DATA SET CATALOG #91
OGO 1 & 3
Electron Spectrometer
64-054A-21C 11 tapes
66-049A-22C 18 tapes

OGO I, ELECTRON SPECTROMETER

64-054A-21C

556 BINARY, 7 TRACK, 1 FILE, IBM 7094

D-NUMBER	C-NUMBER	TIME SPAN
D-01939	C-01193	09/09/64 - 11/10/64
D-05001	C-02674	11/10/64 - 01/03/65
D-05002	C-02675	02/09/65 - 04/20/65
D-05003	C-02676	04/20/65 - 06/04/65
D-05004	C-02677	06/04/65 - 06/20/65
D-05005	C-02678	08/09/65 - 10/26/65
D-05006	C-02679	10/26/65 - 12/15/65
D-05007	C-02680	01/06/66 - 05/27/66
D-05008	C-02681	08/31/66 - 12/12/66
D-05009	C-02682	03/03/67 - 06/05/67
D-05010	C-02683	09/03/67 - 12/06/67

F4-CS4A-2:C

OGO I ELECTRON SPECTROMETER

THE ORIGINAL TAPES WERE PRODUCED WITH 48 BIT WORDS ON A MACHINE OTHER THAN AN IBM 7094. SINCE THE 7094 MUST WORK WITH A 36 BIT WORD, THE TWI (TAPE WORD INCOMPLETE) SWITCH WAS USED DURING THE DUPLICATING PROCESS.

THIS DATA SET CONSISTS OF 16 MAGNETIC TAPES. EACH TAPE IS PACKED AT A DENSITY OF 556 BPI, BINARY MODE, [illegible] PARITY, AND HAS ONE FILE. THERE ARE NO PROBLEM TAPES. INDIVIDUAL TAPE TIME SPANS ARE AS FOLLOWS:

SEPT 7, 1964 - NOV 10, 1964

NOV. 10, 1964 - JAN. 3, 1965

FEB. 9, 1965 - APR 20, 1965

APR. 20, 1965 - JUNE 4, 1965

JUNE 4, 1965 - JUNE 20, 1965

AUG 5, 1965 - OCT. 26, 1965

OCT. 26, 1965 - DEC 10, 1965

JAN 6, 1966 - MAR 27, 1966

AUG. 31, 1966 - DEC. 12, 1966

MAR. 5, 1967 - [illegible] 1967

SEPT 3, 1967 - DEC [illegible] 1967

TRI [illegible] CN J. Chase

THE OGO FORMAT FOR CONDENSED TAPES

The many thousand OGO-I and OGO-III data tapes have been processed [illegible] a set of approximately 70 condensed tapes have been generated. [illegible] electron spectrometer and the ion chamber data are on a separate [illegible] of condensed tapes. These tapes are written in binary parity at [illegible] bpi. The data on these tapes are in approximate time order. Real [illegible] and spacecraft tape recorder data has been merged together on the [illegible] tape except from June 9, 1966 until July 23, 1967 on OGO-III [illegible] (prior to attitude control failure). During the period prior to [illegible] failure of the attitude control system there is a large amount of [illegible] between the real time data and the spacecraft tape recorder data [illegible] therefore separate real time and playback condensed tapes have [illegible] generated.

Each tape contains one file of data, the file being terminated by the [illegible] end-of-file. The file is made up of an arbitrary number of [illegible] and covers an arbitrary amount of time. The records contained [illegible] file are of variable length. The length varies from 21-1000 [illegible] words. The first twenty 48-bit words of each record constitute [illegible] which describes the information for that record. The following [illegible] description of the header for both the ion chamber and the spectrometer:

Word Number

1 [illegible] in BCD (ex. ZZ - 7367)

2 [illegible] Number in BCD (ex. DECN 173)

3 [illegible] Number in BCD (ex. REEL 06)

4 [illegible] 48-bit packed word of the following form:

12 bits	6 bits	15 bits	15 bits
EG	MODE	YEAR	DAY OF YEAR

EG = spacecraft equipment group

MODE = 0 1 KB data
= 1 8 KB data
= 2 64 KB data
= 3 1 KB data

5 Start time of record in milliseconds of day (integer).

6 End time of record in milliseconds of day (integer).

7 Experiment code in BCD

Code = CHAMBER$_{\wedge}$ for an ion chamber record.
Code = EL$_{\wedge\wedge}$SPEC for an electron spectrometer record.

8 The number of 48-bit words in this record (integer).

9 Record number (This should not be used since it is not correct.)

10 0 if this is an OGO-I record.

1 if this is an OGO-III record.

11 Used only if the record is an ion chamber record.

If word 11 is zero (0) then the ion chamber data within the record is not in exact time order.

If word 11 is equal to SPRIED$_{\wedge\wedge}$ in BCD code, then the record is in exact time order.

12-20 Spares.

If the record is an ion chamber record then each successive set of three 48-bit words (beginning with word 21) contains one 10 second average. (At low rates 10 second averages may not be possible, and the average is the smallest multiple of 10 seconds available.)

The following is a description of this three word group:

Word #1

18 bits	30 bits
	start time of the average milliseconds (integer)

Not to be used.
contains an arbitrary number.

Word #2

31 bits	15 bits	2 bits
Actual live time of the average*	# of ramps in the average	KIND

*The average may not cover the full end-start time because of noise filtering.

KIND designates the different modes of data retrieval from the spacecraft.

KIND = 0 unfiltered ramps
= 1 filtered ramps
= 2 clock pulses
= 3 analog word

Word #3 The rate in normalized pulses per second in 1604 floating point format.

If the record is a spectrometer record then the following sequence of words are f[illegible]d on the tape (beginning with word 21). Each word has the same format.

6 bits	12 bits	30 bits
NWWC	DATA	time in milliseconds

0 < NWWC ≤ 40

NWWC = 0 indicates the start of a new 40 word spectrometer frame.

NWWC > 1 indicates the particular word of the 40 word spectrometer frame.

A 40 word spectrometer frame represents the following set of data:

Words	Type of Data
1, 11, 21, 31	Channel I data
2, 12, 22, 32	Channel II data
3, 13, 23, 33	Channel III data
4, 14, 24, 34	Channel IV data
5, 15, 25, 35	Channel V data

6, 16, 26	Channel I Background
7, 17, 27	Channel II Background
8, 18, 28	Channel III Background
9, 19, 29	Channel IV background
10, 20, 30	Channel V Background
35, 37, 38, 39, 40	Synchronization Word

KODE = 0 representing the start of a new 40 word frame will always be on the tape.

KODE ≥ 1 will not always be present. If the data for any given readout is zero counts accumulated then the zero data is indicated by the absense of that corresponding word. That is, only non-zero data will be presented. If a correct sync was found this word is also not placed on the tape. If the sync contained an error (as many as 40% sync errors could occur and yet on the proper computer reduction) the error (i.e. the actual number found) would be indicated. (If, for example, all 35 data words have zero data and the 5 sync words were properly found, then only the KODE = 0 word is present indicating the start of a frame.)

The spectrometer sends data to ground in floating point format. If this number is not properly normalized due to missing or added bits introduced by telemetry noise, the data on the condensed tape is flagged by DATA = 7777₈. The data has not been filtered for noise.

The last word of the record = 0.

NOTE:

All records on the condensed tapes have been ordered as to start time of the record as indicated by word 5 of the record. There may be considerable overlap in the time covered by the records.