



1900 SERIES

PRELIMINARY INFORMATION ON G.S.D.

GALACTIC STORAGE DEVICE

INTRODUCTION : The philosophy of the Galactic Storage Device is based upon maximising the utilisation of the available recording surface available.

If consideration is given to the fact that magnetic tape can hold 800 bits/inch longitudinally but only 14 bits/inch laterally, it becomes obvious that the available recording area is not being utilised economically.

Optimum surface utilisation can not be obtained when using two dimensional media such as tapes on discs. The surface of a sphere forms the ideal recording medium. This is the basic storage element of the G.S.D.

A hollow aluminium spheroid coated with a ferrite surface is rotated on a cushion of air and accessed by single read/write head.

The recording tracks are polydimensional and are divided into two classes - equatorial and polar.

The surface may be recorded upon in two dimensions.

The areas of critical tract intersection form the four "home" positions of the spheroid.

Minor intersections i.e. single tract intersection form the division between individual words of store.

See diagram 1



Thirtytwo spheroids are housed in a planetary transport. Sixteen large spheroids in the outer orbit and sixteen smaller spheroids in the inner orbit. The data storage capacity is the same for both types.

See diagram 2

Four planetary transports comprise one Galactic unit. The unit has two controls and two read/write chambers, each with a single head. Two chambers may be on line simultaneously. Each containing two spheroids.

See diagram 3 & 4

The spheroid is drawn into the read/write chamber by vacuum and is rotated by air pressure. Reading and writing takes place in the normal manner.

CAPACITIES : A spheroid consists of 512 equatorial tracks and 512 polar tracks. The four points of critical intersection form the "home" positions H.0., H.1., H.2., and H.3. These are used as the file index points.

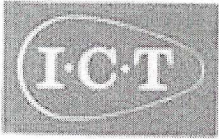
Each track consists of 512 words.

One track is both the maximum and minimum individual unit of access.

One spheroid	1024 tracks of 512 words	524,288 WDS
One planetary transport	32 x 524,288	16,737,216 WDS
One Galactic unit	4 x 32 x 524,288	66,948,864 WDS

Access Times

Planetary transport selection	15 ms
Half orbit rotation	10 ms
Orbit selection	2 ms
Spheroid access	10 ms
Half spheroid rotation	.005 ms



GALACTIC STORAGE DEVICE

PLAN VIEW DIAGRAM

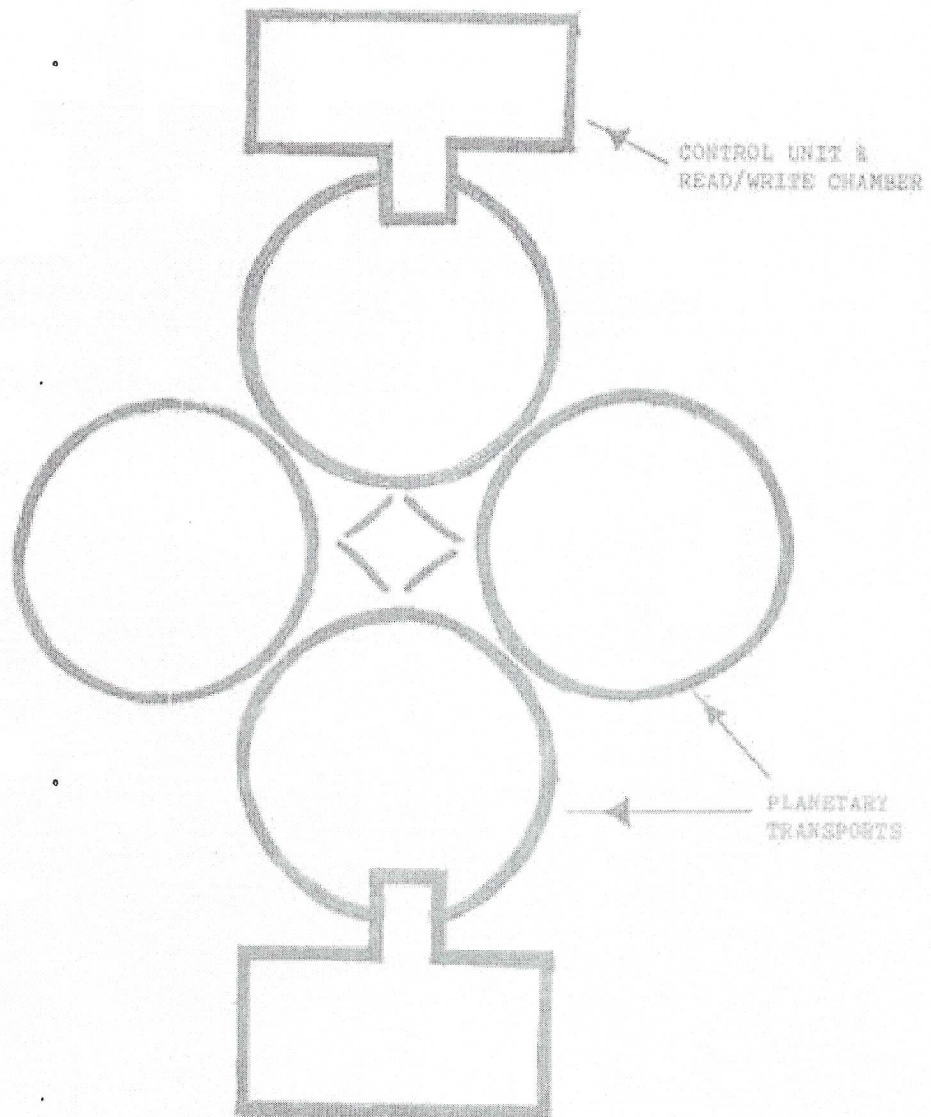
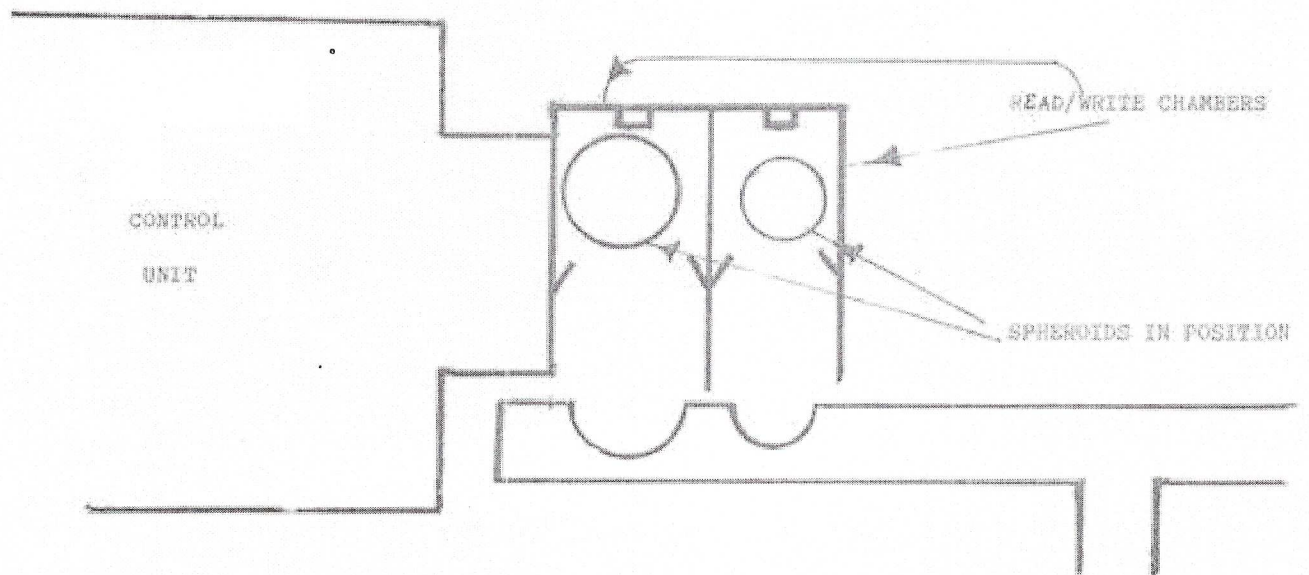
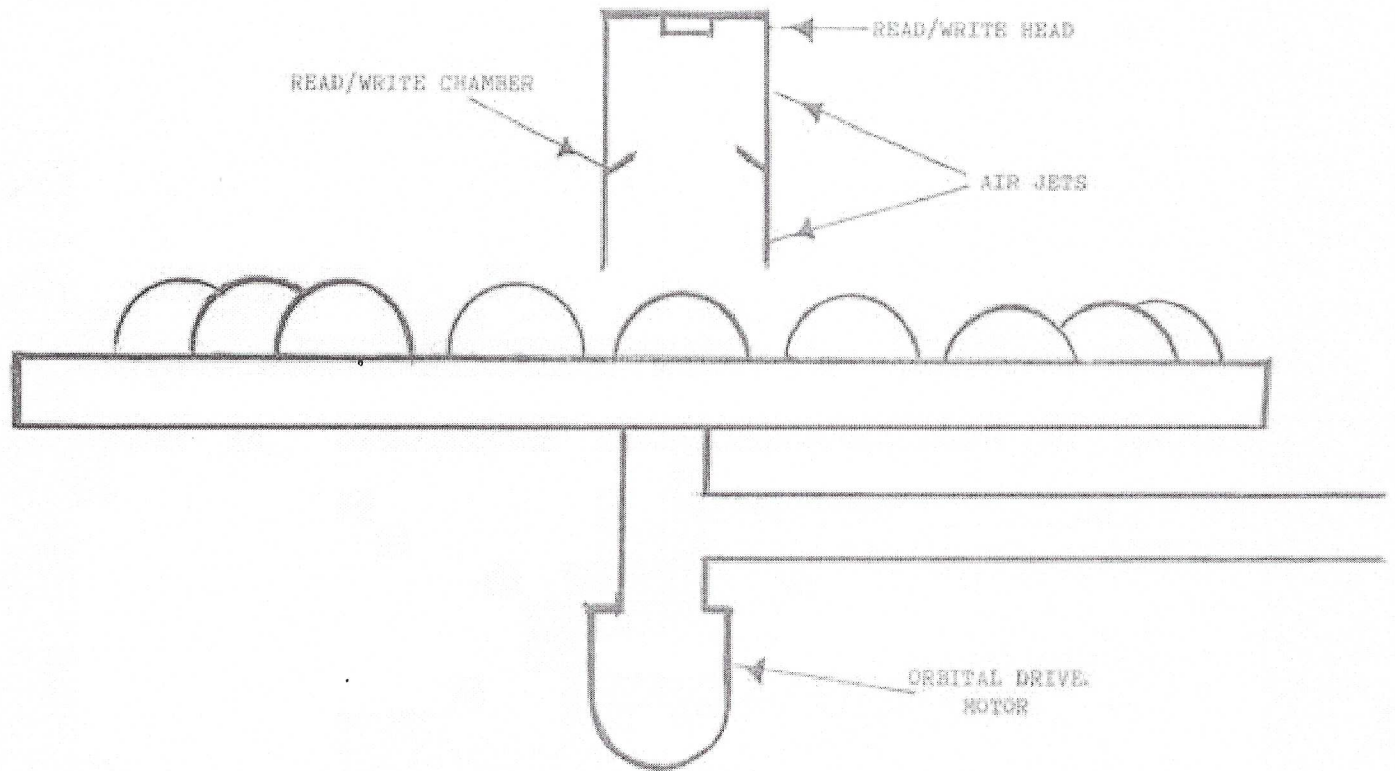


DIAGRAM 1



1900 PLANETARY TRANSPORT

DIAGRAM 5



1900 PLANETARY TRANSPORT
PLAN VIEW DIAGRAM

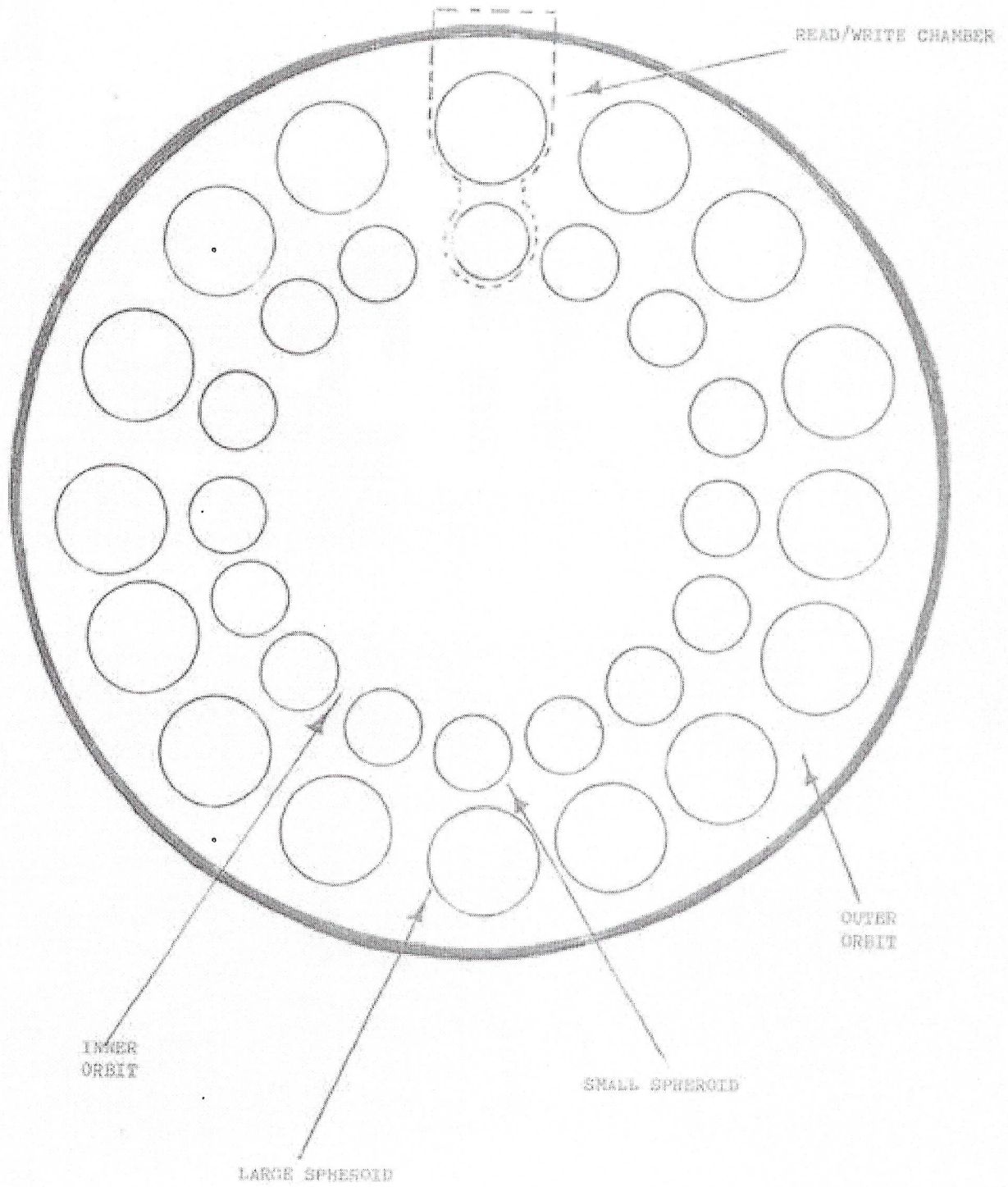


DIAGRAM B



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TRACK DIAGRAM

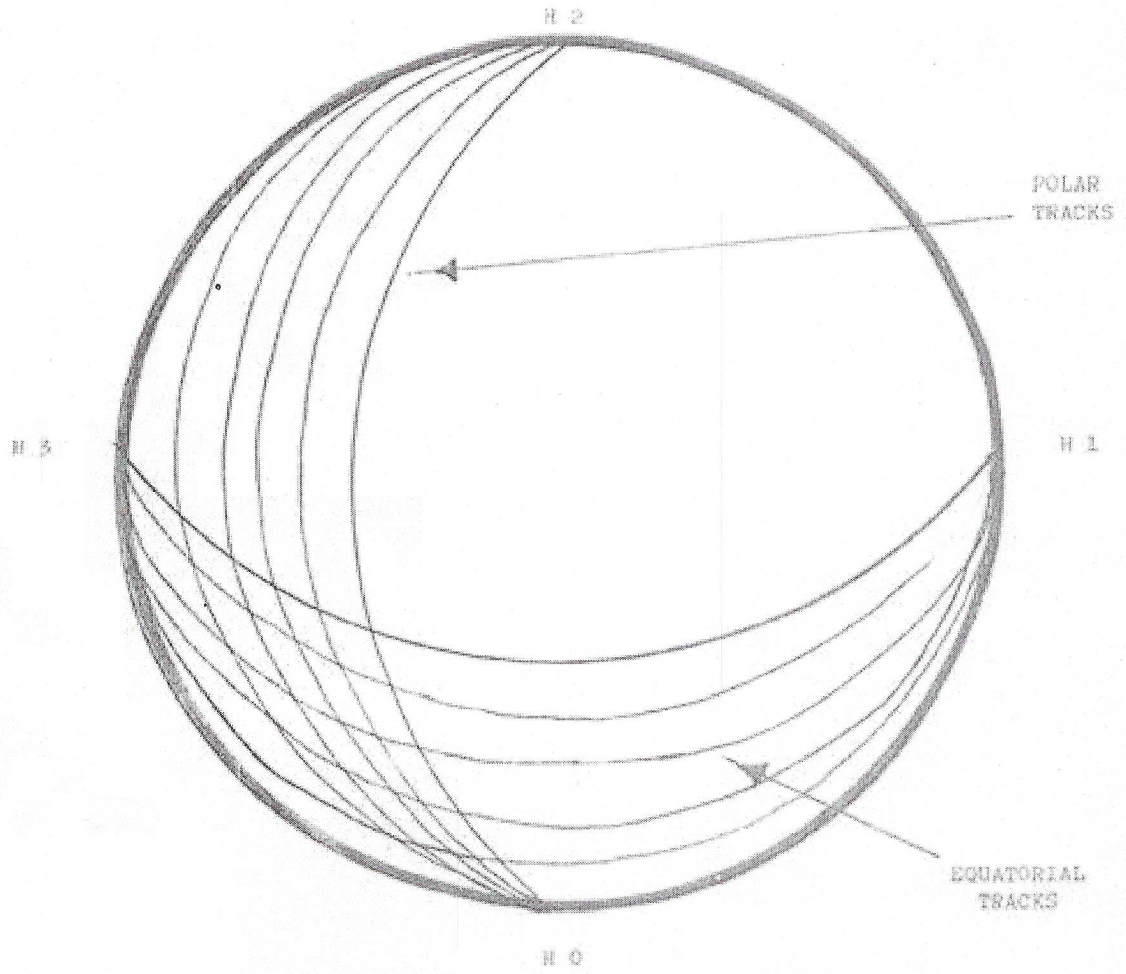


DIAGRAM 4



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PRELIMINARY INFORMATION - PROGRAMMING

GALACTIC HOUSEKEEPING SYSTEM

This is compatible with all storage device software

The following instructions may be used but are not recommended for customer release.

G S D E F	Open File (This Macro has the effect of giving a Program access to a named file)
G S E N D	Close File
S N A B L S	Snatch Balls (Positions two speroids, one large and one small)
S U K B L S	Suck Balls (Balls are drawn into chamber vacuum)
S P I B L S	Spin Balls (Balls rotate in chamber on Polar axis)
T W I B L S	Twist Balls (Ball axis changes to equatorial)
U T W B L S	Untwist Balls (Balls Polarise)
E X B L S	Examine Balls (Balls Read)
D R P B L	Drop a Ball (Drops small ball into Planetary Transport)
D R B B L	Drops a big ball
S C R A B L	Scratch Ball (writes Scratch Label)
W I P B L	Wipe Ball (Clears File Area)
B F	Ball Full (Overflow condition requiring software)
S O R B L S	Ball Sort

The enhanced version of the Housekeeping System will cause a multiple ball drop on parity failure.



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CONSOLE MESSAGES

N O B L S	No Balls - Runout
G O O L Y	Small Ball in large reading chamber
J A M B L	Large Ball in small chamber
B L A B	Ball abraded
B L U P	Small Balls up in chamber
B B L U P	Big Balls up in chamber
L O S B L	Can we have our ball back
D U M B L	Dump a Ball
C H E W B L	Remonstratation condition
K N O T B L	Jam on planetary transport
O O O H !	Ball flattened
A B L D P	All Balls dropped, end of run.
W A L O B	What a lot of Balls (too many Balls on Planetary Transport)