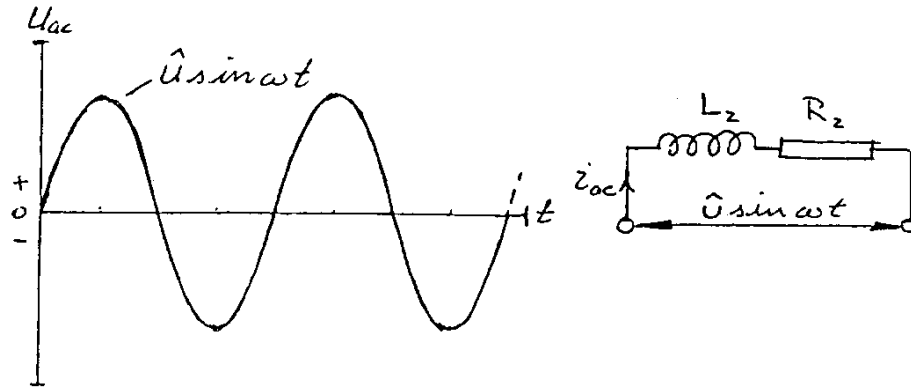
Fig. 4

The solution of differential equation (3) is a sum of a transient current, here

$$-\frac{\hat{U}}{\sqrt{R_2^2 + \omega^2 L_2^2}}\, e^{-\frac{R_2}{L_2}(t-t_{on})}\sin\left(\omega t_{on} - \arctan\frac{\omega L_2}{R_2}\right)\ldots (4)$$

see fig. 5, and a steady state current

$$\frac{\hat{U}}{\sqrt{R_2^2 + \omega^2 L_2^2}}\sin\left(\omega t - \arctan\frac{\omega L_2}{R_2}\right)\ldots\ldots\ldots (4a)$$

see fig. 6

$$-\frac{\hat{U}}{\sqrt{R_2^2+\omega^2 L_2^2}}\, e^{-\frac{R_2}{L_2}(t-t_{on})}\sin(\omega t_{on}-\arctan\frac{\omega L_2}{R_2})$$

Fig. 5

$$\frac{\hat{U}}{\sqrt{R_2^2+\omega^2 L_2^2}}\sin(\omega t-\arctan\frac{\omega L_2}{R_2})$$
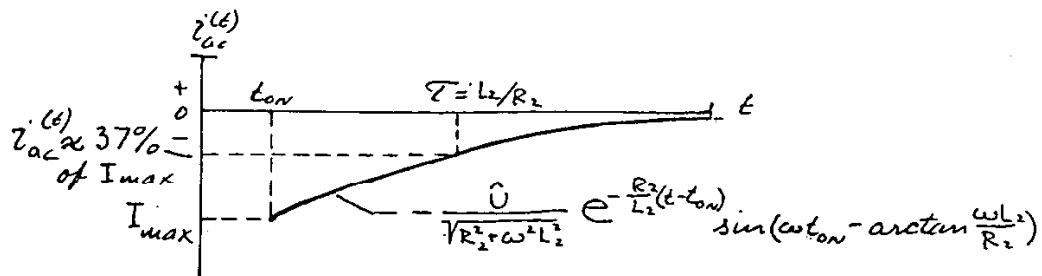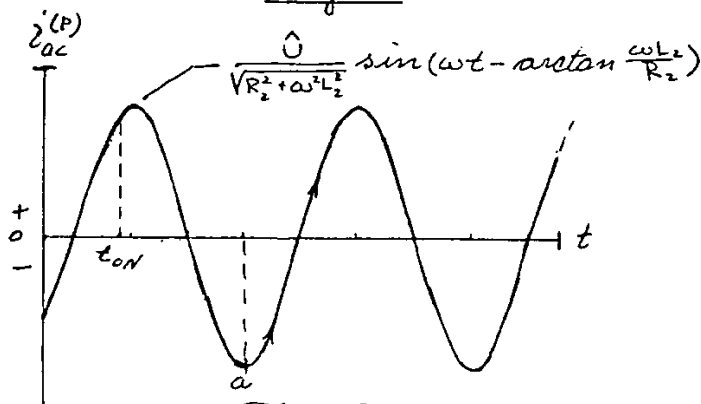
Fig. 6

The sum $i_{ac}^{(t)}+i_{ac}^{(P)}$ which is the true ac-current in the coil* is shown in fig. 7.
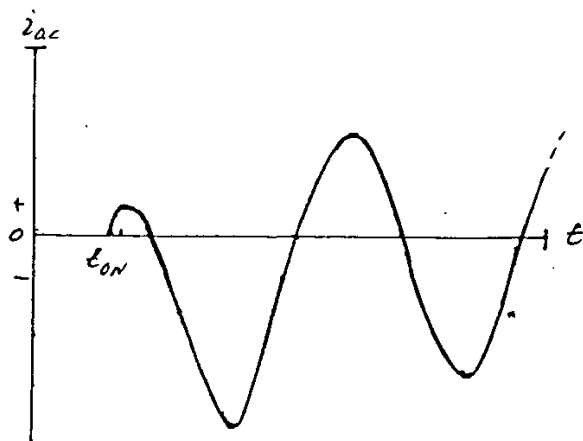
Fig. 7

* Should be winding 2.

The Magnetizing Field.

The total number of ampere turns $IN = i_{dc}N_1 + i_{ac}N_2$ will produce a resultant magnetizing field H_{res} of the form shown in fig. 8
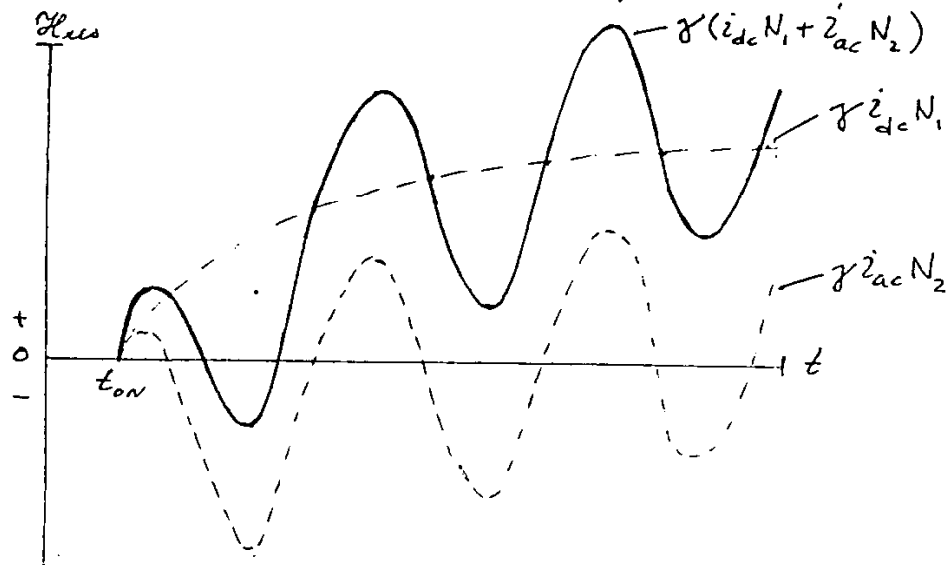
Fig. 8

Thus $H_{res} = H_{ac} + H_{dc} = \gamma(i_{dc}N_1 + i_{ac}N_2) \dots \dots (5)$

Here, γ is a proportionality factor depending on the geometry of the magnetic circuitry. The curve form in fig. 8 represents the case when the time constant $\tau_1 = L_1/R_1$ of winding 1 is of the same order of magnitude as the periodic time $T = 1/f$ of the alternating current and when the number of ampereturns $i_{dc}N_1$ in winding 1 is of the same order of magnitude as the number of ampereturns $i_{ac}N_2$ in winding 2, i.e.

$$\frac{L_1}{R_2} \sim \frac{1}{f} \quad \text{and} \quad i_{dc}N_1 \sim i_{ac}N_2$$

This case illustrates most clearly the general details of the grows of the magnetizing field.

During the magnetization process the field $H_{res.}$ creates a magnetic induction $B = \mu H_{res.}$ in the magnetic material with a number of minor hysteresis loops superimposed on the virgin curve, see fig. 9
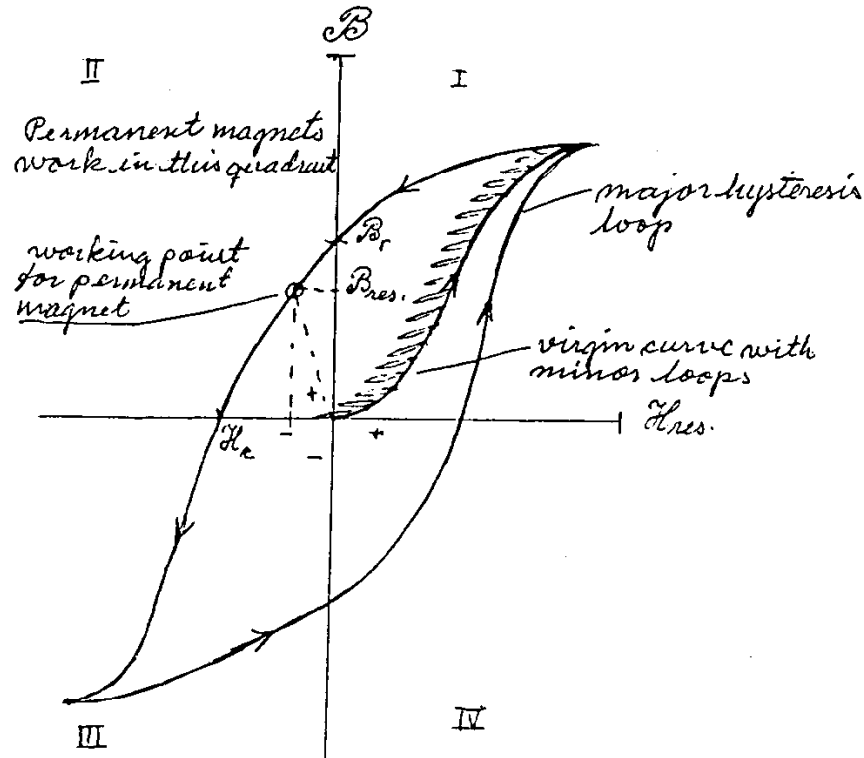
Fig. 9

Fig. 10 shows a more detailed picture of how the first few minor loops are generated.
To gain an understanding of the mechanism responsible for the Seast-Effect we must investigate what happen to the minor loops when the magnetizing field $H_{res.}$ is switched off, i.e. $H_{res.} = 0$ and the major hysteresis loop moves into the second quadrant creating a permanent magnetic induction $B_{residual}$, see fig. 9.

$\mathcal{B}$

virgin curve

minor loops

$\mathcal{H}_{us.}$

Fig. 10

t and $-\mathcal{B}$ along
the same axis
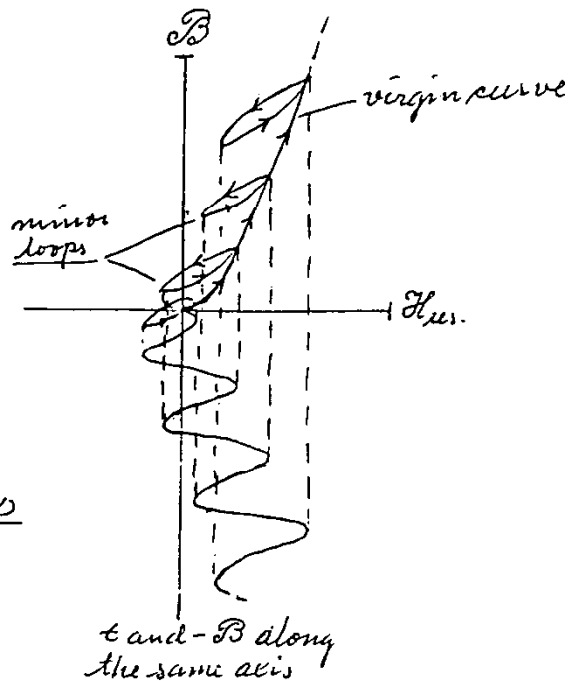
According to your experience the conditions
imposed on the switch should be such that the
dc-current i_{dc} and the ac-current i_{ac} are switched
on simultaneously at such a time $t = t_{on}$ that
their total magnetomotive force $i_{dc}N_1 + i_{ac}N_2$ is
increasing in the positive direction and never
allowed to become negative see fig. 11a.

$i_{dc}N_1 + i_{ac}N_2$

+
o
-

t_{on}

t
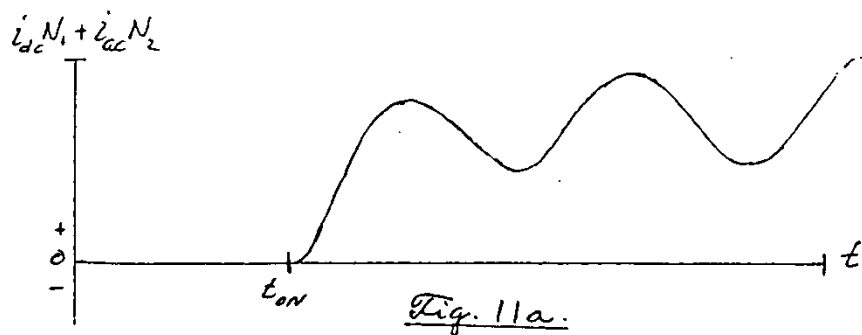
Fig. 11a.

or expressed in mathematical terms

$$i_{dc}N_1 + i_{ac}N_2 \geqslant 0 \ldots \ldots \ldots (6)$$

this can be achived by switching on the
voltage sources when the steady state ...... cont'd

Fig. 11b

U_{ac} — $\hat{u}\sin\omega t$

Reference point

t_{on}

$\frac{1}{\omega}\left(\frac{3\pi}{2}+\arctan\frac{\omega L_2}{R_2}\right)$

Fig. 11c

$N_2 i_{ac}$

$N_2\hat{I}\left\{\sin\left(\omega t-\arctan\frac{\omega L_2}{R_2}\right)-e^{-\frac{R_2}{L_2}(t-t_{on})}\sin\left(\omega t_{on}-\arctan\frac{\omega L_2}{R_2}\right)\right\}$

These parts must be cancelled by $i_{dc}N_1$, see fig. 11e.

Fig. 11d

U_{dc}

$U = constant$

Fig. 11e

$N_1 i_{dc}$

$\frac{U_{dc}}{R_1}\left(1-e^{-\frac{R_1}{L_1}(t-t_{on})}\right)N_1$
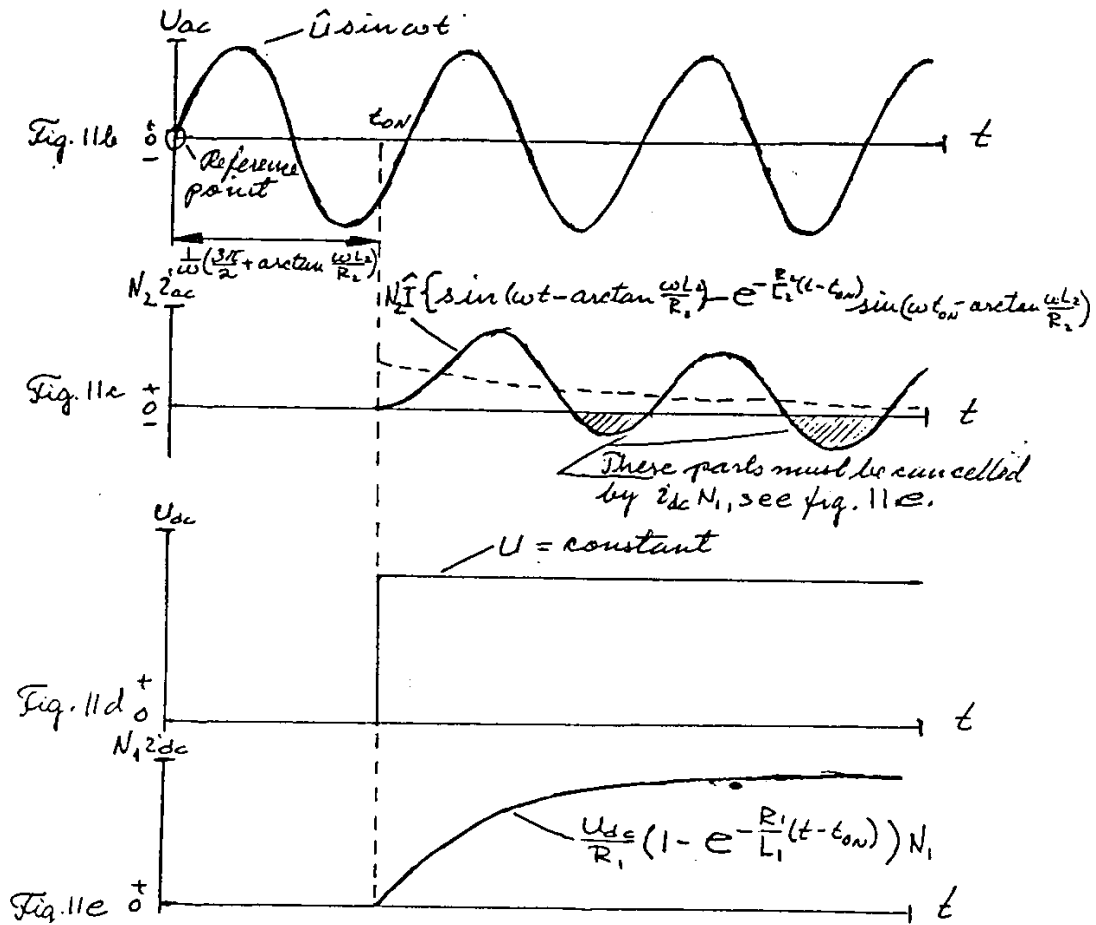
current $i_{ac}^{(p)}$ is beginning to grow in the positive direction, see point a in fig. 6.
Let us choose as a reference point the zero-crossing of the ac-voltage, $\hat{u}\sin\omega t$, when the voltage is increasing in the positive direction from a negative to a positive value, e.g. the origin of the co-ordinate system in fig. 11b. t_{on} can then be expressed in terms of L_2, R_2 and f, thus

$$t_{on} = \frac{1}{2\pi f}\left(\frac{3\pi}{2}+\arctan\frac{2\pi f L_2}{R_2}\right)\quad\ldots(7)$$

The equation (7) is a necessary but not a sufficient condition to satisfy the inequality (6). Another, additional requirement is that the magnetomotive force, $i_{dc} N_1$ is growing fast enough to cancel the negative parts of $i_{ac} N_2$, see 11c and 11e.

The Magnetizing Coils Used For Production Of "High Energy Density" Magnets.

Based upon the information you gave me I have designed a set of magnetizing coils for the runners and the plate with the following specifications.

1. General Design Data.

The coils each consists of two identical windings. Each winding contains N turns of insulated metal strip of rectangular cross-section, $t \times w$, see fig. 12 Insulation thickness is denoted by t_i.
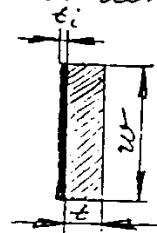
Fig. 12
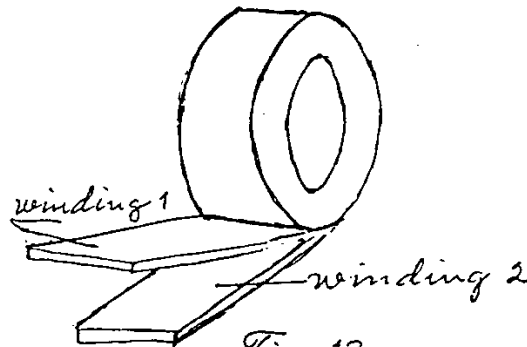
Fig. 13

The two metal strips are wound together around a cylindrical or annular body in a similar fashion as a paper insulated aluminium foil capacitor is made, see fig. 13.

Assume N turns are needed. We can then calculate the dc-resistance in each winding by using the well-known formula

$$R_{dc} = \frac{\rho \times l}{A} \quad \ldots \ldots \ldots \ldots \quad (8)$$

However, we must remember that this value of R is strictly valid only for direct current. Alternating current produces skin-effect that can increase the dc-resistance many times at higher frequencies.

When appropriate strip dimensions, t × w have been selected, the length l of each metal strip can be found by first calculating the average diameter Davg of the coil. see fig. 14.
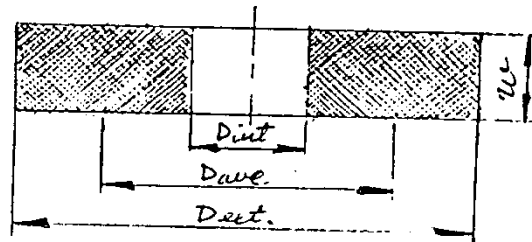
Fig. 14

D_{int} = internal diameter,
D_{ave} = average diameter,
D_{ext} = external diameter,
t = thickness of metal strip,
t_i = insulation thickness,
w = width of metal strip,
N = number of turns per winding,
l = length of metal strip in each winding.

$$D_{ave} = \frac{D_{int} + D_{ext}}{2} = 2N(t + t_i) + D_{int}$$

thus $l = N\pi D_{ave} = N\pi \{2N(t + t_i) + D_{int}\}$

and $R = \frac{\rho N\pi}{t w} \{2N(t + t_i) + D_{int}\}$ . . . . . . (9)

here, ρ = resistivity of the metal used.

in fig. 16)

These dimensions of the "one-ring" generator are in agreement with your specifications of the 15th of August, 1982.

Two coils (A and B) each with two identical windings, are needed to magnetize the runners see fig. 17:
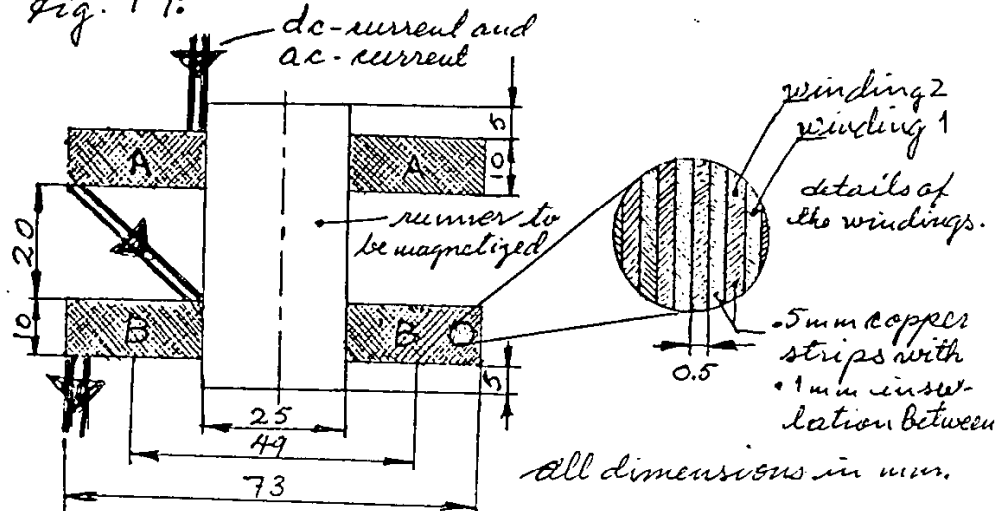
Fig. 17

$D_{int} = 25\,mm$

$D_{ave} = 49\,mm$

$D_{ext} = 73\,mm$

$t = 0.5\,mm$

$t_i = 0.1\,mm$

$w = 10\,mm$

$N = 20\,turns\,in$ each winding

$l = 3079\,mm$ in each winding.

$R_{dc} = 0.011$ ohms if copper strips are used

$L = 50\,\mu H$

$I_{dc} = 30\,A$

$\hat{I}_{ac} = 50\,mA$

$X_L \approx 314\,\Omega$

The inductance of each winding is 19.3 μH according to the formula for a single air loop. However, the magnetic material in the core will increase the value of L, let us say 50 μH.

If we use frequencies between 1 MHz and 3 MHz the inductive reactance $X_L = \omega L = 2\pi f L$ will be considerably greater than the resistance, i.e. $\omega L \gg R_{dc}$ even if we take the skin effect into account. At 1 MHz we have

$$X_L = 2\pi \times 10^6 \times 50 \times 10^{-6} \approx 314\ ohms.$$

Due to the assumption that the dc-winding is identical to the ac-winding we have

$$N_1 = N_2 = N$$
$$R_1 = R_2 = R$$
$$L_1 = L_2 = L$$

To simplify the calculations we neglect the skin effect since it does not contribute any new knowledge regarding the magnetization process.

Equation (5) for the resultant magnetizing field $\mathcal{H}_{res}$. generated by the currents in the coil can now be written in the following, simplified form

$$\mathcal{H}_{res} = \gamma \left\{ \frac{U_{dc}}{R}(1 - e^{-\frac{R}{L}t}) + \frac{\hat{U}}{\omega L}(e^{-\frac{R}{L}t} - \cos\omega t) \right\} N \dots\dots (13)$$

together with the condition (6)

$$\left\{ \frac{U_{dc}}{R}(1 - e^{-\frac{R}{L}t}) + \frac{\hat{U}}{\omega L}(e^{-\frac{R}{L}t} - \cos\omega t) \right\} N \geq 0 \dots 13o$$

For the coil in fig. 17 we have the following data:

$$R_1 = R_2 = 0.01 \text{ ohms}$$
$$L_1 = L_2 = 50 \mu H \text{ (micro henrys)}$$
$$N_1 = N_2 = 20 \text{ turns}$$
$$\frac{U_{dc}}{R} = I_{dc} = 30 A$$
$$\frac{\hat{U}}{\omega L} = \hat{I}_{ac} = 50 mA$$

f is between 1 and 3 MHz.

Thus

$$\mathcal{H}_{res} = \gamma \left\{ 30(1 - e^{-2206}) + 0.05(e^{-2206} - \cos(\pi f t)) \right\} \times 20$$

Let us look at the details of the magnetomotive force IN for a 1MHz ac-current a few micro seconds after switching on:

$$\mathcal{H}_{res} = \gamma\{IN\} = \gamma\left\{30(1-e^{-220t}) + 0.05(e^{-220t} - \cos(2\pi\times10^6)t)\right\}\times20$$
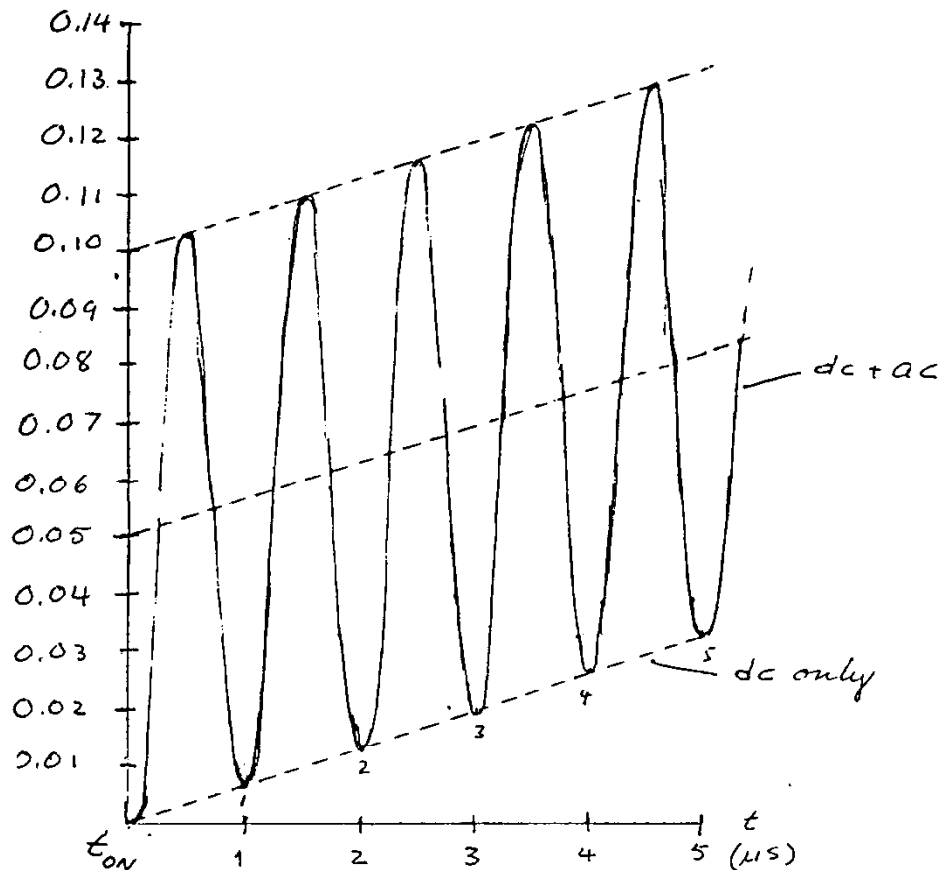
Fig. 19

Fig. 19 shows the first five periods of the ac-current and the exponential increase of the dc-current for the condition that $\hat{u}\sin\omega t$ is switched on at $t_{on} = 0$.

The Magnetizing Coils For The Plate.

These coils are used for magnetizing the plate to the generator in fig. 16.

Two identical coils, each with two identical windings are needed to magnetize the plate see fig. 20.
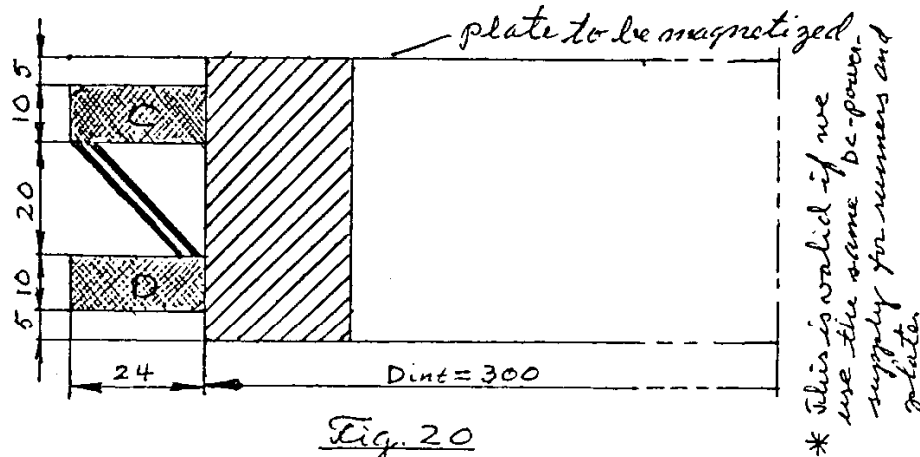
Fig. 20

$D_{int} = 300 \, mm$

$D_{ave} = 324 \, mm$

$D_{oil} = 348 \, mm$

$t = 0.5 \, mm$

$t_i = 0.1 \, mm$

$w = 10 \, mm$

$N = 20$ turns in each winding

$\ell = 20.36 \, m$ in each winding

$R = 0.073$ ohms if copper strips are used

$L = 330 \, \mu H$

$I_{dc} = 30 \, A \, (5A) \, ?$ *

$\hat{I}_{ac} = 7.5 \, mA$

* This is a very uncertain figure due to lack of information about the power supply (DC) The current is probably much higher.

The inductance of each winding is 128 μH according to the formula for a single air loop. Due to the magnetic material in the plate the value of L will increase, let us say 200 μH. to 330 μH.

If we use the same dc powersupply and the same signal generator, set at the same frequency and the same output voltage the current...

cont'd

$\hat{I}_{ac}$ in the ac-winding will drop to a lower value due to the increase in the inductive reactance X_L,

thus
$$\hat{I}_{ac} = \frac{\hat{U}_{ac}}{X_L} = \frac{\hat{U}_{ac}}{\omega L} = 7.5 \text{ mA}.$$

if we use the same ac-voltage for the plate-coils as we did for the runners coils, and keep the frequency constant. Due to the lower ac-current the minor loops in the magnetization diagram (fig. 9 and 10) will be correspondingly smaller.

Summary.

Two sets of coils have been designed, one set for magnetizing the runners and another set for magnetizing the plate, see fig. 21
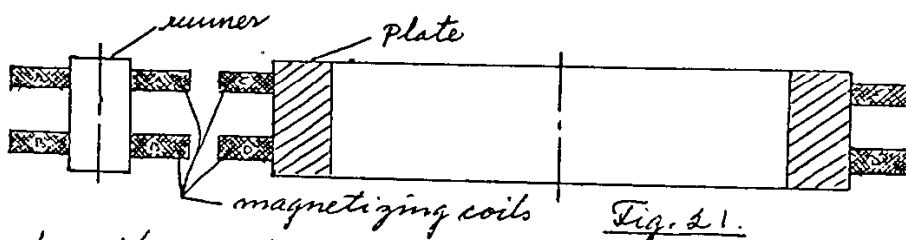
Fig. 21.

Each coil consists of two identical windings, one winding carrying the dc-current and the other winding carrying the ac-current. The coils are made of 10 mm × 0.5 mm copper strips and all windings contain the same number of turns. In this particular case the number of turns $N = 20$*

$U_{dc} = 0.7 \text{ V} (0.7 \text{ V})$

$I_{dc} = 30 \text{ A} (5 \text{ A?})$

$\hat{U}_{ac} = 16 \text{ V} (16 \text{ V})$

$\hat{I}_{ac} = 50 \text{ mA} (7.5 \text{ mA})$

Figures within brackets valid for the plate

body to be magnetized.
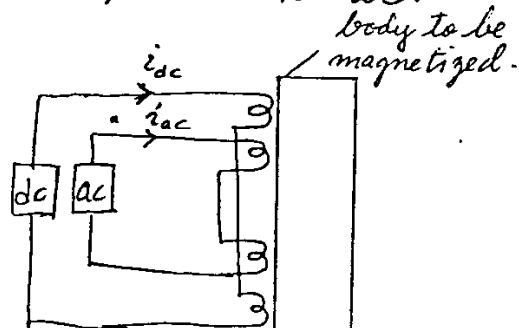
* Each coil contains 2 × 20 = 40 turns. Do you think this is enough? Is the current high enough. Please, can you comment on these and other points.

The dc-current $I_{dc}^{(P)} = 5A$, is the theoretical value of the current in the plate-coils, if we use the same dc-voltage across both plate-coils and runner-coils, when the current in the runner-coils is adjusted to 30A and we neglect the internal resistance of the power supply. In practice, however, we must consider the internal resistance of the power source, which means that the dc-voltages across the coils will be different for the runner-coils and the plate-coils even if we use the same power-supply in both cases. This implies that the dc-current $I_{dc}^{(P)}$ in the plate-coils, could be anywhere between 5A and 30A depending on the internal resistance of the power-source, unless the current was regulated by a rheostat. Do you ~~rember~~ remember whether or not you controlled the dc-current $I_{dc}^{(P)}$ in the plate-coils. to be set to the same value as the dc-current $I_{dc}^{(R)}$ in the runner-coils.

If you consider the coils to be of proper design, I will go ahead with the construction of the electronic switch and the coils for a "one-plate" generator. I am also planning to write a paper on the "3-plate generator" used in the Searl-Disc and analize the problem of finding the optimal size of the generator, based on the conditions you have stipulated.

When I have all the facts right I will make proper drawings of the magnetizing coils with power supply and electronic switch. I have also started to make drawings of the craft, but there are still many details to be discussed I enclose a sketch of the "3-plate generator" according to your description

Diametral cross-section of
3-plate generator.

The weight of each ball-race section
should be the same, i.e. the weight of
each section is one third of the weight
of the generator. The generator weight
is 70% of the total weight of the
craft. Each section contains the same
number of runners. — NO
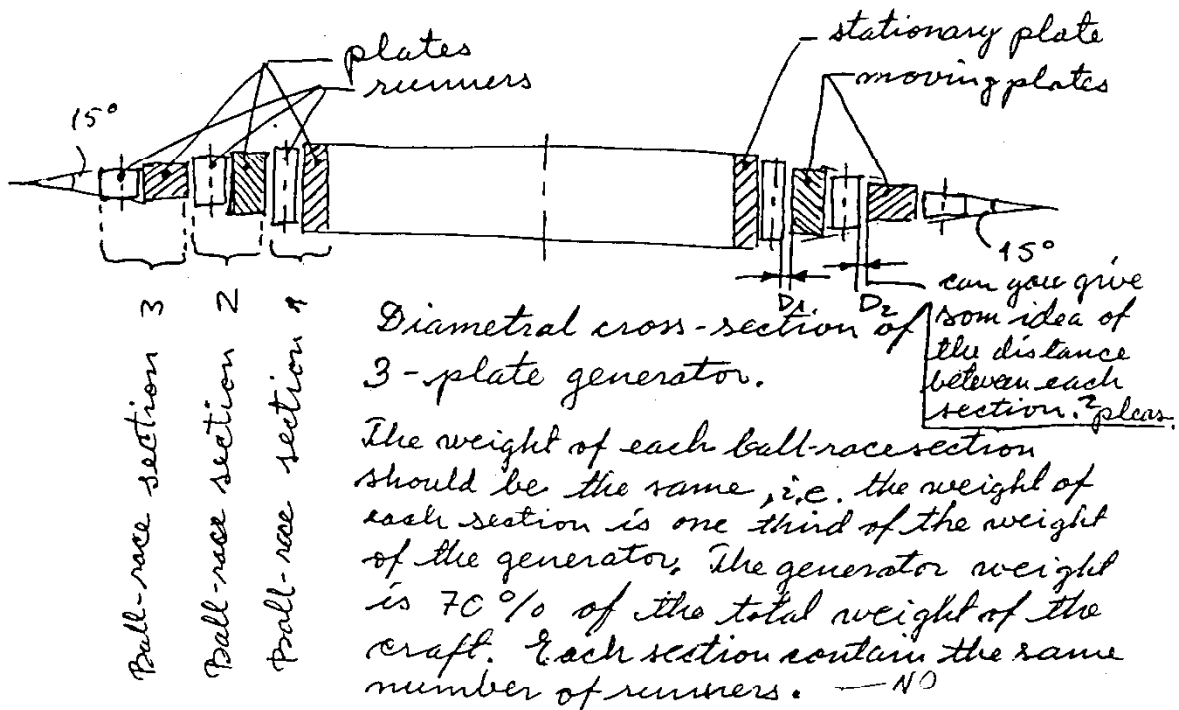
Could you give me some information regarding
the plates. I assume each plate is made of a
number of circle segments, is this correct?
How many segments compared to the number
of runners. How are the segments fixed to each
other, are there any spacers between the seg-
ments?
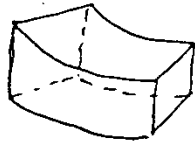
ring-segment

You may find this information, concerning
the magnetizing coils, a bit confusing. I
will rewrite it reformulate the content and
make it more comprehensible when I have
all the details right. I will send you a ~~copy~~
type written copy later.

Additional Information Regarding
the Manufacture of the Searl-
Effect Generator.

1. According to the information
given by Searl the plastic binder,
used in the manufacturing pro-
cess of the plastic bonded magnets,
should have an excess of negative
charge (negative ions /electrons).
I have not yet studied the electrical
properties of polymers in detail
and can therefore not give a
qualified statement regarding the
selection of plastic binder and
its importance for the effect.

* in later
experiments, The plastic used by Searl* was supplied
by a company in Newbury, Berk-
shire, England. However, the bonding
agent used by Searl in his original
experiments between 1946 and 1952
was supplied by an American
company who also supplied the
aluminium-titanium based ferro-
magnetic powder. It would be de-
sirable to use the same kind of
binder and magnetic powder in order
to exactly repeat Searl's original
experiments. The According to Searl,
the American Supplier can be
found in the American trade catalogue
"The Thomas Register". Searl's docu-
ments were all destroyed in a fire
in 1983, but he states that if shown

the appropriate pages in the
catalogue he will be able to
identify the company if it is
still in existence.

2   The importance of the position of
the 'blind' inside the coils during
magnetisation is unknown.
However, in the initial experiments
it is advisable to place and clamp
the blind in the centre of the coils,
as shown in figure 1.

Figure One
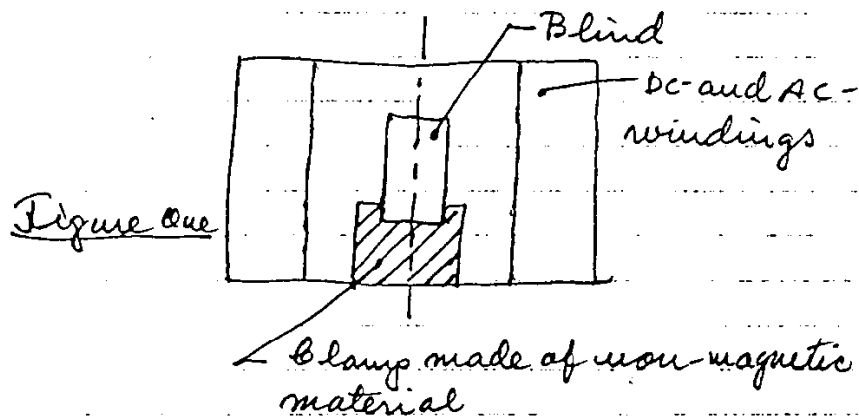
3   The GC will only function properly
if the AC-voltage across the AC-
winding is maintained at a con-
stant RMS-value* and at a constant
frequency ($\geq$ 1 MHz, sine wave.)
during the magnetising process of
all the magnets (runners and plates)
which constitute one and the same
Gyro-Cell. The reason for this con-
dition could be due to a possible

*7

b

relationship between frequency
and pole-density δ (Report SEG-
002 page 3). *yes*

4. The GC will function properly if
the DC-voltage across the DC-coil
is maintained at a constant value*
($V = R_{DC-coil} I_m$) during the magneti-
sing process of all the magnets
(runners and plates/part of plates)
which constitute one and the same
Gyro-Cell. The reason for this con-
~~dition is unknown~~ at present unknown

5. The time needed for magnetization
is normally very short (in the order
of μ-seconds and less). However,
due to unknown factors, this time
may have to be extended to time
intervals in the order of seconds.

6. Each magnet (blind) is magnetised
during one on-off duty cycle.
~~Searl's statement that the DC voltage
and the AC voltage should be
switched on simultaneously at a
zero crossing of the AC voltage is
based on incomplete experimental~~

* $\left(V = R_{DC-coil} I_m\right)$. The number of amp turns
used by Searl in his original experiments
was $I_m N_{DC} = 180$ amps × 180 turns $= 32400$ At.
amps

~~evidence due to the use of very simple~~
~~and primitive switching equipment.~~

As the key to success appears to depend
on correct switching time it is neces-
sary to design and use more sophisti-
cated electronic switching that will
enable the control of the precise ti-
ming of the magnetising on-off
duty cycle.

7. The existence of the pole-pattern
created on each runner and plate,
by the combined AC-DC field, was
experimentally discovered by magne-
tic measurements. By scanning the
recorded pole tracks using small
probes (Hall-Effect elements) and a
cathode ray oscilloscope, each indi-
vidual pole was made visible on the
oscilloscope screen as shown in fig. 2.
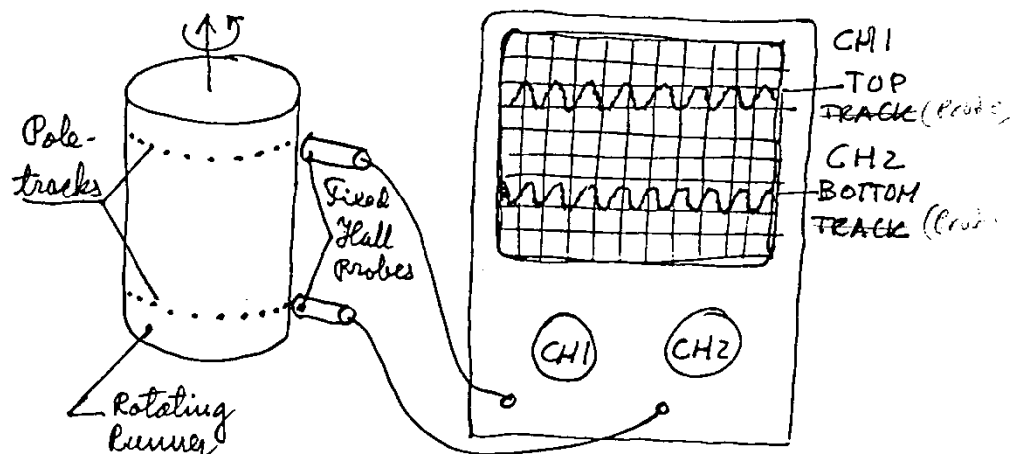
Figure Two.

A more detailed examination of the
oscilloscope picture seemed to show
that the top track consisted of, for
instance, north-poles only and the
bottom track of south poles only as
illustrated in figure 3.
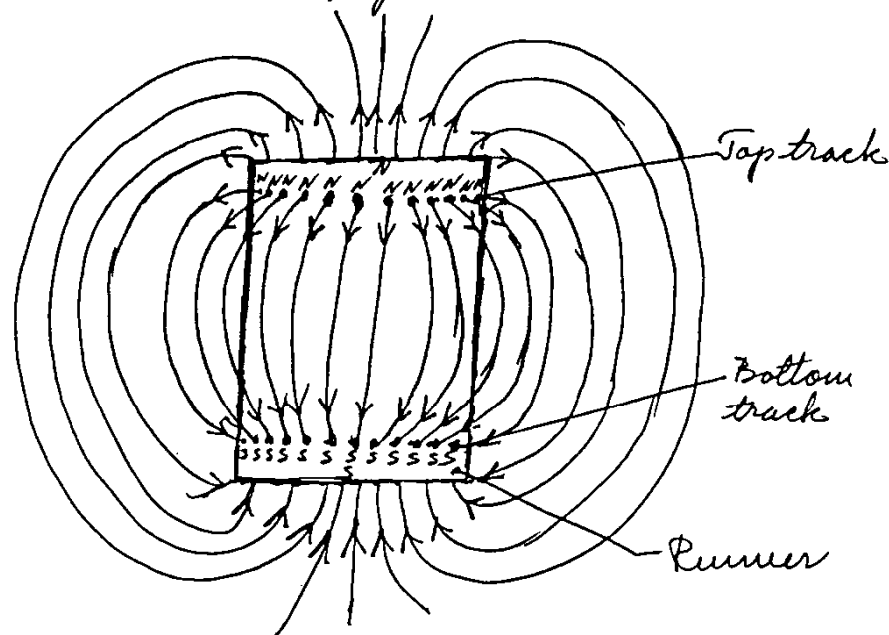
Figure Three.

This field configuration, if it is correct,
suggests that the diameter/length ratio
of the magnetising coil could be of
crucial importance for the manifesta-
tion of the Searl-Effect. I therefore
propose that a number of magnetising
coils with different diameter/length
ratios are manufactured, e.g.

D (mm)	L (mm)	IN (At)
100	100	32400
100	150	"
150	100	"
150	150	"

This article is an investigative report about the work of John R.R. Searl and the stories concerning the Searl Levity Disc Generator. It is a condensed collection of various second- and third-hand documents not readily available. We cannot attest to their reliability. Readers who have additional information regarding Searl and his work, or who recognize errors in this article, are urged to contact the Electric Spacecraft Journal. The Journal hopes to continue its efforts to clarify information on this subject.
Be sure to refer to the date chart at the end of this article.

SEARL'S LEVITY DISC GENERATOR

by Dana Custer and the *ESJ* Staff

INTRODUCTION

J.R.R. Searl and his Levity Disc Generator excite our curiosity because his claims imply there is a way to get around the all-pervasive force of gravity. Antigravity. Levitation. The ability to unhook ourselves from the earth's firm grasp.

But there is a difficulty. For a variety of reasons, Searl seems unable or unwilling to give out clarifying information. He has said that he has flown a number of these discs, and that some rose up, hovered, and then disappeared, going straight up into space. But where are the eye-witness accounts? The Barrett Report (1) stated there were indeed eye-witnesses, but that they remain unidentified.

Searl is considered pretentious by most of the scientific community, and his work is therefore thought to be suspect. He is a self-taught scholar, and his explanations may elude the more formally trained. The concepts involved are intriguing-- electricity, magnetism, the glowing corona. The explanations are complicated, but they sound convincing.

We would like to have the antigravity benefits that these explanations suggest, so much so that we are willing to investigate even the most obscure references. One would like to be able to talk to an eye-witness,

or better yet, be an eye-witness. And, of course, be able to reproduce the effect.

HISTORICAL ACCOUNT

The Reverend G.H. Nicholson (2) reported that John Roy Robert Searl was born in a workhouse at Wantage, England, on May 2, 1932. His father was absent, serving in the Army of British India. His mother was destitute.

When Searl was about six years old, he became very ill with double pneumonia. Rev. Nicholson, within whose parish Searl and his mother were living, became involved in finding medical help for the boy. Soon after his recovery, Searl was placed first in Dr. Barnardo's Homes, and later in a foster home. The Homes were responsible for his education and first employment opportunities.

Searl lived with his foster parents in Suffolk, near an airfield, for about twelve years. His youth covered most of the World War II years.

raum&zeit (3) published an article that elaborated on the dreams upon which Searl based his research. When Searl was about four and a half years old, he began to have a series of

dreams that lasted until he was about ten years old.

Related briefly, there were two different dreams, and when the first one occurred, the second would follow within two weeks. This sequence was repeated every six months, making a total of 24 occurrences.

In the first dream Searl is among some other boys and girls on their way to school. They all stop to play a game of hopscotch.

Just as Searl himself starts to play, a giant roller appears and begins to bear down upon him from the direction of the top of the squares in the game. Suddenly everything freezes, and the other children disappear. Searl is left standing there, knowing that when motion returns within the dream he must have the problem solved.

In the second dream, always occurring within a two-week period, he finds himself on the way home from school. Suddenly he is within a huge fire. Everything is in flames. Then he hears, "You will be saved!" and "Don't worry!" After a few seconds he sees a long ladder leading up into the sky. He hears a specific command: "Go up!" And then the dream ends.

As the years passed, Searl came to interpret the dreams in this way:
*something terrible would happen in his life, and many of his friends would disappear;
*the 'Law of the Square' had to be solved:
*Fleming's Law was involved;
*physical rings and rollers were involved, as well as magnetism and electron flow.

Searl spent all the years since 1946 working part-time on his ideas. Through dreams, experiments, and his own way of thinking, he developed a number of concepts which he applied in the design of his device, the Searl Effect Generator.

After helping Searl in the winter of 1938, Rev. Nicholson did not see Searl again until 1968, when Searl was 36 years old. (2)

In July, 1975, Rev. Nicholson wrote the article about Searl's life.

Nicholson mentions a vision that Searl experienced of being in a place where there were a number of books. Searl pulled a book down from the shelf, opened it, and saw a picture of a disc going up into space. He felt strongly impressed to remember his dreams and do what he had been directed to do.

In another dream or vision, Searl saw a circle of radial spokes which did not join each other in the middle. He knew this was the structural design he was to use. Although based on childhood dreams and later visions, the technology Searl used was quite sophisticated.

Later when Searl and a friend tested this idea, they set the device in motion using a small engine, and reported an electrical output of about 100,000 volts. They were surprised when the generator continued to speed up, lifted off the ground, broke the union between itself and the engine, and rose straight up about 50 feet. A pink halo (corona) formed around it, indicating ionization of the air at reduced pressure-- 10^{-5} mm Hg. After causing a disturbance with nearby radio receivers, the device finally accelerated and sped upward out of sight. (1)

On many occasions Searl spoke with both the public and the scientific community, trying to generate interest and support.

Nicholson reported a number of events which seemed to alienate Searl from anyone outside his own closed circle:
--In 1950, Searl was reported to have been mistreated in the hospital while in the RAF, and to have left on his own volition.

--In 1963, Searl planned a public demonstration to which he invited a large number of people in the scientific community. He spent a great deal of money (£10,000) on the event. The people he wanted to attract sent their apologies and did not attend. Consequently, Searl went into serious debt, and he retired virtually into silence.

--In 1982, Searl's house was entered, and equipment and data were confiscated. It is said that Searl was arrested and that the electrical company accused him of "stealing electricity by means of a unique device." (4) These unfortunate occurrences brought about a family break-up and depression.

--In 1983, Searl's house was burned, apparently destroying whatever data or equipment had been left.

After this, Searl seemed unwilling to provide specific information that would have allowed someone else to duplicate the device.

Accounts of eye-witnesses are lacking. Everyone who ever wrote about the matter refers back to Searl's description of the actual lift-off. It has been impossible to find any impartial, well-documented data.

DESCRIPTION OF THE SEARL LEVITY DISC GENERATOR

There is no lack of design speculation on the Searl Generator. Early versions of the Searl Disk Generator were described as simple rotating rings, in which small voltages were produced on the periphery. Subsequent versions described a stationary center ring which drove another rotating ring about it. Next were descriptions of a concentric, three-ring version: the center ring was stationary, the middle ring driven, and the outer ring was free-wheeling. The rings

were then described as separated by roller magnets, which acted as bearings between the rings and provided part of the generator principle.

The following passage is excerpted from the SNSRC Consortium papers. (5)

One particular generator description "is [of] a three-ring arrangement. The inner ring is fixed to the [central] housing wall. The other two rings rotate [about the inner ring]. The outer ring travels at a velocity twice that of the middle ring. Both rings travel in the same direction. Each ring is arranged so that there is a low [electrical] resistance... towards the rim of the craft. The return path increases in resistance toward the fixed ring."

"Electromagnets at the rim receive current from the generator and [redirect it back to help spin the rings]; consequently the load on the starter motor becomes less, and it spins almost freely. [Some say] the magnets are designed as monopolar Mobius rings, or Klein bottles. The formula of these autogenic ceramic electromagnets, and the 'prime mover', constitute the real secret of the Searl Levity Disc Generator."

. . .

"A flame barrier is necessary between the generator housing and the flight cells at the periphery. But because the craft travels in a vacuum, the fireball seen by observers is only a corona glow of electrified air, not a burning surface of the disc."

In additional descriptions of the disc, the three-ring assembly is "situated near the rim. This pulls everything to the rim, which is then turned into current...."

"The skin is backed on one side by nylon and on the other side by fibre glass, so that the whole disc becomes [integrated into] an electric generator[-capacitor] in a solid condition."

"The Three-Ring Generator"

"Each inner ring sets the speed by which the two free-running rings operate."

"Each ring is divided up into 360 degrees, so as to correctly set the 598 'high energy density magnetic data transfer devices' (magnets of Searl's design). Each Searl magnet has an equal segment spacer of insulator material."

"Because each outer ring is larger than the one innermost to it, segments will be of different sizes, and therefore there is an overlock."

"Each ring is plated with a different substance which produces [an electro]static power."

"The centre [inner fixed] ring consists of 598 'high density magnetic data transfer devices' (Searl's special magnets) [as] drive pieces."

"This produces 700 hp to turn the [first moving] ring in its initial start from zero."

"This [inner] ring, being fixed...sets the speed at which the first free-running ring rotates."

"This first free-running ring, when turning, produces a very high voltage because it is travelling at 1,000 cycles around two rings of different compositions and different size plates."

"The outer ring starts revolving by the sheer force and energy of the middle ring."

"Therefore, again you have got another substance, another lot of insulators and conductors crossing fields of conductors and magnets."

"The power is increased from [the] starting point of two million volts to peak of flash at ten million volts at 150 amps."

"Because of the generator shape (its insulators spacing between segments), it pulses the power, enabling one to use very fine materials. (One cannot supply a dead short circuit to a generator and hold power because it will be lost, therefore the automatic pulsing of the power allows very fine materials to be used, producing very high voltage and reasonable current level)."

"The + V.E. side of the power comes to [the] stationary ring [attached] to the body of the disc."

According to certain SNSRC Consortium papers, "the technical term for the Searl Effect Generator is: 'Cyclotronic-Ballrace-Gyro-Flywheel-High Energy Density Magnetic Mechanical Device.' This applies only to the levity disc for either air or space flight work. For other uses the Cyclotronic-Ballrace section is not needed."

Searl's "conclusions were that free electrons in the metal were spun out by centrifugal force, a centripetal force being produced by the static field in the metal. He decided to build a generator based on the principle. It had a segmented disc rotor, passing through electromagnets at its periphery. The electromagnets were energized from the rotor, and [were] intended to boost the e.m.f."

"The merging of the outer shells at the summits shall be spherical in nature."

"The fixed ring of the Searl Effect Generator shall hereafter be described as being the ring nearest the summits."

"The distance between the fixed ring and that of the peripheral rim shall not be greater than one tenth of the vehicle's diameter."

"The distance [just] described shall be reserved to accommodate the flight reaction angle system control."

"The outer shell shall be constructed of non-magnetic materials."

"The materials utilized in the outer shell construction shall be made electrically conductive."

"The minimum and maximum deflection angles for the outer shells at the periphery shall be not less than six degrees and not greater than eight degrees."

"The periphery shall be of negative polarity."

"The summits shall be of positive polarity."

"The merging of the outer shell at the periphery shall be an acute absolute."

A Synopsis of Reports Concerning the Searl Effect and Generator

P.L. Barrett, "The Searl Effect," (also known as The Barrett Report, it was published as an article in the SNSRC Consortium Newsletter in 1968).

Barrett maintained "the existence of the Searl Effect type of craft is a fact," and he listed the various indications of the Searl Effect starting with antigravity and ending with "matter snatch during acceleration." Barrett discussed a number of theories.

He concluded: "The only hazard so far observed is that if the craft hovers for too long near the ground, the soil becomes burnt due to the electric currents in it which build up heat. Also, the nervous systems of animals are interfered with by the ionizing discharge if they get too near. Only birds in flight have been really hurt by flying uncontrollably into stationary objects."

***

Shinichi Seike, "Introduction to the Theory of the Searl Levity Disc,"

Japan Division of NSRC (Consortium). Published June 1, 1971.

Seike suggested the Searl Disc is powered by gravitational stress energy stored everywhere in the universe; and that it is repulsed by the gravitational field of the earth. It must possess negative energy. A number of formulas are given.

***

Rho Sigma, *Ether-Technology: A rational approach to gravity-control,* 1977.

This book is excellent. It deals with the subject in several chapters:
  "'Ether-Vortex-Turbine' in England" (The Barrett Report);
  "Feedback Concerning the Barrett Report;"
  and "What Some Scientists Think About It."

Comments are included from Jan P. Roos of Austin, Texas; Dr. Arthur Cain from California; Professor Shinichi Seiki of Japan; Dr. M.J.J. Pages from France; and Bruce DePalma.

***

S.G. Sandberg, "The Searl Effect and the Searl-Effect Generator" (referred to as SEG-001 through SEG-005), 1982-1987.

These papers were based on a series of interviews Searl gave since 1982. They contain information regarding the experimental work on permanent magnets that Searl claimed to have carried out from 1946-1952. There is a discussion of the generator geometry and roller magnets.

Sandberg listed four results that Searl discovered while running a generator:
  "the air pressure decreased in and around the generator.
  "the temperature dropped considerably in and around the generator.

*objects placed inside the generator ring lost weight.

*the rate of radioactive decay decreased on a strontium 90 sample after it had been left inside the generator ring for ten minutes.

***

William Whammond, "Answers to the Searl Levity Disc Mystery" (probably 1981). (6)

He described Fleming's Law and how it could correspond to the Searl Levity Disc.

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raumézeit, "On the Trail of the Searl Effect," by Traunreut and Watt: December/January 1989/90.

This article is primarily about Searl's dreams and his interpretations of them. It includes Searl's interest in "The Law of the Square" and his large number of computations about it, as well as his use of it in describing and formulating the Searl Effect Generator. There are also some illustrations and descriptions of the ring roller geometry.

Searl Generator Speculations

(Excerpted from "High Voltage Concentric Field Generator Design") (7)

The Searl Generator can be classed as a high voltage concentric field generator, because it is disk-shaped, and is said to produce a positive charge at its center and a negative charge around its periphery.

Searl generators were described as producing tens of millions of volts with a coronal glow about them. One reportedly broke loose from its drive motor connection and levitated into the air, seeming to speed up the rpm thereafter and going vertically out of sight. Thus, these generators are also referred to as 'Searl Levity

Disks.' We have no explanation, but given the rotating rings and magnets perhaps the properties of the Faraday Generator are present. The high voltage coronal fire might short-circuit the disk at a certain stage, and transform the rotating magnet currents into additional motor drive force. This is short of explaining antigravity.

There is good reason to doubt the claims made by Searl, but there is also good reason to investigate some of his claims. Independent research indicates many of his design claims are correct and function as described.

There have been a number of design speculations concerning the Searl Levity Generator. However, someone still needs to provide substance to the speculations. The following diagrams and explanations are from the paper "High Voltage Concentric Field Generator Design."
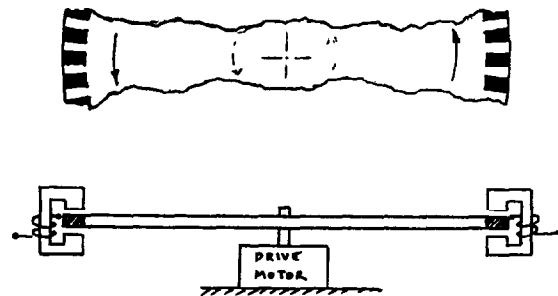
Figure 1

Figure 1 speculates on one of the early descriptions of the Searl generator. This is a simple disk, with metal segments around the periphery which pass between electromagnets to induce voltages. These voltages in turn are said to be collected and passed as a current through another winding of an electromagnet. One end of this winding was left free. The metal segments were said to also have a layered dielectric so as to induce electrostatic voltages.
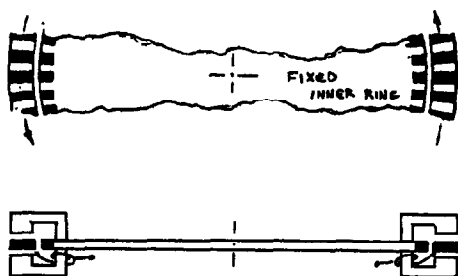
Figure 2

Figure 2 represents speculation wherein a segmented ring has been added, free to rotate about a fixed inner ring. The inner ring is considered to be part of the electrical charge transfer and drive force. The second ring is initially driven in order to generate electrical potential. Again, it is said to be a combination of electrical current feed-back into the electromagnets and layered dielectrics which enhance electrostatic fields. The second ring is said to have been added so that it could rotate freely and prevent the transfer of drive shaft torques like those said to have broken the shaft on earlier designs. This second design was also said to reach a critical speed and go into a self speed-up mode.
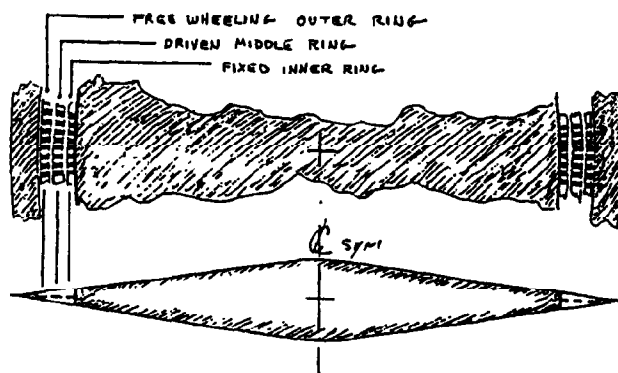

Figure 3

Figure 3 is a scaled schematic of the now classic Searl Levity Disk photo. It consists of a fixed inner ring, a driven center ring, and a free-

wheeling outer ring. Some photos of this design show models in flight, and others show a 30- or 40-foot-diameter design under construction. Construction photos show people standing inside the central structure. Properly scaled, only a 3-foot tall person could stand upright in a 40-foot diameter disk. Photographs of the 40-foot design are apparently of a non-functional model.
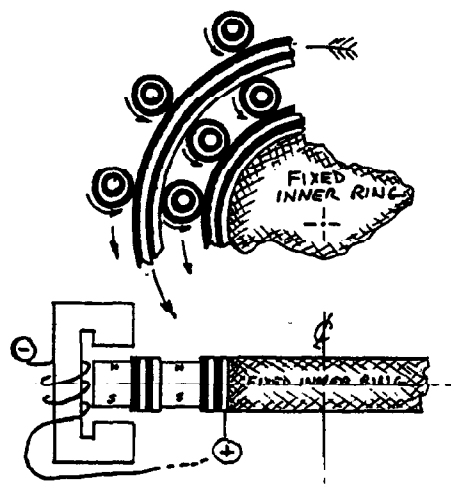
Figure 4

Figure 4, from descriptions by Sandberg, shows a major departure from earlier speculations on the Searl generator design. *raumdzeit* (8) also describes these designs. They have layered rings consisting of conductor and dielectric construction, separated and revolving on "roller magnets" of similar layered construction. The descriptions of the roller magnets have varied, as have some earlier ring descriptions, which were noted as segmented. This particular *raumdzeit* reference does not mention the "segment" detail. The electromagnet is present as before.

Although the figure shows the external rollers going counter-clock , in fact they could go either way.

Figure 5 speculates on another roller magnet, segmented ring generator design. In this case, the metal

conductor segments are imbedded in a dielectric substrate on the ring. The magnet is a rare-earth supermagnet, coated on the outside with a tough dielectric layer. This configuration will allow currents to be induced in the metal segments by the presence of a moving rotating magnetic field. These currents can

Figure 5

be transferred away by conducting circuits. In addition, electrostatic fields can be generated and maintained by the presence of the dielectric layers. There is experimental evidence to indicate that this type of design could produce high voltages.
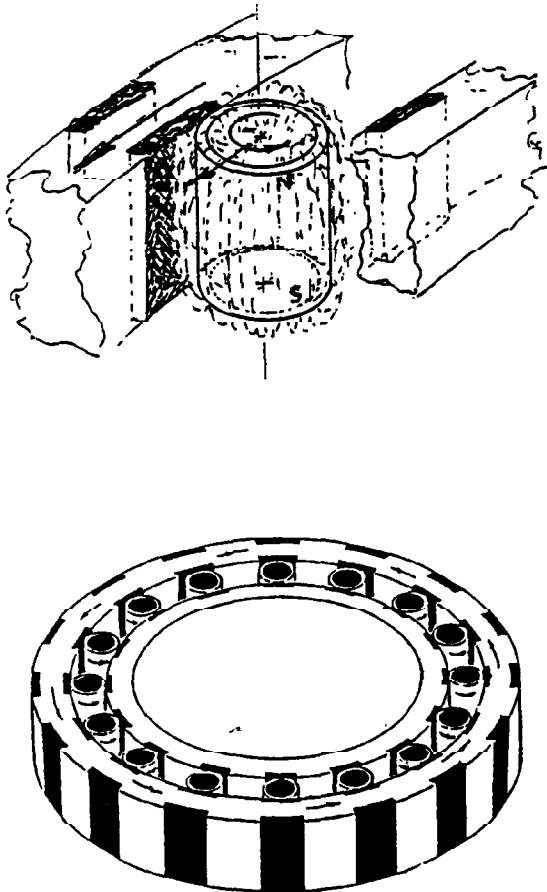
CONCLUDING QUESTIONS

Attempts to bring to light the life and work of J.R.R.Searl have resulted, for the most part, in uncertainty and bewilderment. Many key questions remain unanswered.

The *Electric Spacecraft Journal* staff, however, has a continuing interest in the effort to piece together the puzzling evidence concerning whether the Searl Effect Generator is possible.

Following are some perplexing questions that we have started to pursue:

*DID SEARL'S DEVICE EVER GET PATENTED?

The January 1975 edition of the SNSRC Consortium papers stated:
   "Provisional patent was applied for, and the Patent Office acknowledged these documents with the following No. 57578.
   "Full patent are now being applied for: No. 1296 789.".

Electric Spacecraft Journal checked the above numbers by calling a patent search office in Virginia, requesting a copy of the British patent No. 1296 789. It is in no way related to Searl. The number 57578 is the British application number assigned to Searl in November of 1969. This application was never completed.

*COULD NEODYMIUM HAVE BEEN A COMPONENT OF A MAGNET USED IN SEARL'S EARLY EXPERIMENTS?

The element neodymium was first mentioned in Sandberg's paper (SEG-002, 1985). He described the spectograph results of a magnet Searl had provided and which Searl maintained had been produced between 1946 and 1948 for his original experiments. (8)

In the later paper (SEG-005, 1987), Sandberg again stated that this magnet contained neodymium, and noted

that there was no information about how Searl had managed the highly flammable element. Searl reportedly had imported the magnetic alloys from the U.S., but the identity of these manufacturers was not known.

Sandberg stated in his article in *raum&zeit*: "At the time of testing (April 1984) lack of funds and other duties prevented additional important measurements being made. The magnet was therefore returned to Searl with the intention of borrowing it at a future date for further investigation. However, upon later request the author was informed by Searl that all magnets in his possession had been lost."

Electric Spacecraft Journal placed a call to a prominent U.S. magnet producer (9) to find out when neodymium had become available. The answer was: not until 1983 was the discovery of neodymium magnets announced by Delco-General Motors of the U.S., and Sumamoto General Metals of Japan. The very earliest date we could establish was 1966-67, when the U.S. Air Force's development program demonstrated that some rare earth compounds had good magnet potentials.

We have also been informed by another source that the published spectograph (8) labelled neodymium within a group of other elements where it would not be expected to be, because of its atomic weight.

For the above reasons, it would appear that Searl could not have had neodymium magnets in the 1948-52 period.

•Is THE SEARL NATIONAL SPACE RESEARCH CONSORTIUM (SNSRC) STILL ACTIVE? DO ANY CONSORTIUM NEWSLETTERS OR FILES STILL EXIST?

An *Electric Spacecraft Journal* staff member attended the 1988 New Energy Technology Conference (10) at Ottawa/Hull, Quebec, where Sandberg was scheduled to deliver a paper

about Searl's work. But Sandberg did not appear, and it was mentioned informally that Searl data could no longer be released because the rights were being negotiated by an interest in Australia. We have not been able to discover who this party might be.

The only other knowledge *Electric Spacecraft Journal* has about this topic is that registration documents from the Company House in London, England, dated July 1989, indicate that a consortium formed by Searl, entitled the Direct International Science Consortium (DISC), would be dissolved within thirty days.

•ARE THERE ANY EYE-WITNESS ACCOUNTS THAT CAN BE SUBSTANTIATED?

There are a few descriptions and photographs, and there is a lot of speculation and hopeful inquiry. We cannot determine that there are any witnesses besides Searl. Where are the substantiating reports and photos?

Electric Spacecraft Journal would be prone to discard the whole matter of the Searl Disk Generator were it not for other phenomena: (7)

(1) The T.T. Brown experiments indicated that high voltage fields could produce antigravity effects. The effects were said to be somewhat brief and unpredictable, but a great deal of effort went into those experiments, as can be witnessed by the existing films and lab notes.

(2) The Hutchison Effect, in which John Hutchison of Vancouver, B.C., demonstrated repeatedly that external high voltage electric and magnetic field interactions could levitate, move, and throw objects situated a distance away. Video tapes of these experiments are very convincing. The effects were brief and would occur at unpredictable moments. George Hathaway (Pharos, Ltd., Toronto, an engineering consultant) has shown

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video-tapes of the experiments.

(3) The existence of "ball-lightning," while perhaps not an example of antigravity, indicates a lack of understanding on our part of a phenomenon in which an electrically produced gaseous ball wanders about.

(4) UFO reports have provided substantial observations and details to establish a set of physical effects that are electrical and antigravitic.

The Searl references elaborate on the various design details, but never enough to get the design out of the fog. We have read much·of the literature available, and talked to several people who have had direct or indirect contact with John Searl. The end result is speculation and uncertainty.

We would like comments and clarifications on this article, as well as additional information on the Searl-type generator.

REFERENCES

1 "The Barrett Report" [the original publication and date are not identified, and there are no credentials listed].
In two sources:

a) Searl National Space Research Consortium, June 1, 1968, Newsletter No. NSRC-RM/BR-1, page 2. Besides the introduction, the list of observations about the Searl effect, and "Application of Theory" that is identical with that found in Rho Sigma's book. the Consortium's paper also included a "Glossary of Terms" and "Outline of a Theory;"

b) *Ether-Technology: A rational approach to gravity-control* by Rho Sigma, CSA Printing & Bindery, Lakemont, Georgia 30552, 1977, the chapter entitled "Ether-Vortex-Turbine in England," page 73.
This book also contains chapters dealing with "Feedback Concerning the Barrett Report," and "What Some Scientists Think About It."

2 The Rev. G.H. Nicholson, "The Epic Story of Free Energy" [written about 1975; from Rex Research, PO Box 1258, Berkeley, CA 94704. The original publication and date are not identified.

3 *raumázeit*, Vol. 1, No. 5, December/January 1989-90. "On the Trail of the Searl Effect," by H.S. Traunreut and H. Watt, Munich, West Germany, pages 63-70.

4 C.B. Wynniatt, PO Box 796, Whangarei, New Zealand. [Dated about 1984, Letter to the Editor, but the publication is not identified].
Also: letter to Dr. Robert Nelson, "former functionary of the Searl National Space Research Consortium," October 17, 1984.

5 Searl National Space Research Consortium (SNSRC), United Kingdom Division, Newsletter No. NSRC-RM/BR-1, dated June 1, 1968, "The Searl Effect," by P.L. Barrett, B. Sc. ["Infolio" from Rex Research, Box 1258, Berkeley, CA 94704]. Also included: "The Drive Specification of Interplanetary Craft—the Searl's Levity Disc."

Other SNSRC Consortium papers include:

June 1, 1971, No. NSRC-4, Volume 1, Section 2, "Introduction to the Theory of the Searl Levity Disc," by Shinichi Seike, Japan Division, NSRC.

June 14, 1971, No. NSRC-1-C, Volume 1, Section 2, "A Discussion of the Searl Disc on the Basis of My Knowledge of Scientific Possibility," by Bernhard Vaegs.

May 15, 1972, "To Whom It May Concern," (address: 17 Stephens Close, Mortimer, Berkshire, RG7 3TX, England). A list describing the Searl Levity Disc.

January, 1975, No. DOC-20-CON-SNSRC/1, part 1, third edition, "Space Project Swallow - Preliminary Science Project Report". Then there are several pages with the following numbered paragraphs [which may or may not come from this document]: 19-27; 28-31; 31-43 [obviously from another document]; 44-57; [there is a jump here] 186-197; 198-208; 209-222 (#217 mentions "application paper NO. 1"); 223-240.

6 William Whamond, "Answere to the Searl Levity Disc Mystery" (from Fry's, 22511 Markham, Perris, CA 92370). [Original publication and date are not identified.]

7 Charles A. Yost, "High Voltage Concentric Field Generator Design," published by the 1990 International Tesla Symposium.

8 S. Gunnar Sandberg, "The Searl Effect and the Searl Effect Generator," (SEG-005) June 1987. [Our copy of the original says: "Client: D.I.S.C. Ltd., Confidential."] Printed in raum&zeit, Vol. 1, No. 3, August/September 1989, pages 71-76.

Also:
Report No. SEG-001, October, 1982. Included details about the 3-ring generator, which was the first one tested in 1952. [ESJ does not have this report.]

Report No. SEG-002, June, 1985. Included information on the induction coils. Address for S. Gunnar Sandberg: School of Engineering & Applied Sciences,

University of Sussex.

Report No. SEG-003, March, 1986. A list of long-term research objectives.

Report No. SEG-004, March, 1986. Additional information regarding the manufacturing procedure of the magnets used on the Searl Effect Generator.

9 International Magnaproducts, Inc., 3103 Cascade Drive, Valparaiso, Indiana 46380 (Eastern office).

10 1988 New Energy Technology Conference, Ottawa/Hull, Canada, sponsored by The Planetary Association for Clean Energy, Inc., edited by A. Michrowski, 191 Promenade du Portage / 600, Hull, Quebec, J8X 2K6, Canada.

* * *

raum&zeit, edited by Chrystyne H. Jackson, JacksonInc. Publishing, PO Box 1508, Mount Vernon, Washington, 98273 (206-424-6034).

(a) "The Searl Effect and the Searl Effect Generator," by Sandberg, Vol. 1, No. 3, August-September, 1989;

(b) "On the Trail of the Searl Effect," by Traunreut and Watt, Vol. 1, No. 5, December 1989/January 1990.

* * *

Carl Weiss, German Television (ZDF), London Studio, 22 St. Peter's Square, London, W.I. Letters to Searl dated April 26, 1971 and May 14, 1971, where reference was made about filming Searl's work.
* * *

Rolf Schaffranke, "Review and Outlook: The Development of Post-Relativistic Concepts in Physics and Advanced Technology Abroad," The First International Symposium on Non-Conventional Energy Technology, University of Toronto, Toronto, Ontario, Canada, October 23-24, 1981.

DATE CHART FOR JOHN SEARL

(Discrepancies are due to different sources)

AGE	YEAR	SOURCE & COMMENT

0 1932 Nicholson: Searl was born May 2, 1932, Wantage, Great Britain.

4 1936 *raum&zeit:* (Traunreut and Watt) Searl's dreams started when he was 4 1/2, and continued until he was 10 years old. He had 24 dreams in total, 1 pair every 6 months. *World events: WW II started in England.*

6 1938 Nicholson: Nicholson helped Searl when he was very ill. Through the Dr. Barnardo Homes, Searl was placed with a foster family in Suffolk, who lived near an air base, where he spent 12 years.

9 1941 *World events: US entered WW II.*

13 1945 *World events: WW II ended.*

14 1946 Nicholson: JS sent to a naval barracks to be trained as a radio officer. He became ill, and was sent home.

raum&zeit: (Sandberg) JS began employment at the Midland Electricity Board (MEB) in Birmingham. Experimented with manufacturing permanent magnets. From 1946-48, JS's experiments were financed by George Haynes of Turner Street, West Bromwich, because Mr. Haynes' son worked with JS. JS did experiments on magnets from 1946-1952.

Consortium: JS started his experiments. He invented the 'High Energy Density Magnetic Data Transfer Device.' From 1946 up to 1963 JS freely explained his views about his experiments, which included flight models of various shapes.

15 1947 Nicholson: JS had several jobs during this time, including Electrical Rewinds Ltd of Gray's Inn Road, London; assistant to a pharmaceutical chemist for 4 years; JS had to return to the Homes, and then he signed himself off. *1947 World Events: UFO's appeared.*

16 1948 Nicholson: JS worked as a projectionist in a cinema in the Midlands.

Consortium: JS learned that "a flywheel, spinning on an axle which could be halted almost dead, sheared off from the axle."

17 1949 Barrett: JS was employed by the Midlands Electricity Board as an electronic and electrical fitter, experimenting on electric motors and generators.

18 1950 Nicholson: JS came of age and enlisted in the RAF. Made and flew what the officers called "luminous butterfly nets," was put in the RAF hospital and mistreated. Left the RAF as a deserter. Lived with a man dying of cancer, who witnessed 6 levity disc experiments with their beautiful coronas, before he died. Then JS became employed by the Midland Electricity Board, where he made an experimental generator on a new principle--it produced a high voltage and lifted itself into the air.

Barrett: JS experimented with rotating slip-rings, and measured a small e.m.f. on a conventional meter. He noticed that when the rings were spinning freely and no current was taken, his hair bristled.

20 1952 Barrett: JS built first generator and tested it outside with a friend. [Searl said this was not his first generator]. It lifted itself, surrounded by a pink halo, and finally disappeared straight up into space. Since 1952, JS has made "some tens of small flying craft, some of which have been similarly lost, and developed a form of control." There were also problems with neighbors about his experiments with the discs--radios turned on, etc.

Sandberg: Since 1952, JS and his co-workers built and tested more than 10 generators, called Searl Levity Discs.

21 1953 Nicholson: JS married.

23 1955 Nicholson: JS lived at Pangbourne, Berkshire. Worked at Rex Cinema in Reading as a projectionist. Neighbors did not like his experiments.

24 1956 Consortium: JS had been working on a test tank for high voltage tests.

26 1958 Nicholson: JS moved to Mortimer.

31 1963 Nicholson: JS arranged an expensive public demonstration on Mortimer Commons, but none of those invited came. The ascent was seen only by the locals. JS arrested for the debts incurred and the Court held him accountable.

1963   Consortium: JS went into debt for £10,000, and decided to be quiet.

32   1964   Nicholson: JS managed to get 13 helpers, and they made 41 experimental study structures. He was now interested in developing a fully commercial proposition for the transport of passengers and freight.

35   1966   U.S. Air Force developmental program, first experiments demonstrated rare earth compounds (neodymium) had good magnet portential.

36   1967   Consortium: JS again decided to speak publicly about his work. Gave lectures on his work, with scientists and the press present. Lectures were 9 hours long, given twice within 8 weeks.

raum&zeit: (Sandberg) These lectures were about his generator and the levity disc, given in the village hall in Mortimer, near Reading, Berkshire. They were published in *The Evening News* during December, 1967. Two scientists brought samples of radioactive material with them, which were measured before and after the samples were left inside the generator ring for about 10 minutes. There were significant differences.

37   1968   Nicholson: Nicholson and JS met again and became friends. JS was slowly making contacts with scientists, firms, and aviation people, including NASA (USA). The Ministry of Defence gave recognition of his work, and kept files on his work.

The Barrett Report was published in the *Consortium Newsletter*, No. NSRC-RM/BR-1, June 1, "The Searl Effect" by P.L. Barrett, B. Sc.

Consortium: January 17, JS released "Application Paper No. 1," written about his research of 1956, and also part of his 1967 lectures.

39   1970   Nicholson: JS formed the Searl National Space Research Consortium in June. In August, JS issued the first of "a series of Journals designed to show the work and progress of the Consortium." Also about this time JS was joined by William T. Sherwood and his wife R.M. from the USA. The Consortium office was in their home, and records were kept there. Since living in Mortimer, JS worked for an engineering firm at Maidenhead, where he worked the night shift so he could work on Consortium material during the day. From about now JS worked on the "Starship Ezekiel" until about 1975, when it was set aside because of its great cost.

1970   JP Roos: drawings of top view, 90-foot-diameter disc surface layout, dated September 20.

40   1971   News of the World: Photograph taken by Stuart White of Searl with his provisional Patent Specification on the Levity Disc, No. 57578, January 13.

Consortium: (June 1, No. NSRC-4, Volume 1, Section 2,) "Introduction to the Theory of the Searl Levity Disc," by Shinichi Seike, Japan Division, NSRC.

(June 14, No. NRSC-1-C, Volume 1, Section 2), "A Discussion of the Searl Disc on the Basis of My Knowledge of Scientific Possibility," by Bernhard Vaegs.

Carl Weiss: May 14, a letter to JS included the statement: "Meanwhile the film came out of the laboratories and the pictures are absolutely delightful. The programme will be transmitted in Germany on May 20th."

41   1972   Consortium: May 15, "To Whom It May Concern" (address: 17 Stephens Close, Mortimer, Berkshire, RG7 3TX, England). A list describing the Searl Levity Disc.

43   1974   Nicholson: Serious bone trouble had developed in JS' head, and he lost the hearing in one ear. Two operations were required; condition incurable; JS must take pain killers.

44   1975   Consortium: Newsletter, January, No. DOC-20-CON-SNSRC/1, part 1, third edition, "Space Project Swallow-Preliminary Science Project Report."

Also stated: "Provisional patent was applied for, and the Patent Office acknowledged these documents with the following No. 57578. Full patent [rights] are now being applied for, No. 1296 789."

Nicholson's article about Searl was written (July), "The Epic Story of Free Energy." At the end of his article Nicholson said that he used a tape recorder that was powered by a small Searl Effect generator prototype of 200 watts at 240 volts. This prototype was especially designed for home use. and Nicholson reported that it worked perfectly.

46   1977   Rho Sigma's book published, *Ether-Technology: a rational approach to gravity-control*. Quotes about JS' work from: JP Roos, page 81; Dr. Arthur Cain, page 82; Professor Shinichi Seiki, page 82.

47   1978   Wynniatt: There was a complete blackout about what JS was doing between May 1978 and his arrest in May 1982.

49   1980   Magnetics Conference, sponsored by the U.S. Navy, made the first presentations about the rare earth (neodymium) magnet development.

50   1981 (Probable date) - **William Whammond,** "Answere to the Searl Levity Disc Mystery."

51   1982   Wynniatt: In May, J S' house was invaded by government inspectors or law enforcement who "allegedly confiscated a 'domestic type free-energy generator.'" They also tore out all of the electrical wiring in the house. The Southern Electricity Board brought suit against JS on the charge of "stealing electricity by means of a unique device." Nicholson had to rig up makeshift lighting and heating for JS family. This resulted in a family break-up and depression.
Sandberg's Report No. SEG-001, (October). Included details about the 3-ring generator, which was the first one tested in 1952.

52   1983   Wynniatt: While JS was still under government care, his house was set on fire by an arsonist and most of his equipment and records were destroyed. JS formed an alias: Dr. Bill Bates, International Institute of Advanced Space Science, 12 Watt House, Baldwin Street, Smethwick, West Midlands, England. (IIASS was formed September 18).
The discovery of neodymium magnets announced by Delco-General Motors (US) and Sumamoto General Metals (Japan).

53   1984   Wynniatt's letter written to Dr. Robert Nelson. *raum&zeit*: (Sandberg) Magnet that Searl produced in 1946, was analyzed by Roger Cheese (School of Engineering and Applied Sciences, University of Sussex) on April 16. Cheese made tests and took some measurements, but due to lack of funds and other duties, further important tests had to be postponed. He sent the magnet back to JS with the intention of borrowing it again. However, later JS said that all the magnets in his possession had been lost.

54   1985   Sandberg's Report No. SEG-002 (June), "The Searl-Effect Generator: Design and Manufacturing Procedure." Included information on the induction coils. Neodymium is mentioned as one of the elements contained in "the magnets used in the original experiments." Spectogram included.
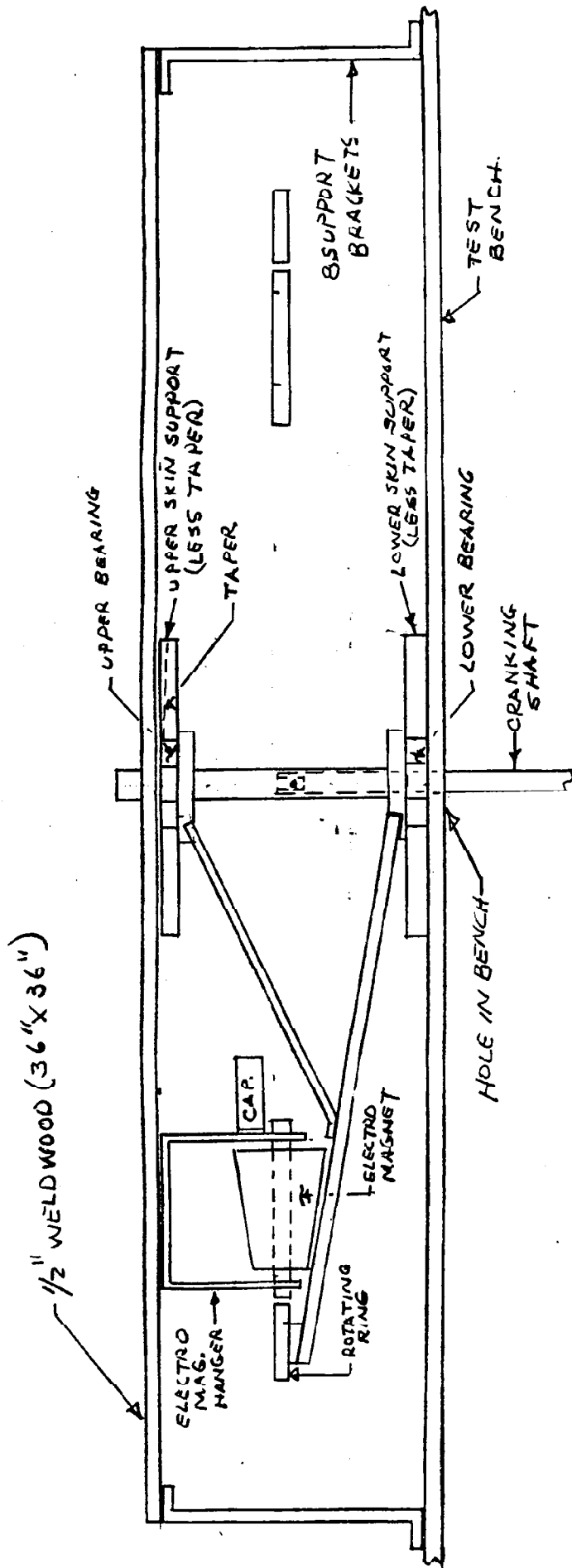
     1985   The first neodymium compound and processing patents issued to General Motors (US) and Sumamoto. (Japan)

55   1986   Sandberg's Report No. SEG-003,(March) A list of long-term research objectives.
Sandberg's Report No. SEG-004, (March). Additional information regarding the manufacturing procedure of the Searl Effect Generator.

56   1987   Sandberg's Report No. SEG-005, (June), "The Searl Effect and the Searl Effect Generator." (Printed in *raum&zeit*, August/September, 1989). It is the reconstruction of the experimental work carried out by JS between 1946-1952, based on the interviews JS gave to the public since 1982.
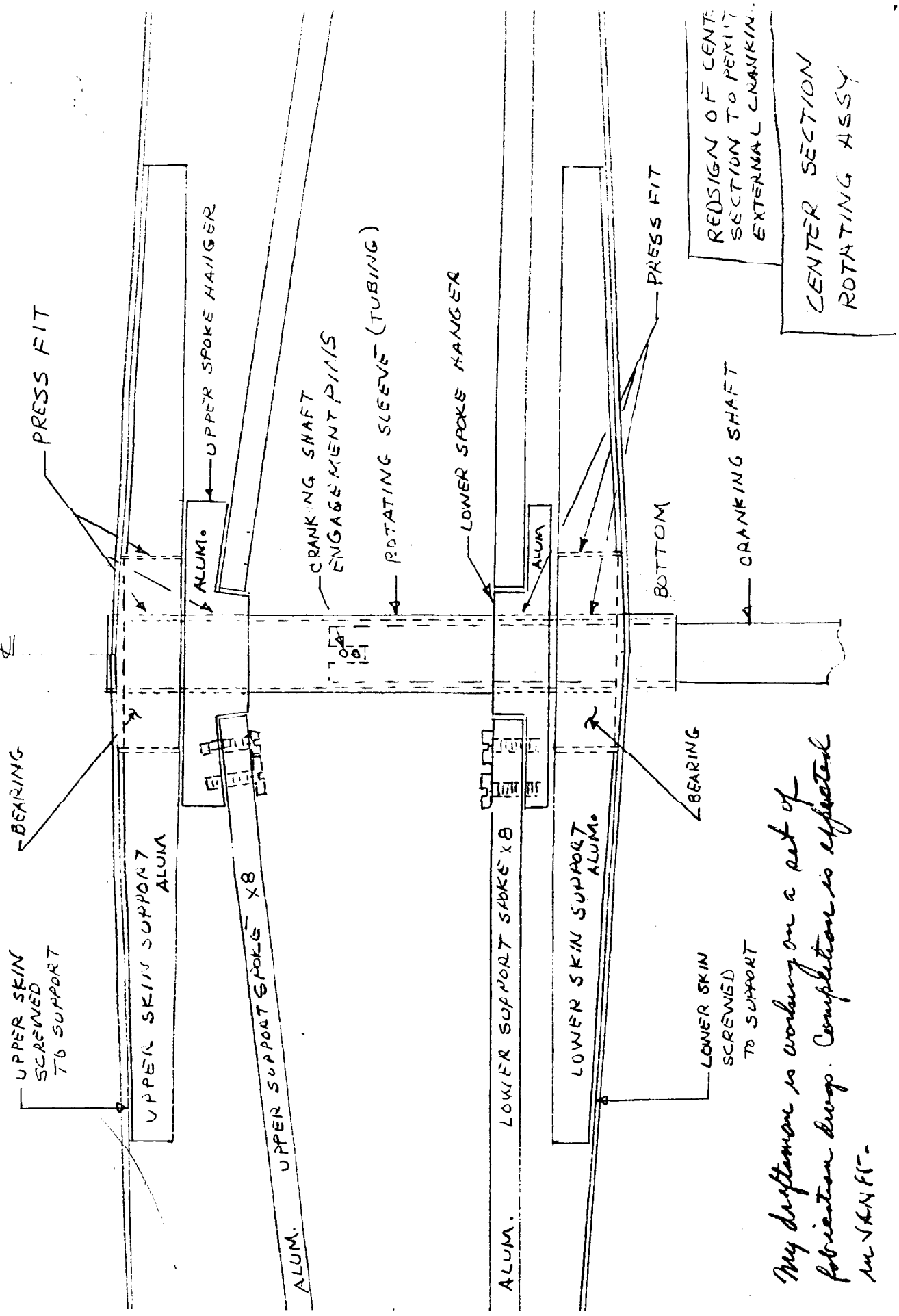
57   1988   New Energy Technology Conference, Hull/Ottawa: No Searl data could be released. The rights were being negotiated by someone in Australia.

58   1989   Registration Documents from Companies House, London, England, indicate that the consortium formed by Searl, named "Direct International Science Consortium, Ltd." (DISC), was to be dissolved within 30 days of July 25, 1989.
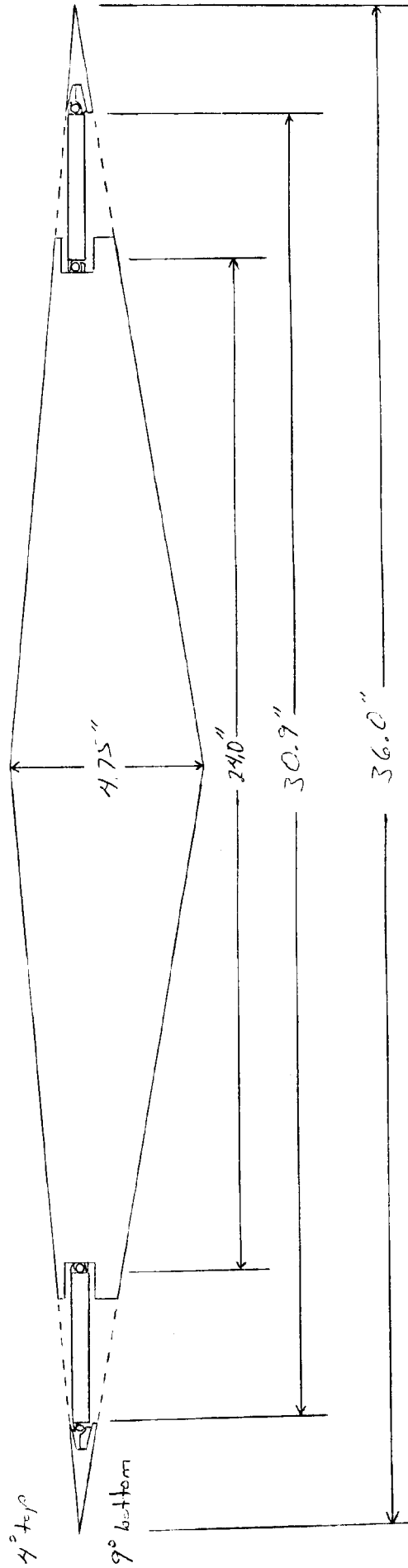
MOTOR- GENERATOR
MECHANICAL TEST STAND

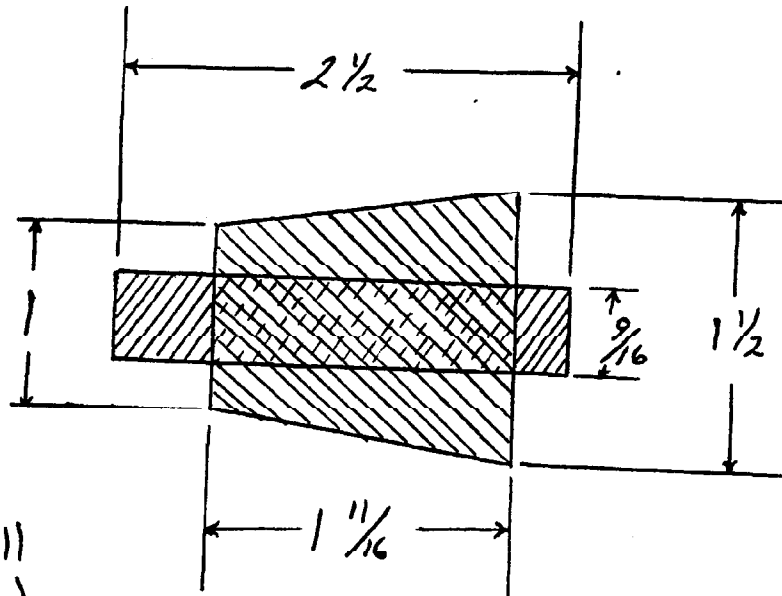1/2" WELDWOOD (36" X 36")

UPPER BEARING

UPPER SKIN SUPPORT
(LESS TAPER)

TAPER

8 SUPPORT BRACKETS

TEST BENCH

LOWER SKIN SUPPORT
(LESS TAPER)

LOWER BEARING

CRANKING SHAFT

HOLE IN BENCH

ELECTRO MAG. HANGER

CAP.

ELECTRO MAGNET

ROTATING RING

TOP

PRESS FIT

UPPER SKIN
SCREWED
TO SUPPORT

UPPER SPOKE HANGER

BEARING

UPPER SKIN SUPPORT
ALUM

ALUM.

CRANKING SHAFT
ENGAGEMENT PINS

ROTATING SLEEVE (TUBING)

LOWER SPOKE HANGER

ALUM.

UPPER SUPPORT SPOKE X8

LOWER SUPPORT SPOKE X8

ALUM.

LOWER SKIN SUPPORT
ALUM.

PRESS FIT

BOTTOM

CRANKING SHAFT

LOWER SKIN
SCREWED
TO SUPPORT

BEARING

REDESIGN OF CENTER
SECTION TO PERMIT
EXTERNAL CRANKING

CENTER SECTION
ROTATING ASSY

My draftsman is working on a set of
fabrication drwgs. Completion is expected
in JAN 95-

One rotating ring on two ball-race bearings (standard center)

4.75"

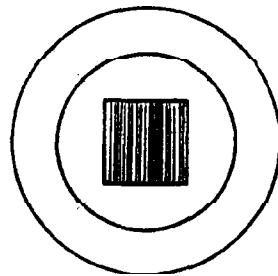24.0"

30.9"

36.0"

4° top

9° bottom

16 pcs. total
Cores of M5 Silicon Steel Transformer
Laminations 9/16" x 9/16" x 2½"

2½

1

9/16

1½

1 11/16

Full
Scale

Cross-Section Side View

End View

electrode "Rotating section" → MAIN Body

Disc Modification 326.25°

9-26-84

MAIN Body

Ring Detail

32 radial slots
.50" wide x 2.00" deep
one every 11.25°

½ ¼ Scale

32 - ¼" holes

r 15.50"
r 13.00"
14.25"
0.50
2.00"
2.50"

0.50
22.50°
33.75°
45.00°
56.25°
67.50°
78.75°
90.00°
101.25°
112.50°
123.75°
135.00°
146.25°
157.50°
168.75°
180.00°
191.25°
202.50°
213.75°
225.00°
236.25°
247.50°
258.75°
270.00°
281.25°
292.50°
303.75°
315.00°
337.50°

MOTOR-GENERATOR
MECHANICAL TEST STAND

½" WELDWOOD (36" X 36")

ELECTRO MAG. HANGER

CAP.

ELECTRO MAGNET

ROTATING RING

UPPER BEARING

UPPER SKIN SUPPORT (LESS TAPER)

TAPER

LOWER SKIN SUPPORT (LESS TAPER)

LOWER BEARING

CRANKING SHAFT

8 SUPPORT BRACKETS

TEST BENCH.

HOLE IN BENCH

A: HOLE DIM 6-32 TAP

If I use delrin I will not need these gaps

OUTTER ElECTRO-MAGNET MOUNTING Block
16 NEEDED PER UNIT

2.250"

2.125"

1.421"

.828"

.125"

.187"

A: Hole Dim - 6-32 TAP

.093"

4°

.937"

.593"

.187"

1.125"

.187"

A

.670"

1.062"

.125"

1.609"

.093"

A

A

.093"
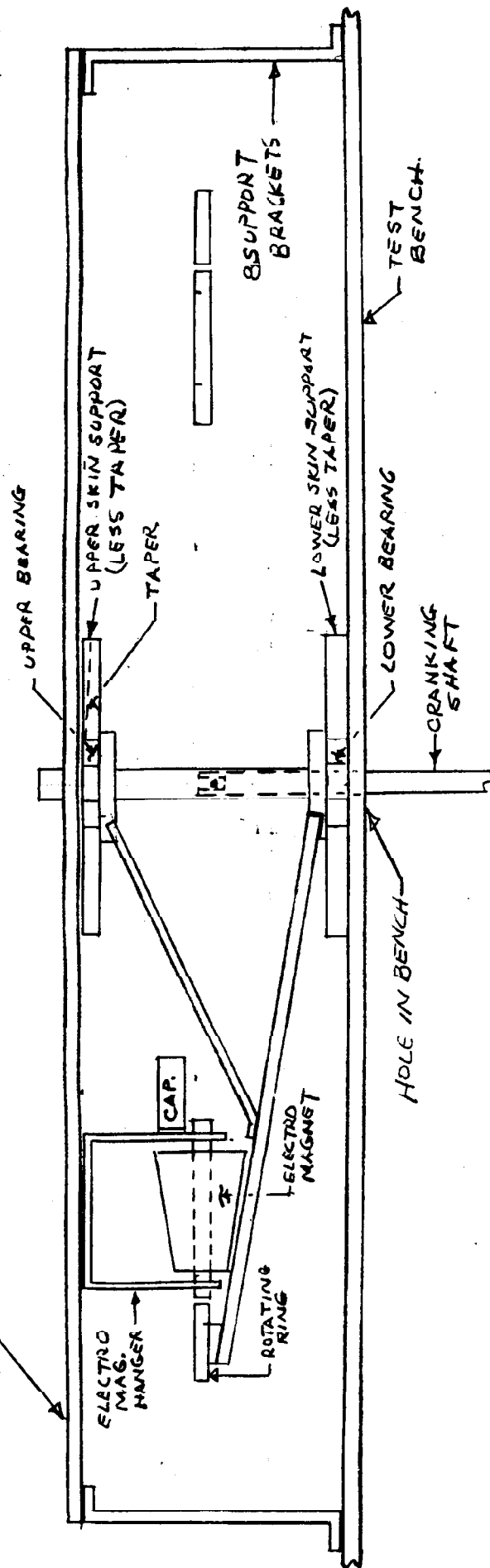
INNER Electro-MAGNET MOUNTING Block
16 NEEDED PER UNIT

One rotating ring on two ball-race bearings (in.

4° top

9° bottom

4.75"

24.0"

30.9"

36.0"

rotating ring on two ball-race bearings (inner & outer)

4.75"

24.0"

30.9"

36.0"

JOINT ⟂ — PLUG — BOTH ENDS

WELD

JOINT

HORIZ AXIS

FASTNER

5/8" O.D. ALUM. TUBE

5/8" O.D. ALUM TUBE

4.1"

DELCO BEARING NO. Z95D3 KRM PRESS FITTED

BRACKET

ADDITIONAL SUPPORT BEARING RODS+ IF NEEDED

PRESSED FIT ROD HOLDER

4 OR 6 RADIAL SUPPORT RODS FOR ROTATING ARMATURE

POINT

10 1/2"

.061 ALUM — UPPER MAIN BODY (SKIN)

WELD

BOX CONSTRUCT 4° FOR BRACKET TO MOUNT

ELECTRO MAGNET + CAPACITOR SEE BELOW

HORIZ AXIS LINE

4°

9°

SUPPORT RODS BE METAL? 1/4" x 1/2" ALUM. ROD.

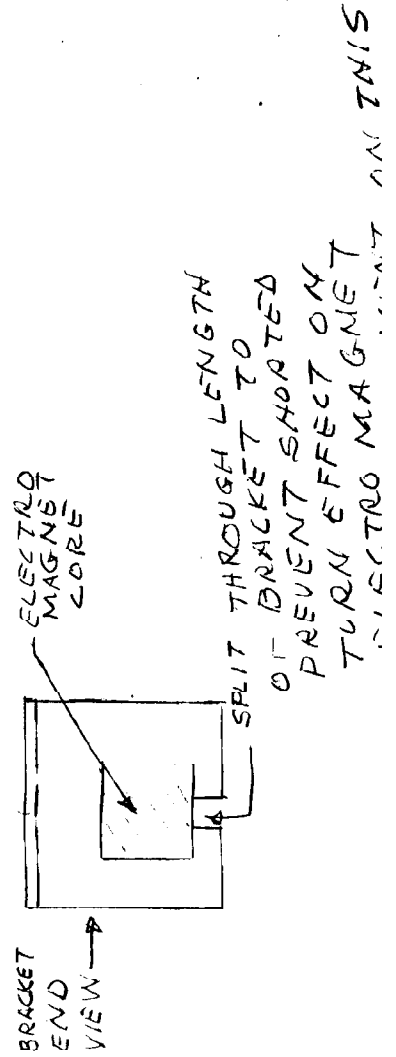OUTER PERIPHERAL (RADIAL) DIMENSION OF UPPER + LOWER SKIN

(SKIN)

ELECTRO MAGNET CORE

SPLIT THROUGH LENGTH OF BRACKET TO PREVENT SHORTED TURN EFFECT ON ELECTRO MAGNET ON THIS

BRACKET

UPPER MAIN BODY (SKIN)

ADDITIONAL SUPPORT
RODS + BEARING
IF NEEDED

PRESSED
FIT ROD
HOLDER

4 OR 6 RADIAL SUPPORT RODS FOR
ROTATING ARMATURE

HORIZ AXIS LINE

.061 ALUM

WELD

Box CONSTRUCT
FOR BRACKET
TO MOUNT

ELECTRO MAGNET
+ CAPACITOR
SEE BELOW

4°

9°

¼" x ½" ALUM. ROD.

OUTER PERIPHERAL (RADIAL)
DIMENSION OF UPPER + LOWER SKIN

COULD SUPPORT RODS
BE METAL?

LOWER MAIN BODY (SKIN)
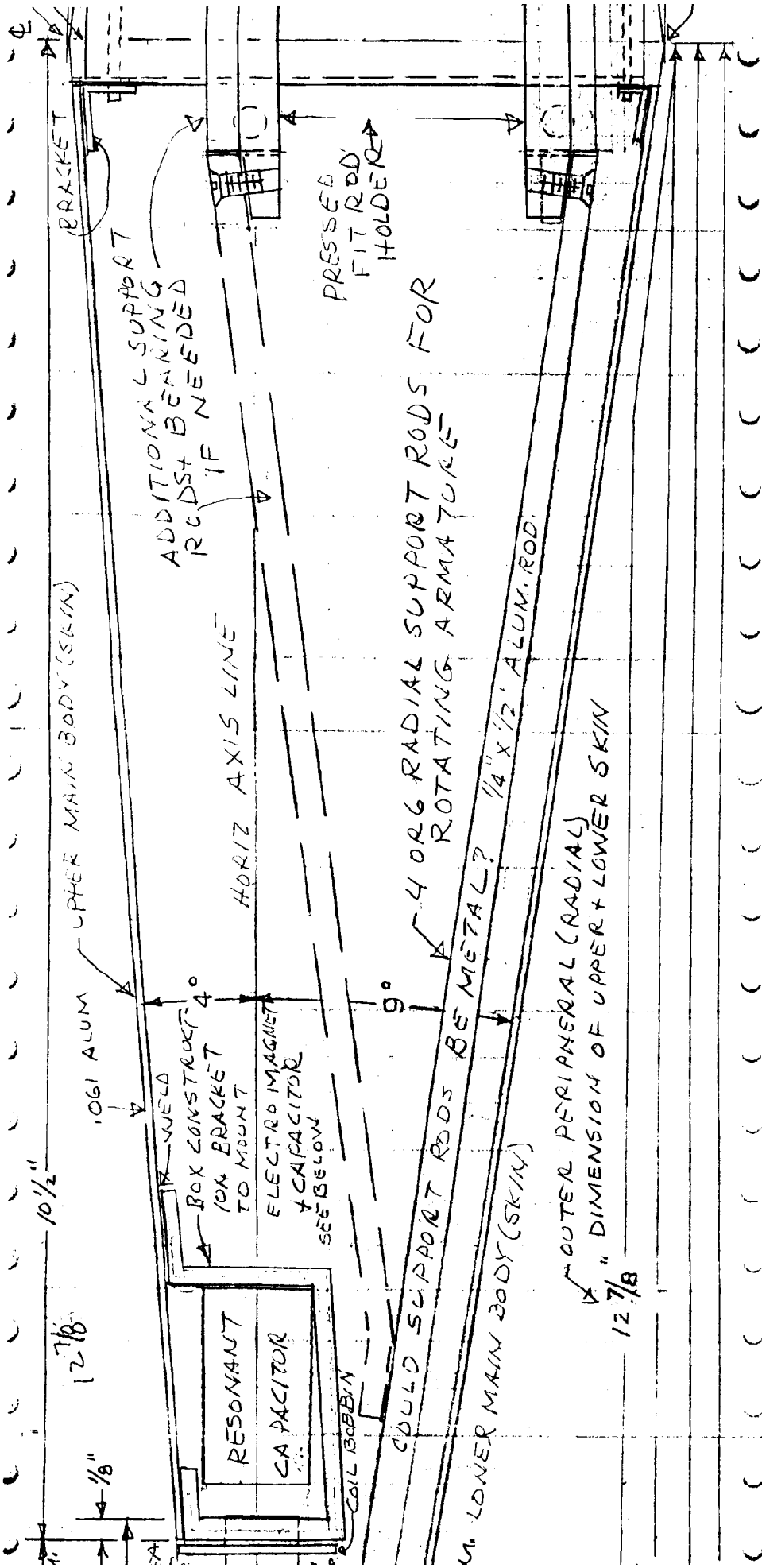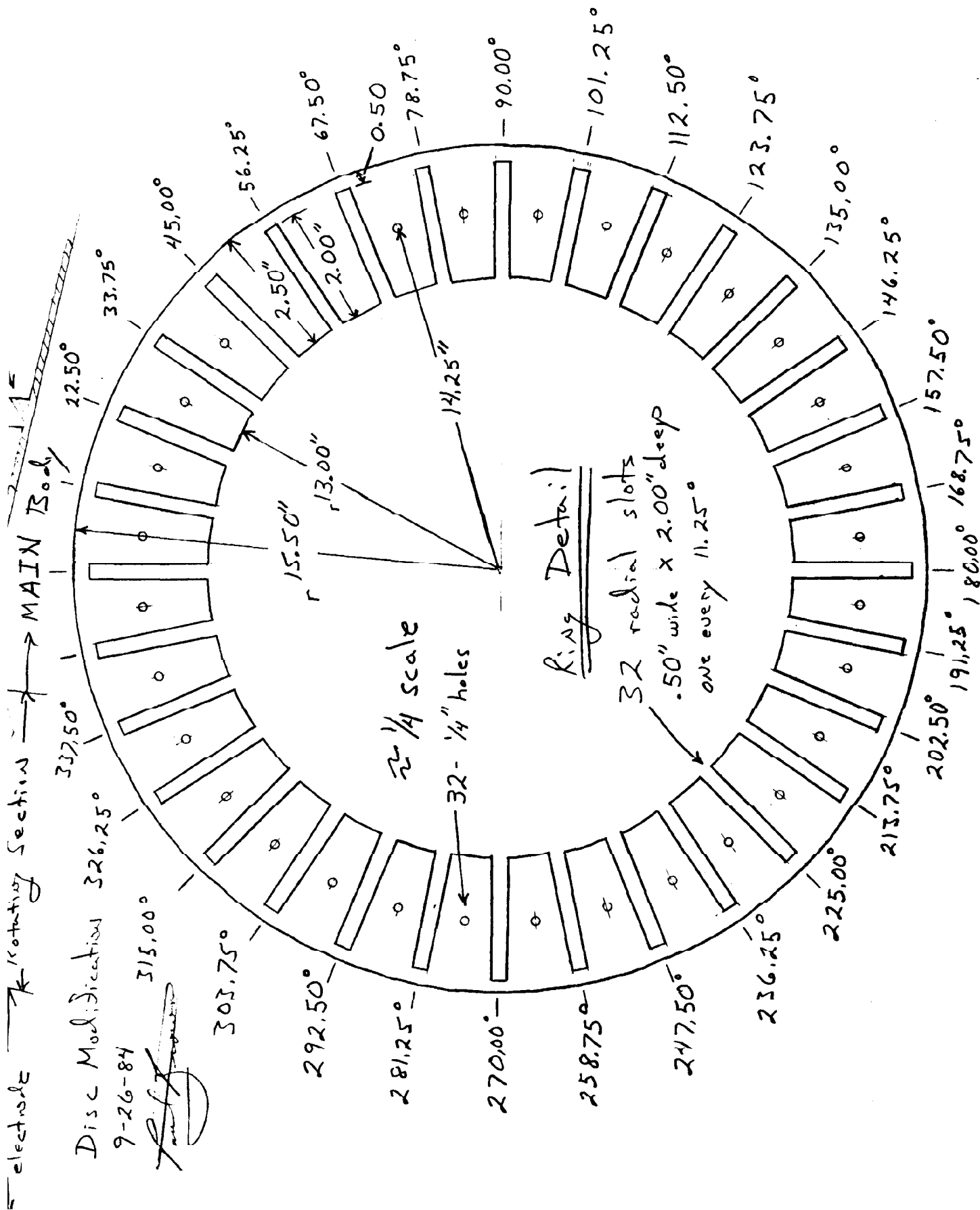
RESONANT
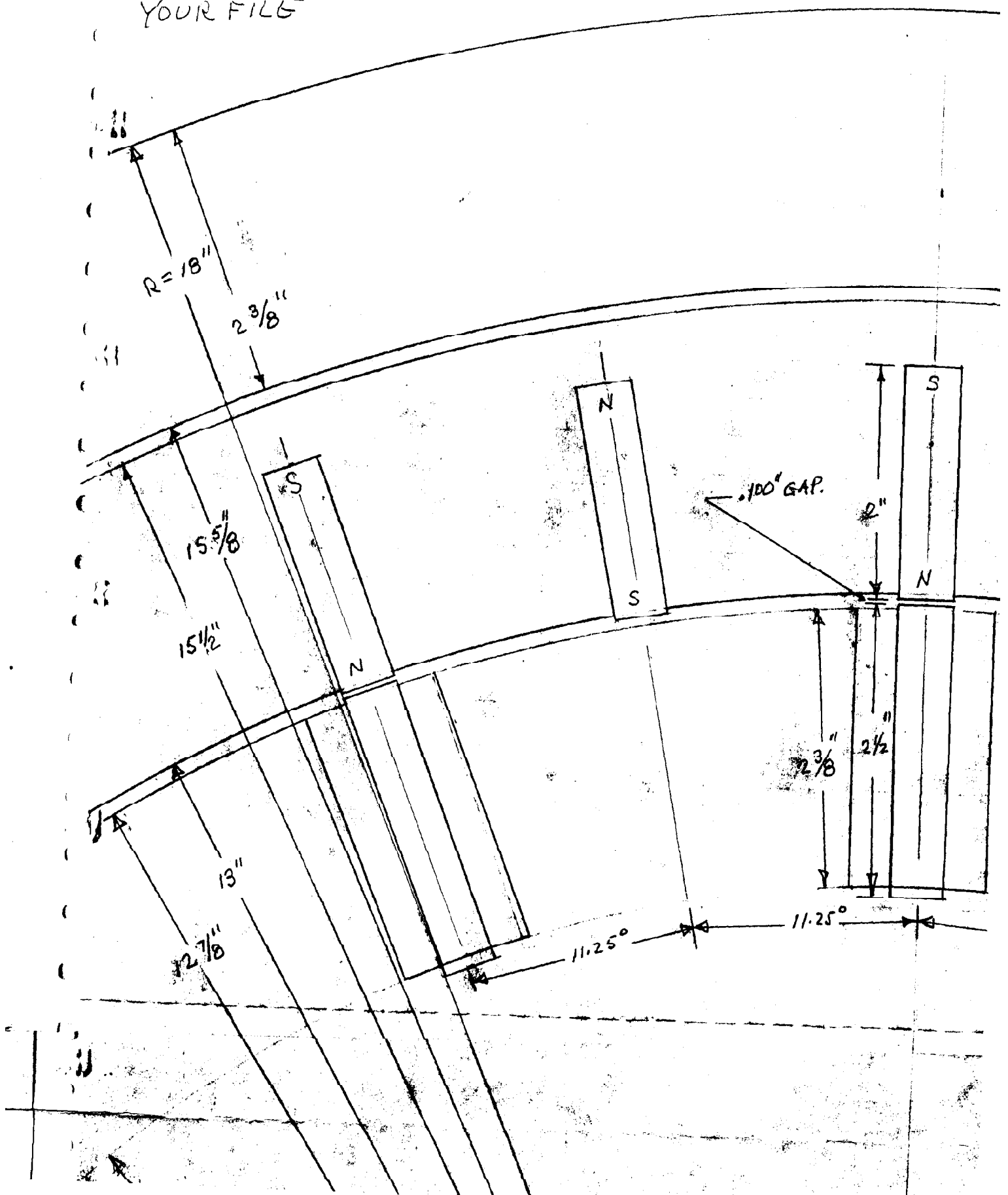CAPACITOR

COIL BOBBIN

10½"

12⅞"

⅞"

12⅞"

ELECTRO
MAGNET
CORE

SPLIT THROUGH LENGTH
OF BRACKET TO
PREVENT SHORTED
TURN EFFECT ON
ELECTRO MAGNET ON THIS

BRACKET
END
VIEW

Ring Detail

32 radial slots
.50" wide × 2.00" deep
one every 11.25°

2 ¼ scale

32 - ¼" holes

r 15.50"
r 13.00"
14.25"

2.50"
2.00"
0.50

Electrode → Rotating Section → MAIN Body

Disc Modification

9-26-84

Angles: 0.50, 22.50°, 33.75°, 45.00°, 56.25°, 67.50°, 78.75°, 90.00°, 101.25°, 112.50°, 123.75°, 135.00°, 146.25°, 157.50°, 168.75°, 180.00°, 191.25°, 202.50°, 213.75°, 225.00°, 236.25°, 247.50°, 258.75°, 270.00°, 281.25°, 292.50°, 303.75°, 315.00°, 326.25°, 337.50°
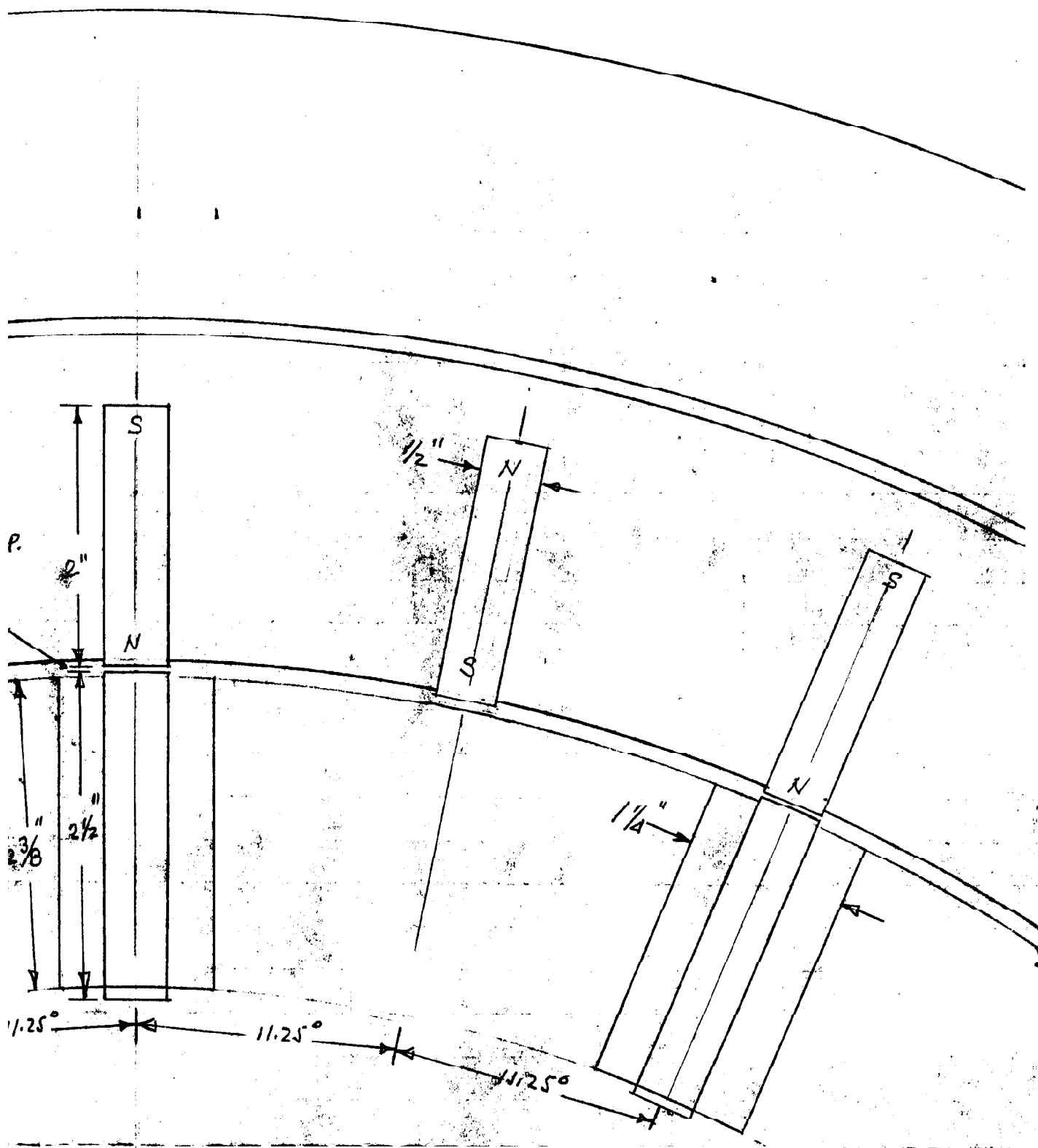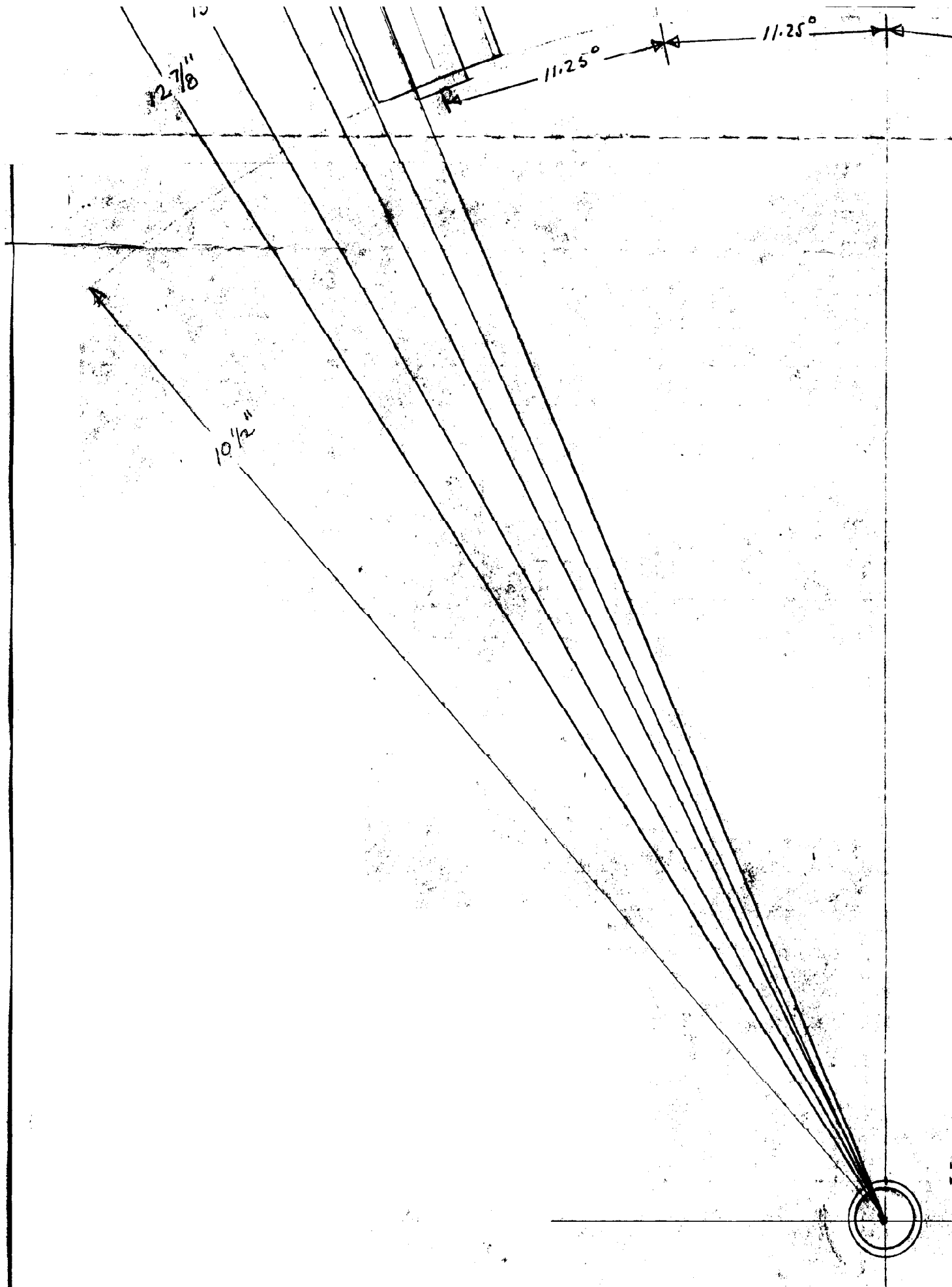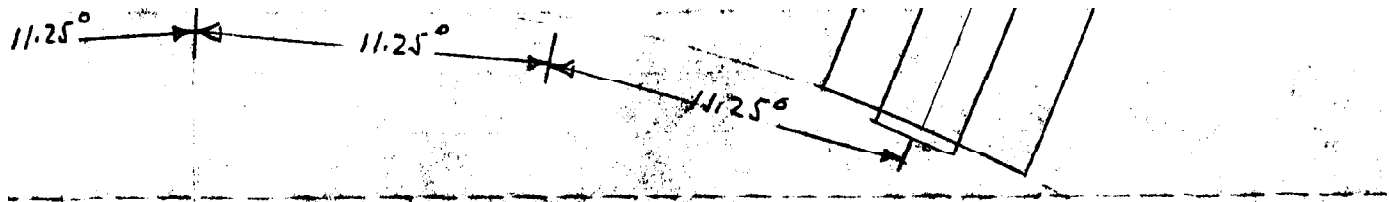
RETAIN THIS
COPY FOR
YOUR FILE

R=18"

2 3/8"

15 5/8"

15 1/2"

S

N

N

S

.100" GAP.

S

N

2"

13"

12 7/8"

2 3/8"

2 1/2"

11.25°

11.25°

P.

S

N

2"

N

S

1½"

S

N

3/8" 2½"

1¼"

1.25°   11.25°   11.25°

11.25°   11.25°

12 7/8"

10 1/2"

11.25°   11.25°

11.25°

11.25°

SHEET 2
TOP VIEW

HIGH CIRCULATING EDDY CURRENTS

UPPER MAIN BODY (SKIN)

LOWER MAIN BODY (SKIN)

SHORTED TURNS

90°

CAPACITOR

CAPACITOR

S

L

C

N

S PERM. MAG. N

4°

9°

MASS ATTRACTION AREA

MASS REPULSION AREA?

LOWER FIELD

MINUS CHARGE

STATOR WHEEL

Full Scale
Cross-Section

Strut   Strut   Top

ball-Qce
Ring   Permanent   Electro Magnet
magnet
ball-Qce   COIL
9°

Strut   ← Wall
Strut   Wall

outer →   Rotating Section →   → MAIN Body
electrode →

337.50°   22.50°

Disc Modification 326.25°   33.75°
9-26-84
315.000°   45.0

303.75°   2.50"

r 15.50"   2.00"
292.50°   r 13.00"

~ 1/4 scale
281.25°   14.25"
32 - 1/4" holes

270.00°

258.75°   Ring Detail

32 radial slots
247.50°   .50" wide x 2.00" deep
one every 11.25°

236.25°   135

225.00°   146.25°

213.75°   157.50°
202.50°   168.75°
191.25°   180.00°

RETAIN THIS COPY
FOR YOUR FILE

SHEET 1
1/2 OVERALL
CROSS SECTION
FULL SCALE

12 7/8

12 7/8

7/8"

13"

18"

2 3/8"

2 1/2"

15 5/8

1/8"

.100"

1 1/4"

2 1/2"

1/8"

PLUG - BOTH END

5/8" O.D.
ALUM. TUBE

DELCO
BEARING
NO. Z95D3 x RM
PRESS
FITTED

4

9°

4°

10 1/2"

1/8

12 7/8"

10,500"

R = 18"

15 5/8"

15 1/2"

2 3/8"

2 3/8"

2 1/2"

.100" GAP.

2"

1/2"

N   S

N   S

N   S

S   N

The 16 electromagnets housed in the craft body are the AC stator while the 32 permanent magnets in the free turning ring are the armature; together, this stator and armature comprise a basic permanent magnet motor to drive the ring and this circuit is about 80% efficient.
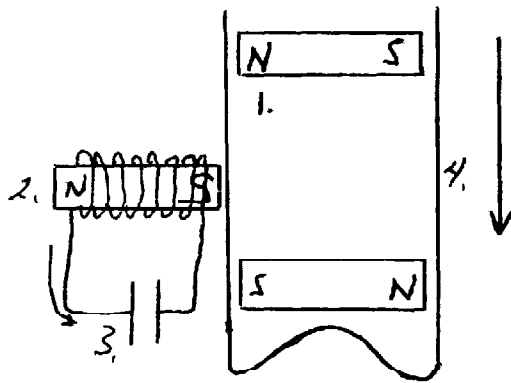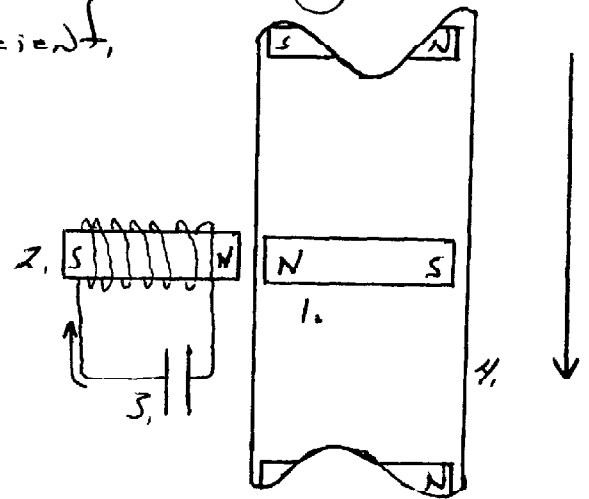

Fig 1.

Fig 2.

Figures 1. & 2. illustrate the interaction between the stator (2 & 3) and the armature (ring 4 and magnets 1. We will concentrate on one electromagnet 2 while understanding this represents the action of all 16 electromagnets. The electromagnet 2 is also an inductance coil and is wired in series with a capacitor 3.

This inductance coil 2, is comprised of a core (either of MS laminations or ferrite) and a coil winding. Assume the circuit of 2 & 3 contains no energy; then, as in figure one; the motion of the ring 4 brings the permanent magnet 1, into the proximity of the coil assembly 2 which induces an opposing magnetic pole in the core of 2. The motion of the approaching magnet 1, varies the magnetic flux of the induction coil core which induces a voltage & current in the winding of 2 which stores this energy in the capacitor 3. Simply stated — the kinetic energy of the approaching magnet is stored ~~it is~~ as potential energy in a capacitor via a ~~mg~~ magnetic transducer assembly.

Now in Fig. 2 we see the capacitor discharge which causes current to flow in the opposite direction producing a magnetic pole of the same polarity as that of the inducing magnet. This action now acts

to repel the magnet 1. Or again simply stated;
the potential energy of the capacitor is transformed
into Kinetic energy of the magnet via the magnet.
transducer, Without friction - this process is
95 % efficient.

The action of the rotating conductive ring with
alternately oriented permanent magnets ionizes the
air due to induced eddy currents from the alternating
magnetic field.

The earth's magnetic field is the stator while
the rotating ring is the armature of a homopolar gen.
which produces an electron current toward the rim.
This homopolar effect produces a polarity with the
Negative charge stored at the rim of the craft
and a positive charge on the craft central body

Fig 3.
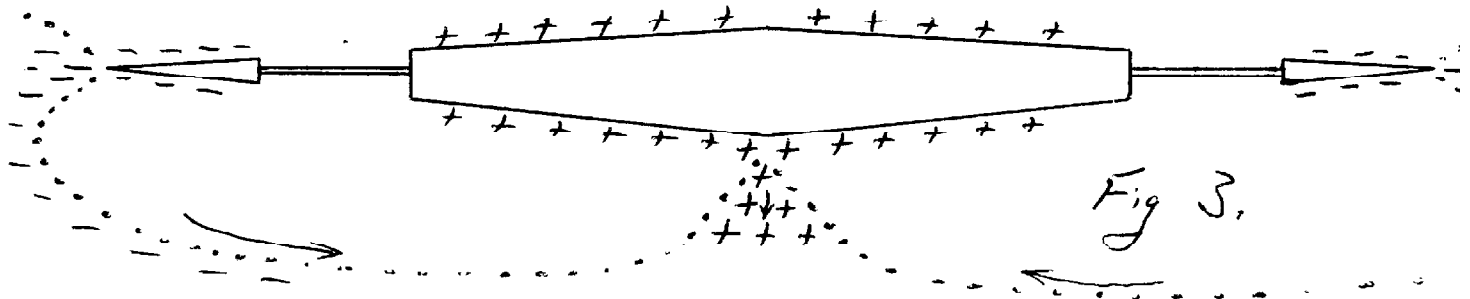
The homopolar generator is in itself about 95% efficient, however, it is a well known anomally that homopolar generators require no net torque. The result is that the energy of the motorizing circuit (principle one) gets used twice so that the combined motor/generator circuit (of principle one and three) operates at an efficiency of 170%!

Fig. 3 shows the charge location/distribution on the craft. Note the separation of charge between the craft main body and its outer ring across the rotating ring. This separation of charge constitutes a capacitor and this capacitor electric field is perpendicular to the rotating ring. Also, the electric field is static while the magn of the moving ring provide a magnetic field of an alternating nature cutting through the electric field - giving rise to high potentia

The alternating magnetic field impressed upon a shorted turn (the craft's conductive outer skin) induces an eddy current electric field of high

intensity as depicted in figure 4.

Repulsion
Zone

Attraction
Zone

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