

#342

APOLLO 12, 14 + 15

SUPRATHERMAL ION DATA,
TOTAL ION DETECTOR DATA,
AND
MASS ANALYZER DATA

69-099C-05C, 05F

71-008C-06C, 06F

71-063C-05C, 05F

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC
INFORMATION SYSTEM:

<http://nssdc.gsfc.nasa.gov/nmc/>

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

- a. Associated Documents To find associated documents you will need to know the document ID number and then click here.
<http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/>

- b. Core Catalog Materials

APOLLO 12 LM/ALSEP

MASS ANALYZER ION DATA ON TAPE

69-099C-05C PSFP-00115

THIS DATA SET HAS BEEN RESTORED. THERE WERE ORIGINALLY 41 7-TRACK, 800 BPI TAPES WRITTEN IN BINARY. THERE ARE THREE RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON A 7094 COMPUTER AND THE RESTORED TAPES WERE CREATED ON A IBM 9021 COMPUTER. THE D STACKED TAPE 108761 WAS CREATED WITH TAPES THAT WERE SENT BY THE P.I.. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR005021	DS005021	D017209	1	11/19/69 - 03/07/70 (a)
		D017210	2	03/07/70 - 05/22/70
		D017208	3	05/22/70 - 08/08/70 (b)
		D017274	4	08/08/70 - 10/30/70 (c)
		D107275	5	10/30/70 - 01/23/71
		D017276	6	01/23/71 - 04/06/71
		D017277	7	04/06/71 - 06/30/71 (d)
DR005022	DS005022	D017690	1	06/30/71 - 09/14/71
		D017691	2	09/14/71 - 11/29/71 (e)
		D017692	3	11/29/71 - 02/22/72 (f)
		D017881	4	02/22/72 - 05/15/72
		D017880	5	05/15/72 - 08/06/72 (g)
		D018309	6	08/06/72 - 11/06/72
		D108308	7	11/06/72 - 03/03/73

APOLLO 12 LM/ALSEP
 MASS ANALYZER ION DATA ON TAPE
 69-099C-05C

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR006254	DS006254	D108761	1	03/02/73 - 03/08/73
			2	06/27/73 - 07/05/73
			3	07/28/73 - 08/02/73
			4	08/02/73 - 08/08/73
			5	08/08/73 - 08/27/73
			6	08/27/73 - 09/22/73
			7	09/22/73 - 09/28/73
			8	09/28/73 - 10/04/73
			9	10/03/73 - 10/18/73
			10	10/18/73 - 12/14/73
			11	11/05/73 - 11/20/73
			12	11/20/73 - 11/25/73
			13	01/01/74 - 04/04/74
			14	01/01/74 - 01/06/74
			15	01/21/74 - 01/27/74
			16	03/08/74 - 03/14/74
			17	04/08/74 - 04/12/74
			18	05/02/74 - 05/02/74
			19	05/06/74 - 05/12/74
			20	05/12/74 - 05/12/74
			21	05/27/74 - 06/12/74
			22	06/21/74 - 06/26/74
			23	08/11/74 - 08/27/74
			24	08/17/74 - 09/01/74
			25	09/01/74 - 09/05/74
			26	10/28/74 - 11/02/74
			27	11/19/74 - 03/14/75

- (a) D017209: READ ERRORS OCCURRED IN RECORDS 568, 569, OF FILE 1
- (b) D017208: READ ERRORS OCCURRED IN RECORDS 1141, 1142, OF FILE 1
- (c) D017274: READ ERRORS OCCURRED IN RECORD 1787 OF FILE 1.
- (d) D017277: READ ERRORS OCCURRED IN RECORDS 109, 383, 433, 434, 1724, OF FILE 1.
- (e) D017691: READ ERRORS OCCURRED IN RECORDS 217, 633, 1048, 1630, 1636, 1643 OF FILE 1
- (f) D017692: READ ERRORS OCCURRED IN RECORDS 946, 1447, 1528. 1529 OF FILE 1
- (g) D017880: READ ERRORS OCCURRED IN RECORDS 153, 510, 511, 818, OF FILE 1

APOLLO 12 + 15

SUPRATHERMAL ION DATA

TOTAL ION DETECTOR DATA

AND

APOLLO 14

MASS ANALYZER DATA

TOTAL ION DETECTOR DATA

The Apollo 12 SID and TID data sets have 27 tapes total. Apollo 14 MA and TID data sets have 25 tapes total. Apollo 15 SID and TID data sets have 18 tapes total. All of these data set tapes are 7 track, 800 BPI, Binary. with 1 file per tape. The formats and time spans are on the following pages.

APOLLO 12
SUPRATHERMAL ION DATA
69-099C-05C

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
17208	13529	05/22/70 - 08/08/70
17209	13530	11/19/69 - 03/07/70
17210	13531	03/07/70 - 03/19/70
17274	13561	08/08/70 - 10/30/70
17275	13562	10/30/70 - 01/27/71
17276	13563	01/23/71 - 04/05/71
17277	13564	04/06/71 - 06/29/71
17690	14169	05/23/71 - 06/19/71
17691	14170	09/14/71 - 11/28/71
17692	14171	11/29/71 - 02/22/72
17881	18723	02/22/72 - 05/15/72
17880	14473	05/15/72 - 08/06/72
18308	14897	11/06/72 - 03/03/73
18309	14898	08/06/72 - 11/06/72

APOLLO 12

TOTAL ION DETECTOR DATA

69-099C-05F

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
17211	13526	11/19/69 - 03/10/70
17212	13527	03/10/70 - 05/31/70
17213	13528	05/31/70 - 08/31/70
17278	13565	04/19/71 - 07/04/71
17279	13566	01/29/71 - 04/19/71
17280	13567	11/04/70 - 01/09/71
17281	13568	08/13/70 - 11/04/70
17693	14199	07/05/71 - 09/23/71
17694	14200	09/24/71 - 12/18/71
17695	14201	12/18/71 - 03/12/72
17882	14474	06/01/72 - 08/17/72
17883	14475	03/13/72 - 06/01/72
18310	14899	11/17/72 - 03/14/73
18311	14900	08/17/72 - 11/17/72

APOLLO 14
MASS ANALYZER DATA

71-008C-06C

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
15662	13521	02/06/71 - 05/06/71
16946	13522	05/07/71 - 07/21/71
16947	13523	07/21/71 - 09/28/71
16948	18724	09/28/71 - 11/29/71
16949	13524	11/30/71 - 01/30/72
16950	13525	01/24/72 - 03/20/72
18312	14891	05/14/72 - 07/09/72
18313	14892	03/20/72 - 05/14/72
18813	15073	07/09/72 - 09/03/72
18814	15074	09/03/72 - 10/28/72
18815	15075	10/28/72 - 12/22/72
18816	15076	12/22/72 - 02/14/73
18817	15077	02/14/73 - 04/11/73

APOLLO 14
TOTAL ION DETECTOR DATA
71-008C-06F

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
15663	13515	02/06/71 - 05/07/71
16951	13516	05/07/71 - 07/21/71
16952	13517	07/21/71 - 09/29/71
16953	13518	09/29/71 - 11/30/71
16954	13519	11/30/71 - 01/25/72
16955	13520	01/25/72 - 03/21/72
18314	14887	07/11/72 - 09/04/72
18315	14888	05/15/72 - 07/11/72
18316	14889	03/21/72 - 05/15/72
18818	15069	09/04/72 - 10/29/72
18819	15070	10/29/72 - 12/23/72
18820	15071	12/23/72 - 02/14/73
18821	15072	02/15/73 - 04/11/73

APOLLO 15
SUPRATHERMAL ION
71-063C-05C

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
17282	13644	08/03/71 - 10/28/71
17696	14202	10/28/71 - 01/11/72
17697	14203	01/11/72 - 03/16/72
17742	14438	03/16/72 - 05/19/72
17743	14439	05/20/72 - 07/20/72
17884	14498	02/24/73 - 06/02/73
17885	14499	12/30/72 - 02/09/73
17886	14500	11/04/72 - 12/30/72
17887	14501	09/09/72 - 11/04/72
17888	14502	07/20/72 - 09/09/72

APOLLO 15
TOTAL ION DETECTOR DATA
71-063C-05F

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
17283	13645	08/03/71 - 10/28/71
17745	14465	11/04/72 - 12/29/72
17746	14466	09/09/72 - 11/04/72
17747	14467	07/15/72 - 09/09/72
17748	14468	05/20/72 - 07/16/72
17749	14469	03/17/72 - 05/20/72
17750	14470	01/11/72 - 03/17/72
17751	14471	10/28/71 - 01/11/72
20234	18725	10/28/72 - 2/22/73
28835	18726	2/22/73 - 4/19/73

71-0631-05 C
" 05 F

Description of NSSDC Data Tapes

Data tapes are standard 2400-foot, 1/2-inch, 7 track IBM-compatible tapes, recorded at 800 bpi with odd parity. Words are 24-bit binary integers, with negative numbers represented as 2's complement, with 28 such words per logical record (for both MA and TID). Physical records are fixed-length, blocked, with 100 logical records per physical record, and no record-length descriptors or control words. (There is only one file per reel, and the complete reel is used, resulting in the last physical record ending after the reflective end-of-reel marker is passed.) (Two standard tapemarks are written after the last physical record.) The last reel of a calendar year's data is the only one which will have less than a full reel, and the only one which will have less than 100 logical records in its last physical record. TID and MA data are written on separate tapes, but have almost identical formats; the first word in the logical record allows them to be distinguished from each other. The 28 words in a logical record contain time, twenty channels (mass for MA, energy for TID) of accumulated counts, and housekeeping parameters (including energy for the MA data). Where reliable data is not available the value -1 is inserted.

RICE UNIVERSITY

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DEPARTMENT OF SPACE PHYSICS
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January 14, 1976

RE: ALSEP/SIDE DATA GLITCH: Time Shown as Day 0

January 1 is considered as Day 1 of each year. If any data record shows Day 0 at any time it should be disregarded. It is possible for "Day 0" to appear on the data for the last minute of the year. In such cases this is readily recognized, as there will be only a few seconds worth of data with this incorrect day number on it, which will appear on only one frame of "NPAK" microfilm. The instrument data, and the hours, minute, and millisecond should be correct; only the day number is incorrect.



H. Kent Hills
Project Scientist

HKH:kph

ALSEP SIDE DATA USER'S INFORMATION PACKAGE

February, 1974

CONTENTS

- 1. Side section of Data User's Handbook compiled by JSC.**
- 2. Modes of Operation**
- 3. ALSEP SIDE DATA HANDBOOK**
- 4. MA Edit and TID Edit Data Format**

SUPRATHERMAL ION DETECTOR EXPERIMENT (SIDE)

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Project Scientist: H. K. Hills

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DESCRIPTION OF THE EXPERIMENT

The SIDE was designed to achieve the following objectives.

(1) Provide information on the energy and mass spectra of the positive ions close to the lunar surface (the lunar exosphere). (2) Measure the flux and energy spectra of positive ions in the magnetotail and magnetosheath during the periods when the Moon passes through the magnetic tail of the Earth. (3) Provide data on the plasma interaction between the solar wind and the moon. (4) Determine a preliminary value for the electric potential of the lunar surface.

Three SIDE instruments were deployed, at the Apollo 12, 14 and 15 sites. The SIDE consists of two positive-ion detectors, the mass analyzer (MA) and the total ion detector (TID). Both use curved plate analyzers for energy per unit charge discrimination. The MA also uses a Wien velocity filter (crossed electric and magnetic fields), since knowledge of the energy per unit charge and the velocity is sufficient to allow determination of the mass per unit charge. The MA measures a 20-channel mass spectrum at each of six energy levels; 48.6, 16.2, 5.4, 1.8, 0.6, and 0.2 eV. The mass ranges covered are approximately 10-1000 amu/q for the Apollo 12 unit, 6-750 amu/q

for Apollo 14, and 1-90 amu/q for Apollo 15. While each mass spectrum is being observed by the MA, the TID measures a 20-channel differential energy spectrum (including all masses) from 3500 eV/charge down to 10 eV/charge. Each 20-channel spectrum is obtained in 24 seconds, in normal mode.

The detectors each have a field of view which is roughly a square solid angle 6° on a side. Numerous commands are possible, some of which allow certain of the measurements to be omitted in order to devote more time to other measurements.

To establish electrical reference to the lunar surface, a wire screen ("lunar-surface ground plane" in Figure 1) is deployed on the surface beneath the SIDE. This screen is connected to the SIDE ground through a power supply which can cycle through 24 steps from -27.6 volts to 27.6 volts. The effects of stepping this voltage through its cycle can be used in certain circumstances to determine the lunar surface potential. A schematic diagram of the instrument is shown in Figure 1, while Figure 2 shows a cutaway view of the SIDE, and Figure 3 shows the SIDE as deployed at the Apollo 12 and 14 sites.

The look direction of each instrument was angled 15° east (Apollo 14 and 15) or west (Apollo 12) from the local meridian plane. The Apollo 15 instrument (at 26° N. latitude) was deployed tilted 26° from vertical toward the south, so that the sensor look directions of all three instruments include the ecliptic plane, as shown in Figure 4.

OPERATIONAL HISTORY

This section summarizes the time periods when the instruments were in full operation and returning science data. Periods when only housekeeping data were returned are not included. The design goal was full operation continuously after an initial period allowing for outgassing during the lunar daytime.

Apollo 12 SIDE

November 19-20, 1969

Deployment, and operation during mission activities.

December, 1969 - January, 1970

Operation during lunar night (and a short time before and after).

February, 1970 - August, 1972

Operation during lunar night, plus cyclic operation for approximately 10 days centered on local noon. Cyclic operation involves 2 hours on and 10 or more hours off. More coverage is obtained during continuous real-time support of ALSEP missions (i.e., the first 45 days of the mission).

September, 1972 - present
(August, 1973)

Operation as above, but with intermittent loss of data during lunar night for periods of minutes to many days, during months of September, November, and December, 1972, and January, June, and August, 1973.

Apollo 14 SIDE

February 5-7, 1971

Deployment, and operation during mission activities.

February, 1971 - July, 1971

Operation during night and part of the day, but off for approximately 8 days centered on noon.

August, 1971 - October, 1971

Operation as above, plus short cycles of operation periodically for approximately 8 days near noon.

November, 1971 - March, 1973

Continuous operation.

April, 1973 - present
(August, 1973)

Operation during night, from approximately 1 day before sunset until sunrise.

Apollo 15 SIDE

July 31, 1971 - August 3, 1973

Deployment, and operation during mission activities.

August, 1971 - September, 1971

Operation except during approximately 10 days centered on local noon.

October, 1971 - November, 1971

Operation as above, plus short intervals of operation periodically for approximately 4-7 days near noon.

December, 1971 - April, 1972

Operation except during 3-5 days centered on local noon.

May, 1972 - present
(August, 1973)

Continuous operation.

DATA SETS AND AVAILABILITY

<u>DATA SET</u>	<u>FORM</u>	<u>AVAILABILITY</u>
1. Machine plots (MA and TID on same plot) of counting rates vs. frame number	16 mm microfilm	Data for times after about August, 1972 are (or soon will be) available at NSSDC. Data for times about June, 1971 to August, 1972 will be available at NSSDC after production of copies.
2. Listings of counting rates vs. frame number, with limited amount of housekeeping data.		
3. Machine plots (3-dimensional) of TID average energy spectra as a function of time.	30"x36" paper	Eventually all data will be available at NSSDC.
4. Machine plots (3-dimensional) of MA average mass spectra as a function of time.		
5. TID spectra vs. time	Digital, on magnetic tape	
6. MA spectra vs. time		

- | | | |
|--|---------------------------|---|
| 7. Engineering parameters | Digital, on magnetic tape | Data for times after about June, 1971 will be available at NSSDC. |
| 8. TID and MA data, including everything telemetered from SIDE, plus evaluations of data quality and instrument mode of operation. Called "NPAK" by Rice University. | Digital, on magnetic tape | Data available only at Rice University. |

SUMMARY OF PRINCIPAL RESULTS

Observation of lunar ions accelerated by the solar wind induced field ($\vec{E} = -\vec{V} \times \vec{B}$).

Observation of 1-3 KeV protons during lunar night, considered to be protons from the bow shock of the earth.

Observation of ion mass spectra due to the LM exhaust gas, and determination of the intensity decay rate.

Multi-site observation of the energetic ion characteristics in the earth's magnetosheath and at its boundaries, and correlation with geomagnetic activity.

Observation of the effects of the LM ascent engine exhaust on magnetosheath ion fluxes.

Multi-site observations of apparent motions of ion "clouds" related to lunar impact events, and observations of mass spectra during the events.

Monitoring of ion fluxes during local solar eclipses; no changes observed.

Observation of energetic ions during lunar night, when site is shielded from the solar wind direction.

Observation of ion events near terminators suggests a turbulent region of solar wind plasma interaction with the solid moon.

Monitoring of positive ion fluxes while in the geomagnetic tail, and correlation with geomagnetic storm activity.

Observations of mass spectra of ions from the ambient atmosphere, including a single observation of water vapor ions, possibly of natural origin.

Determination of the electric potential of the lunar surface;
(a) in the magnetosheath or solar wind; and (b) near the terminators.

Observations of solar wind during interplanetary storms.

Observations of penetrating ions from solar flares.

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Description of NSSDC Data Tapes

Data tapes are standard 2400-foot, 1/2-inch, 7 track IBM-compatible tapes, recorded at 800 bpi with odd parity. Words are 24-bit binary integers, with negative numbers represented as 2's complement, with 28 such words per logical record (for both MA and TID). Physical records are fixed-length, blocked, with 100 logical records per physical record, and no record-length descriptors or control words. There is only one file per reel, ^{1850 records} ~~and the complete reel is used~~, resulting in the last physical record ending ^{before} ~~after~~ the reflective end-of-reel marker is passed. Two standard tapemarks are written after the last physical record. The last reel of a calendar year's data is the only one which will have less than ^{1850 records} ~~a full reel~~, and the only one which will have less than 100 logical records in its last physical record. TID and MA data are written on separate tapes, but have almost identical formats; the first word in the logical record allows them to be distinguished from each other. The 28 words in a logical record contain time, twenty channels (mass for MA, energy for TID) of accumulated counts, and housekeeping parameters (including energy for the MA data). Where reliable data is not available the value -1 is inserted.

MODES OF OPERATION

In each mode, the SIDE repeatedly cycles through a certain range of SIDE frames (full cycle, or "Normal Mode" is frames 0 - 127). The TID energy channel is uniquely determined by the frame number, except for frame 0, whose energy depends upon the mode. The ALSEP SIDE DATA HANDBOOK, called ASDH below, shows the frame numbers and TID energies on page 43. A "calibration cycle" is included in frames 121-127 and 0 for the TID. For the MA the calibration cycle is in frames 120-127. The calibration cycle adds an internally generated pulse rate to the output of the detector, while allowing the detector to continue its normal output. See ASDH, pages 44 and 58 for details of the calibration cycle. There is no calibration cycle if the instrument is in a mode which does not include frames 120 - 127. The MA utilizes a velocity filter which in "Normal Mode" has 20 steps in its cycle. However, there are two modes which use only the 1st 10 steps of the MA. These are "Reset Velocity Filter at 9" and "Reset Velocity Filter at 9 and SIDE Frame at 79". In these two modes the energy and mass channel correspondance with given SIDE frames is different from that in "Normal Mode", as shown in ASDH; pages 48-55 for the velocity filter, and page 57 for the energy of the MA. When reference is made to a mass channel (0-19), it normally is assumed to mean the mass channel which corresponds to the SIDE frame of the same number in "Normal Mode".

In "x10 Mode", (read as "Times 10 Mode"), the instrument cycles through the sequence of SIDE frames which it otherwise would follow, but it stays for 10 frame times on the same frame, before going to the next frame. The detector counts are telemetered as usual at each frame, but the register is not cleared, so that the counts accumulate for 10 frame times before the counter is

cleared. There is an offset, however, for the Mass Analyzer, which results in the peculiarity that the last read-out for a given frame number in the MA data appears as the first read-out of the next frame. Since it is executed by an "ON/OFF" command, the "x10 Mode" can be used in conjunction with any of the "MODE" commands, but the user can assume that it is never used except by itself (i.e., with normal SIDE Frame cycle). And even the normal "x10 Mode" occurs very infrequently except with the Apollo 12 SIDE, which can spontaneously change to "x10 Mode" when it gets too hot.

The instrument commands are summarized in ASDH, page 1. A "SIDE Command" requires a combination of up to 4 ALSEP commands to load the proper command number into the "Command Input Register", followed by an execution command. When a command is loaded into the instrument but not executed, the command number is found in the "Command Input Register". When it is executed, the number goes into the "Mode Register" and the "Command Input Register" is cleared. The "Mode Register" does not give the current mode of operation; it gives the last command executed. If a "Mode" command is executed, followed by an "ON/OFF" command, the instrument will revert to normal SIDE frame cycle when the "ON/OFF" command is executed. However, if a "Mode" command is executed after an "ON/OFF" command, the "ON/OFF" command status is preserved in the new mode, it does not reset the "ON/OFF" command. When the instrument operating power is commanded ON, from standby or OFF, the instrument automatically begins operation in "Normal Mode" (SIDE frame cycles through 0 - 127, velocity filter cycles through all 20 mass channels) with all voltage supplies on, and with the ground plane voltage on step 0. The "Command Input Register" and the "Mode Register" are also reset to zero. The ground plane voltage then steps through its cycle of 24 steps, advancing one step each time that frame 0 is reached. See ASDH, page 38, for the

voltages and numbering of the steps. The voltage given is the potential of the ground plane grid with respect to SIDE ground. SIDE ground and the entrance aperture grid are at the same potential.

The "Master Reset" command has the same effect as turning instrument power on, except that no "ON/OFF" commands previously in effect are altered. That is, "Master Reset" will not turn on a high voltage or a stepper which was off.

There is an analog output for each of the two detectors, in addition to the digital output. The analog outputs are sampled rather infrequently, but they eventually are sampled at all frames. The output counting rate is passed through a logarithmic converter before reaching the telemetry, so these two measurements are known as the Low Energy Log Count Rate Meter (LE LCRM) and the High Energy Log Count Rate Meter (HE LCRM). Pages 8-10 of ASDH give the telemetry locations and calibrations of the LCRM's.

ALSEP SIDE DATA HANDBOOK

February, 1974

The ALSEP SIDE DATA HANDBOOK was originally dated 12 November, 1969, and was intended for use by the SIDE group during real-time mission support operations at the Mission Control Center in Houston. Therefore some of the detailed material will not be needed by data users, and is deleted from the present version. This book describes the instrument, its commands, the telemetry format, and the calibrations of the various temperature measurements and other analog-to-digital conversions.

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INITIAL	CDC TIME	ON/OFF	MODE	RESET	COMMAND NOMENCLATURE	PRINT	104	105	106	107	110
0		1			REGISTER CLEARED ("NORMAL" MODE)	CLR					
					GROUND PLANE STEPPER ON/OFF ①	GPSP					
2		2			RESET SIDE FRAME AFTER 10 ②	RSF10		1			1
		3			REMOVE CCIG SEAL ③	RSF10		1			1
		4			RESET SIDE FRAME AFTER 30 ②	RSF39		1			1
		5			RESET VELOCITY FILTER AFTER 2 ②	RSF9			1		1
		6			RESET SIDE FRAME AFTER 79 ②	RSF79		1			1
7					RESET SF AFTER 79 / VF AFTER 9 ②	RSF79 / VF9		1	1		1
					10 TIMES NORM ACCUM INTERVAL ①	X10		1	1		1
8					MASTER RESET	MRST				1	1
	9				REMOVE DUST COVER ③	MRST				1	1
10					VELOCITY FILTER ON/OFF ①	VFV		1		1	1
11					LOW ENERGY CPA ON/OFF ①	LEHIV			1	1	1
		12			HIGH ENERGY CPA ON/OFF ①	HEHIV		1		1	1
13					CONTINUOUS CALIBRATION ②	RSF10			1	1	1
14					CCGE HIGH VOLTAGE ON/OFF ①	CCIGHV		1	1	1	1
					CHARACTERON HIGH VOLT ON/OFF ①	CHANHV		1	1	1	1
15					RESET COMMAND INPUT REGISTER	RCIR		1	1	1	1
					EXECUTE ④			1	1	1	1

NOTES:

- ① ON/OFF CMNDS INITIALLY ON
- ② MODE CMNDS ACTIVE ONLY WHEN IN MODE REG.
- ③ ONE TIME CMNDS ACTIVE ONCE, TO RESET, OR FWR. TO STDBY
- ④ EXECUTE, WITH MODE CMND IN MR RESETS SF TO 000

WARNING:

Applies at deployment
before SDF dust cover
or CCGE seal are opened.



DO NOT SEND PRIOR
TO DUST/VEIL OR SEAL AC



DO NOT SEND PRIOR TO
SEAL ACTIVATION

BLIVETCONTENTS

100	DIGITAL DATA HANDLING
200	A/D CONVERTER
300	STEPPING POWER SUPPLIES
400/500	POWER SUPPLY
600	LOG COUNT RATE METERS
700/900	HIGH VOLTAGE POWER SUPPLIES
800	ELECTROMETER

BLIVET CONTENTS

CONVERSION

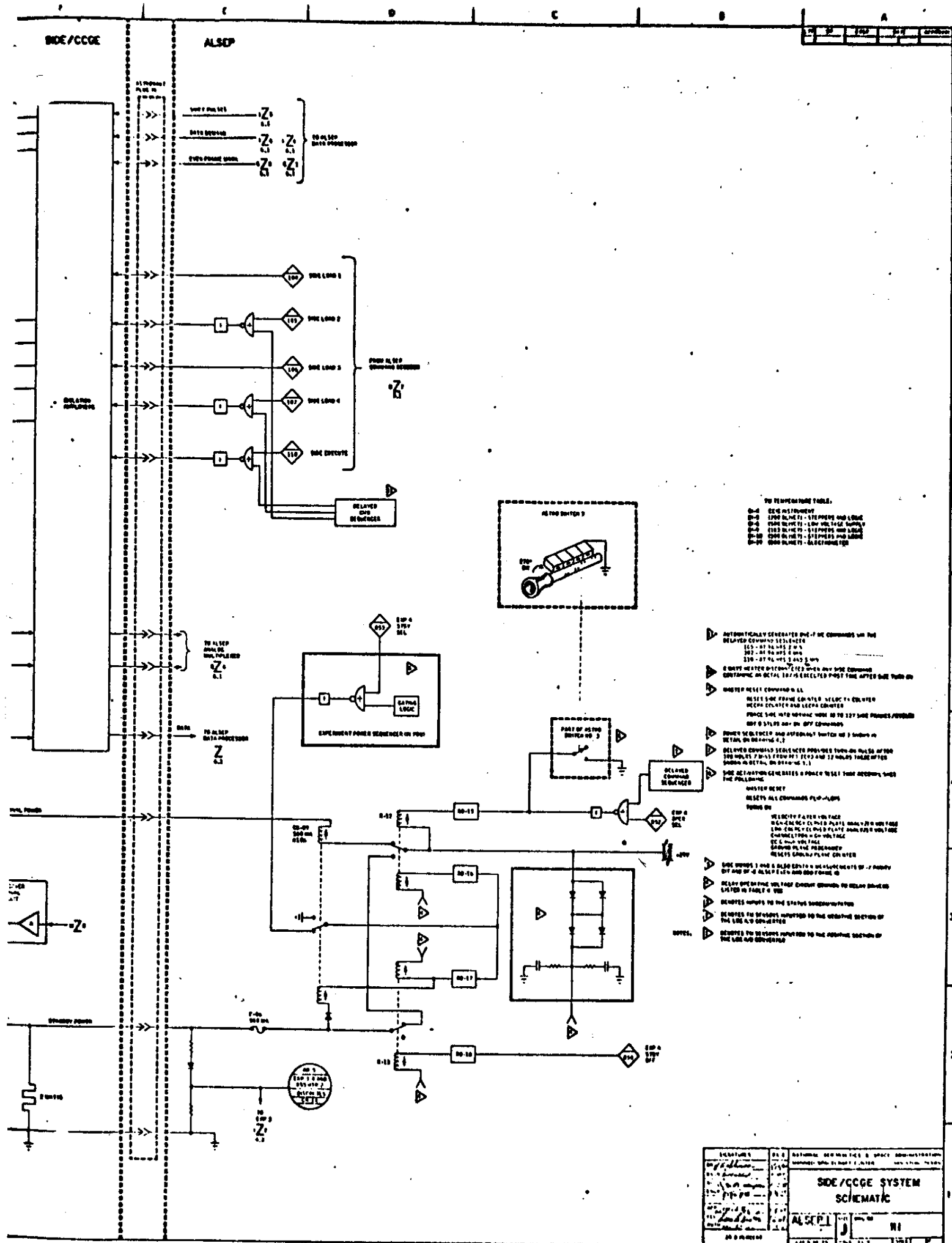
0	C.0146
1	0.0150
2	C.0154
3	C.0158
4	0.0163
5	C.0167
6	0.0172
7	0.0177
8	C.0181
9	0.0186
10	0.0192
11	0.0197
12	C.0202
13	C.0208
14	0.0214
15	C.0220
16	0.0226
17	C.0232
18	0.0238
19	0.0245
20	0.0251
21	0.0258
22	C.0266
23	C.0273
24	C.0280
25	C.0288
26	C.0296
27	C.0304
28	C.0313
29	0.0321
30	C.0330
31	0.0339
32	C.0349
33	C.0358
34	C.0368
35	C.0378
36	C.0389
37	0.0399
38	C.0410
39	C.0422
40	C.0433
41	C.0445
42	0.0457
43	C.0470
44	C.0483
45	0.0496
46	C.0510
47	0.0524
48	C.0539
49	C.0553
50	0.0569
51	C.0584
52	C.0600
53	C.0617
54	C.0634
55	C.0651
56	C.0668
57	C.0688
58	C.0707

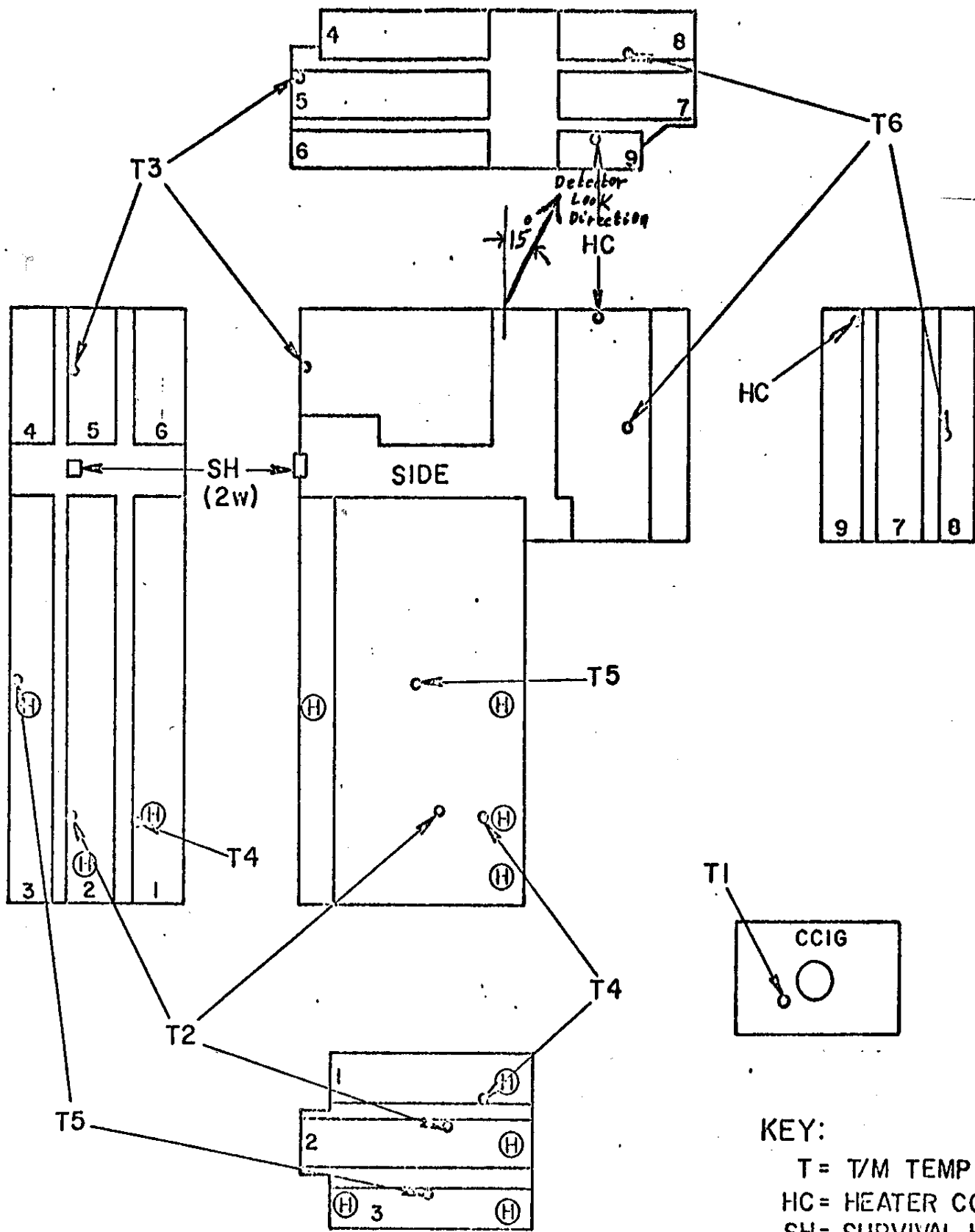
62	0.0755
63	C.0810
64	0.0832
65	C.0855
66	0.0879
67	C.0903
68	0.0928
69	0.0953
70	C.0980
71	C.1007
72	C.1034
73	0.1063
74	C.1092
75	0.1122
76	C.1153
77	C.1185
78	C.1218
79	C.1251
80	C.1286
81	C.1321
82	C.1358
83	0.1395
84	C.1434
85	C.1473
86	C.1514
87	C.1555
88	0.1598
89	C.1642
90	0.1689
91	C.1734
92	C.1782
93	C.1831
94	C.1882
95	C.1933
96	C.1987
97	C.2042
98	C.2098
99	C.2156
100	0.2215
101	C.2276
102	C.2339
103	C.2403
104	C.2470
105	C.2538
106	C.2609
107	C.2690
108	C.2753
109	C.2829
110	C.2907
111	C.2987
112	C.3070
113	C.3154
114	C.3241
115	C.3331
116	0.3423
117	C.3517
118	0.3614
119	C.3714
120	C.3816
121	C.3921
122	C.4029
123	C.4140
124	C.4254

128	C.4473
129	C.4574
130	C.4669
131	C.4747
132	C.4829
133	C.4934
134	C.5064
135	C.5178
136	0.5296
137	0.5409
138	0.5526
139	0.5658
140	C.5774
141	C.5855
142	C.5941
143	C.6033
144	0.6129
145	C.6231
146	C.6339
147	C.6452
148	C.6572
149	0.6697
150	C.6828
151	C.6966
152	C.7111
153	C.7262
154	C.7420
155	C.7585
156	1.0158
157	1.0438
158	1.0726
159	1.1021
160	1.1325
161	1.1637
162	1.1958
163	1.2288
164	1.2627
165	1.2975
166	1.3332
167	1.3700
168	1.4078
169	1.4466
170	1.4865
171	1.5274
172	1.5696
173	1.6128
174	1.6573
175	1.7030
176	1.7499
177	1.7982
178	1.8477
179	1.8987
180	1.9510
181	2.0048
182	2.0601
183	2.1169
184	2.1752
185	2.2352
186	2.2968
187	2.3602
188	2.4252
189	2.4921
190	2.5600

194	2.8551
195	2.9338
196	3.0147
197	3.0978
198	3.1832
199	2.2710
200	3.3611
201	3.4538
202	3.5490
203	3.6469
204	3.7474
205	3.8507
206	3.9569
207	4.0660
208	4.1780
209	4.2932
210	4.4116
211	4.5332
212	4.6582
213	4.7866
214	4.9186
215	5.0542
216	5.1935
217	5.3367
218	5.4838
219	5.6350
220	5.7904
221	5.9500
222	6.1140
223	6.2826
224	6.4558
225	6.6338
226	6.8167
227	7.0046
228	7.1977
229	7.3961
230	7.6000
231	7.8096
232	8.0249
233	8.2461
234	8.4734
235	8.7070
236	8.9471
237	9.1938
238	9.4472
239	9.7077
240	9.9753
241	10.2503
242	10.5329
243	10.8233
244	11.1217
245	11.4283
246	11.7433
247	12.0671
248	12.3999
249	12.7416
250	13.0929
251	13.4539
252	13.8248
253	14.2059
254	14.5976
255	15.0000

DIGITAL COUNTS VS ANALOG VOLTAGE

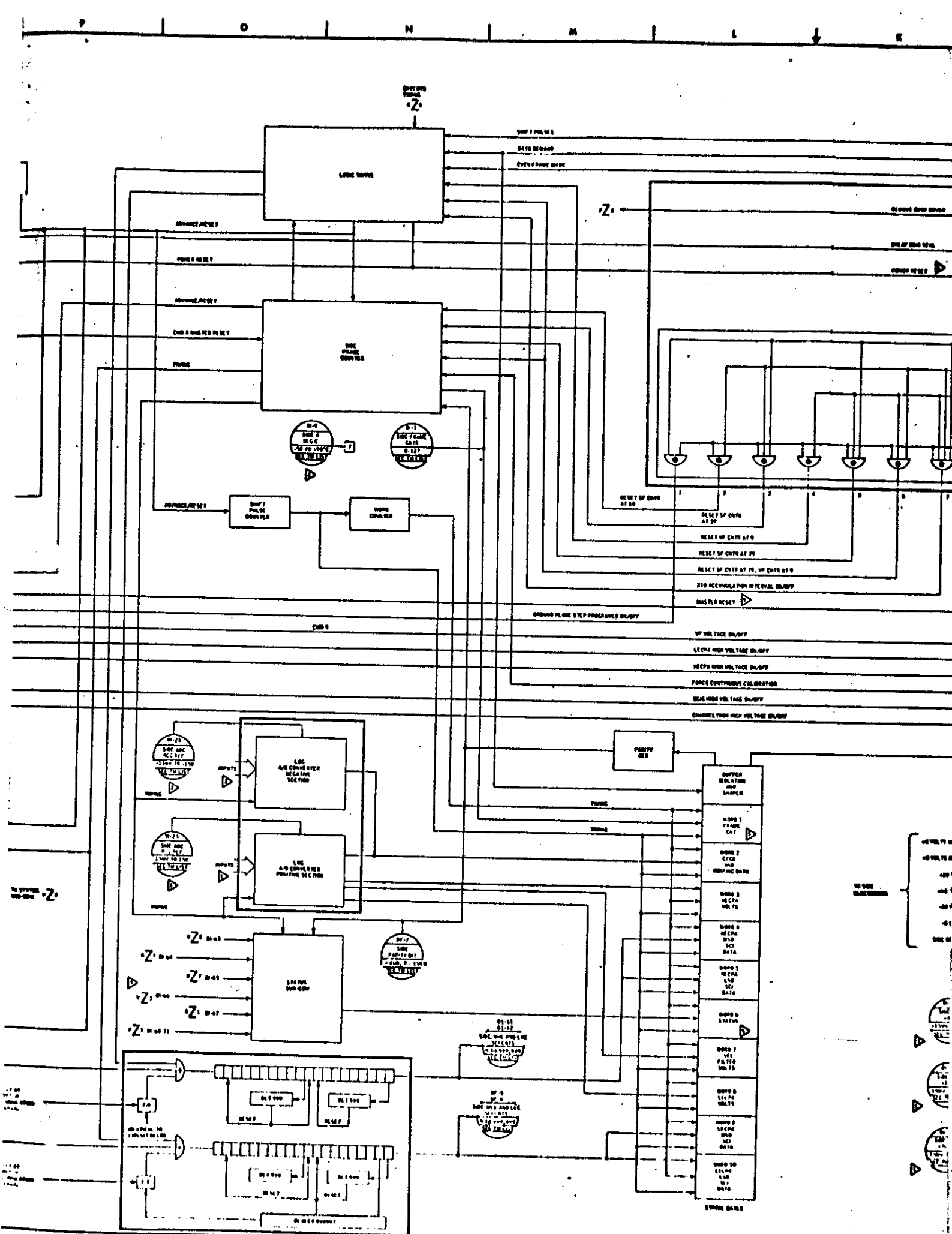


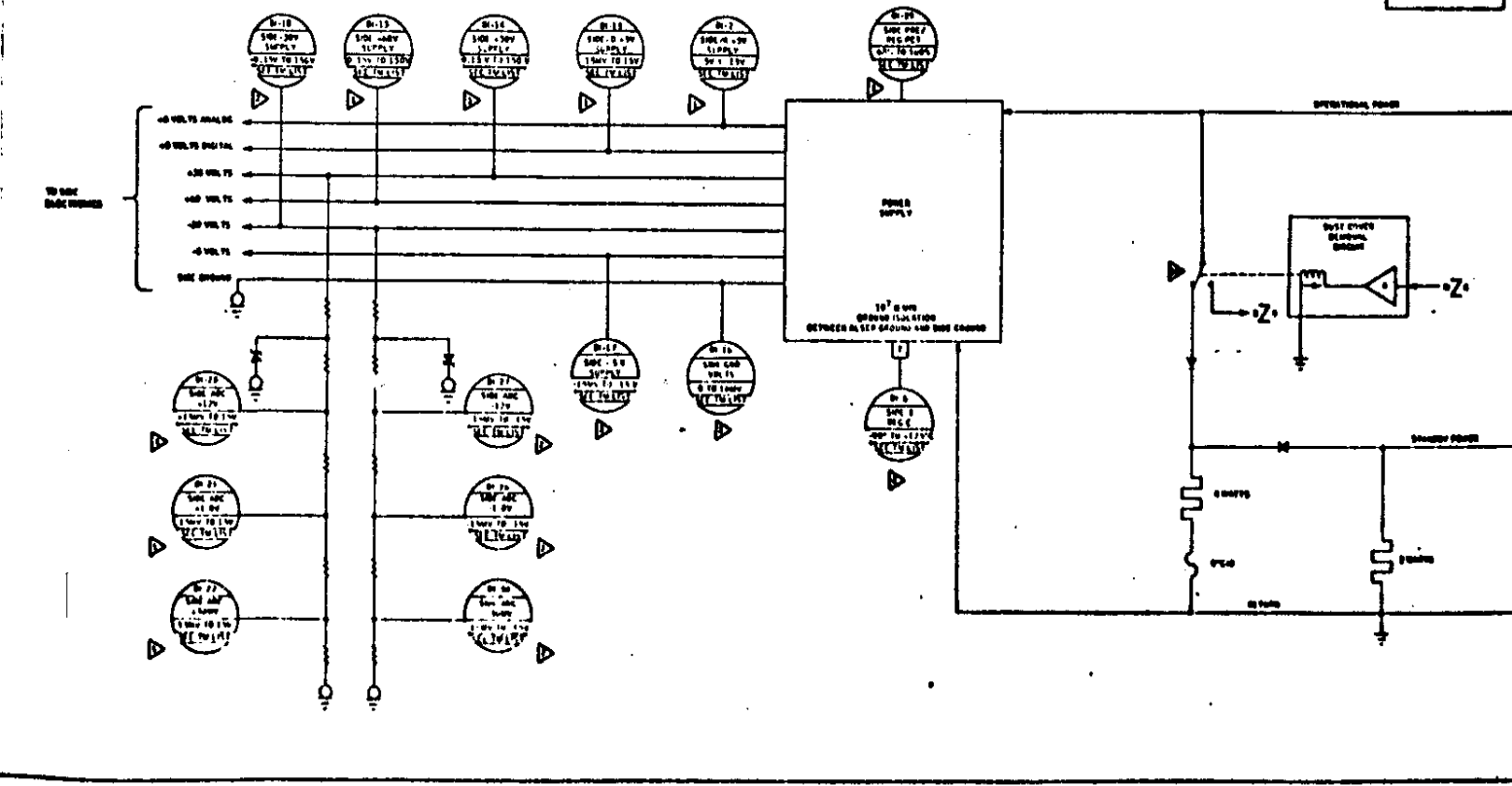
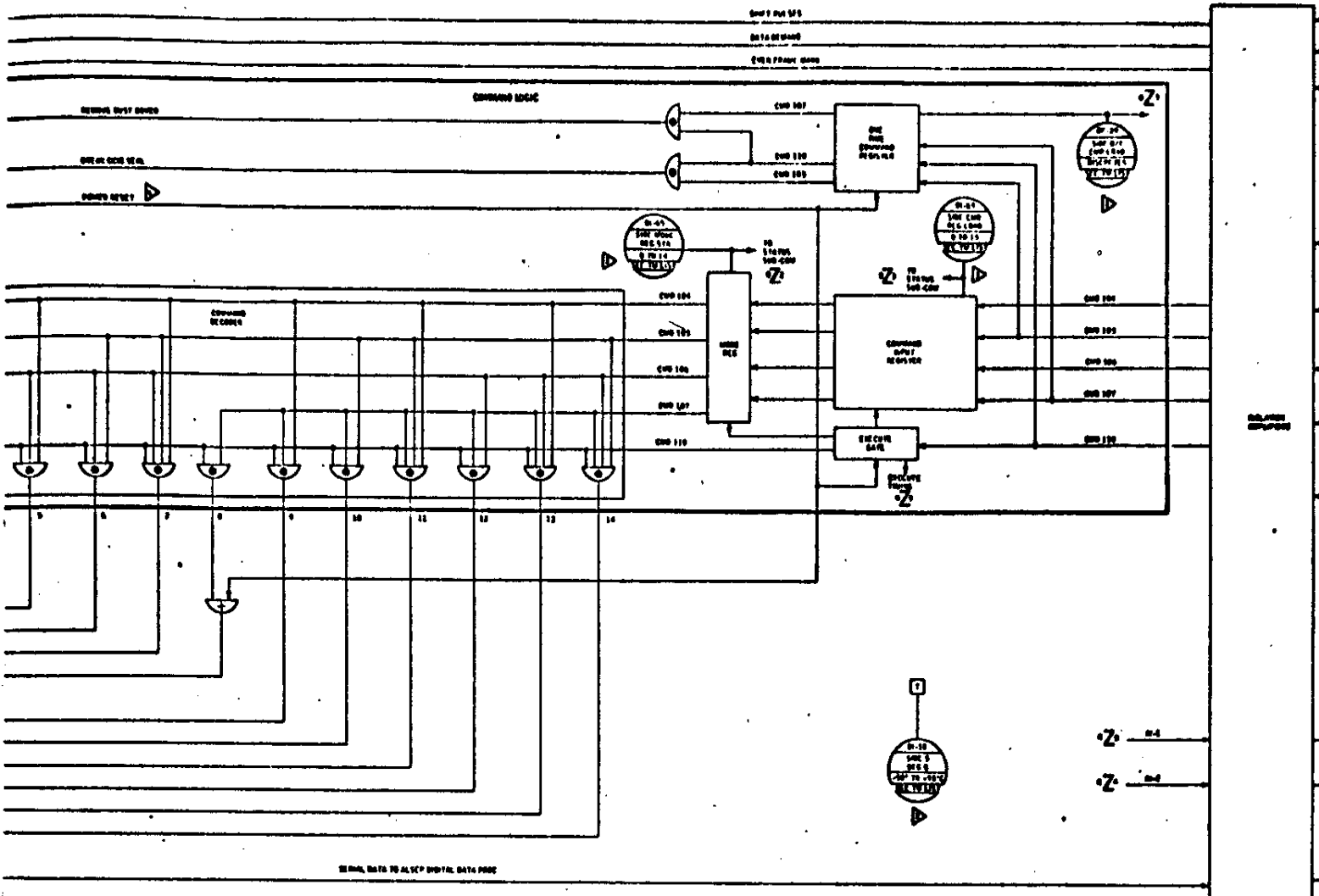


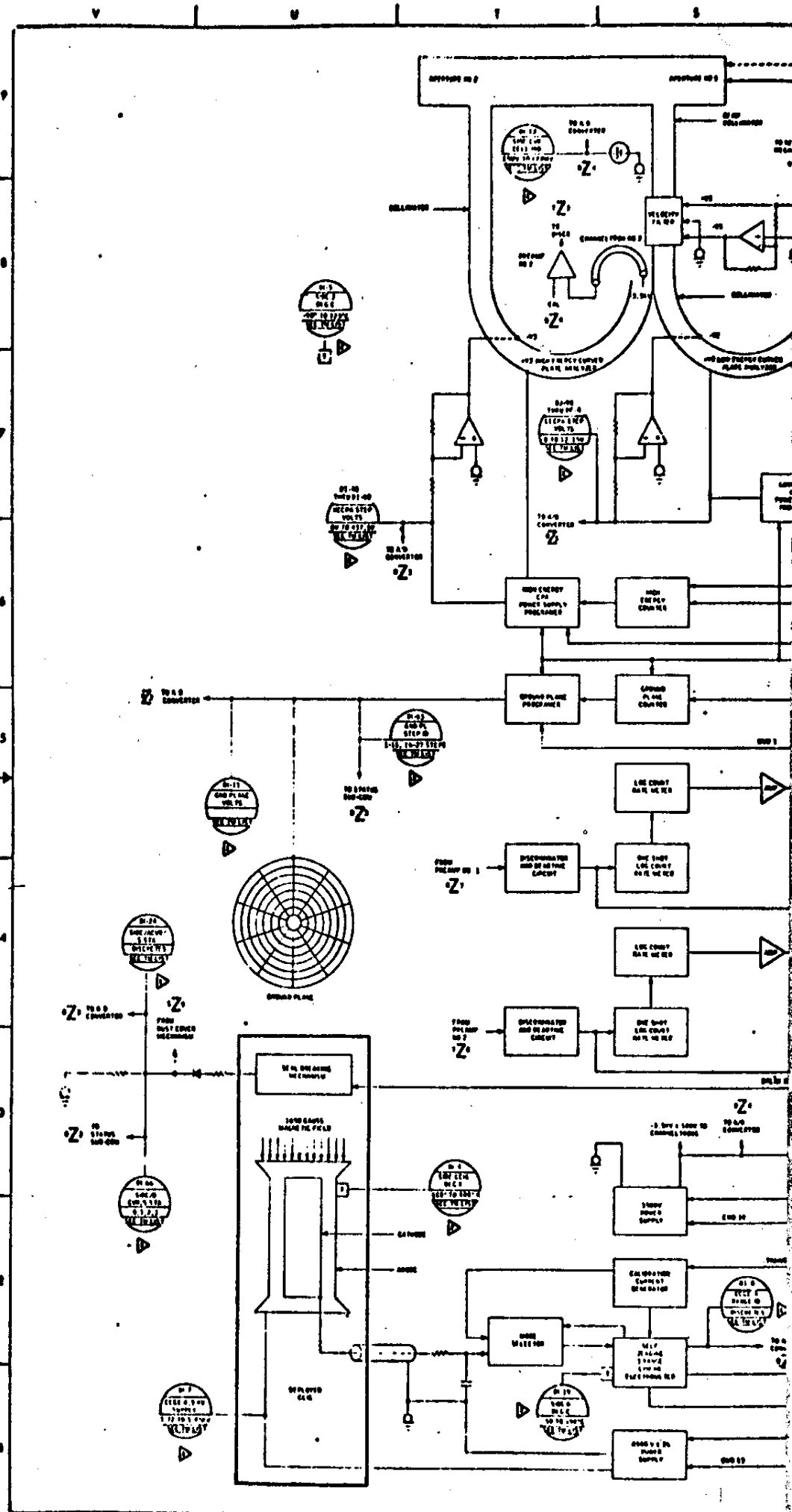
KEY:

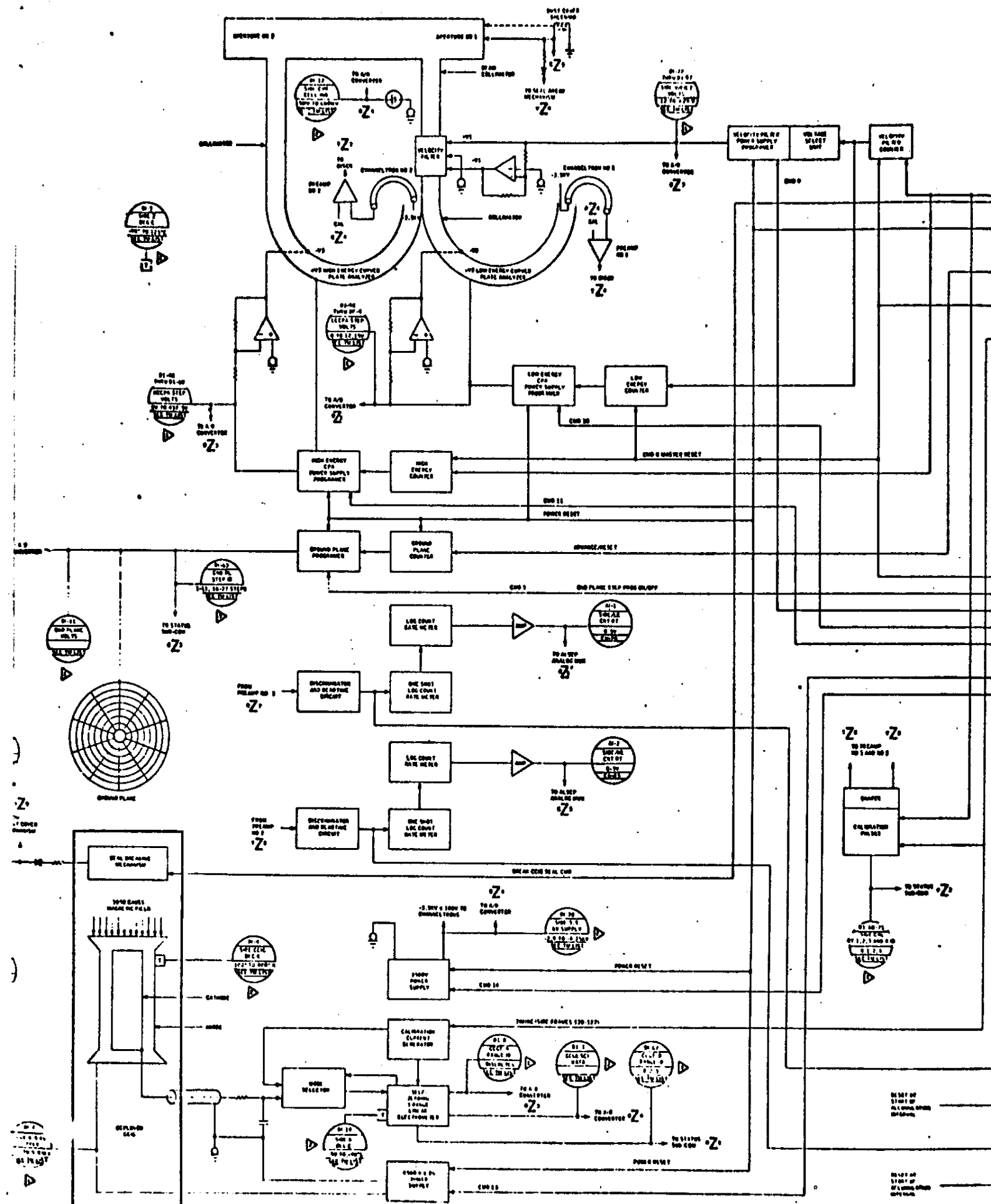
- T = T/M TEMP
- HC = HEATER CONTROL
- SH = SURVIVAL HEATER
- (H) = HEATER

TEMP SENSOR, HEATER & HEATER CONTROL LOCATIONS

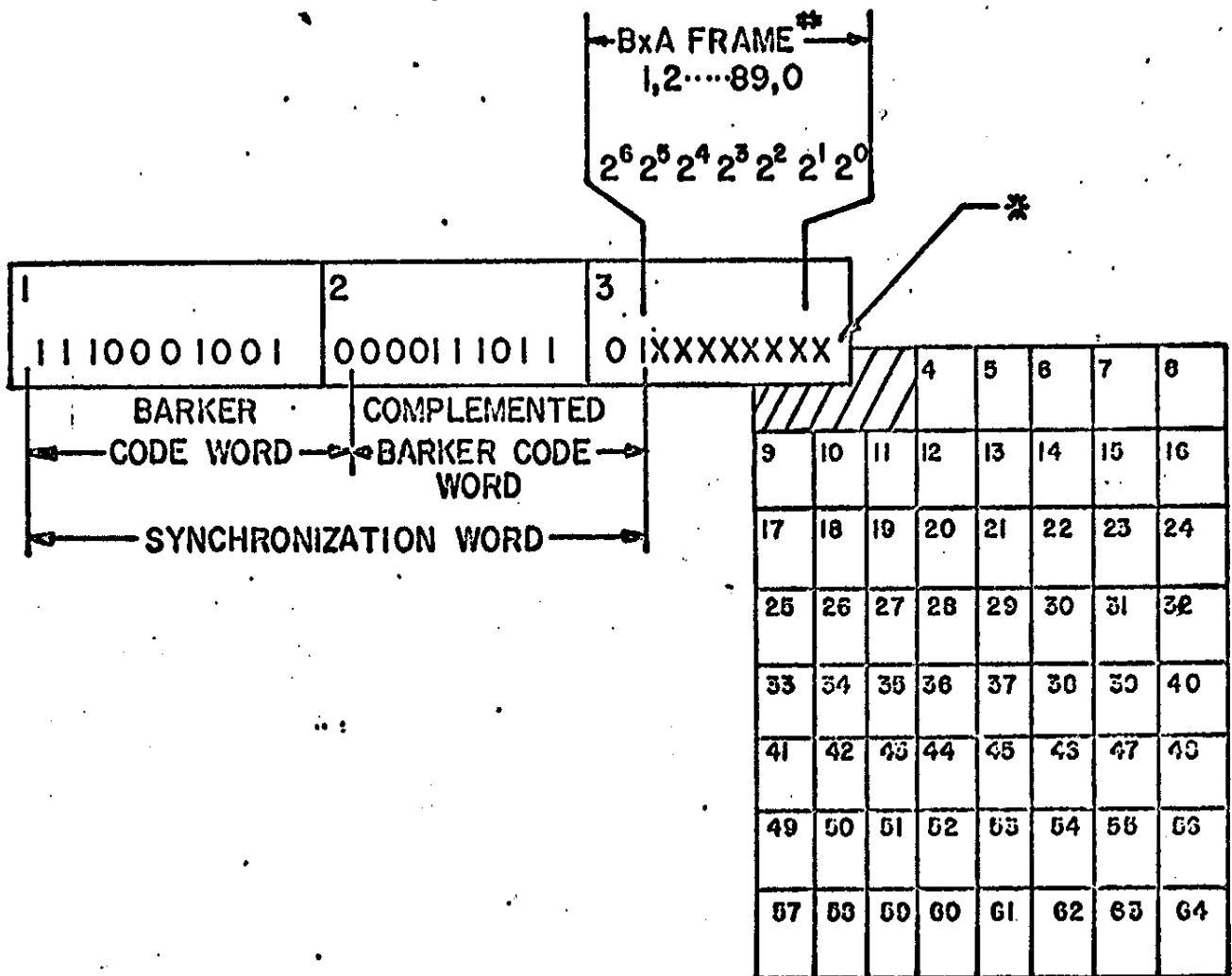








CONTROL WORD



** BIT INFORMATION CONTENT IS BxA FRAME DEPENDENT AS FOLLOWS:

BxA FRAME	X
1	1=NORMAL MODE (1050 BPS)
2	1=SLOW MODE (530 BPS)
3	$1=2^2$ DATA PROCESSOR
4	$1=2^1$ SERIAL NO.
5	$1=2^0$
6 THRU 89 & 0	0

TELEMETRY FORMAT BENDIX FRAME

BXA WORD #

WORD
CONTENT

1	2	3	4	5	6	7	8
X	X	X					
9	10	11	12	13	14	15	16
						S	
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
						S	
33	34	35	36	37	38	39	40
H							
41	42	43	44	45	46	47	48
					CV	S	
49	50	51	52	53	54	55	56
							S
57	58	59	60	61	62	63	64
						S	

0.604 sec

WORD CONTENT CODE:

1060 BPS

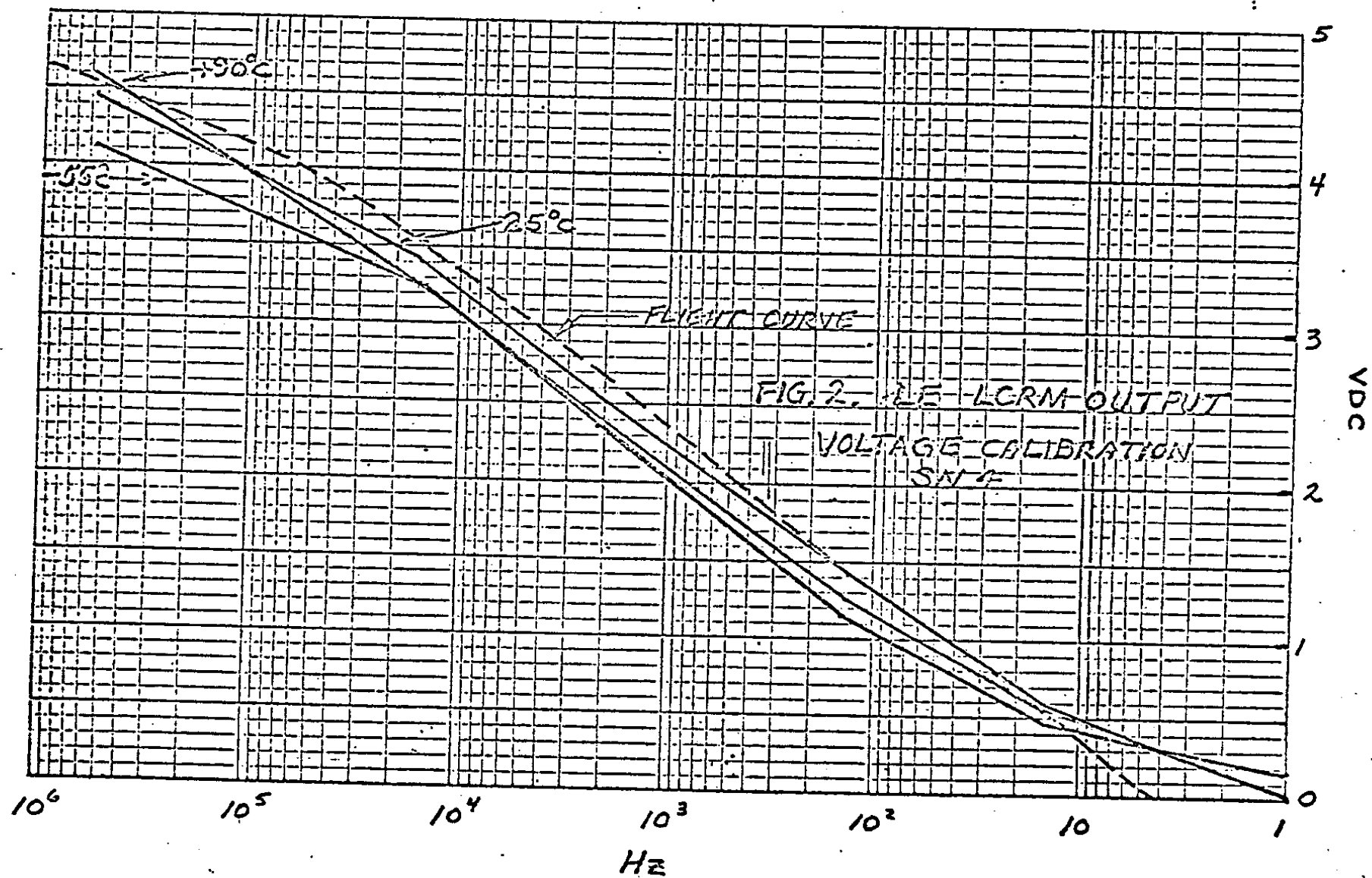
X = CONTROL

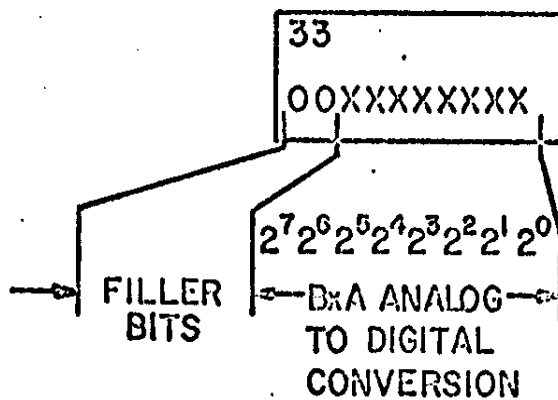
H = HOUSEKEEPING

CV = COMMAND VERIFICATION

S = SIDE/CCGE DATA

SIDE WD1: EVEN
BXA FRAME





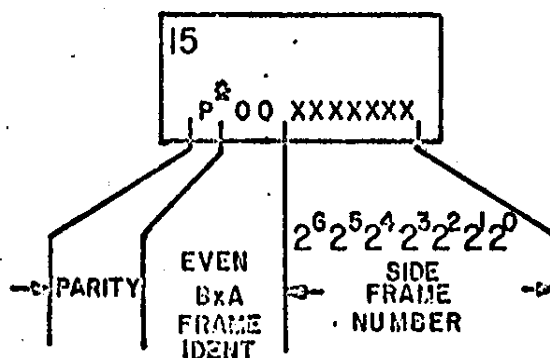
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

BxA FRAME NO.	WORD CONTENT	R/O
2	ADC CALIBRATION 0.25V	13 ± 1
3	ADC CALIBRATION 4.75V	24 ± 1
10	PCU OUTPUT VOLTAGE 29VDC	
12	POWER DISTRIBUTION EXP 1 & 2	
14	POWER DISTRIBUTION EXP 3, 4 & 5	
70	LOW ENERGY DET COUNT RATE (LCRM)	
85	HIGH ENERGY DET COUNT RATE (LCRM)	

SIDE WORD 1 SIDE FRAME NUMBER

EVEN BxA FRAME

1	2	3	4	5	6	7	8
9	10	11	12	13	14		16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64



SIDE FRAME NUMBER SEQUENCE

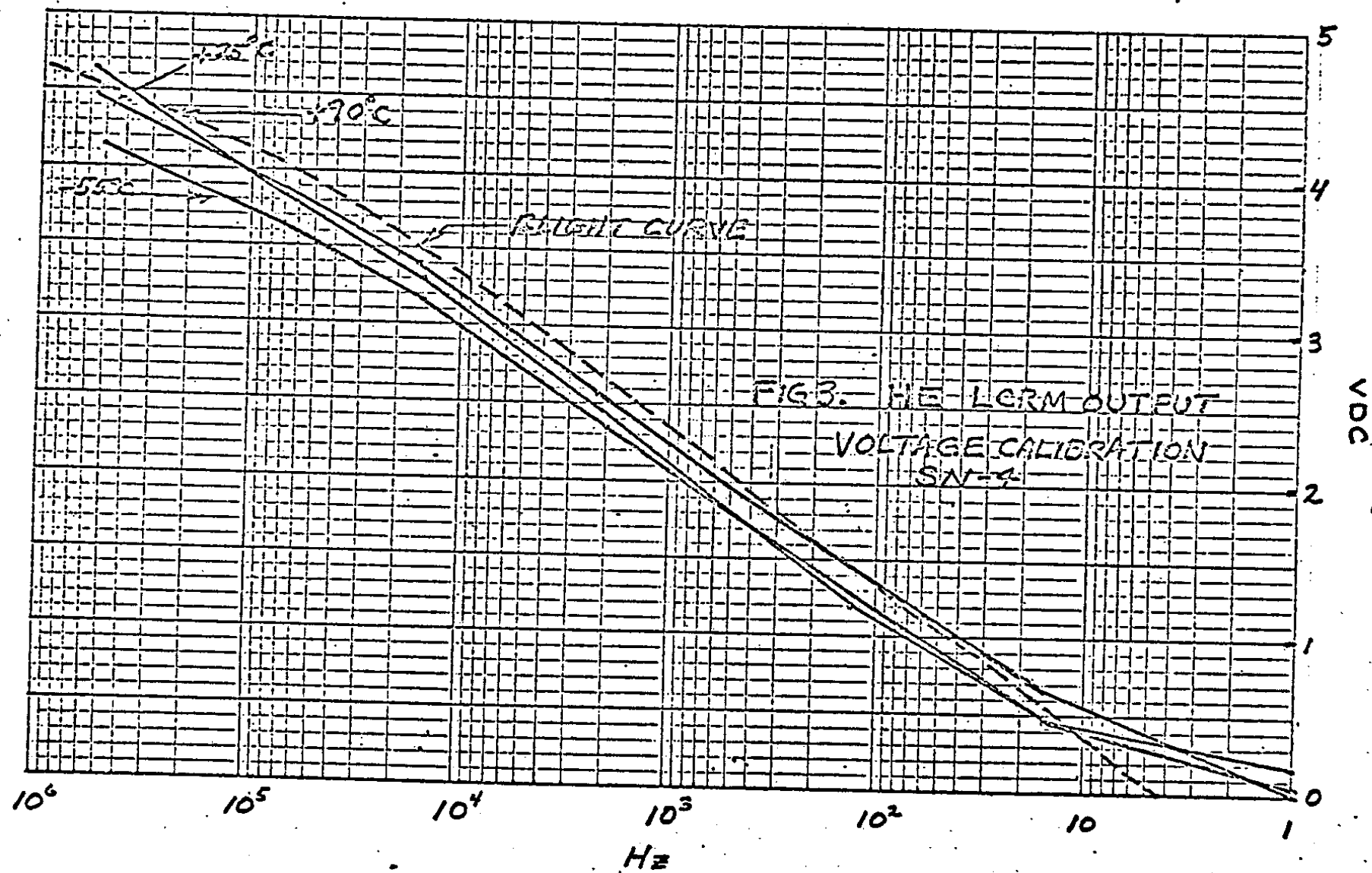
SIDE FRAME NUMBER MAY HAVE ANY ONE OF THE FOLLOWING SEQUENCES:

1. 0,1,2,...,126,127 - NORMAL MODE
FOLLOWING INITIAL TURN-ON OR SIDE COMMAND 8 EXECUTION.
2. 0,1,2,...,9,10 - CCGE MODE
FOLLOWING EXECUTION OF SIDE COMMAND 2
3. 0,1,2,...,38,39 - RESET AT 39 MODE
FOLLOWING EXECUTION OF SIDE COMMAND 3
4. 0,1,2,...,78,79 - RESET AT 79 MODE
FOLLOWING EXECUTION OF SIDE COMMAND 5 OR 6
5. 120,121,...,126,127 - CALIBRATION MODE
FOLLOWING EXECUTION OF SIDE COMMAND 12

§ PARITY BIT; EVEN

P=0; IF SUM OF BITS IN PRECEEDING FIVE SIDE WORDS IS EVEN.

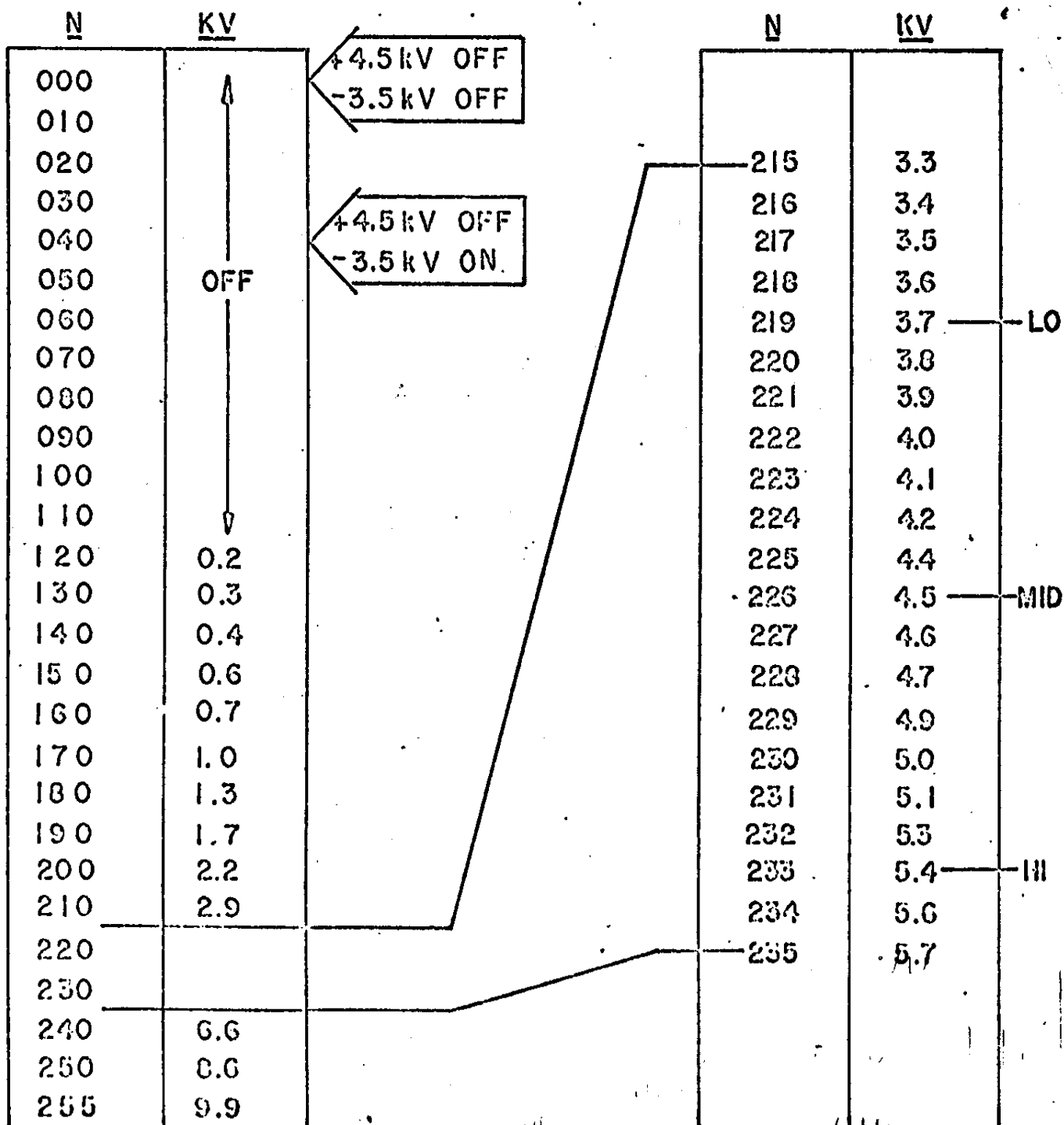
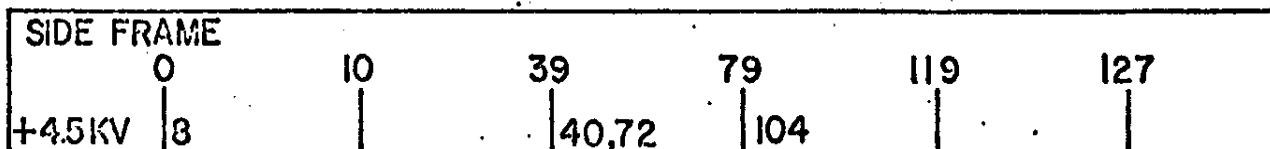
P=1; IF SUM OF BITS IN PRECEEDING FIVE SIDE WORDS IS ODD.



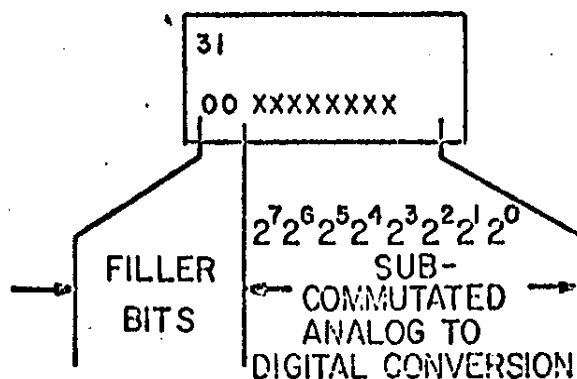
+4500 VDC

+4500 VDC

THIS IS AN ANALOG MEASUREMENT OF THE 4500 VOLT POWER SUPPLY OUTPUT (PRIOR TO THE CURRENT LIMITING RESISTOR) SUPPLIED TO THE COLD CATHODE IONIZATION GAUGE. A LOCK-OUT PLUG IS USED TO DISABLE THIS SUPPLY DURING CHECK-OUT UNDER AMBIENT PRESSURE. COMMAND NO.13 IS USED FOR ON/OFF CONTROL. INITIAL CONDITION (LOCKOUT PLUG REMOVED) IS WITH THIS VOLTAGE IN THE "ON" STATE.



SIDE WORD 2 (ANALOG SUBCOM)



(EVEN BxA FRAME)

9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

VOLTAGES	0	10	39	79	119	127
+4.5KV	8		40,72	104		
+60 V		16	48	80,112		
+30 V		17	49	81,113		
+12 V		28	60	92		
+A/D REF		26	58	90		
+5 V ANAL	0	32	64	96		
+5 V DIGIT		18	50	82,114		
+1 V CAL		27	59	91		
+30 mV CAL		25	57	89		
.(-) GND		19	51	83,115		
-30 mV			46	110		
-1 V CAL		37		101		
-5 V		20	52	84,116		
-A/D REF		30	62	94		
-12 V CAL		39		103		
-30 V		21	53	85,117		
-3.5KV		23	55	87,119		
TEMPERATURES (+)						
1	2	34	66	98		
2	4	36	68	100		
3	6	38	70	102		
4		11	43,75	107		
5		12	44,76	108		
6		22	54	86,118		
DATA & MISC						
-CCGE	1,3,5,7,9		41,73	105		
+DST CVR/SEAL			67,71			
+ELECT RNG	10	24	42,53,74	83,103	120	
+GND PLN VOLT		13,15,29,31	45,47,61,63	93,95,109,111		
			69,77,79			
+OTC REG		33,35		97,99		
+PRE REG D/F			65			
-SOL CELL		14	70			

WORD CONTENT

before
after
start bit
start bit
at 1st cell
at 2nd

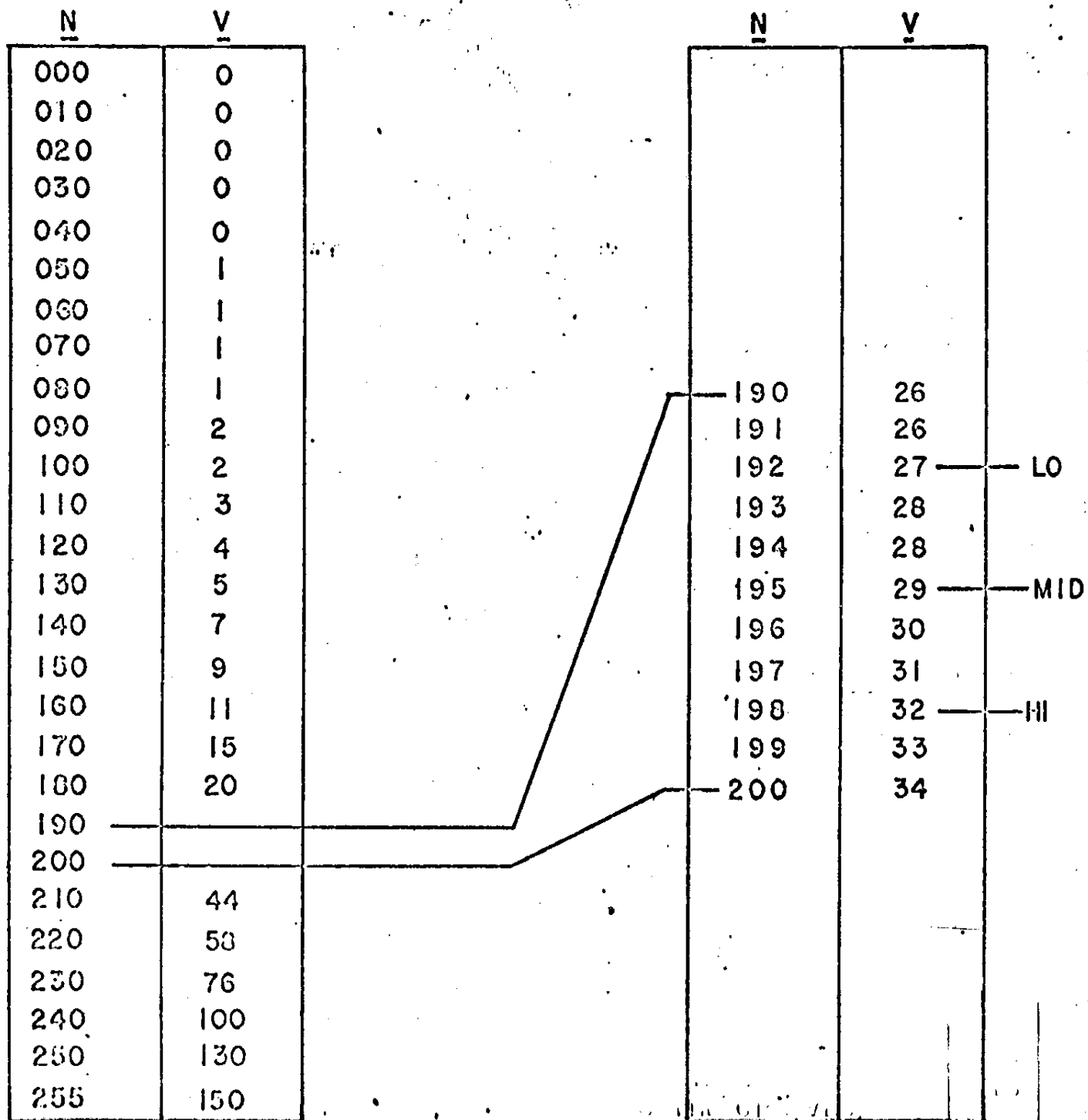
+30 VDC

THIS IS AN ANALOG MEASUREMENT OF THE +30 VDC POWER SUPPLY WHICH SUPPLIES POWER TO THE GPS, VFS, LECPAS, HECPAS, A/D CONVERTER, CAL. PULSER, ELECTROMETER, +4.5 KV POWER SUPPLY, -3.5KV POWER SUPPLY, AND DIGITAL AND COMMAND CIRCUITRY.

+30 VDC

SIDE FRAME

	0	10	39	79	119	127
+30	0	17	49	81, 113		



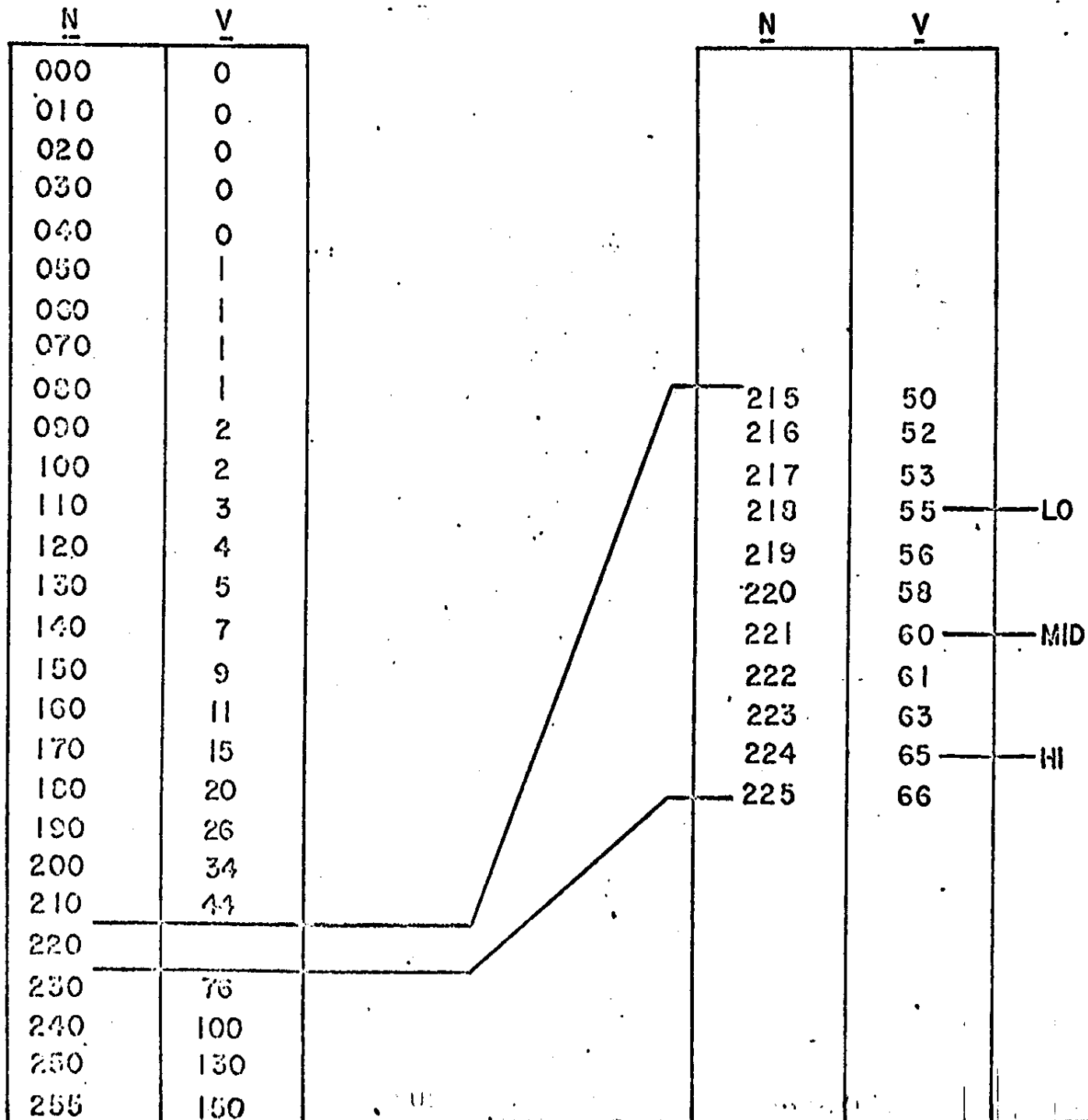
+60 VDC

THIS IS AN ANALOG MEASUREMENT OF THE +60 VDC
POWER SUPPLY WHICH SUPPLIES POWER TO THE GPS,VFS,
HECPAS, AND SOME OF THE DIGITAL AND COMMAND CIRCUITRY.

+60 VDC

SIDE FRAME

	0	10	39	79	119	127
+60		16	48	80,112		



THIS AN ANALOG MEASUREMENT OF A POSITIVE REFERENCE VOLTAGE FOR THE A/D CONVERTER.

+A/D REF VDC

SIDE FRAME	0	10	39	79	119	127
+A/D		26	58	90		

N	V
000	0.0
010	0.0
020	0.0
030	0.0
040	0.0
050	0.1
060	0.1
070	0.1
080	0.1
090	0.2
100	0.2
110	0.3
120	0.4
130	0.5
140	0.7
150	0.9
160	1.1
170	1.5
180	2.0
190	2.6
200	3.4
210	4.4
220	
230	
240	10
250	13
260	15

N	V	
215	5.0	
216	5.2	
217	5.3	
218	5.5	
219	5.6	
220	5.8	LO
221	6.0	
222	6.1	
223	6.3	
224	6.4	
225	6.6	MID
226	6.8	
227	7.0	
228	7.2	
229	7.4	
230	7.6	HI
231	7.8	
232	8.0	
233	8.2	
234	8.5	
235	8.7	

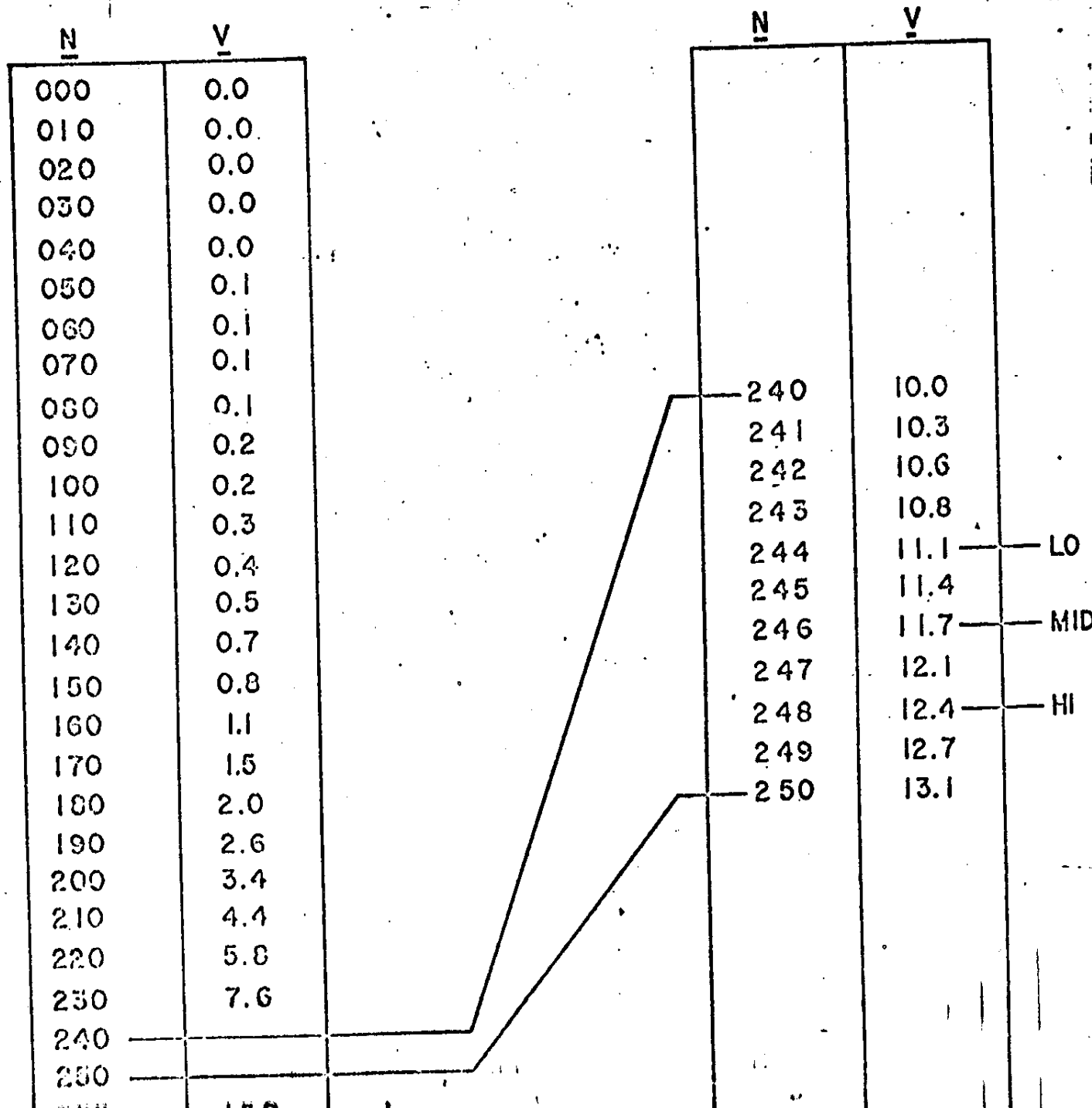
+12 VDC

THIS IS AN ANALOG MEASUREMENT OF THE +12 VDC POWER SUPPLY WHICH SUPPLIES POWER TO THE HIGH AND LOW ENERGY LOG COUNT RATE METERS.

+12 VDC

SIDE FRAME

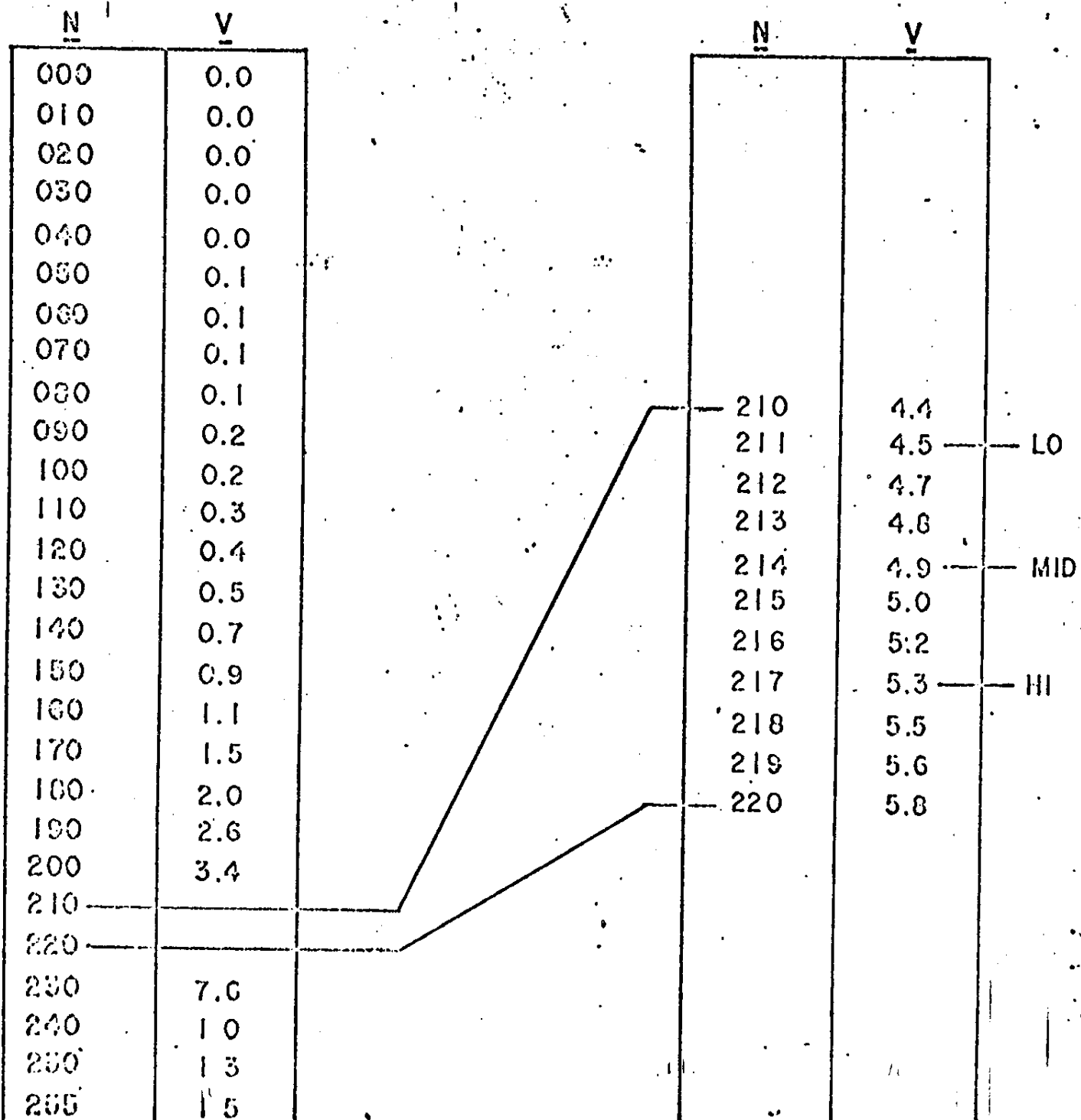
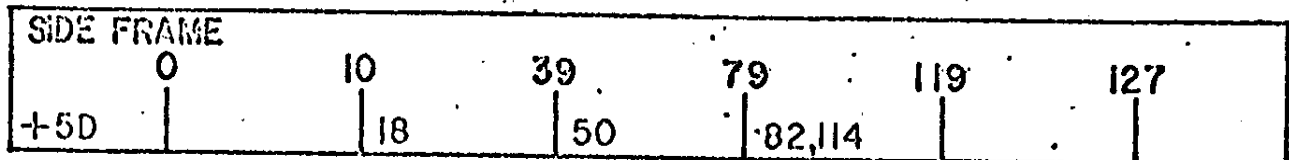
0	10	39	79	119	127
+12	28	60	92		



+ 5 VDC

THIS IS AN ANALOG MEASUREMENT OF THE +5 VDC POWER SUPPLY WHICH SUPPLIES POWER TO ALL DIGITAL CIRCUITRY WITHIN THE EXPERIMENT.

+5 VDC



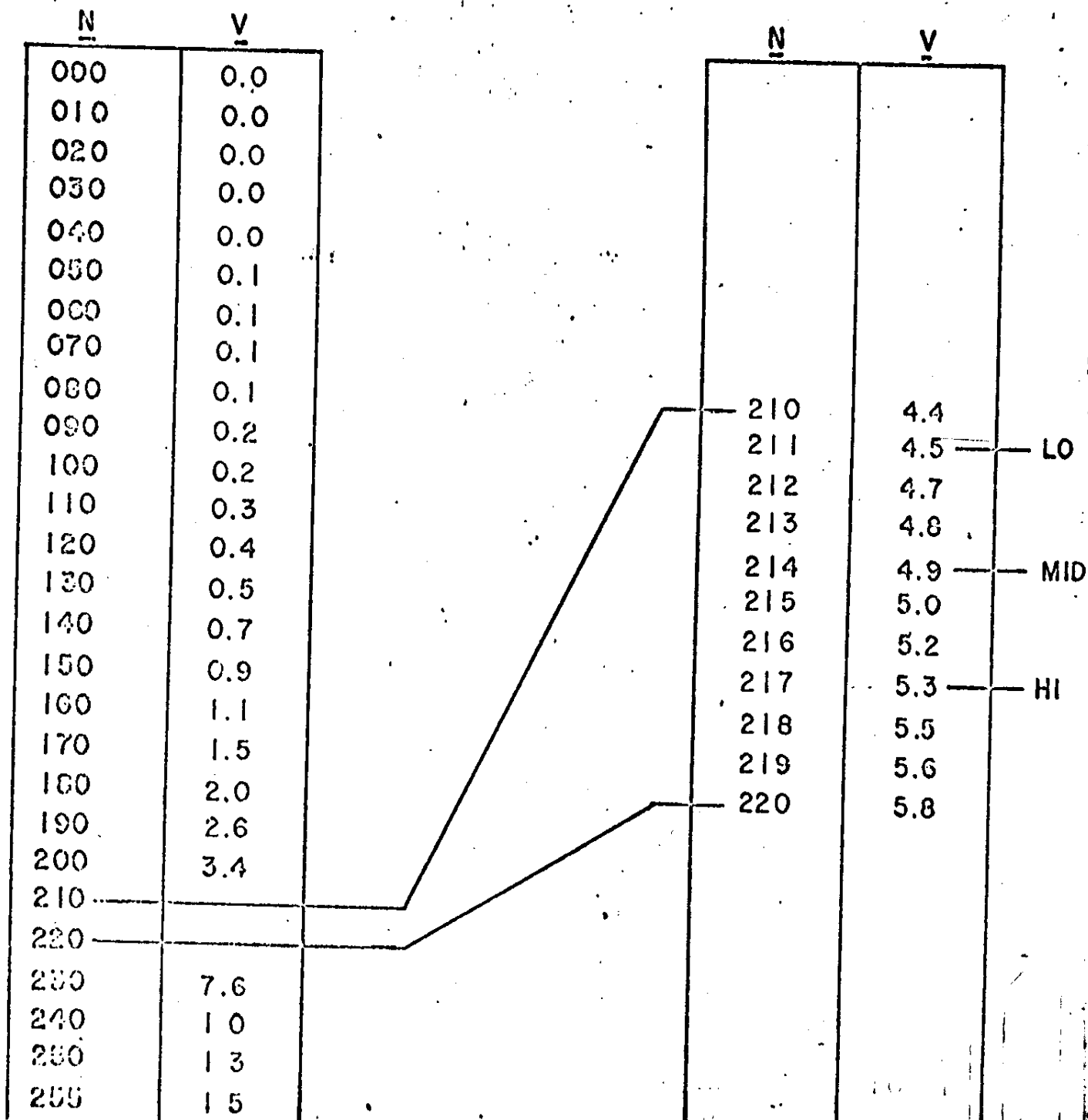
+5 VDC

THIS IS AN ANALOG MEASUREMENT OF THE +5 VDC POWER SUPPLY WHICH SUPPLIES POWER TO ANY ANALOG CIRCUITRY WHICH REQUIRES +5 VDC.

+5 VDC

SIDE FRAME

	0	10	39	79	119	127
+5A	0	32	64	96		



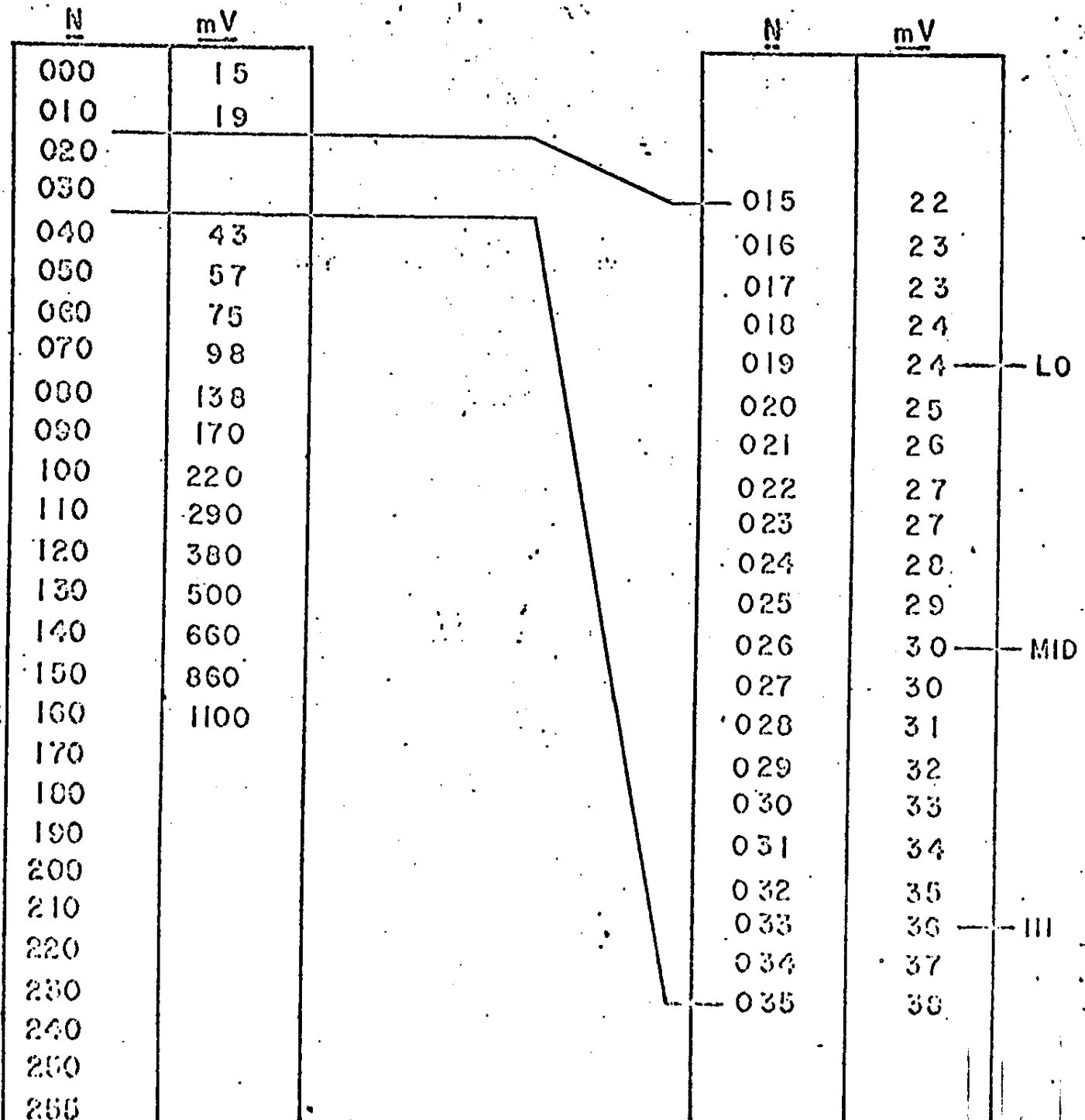
+ 30 mv CAL

+ 30 mv CAL

THIS IS AN ANALOG MEASUREMENT OF A POSITIVE 30 MILLIVOLT CALIBRATION VOLTAGE FOR THE A/D CONVERTER.

SIDE FRAME

0	10	39	79	119	127
+30mV	25	57	89		



+1VDC

THIS IS AN ANALOG MEASUREMENT OF A POSITIVE 1VDC
REFERENCE VOLTAGE FOR THE A/D CONVERTER.

+1VDC

SIDE FRAME

0	10	39	79	119	127
21	27	59	91		

N	V
000	0.0
010	0.0
020	0.0
030	0.0
040	0.0
050	0.1
060	0.1
070	0.1
080	0.1
090	0.2
100	0.2
110	0.3
120	0.4
130	0.5
140	0.7
150	
160	
170	1.5
180	2.0
190	2.6
200	3.4
210	4.4
220	5.8
230	7.6
240	10
250	13
255	15

N	V	
150	0.86	
151	0.89	
152	0.91	
153	0.94	LO
154	0.96	
155	0.99	MIC
156	1.02	
157	1.04	HI
158	1.07	
159	1.10	
160	1.13	

- 30 mv CAL

- 30 mv CAL

THIS IS AN ANALOG MEASUREMENT OF A NEGATIVE 30
MILLIVOLT CALIBRATION VOLTAGE FOR THE A/D CONVERTER.

SIDE FRAME

0 10 39 79 119 127
- 30 mV 46 110

N	V
000	-1 5
010	
020	
030	
040	-4 3
050	-5 7
060	-7 5
070	-9 8
080	-130
090	-170
100	-220
110	-290
120	-380
130	-500
140	-660
150	-860
160	-1100
170	
180	
190	
200	
210	
220	
230	
240	
250	
265	

N	V	
010	-1 9	
011	-2 0	
012	-2 0	LO
013	-2 1	
014	-2 1	
015	-2 2	
016	-2 3	
017	-2 3	
018	-2 4	
019	-2 4	
020	-2 5	
021	-2 6	
022	-2 7	
023	-2 7	
024	-2 8	
025	-2 9	
026	-3 0	
027	-3 0	MID
028	-3 1	
029	-3 2	
030	-3 3	
031	-3 4	
032	-3 5	
033	-3 6	
034	-3 7	HI
035	-3 8	

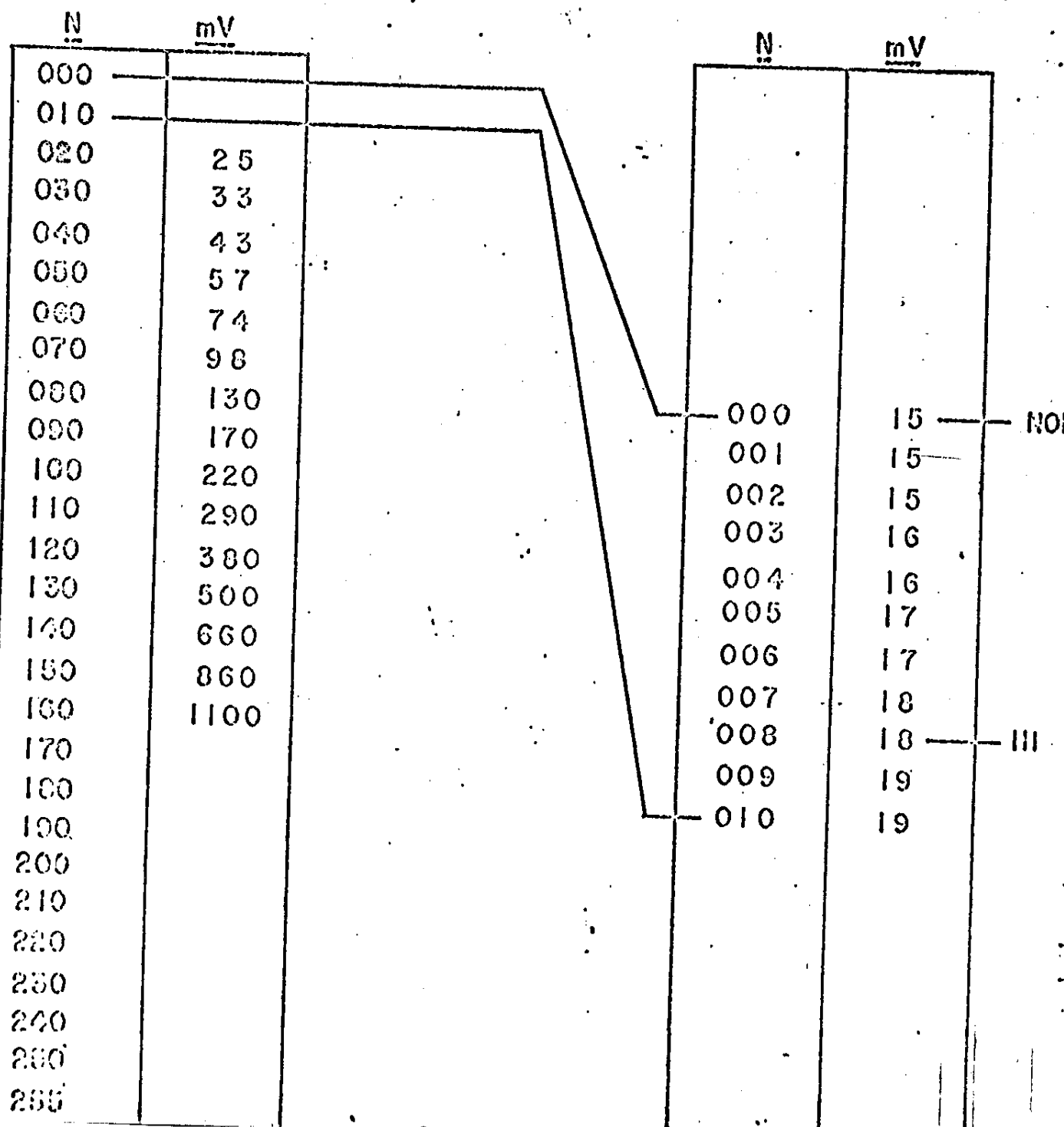
GND VDC

GND VDC

THIS IS AN ANALOG MEASUREMENT OF EXPERIMENT GROUND
TO DETERMINE PRESENCE OF NOISE ON GROUND LINES.

SIDE FRAME

0	10	39	79	119	127
GND	19	51	83, 115		



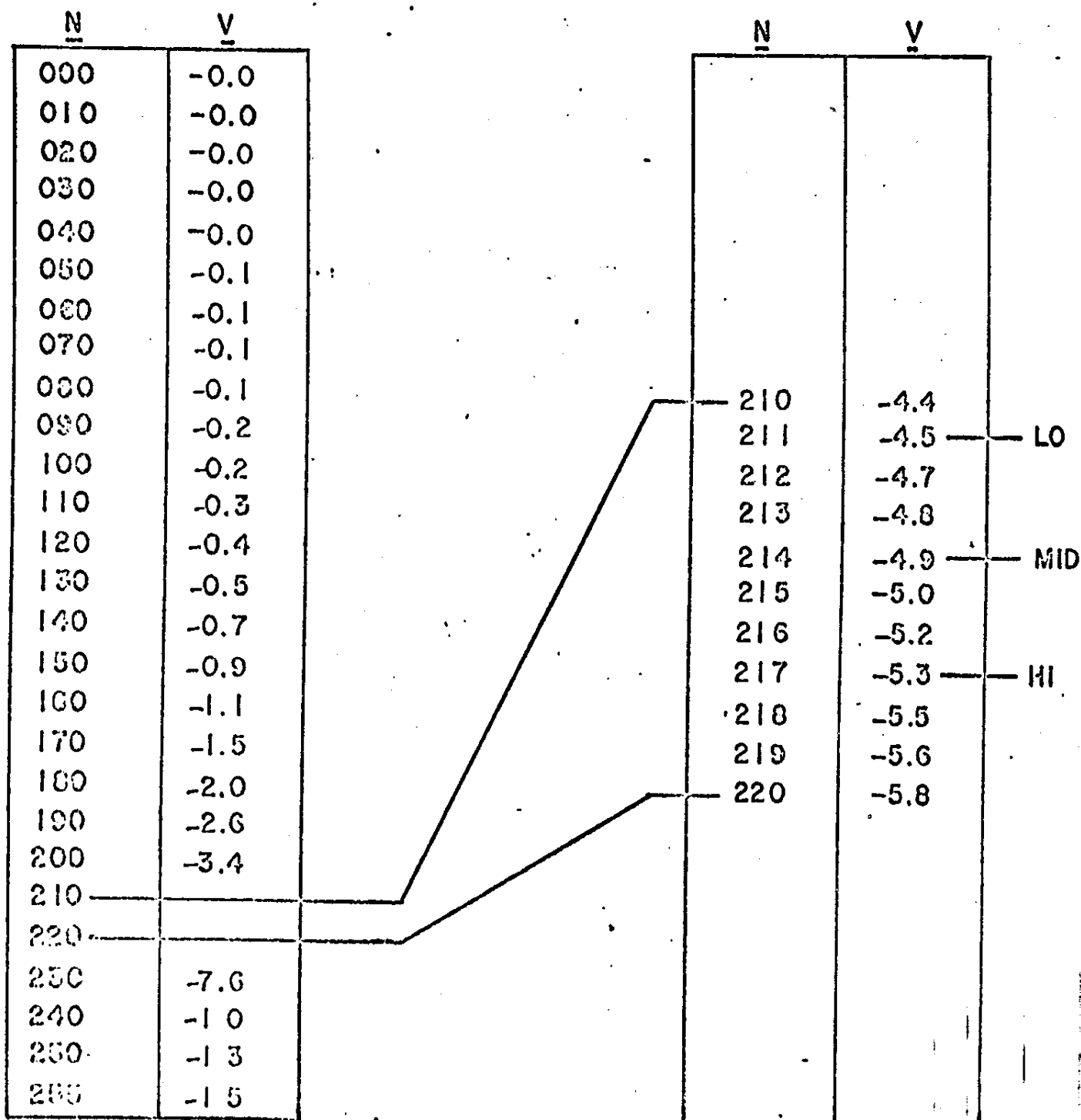
- 5 VDC

THIS IS AN ANALOG MEASUREMENT OF THE -5 VDC POWER SUPPLY WHICH SUPPLIES POWER TO THE VFS,LECPAS,HECPAS,A/D CONVERTER,CHANNELTRON PRE-AMPS AND DISCRIMINATORS,CAL. PULSER,ANDELECTROMETER.

-5 VDC

SIDE FRAME

0	10	39	79	119	127
-5	0	20	52	84,116	



- 1 VDC

THIS IS AN ANALOG MEASUREMENT OF A NEGATIVE
1 VDC REFERENCE VOLTAGE FOR THE A/D CONVERTER.

-1VDC

SIDE FRAME

-1	0	10	39	79	119	127
		37		101		

N	V		N	V
000	-0.0			
010	-0.0			
020	-0.0			
030	-0.0			
040	-0.0			
050	-0.1			
060	-0.1			
070	-0.1			
080	-0.1			
090	-0.2			
100	-0.2			
110	-0.3			
120	-0.4			
130	-0.5			
140	-0.7			
150			150	-0.86
160			151	-0.89
170	-1.5		152	-0.91
180	-2.0		153	-0.94
190	-2.6		154	-0.96
200	-3.4		155	-0.99
210	-4.4		156	-1.02
220	-5.8		157	-1.04
230	-7.6		158	-1.07
240	-10		159	-1.10
250	-13		160	-1.13
260	-15			

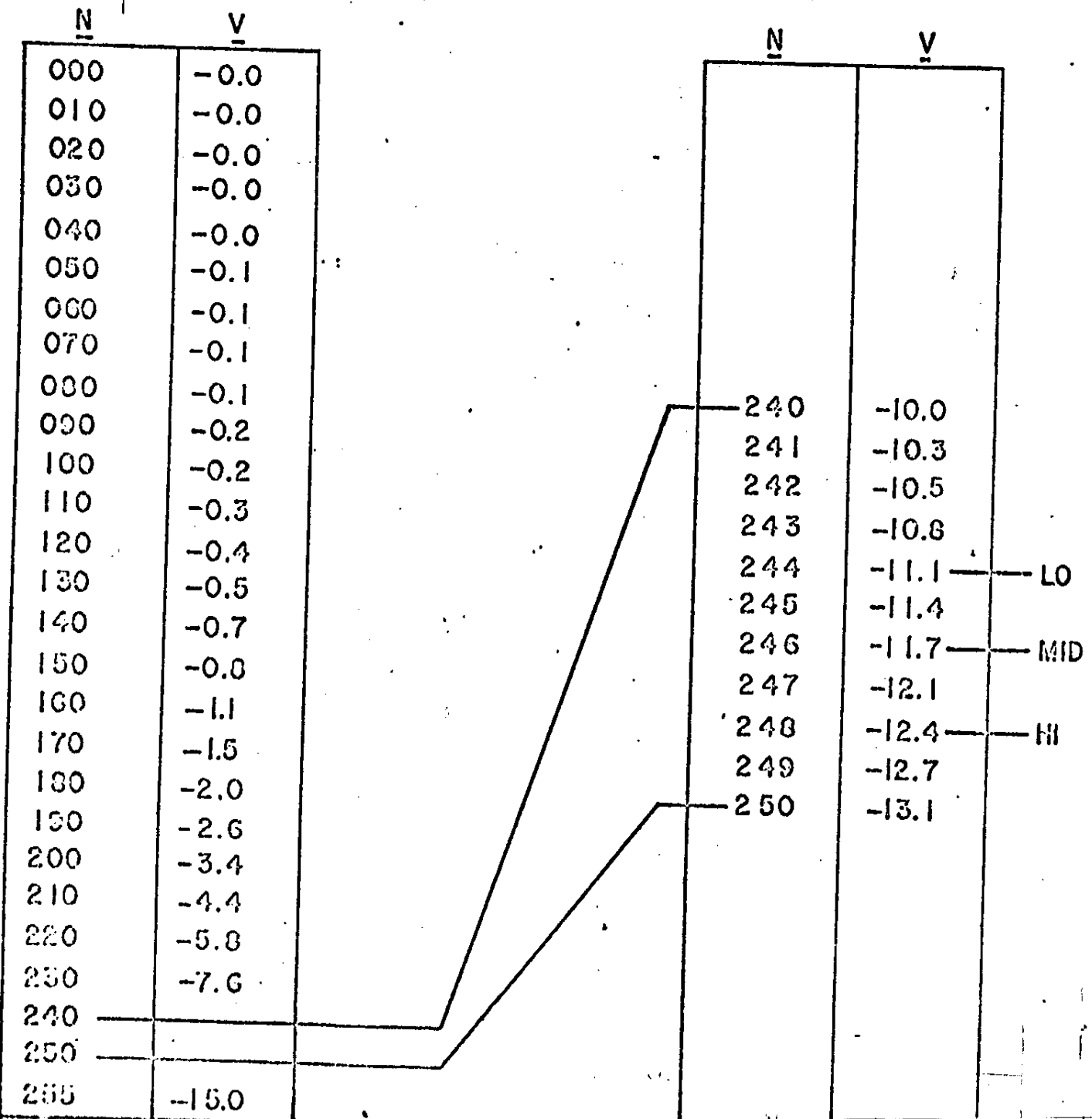
LO
MID
HI

-12 VDC

THIS IS AN ANALOG MEASUREMENT OF THE -12 VDC
POWER SUPPLY WHICH SUPPLIES POWER TO THE HIGH AND
LOW ENERGY LOG COUNT RATE METERS.

-12 VDC

SIDE FRAME



-A/D REF VDC

-A/D REF VDC

THIS IS AN ANALOG MEASUREMENT OF A NEGATIVE REFERENCE VOLTAGE FOR THE A/D CONVERTER.

SIDE FRAME

0	10	39	79	119	127
-A/D	30	62	94		

N	V
000	-0.0
010	-0.0
020	-0.0
030	-0.0
040	-0.0
050	-0.1
060	-0.1
070	-0.1
080	-0.1
090	-0.2
100	-0.2
110	-0.3
120	-0.4
130	-0.5
140	-0.7
150	-0.9
160	-1.1
170	-1.5
180	-2.0
190	-2.6
200	-3.4
210	-4.4
220	
230	
240	-10
250	-13
255	-15

N	V
215	-5.0
216	-5.2
217	-5.3
218	-5.5
219	-5.6
220	-5.8
221	-6.0
222	-6.1
223	-6.3
224	-6.4
225	-6.6
226	-6.8
227	-7.0
228	-7.2
229	-7.4
230	-7.6
231	-7.8
232	-8.0
233	-8.2
234	-8.5
235	-8.7

LO

MID

HI

- 3500 VDC

THIS IS AN ANALOG MEASUREMENT OF THE -3500 VDC POWER SUPPLY WHICH SUPPLIES ACCELERATION VOLTAGE TO THE HIGH AND LOW ENERGY CHANNELTRONS. A LOCK-OUT PLUG IS USED TO DISABLE THIS SUPPLY DURING CHECKOUT OF THE SIDE/CCGE UNDER AMBIENT PRESSURE. COMMAND #14 IS USED FOR ON/OFF CONTROL. INITIAL CONDITION (LOCKOUT PLUG REMOVED) IS WITH THIS VOLTAGE IN THE "ON" STATE.

-3500 VDC

SIDE FRAME					
0	10	39	79	119	127
-3.5KV	23	55	87,119		

N	KV		N	KV	
000		3.5 kV OFF 4.5 kV OFF	200	-3.28	
010			201	-3.31	
020			202	-3.33	
030			203	-3.35	
040			204	-3.37	LO
050			205	-3.39	
060			206	-3.41	
070			207	-3.43	
080			208	-3.45	
090			209	-3.48	
100		3.5 kV OFF 4.5 kV ON	210	-3.50	
110			211	-3.52	
120	2.7		212	-3.55	
130	2.7		213	-3.57	MID
140	2.6		214	-3.60	
150	2.8		215	-3.62	
160	2.8		216	-3.65	
170	2.9		217	-3.67	
180	3.0		218	-3.70	
190	3.1		219	-3.72	
200			220	-3.75	
210			221	-3.79	
220			222	-3.82	HI
230	4.1		223	-3.85	
240	4.6		224		
250	5.2		225	-3.91	
255	5.3				

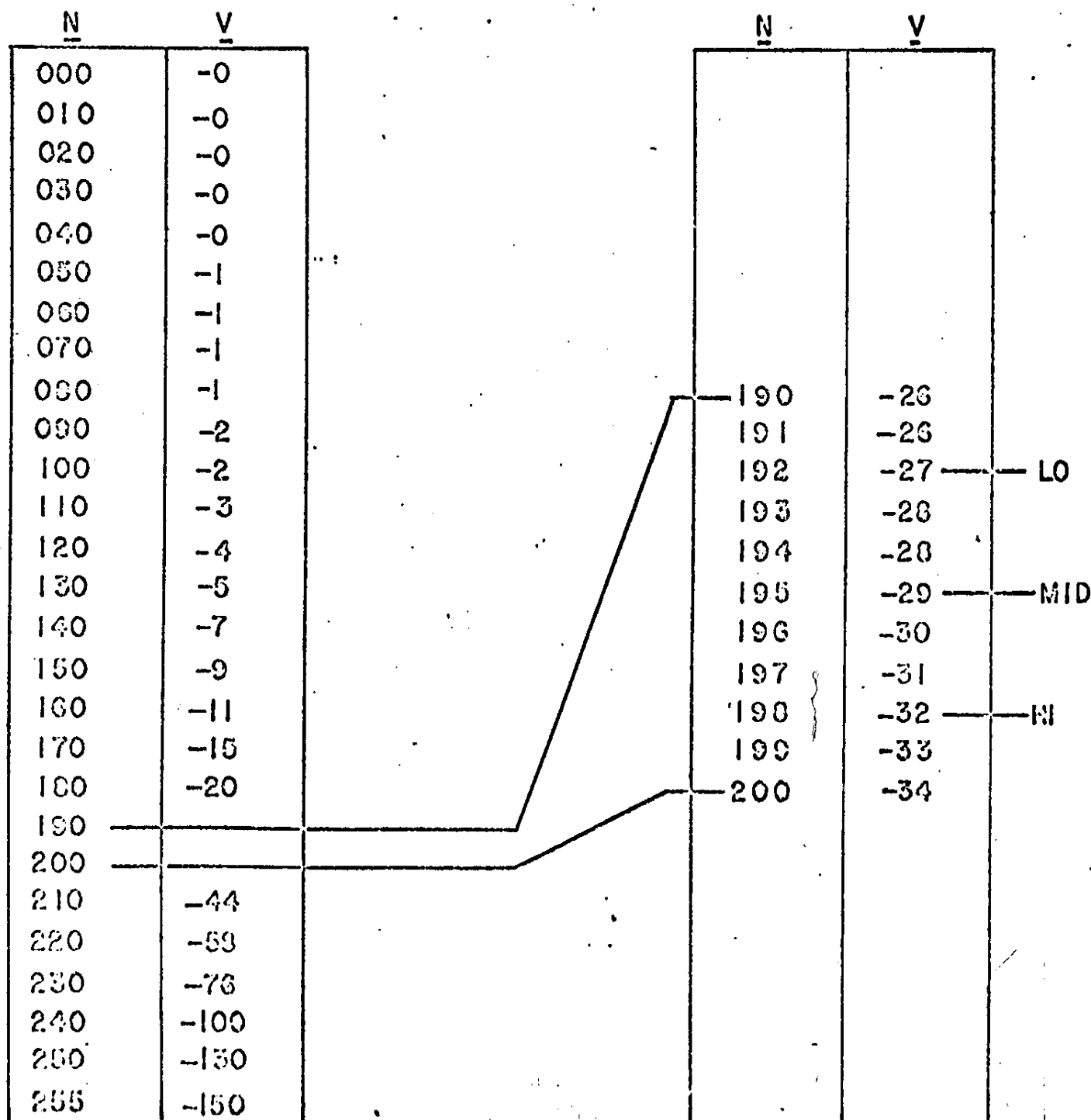
-30 VDC

THIS IS AN ANALOG MEASUREMENT OF THE -30 VDC POWER SUPPLY WHICH SUPPLIES POWER TO THE GPS,VFS, LECPAS,HECPAS,A/D CONVERTER, ELECTROMETER,AND DIGITAL AND COMMAND CIRCUITRY.

-30 VDC

SIDE FRAME

0	10	39	79	119	127
-30	21	53	85,117		



TEMP 2

TEMPERATURE SENSOR LOCATED IN THE 200 BLIVET

TEMP 2

SIDE FRAME

TEMP	0	10	39	79	119	127
	2	4	36	68	100	

N	°C	°C/N	N	°C	°C/N
000	120	1.6	125	0	.4
005	112	2.4	130	-2	.6
010	100	1.6	135	-5	.4
015	92	1.4	140	-7	.6
020	85	1	145	-10	.4
025	80	1	150	-12	.6
030	75	1.6	155	-15	.4
035	68	1	160	-17	.6
040	63	1	165	-20	.4
045	58	.8	170	-22	.6
050	54	.8	175	-25	.4
055	50	1	180	-27	.6
060	45	1	185	-30	.4
065	40	.6	190	-32	.6
070	37	1	195	-35	.4
075	32	.8	200	-37	.6
080	28	.6	205	-40	.4
085	25	.8	210	-42	.6
090	21	.6	215	-45	.4
095	18	.6	220	-47	.6
100	15	.6	225	-50	.4
105	12	.4	230	-52	.6
110	10	.6	235	-55	1
115	7	.6	240	-60	1
120	4	.8	245	-65	.6
125	0		250	-68	2
			255	-78	

TEMP 1

TEMPERATURE SENSOR LOCATED IN THE CCIG
ATTACHED TO THE MAGNET

TEMP 1

SIDE FRAME

TEMP	0	10	39	79	119	127
	2	34	66	98		

N	°C	°K	N	°C	°K
113	-140	133	137	-45	220
114	-137	136	138	-40	233
115	-134	139	139	-35	238
116	-132	141	140	-30	243
117	-130	143	141	-20	253
118	-126	147	142	-10	263
119	-123	150	143	-5	268
120	-120	153	144	0	273
121	-117	156	145	5	278
122	-115	158	146	10	283
123	-112	161	147	20	293
124	-110	163	148	25	298
125	-105	168	149	30	303
126	-100	173	150	40	313
127	-95	178	151	50	323
128	-90	183	152	60	333
129	-85	188	153	70	343
130	-80	193	154	80	353
131	-75	198	155	85	358
132	-70	203	156	90	363
133	-65	208	157	100	373
134	-60	213	158	110	383
135	-55	218	159	120	393
136	-50	223	160	130	403
137	-45	228	161	140	413

TEMP 4

TEMPERATURE SENSOR, LOCATED IN THE 300 BLIVET.

TEMP 4

SIDE FRAME

TEMP 0	10	39	79	119	127
4	11	43,75	107		

N	°C	°C/N	N	°C	°C/N
000	92		125	5	
005	88	.8	130	3	.4
010	84	.8	135	-1	.8
015	78	1.2	140	-3	.4
020	74	.6	145	-6	.6
025	70	.8	150	-9	.6
030	65	1	155	-12	.6
035	61	.8	160	-14	.4
040	57	.8	165	-16	.4
045	53	.8	170	-19	.6
050	50	.6	175	-21	.4
055	47	.6	180	-24	.6
060	43	.8	185	-26	.4
065	40	.6	190	-28	.4
070	36	.8	195	-31	.6
075	33	.6	200	-32	.2
080	30	.6	205	-35	.6
085	27	.6	210	-36	.2
090	25	.4	215	-39	.6
095	22	.6	220	-42	.6
100	19	.6	225	-43	.2
105	16	.6	230	-45	.4
110	13	.6	235	-46	.2
115	10	.6	240	-47	.2
120	8	.4	245	-50	.4
125	5	.6	250		
			255		

TEMP 3

TEMPERATURE SENSOR LOCATED IN THE 500 BLIVET

TEMP 3

SIDE FRAME

TEMP	0	10	39	79	119	127
	3	6	38	70	102	

N	°C	°C/N	N	°C	°C/N
000	120	1.6	125	0	.4
005	112	2.4	130	-2	.6
010	100	1.6	135	-5	.4
015	92	1.4	140	-7	.6
020	85	1	145	-10	.4
025	80	1	150	-12	.6
030	75	1.6	155	-15	.4
035	68	1	160	-17	.6
040	63	1	165	-20	.4
045	58	.8	170	-22	.6
050	54	.8	175	-25	.4
055	50	1	180	-27	.6
060	45	1	185	-30	.4
065	40	.6	190	-32	.6
070	37	1	195	-35	.4
075	32	.8	200	-37	.6
080	28	.6	205	-40	.4
085	25	.8	210	-42	.6
090	21	.6	215	-45	.4
095	18	.6	220	-47	.6
100	15	.6	225	-50	.4
105	12	.4	230	-52	.6
110	10	.6	235	-55	1
115	7	.6	240	-60	1
120	4	.6	245	-65	.6
125	0	.8	250	-68	2
			255	-78	

TEMP 6

TEMPERATURE SENSOR LOCATED IN THE 800 BLIVET

TEMP 6

SIDE FRAME						
TEMP	0	10	39	79	119	127
6		22	54	86,118		

N °C °C/N			N °C °C/N		
	000	92		125	5
	005	89.62 88		130	3 .4
	010	77.55 84		135	-1 .8
	015	73.57 78 1.2		140	-3 -6.57 .4
	020	69.66 74 .6		145	-6 .6
	025	65.83 70 .8		150	-9 .6
	030	62.08 65 1		155	-12 .6
	035	61 .8		160	-14 -16.82 .4
	040	54.78 57 .8		165	-16 .4
	045	53 .8		170	-19 .6
	050	42.75 50 .6		175	-21 .4
	055	47 .6		180	-24 -26.42 .6
	060	43 .8		185	-26 .4
	065	40 .6		190	-28 .4
	070	39.38 36 .8		195	-31 .6
	075	33 .6		200	-32 -35.39 .2
	080	30 .6		205	-35 .6
	085	27 .6		210	-36 .2
	090	21.82 25 .4		215	-39 .6
	095	22 .6		220	-42 .6
	100	15.82 19 .6		225	-43 .2
	105	16 .6		230	-45 .4
	110	13 .6		235	-46 .2
	115	10 .6		240	-47 .2
	120	4.31 8 .4		245	-50 .4
	125	5 .6		250	
				255	

TEMP 5

TEMPERATURE SENSOR LOCATED IN THE 300 BLIVET

TEMP 5

SIDE FRAME

TEMP 0

10

39

79

119

127

5

12

44,76

108

N

°C

°C/N

N	°C	°C/N
000	92	
005	88	.8
010	84	.8
015	78	1.2
020	74	.6
025	70	.8
030	65	1
035	61	.8
040	57	.8
045	53	.8
050	50	.6
055	47	.6
060	43	.8
065	40	.6
070	36	.8
075	33	.6
080	30	.6
085	27	.6
090	25	.4
095	22	.6
100	19	.6
105	16	.6
110	13	.6
115	10	.6
120	8	.4
125	5	.6

N

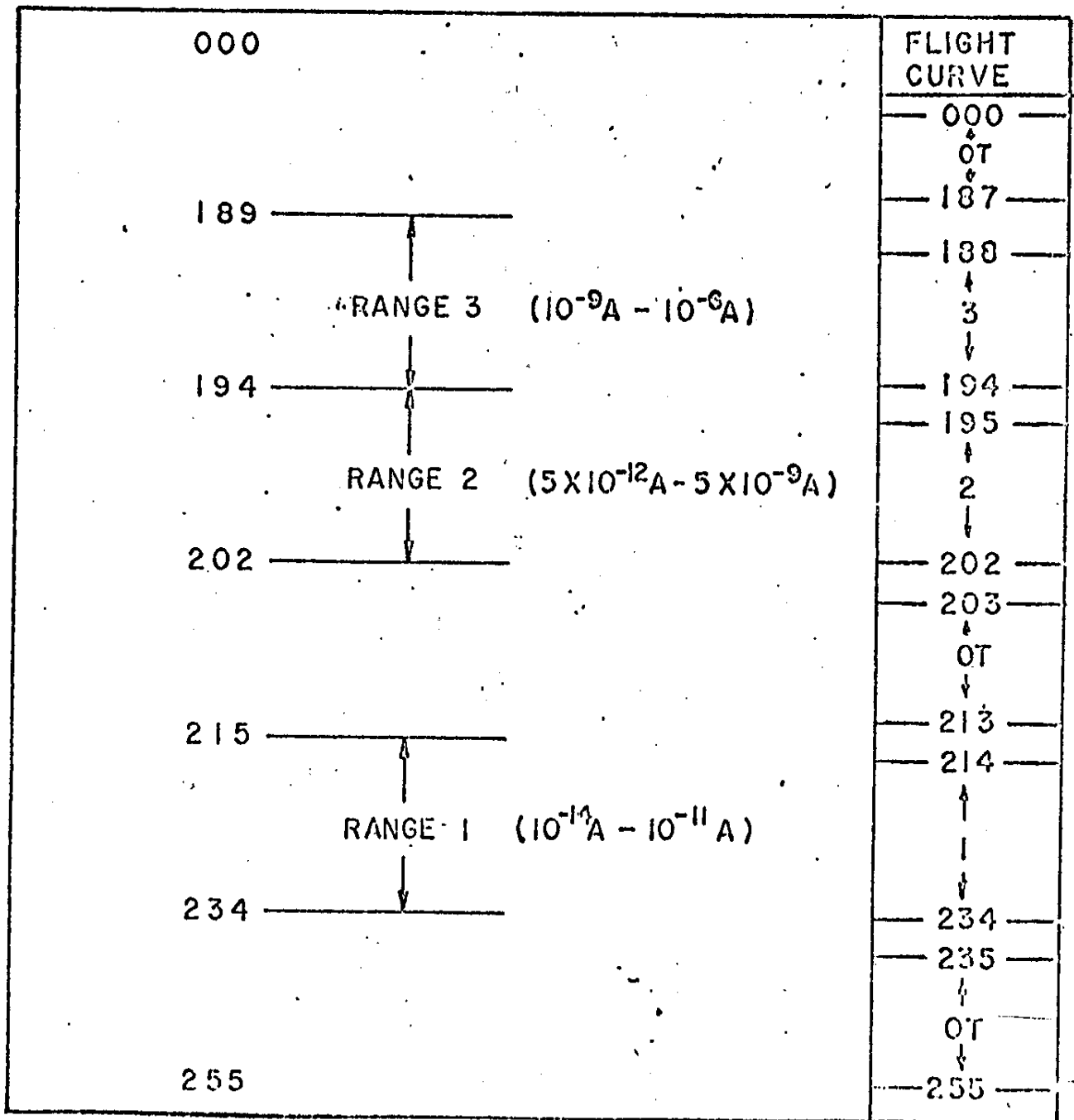
°C

°C/N

N	°C	°C/N
125	5	
130	3	.4
135	-1	.8
140	-3	.4
145	-6	.6
150	-9	.6
155	-12	.6
160	-14	.4
165	-16	.4
170	-19	.6
175	-21	.4
180	-24	.6
185	-26	.4
190	-28	.4
195	-31	.6
200	-32	.2
205	-35	.6
210	-36	.2
215	-39	.6
220	-42	.6
225	-43	.2
230	-45	.4
235	-46	.2
240	-47	.2
245	-50	.4
250		
255		

THIS IS AN ANALOG MEASUREMENT OF THE SUM OF A THREE(3) INPUT D/A CONVERTER WHICH DERIVES IT'S INPUTS FROM THE AUTO-RANGING ELECTROMETER LOGIC CONTROL CIRCUITS. RANGE 1 IS THE CURRENT RANGE OF APPROX 10^{-14} A TO 10^{-11} A. RANGE 2 IS THE CURRENT RANGE OF APPROX 5×10^{-12} A TO 5×10^{-9} A. RANGE 3 IS THE CURRENT RANGE OF APPROX 10^{-9} A TO 10^{-6} A.

SIDE FRAME						
+ELECT	0	10	39	79	119	127
RNG	10	24	42,56,74	88,104	120	



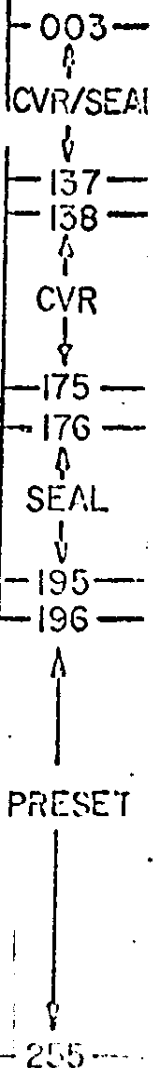
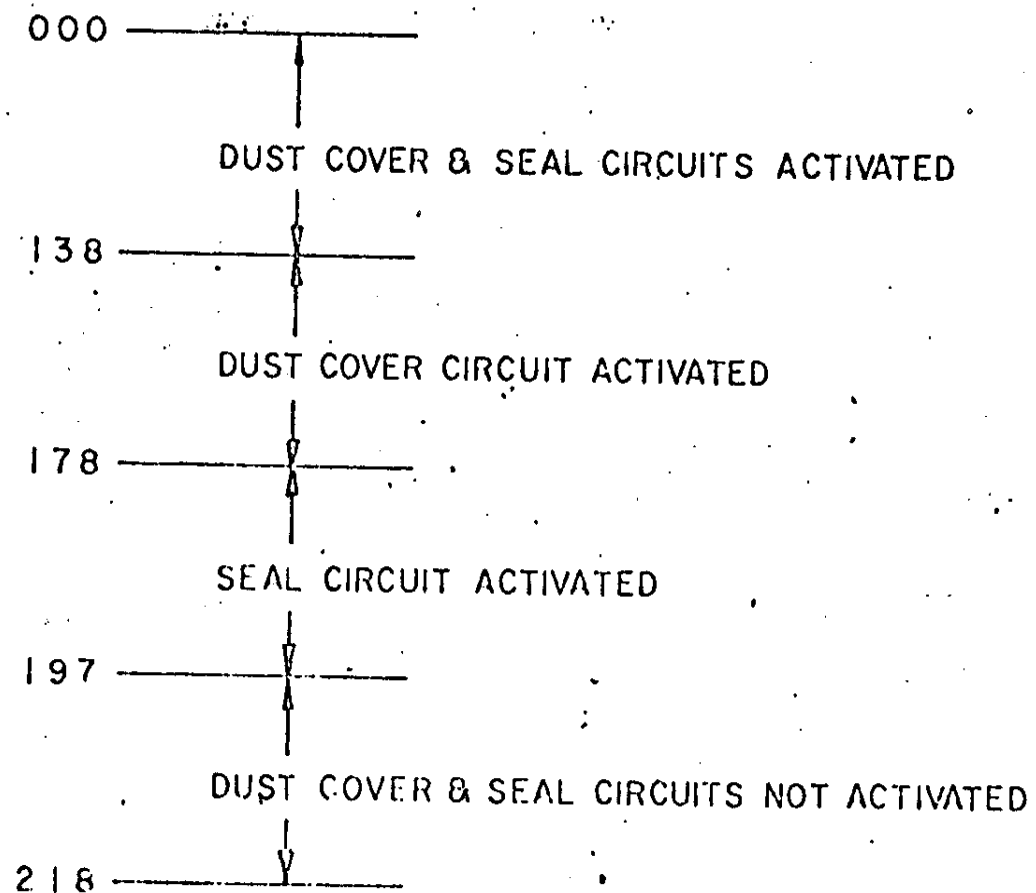
+DST CVR/SEAL

+DST CVR/SEAL

THIS AN ANALOG MEASUREMENT OF THE SUM OF A TWO (2) INPUT D/A CONVERTER WHICH DERIVES IT'S INPUTS FROM TWO(2) FLIP-FLOPS CONTROLLED BY COMMAND 105 AND 107 AFTER COMMAND EXECUTION OF EITHER COMMAND.

SIDE FRAME	0	10	39	79	119	127
+DST CVR/ SEAL			67,71			

FLIGHT
CURVES:



255

255

+OTC REG

THIS IS AN ANALOG MEASUREMENT OF THE SUM OF A TWO (2) INPUT D/A CONVERTER WHICH DERIVES ITS INPUTS FROM TWO(2) FLIP-FLOPS CONTROLLED BY COMMANDS OCTAL 105 & 107 PRIOR TO COMMAND EXECUTION.

+OTC REG

SIDE FRAME

+OTC REG.	0	10	39	79	119	127
		33,35		97,99		

000

ONE TIME COMMAND REGISTER PRESET

138

OCTAL COMMAND 105 IS GIVEN

178

OCTAL COMMAND 107 IS GIVEN

197

OCTAL COMMANDS 105 AND 107 GIVEN

218

255

FLIGHT CURVE

003

PRESET

137

138

SEAL

175

176

CVR

195

196

CVR/SEAL

255

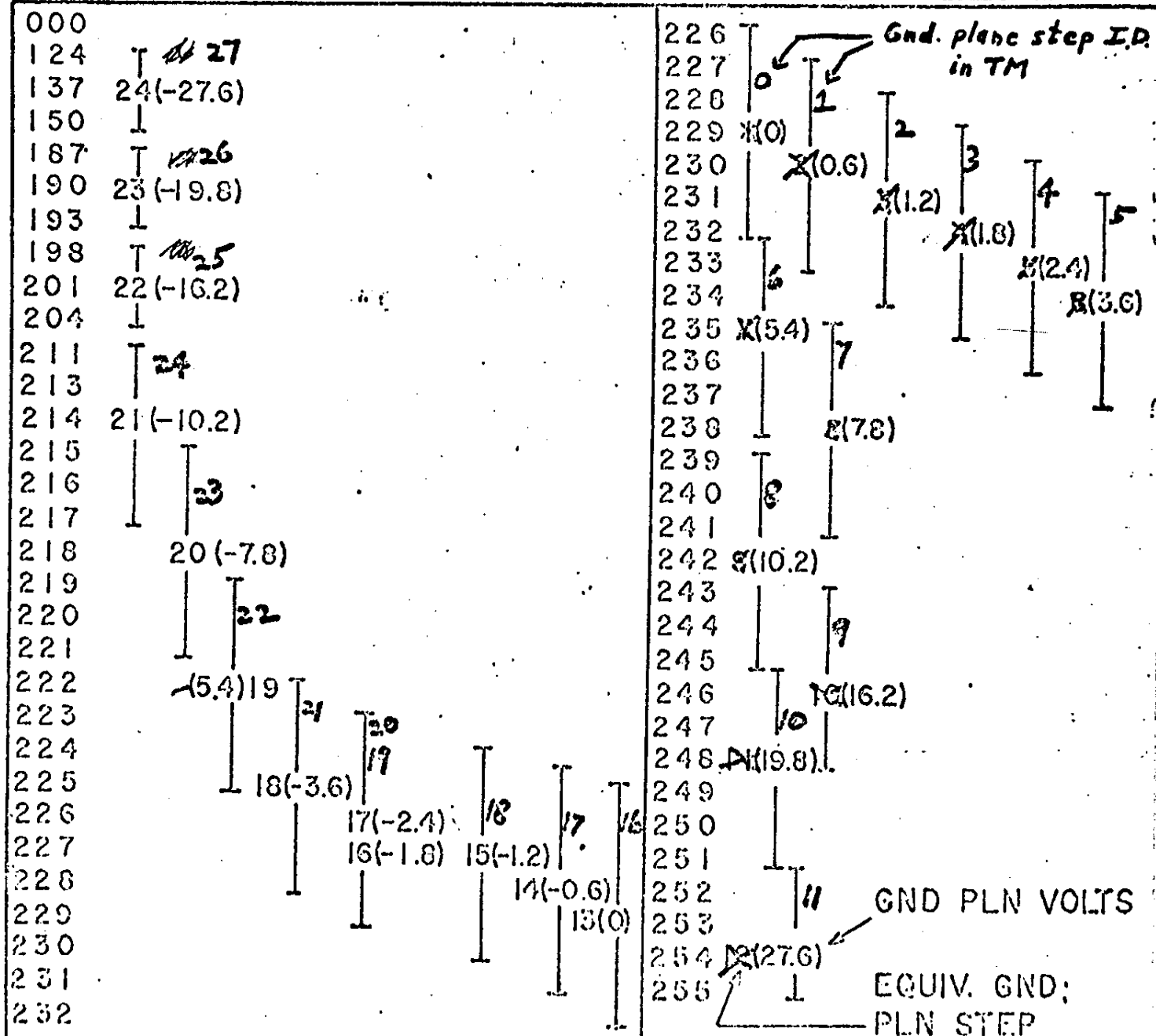
GND PLN VOLTS

THIS IS AN ANALOG MEASUREMENT OF THE POTENTIAL DIFFERENCE BETWEEN SIDE /CCGE GROUND VOLTAGE AND THE VOLTAGE ON THE LUNAR GROUND PLANE. POLARITY OF THIS VOLTAGE INDICATES GROUND PLANE VOLTAGE REFERENCED TO SIDE/CCGE GROUND.

GND PLN VOLTS

SIDE FRAME

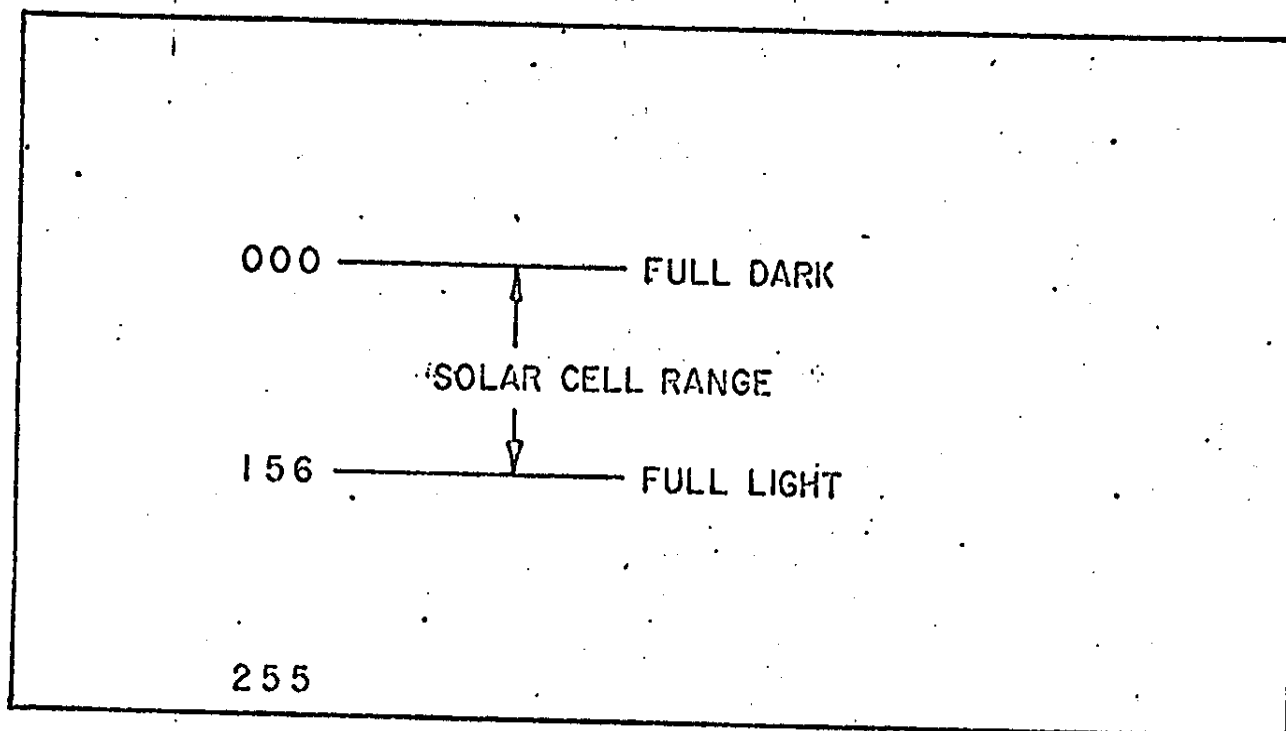
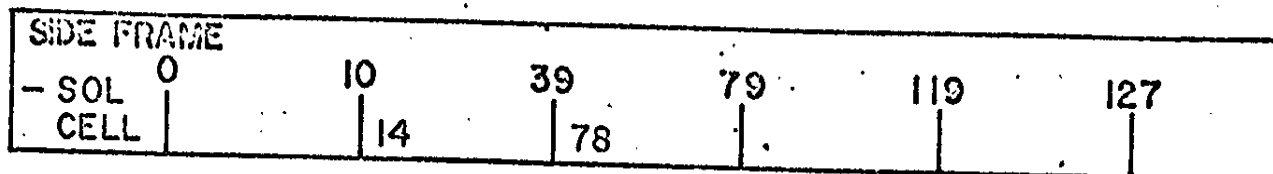
±GND	0	10	13,15, 29,31	39	45,47, 61,63,69,77, 79	93,95, 109,111	119	127
PLN								
VOLT								



- SOL CELL VDC

- SOL CELL VDC

THIS IS AN ANALOG MEASUREMENT OF THE SOLAR CELL WHICH IS MOUNTED ON THE TOP OF THE THERMAL SPACER. THE READOUT IS AN INDICATION OF DUST COVER REMOVAL DURING LUNAR DAY AND A RELATIVE INDICATION OF LIGHT INTENSITY



+PRE REG D/F

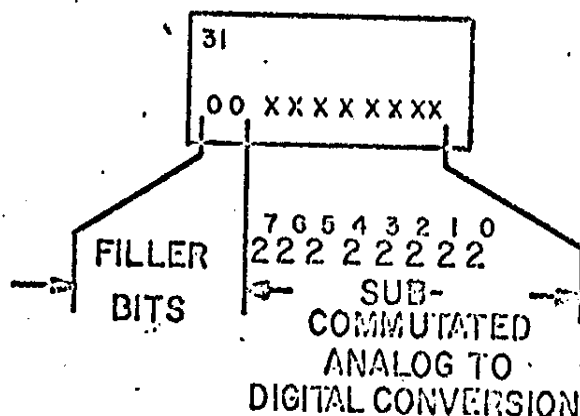
THIS IS AN ANALOG MEASUREMENT OF A DC LEVEL WHICH IS PROPORTIONAL TO THE DUTY CYCLE OF THE +30VDC PRE-REGULATOR CHOPPER. THE + 30 VDC PRE-REGULATOR DUTY CYCLE IS PROPORTIONAL TO THE ALSEP EXPERIMENT SUPPLY VOLTAGE

+PRE REG D/F

SIDE FRAME	0	10	39	79	119	127
+PRE REG D/F			65			

DECIMAL READOUT	EQUIVALENT EXPT SUPPLY VOLTAGE	FLIGHT CURVE %
210	≤ 24.0	
209	24.0	
208	24.5	99.8
207	25.0	98.0
206	25.5	96.7
205	26.0 — HI	95.2
204	26.5	93.8
203	27.0	92.5
202	27.5	91.2
201	28.0	90.0
200	28.5 — NOM	88.8
199	29.0	87.8
198	29.5	86.8
197	30.0	85.5
196	31.0	84.4
195	31.5 — LO	83.4
194	32.0	82.5
193	32.5	81.5
192	33.0	80.6
191	33.5	79.8
190	34.0	79.1
189	35.0	78.0
188	35.5	77.2
187	36.0	76.4
186	> 36.0	75.8
183		75.0
175		73.0
		67.7

SIDE WORD 3 (CONT)



9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

(EVEN D/A FRAME)

HECPA OFF; COMMAND II EXECUTED ODD NO. OF TIMES:

ALL SIDE FRAMES READOUT 280

HECPA ON; COMMAND II EXECUTED EVEN NO. OF TIMES:

SIDE FRAME NO.							ENERGY	READOUT			
							(ev)	LO	NOM	HI	
①	0	1	21	41	61	81	101	3500	249	252	255
		2	22	42	62	82	102	3250	247	250	253
		3	23	43	63	83	103	3000	244	247	250
		4	24	44	64	84	104	2750	241	244	247
		5	25	45	65	85	105	2500	237	240	243
		6	26	46	66	86	106	2250	233	236	239
		7	27	47	67	87	107	2000	229	232	235
		8	28	48	68	88	108	1750	224	227	230
		9	29	49	69	89	109	1500	218	221	224
②		10	30	50	70	90	110	1250	211	214	217
	0	11	31	51	71	91	111	1000	203	206	209
		12	32	52	72	92	112	750	192	195	198
		13	33	53	73	93	113	500	178	181	184
		14	34	54	74	94	114	250	152	155	158
		15	35	55	75	95	115	100	245	248	251
		16	36	56	76	96	116	70	232	235	238
		17	37	57	77	97	117	50	220	223	226
		18	38	58	78	98	118	30	201	204	207
③		19	39	59	79	99	119	20	186	189	192
④	0	20	40	60	80	100	120	10	161	164	167
	0	121 - 127						<12	0	0	8

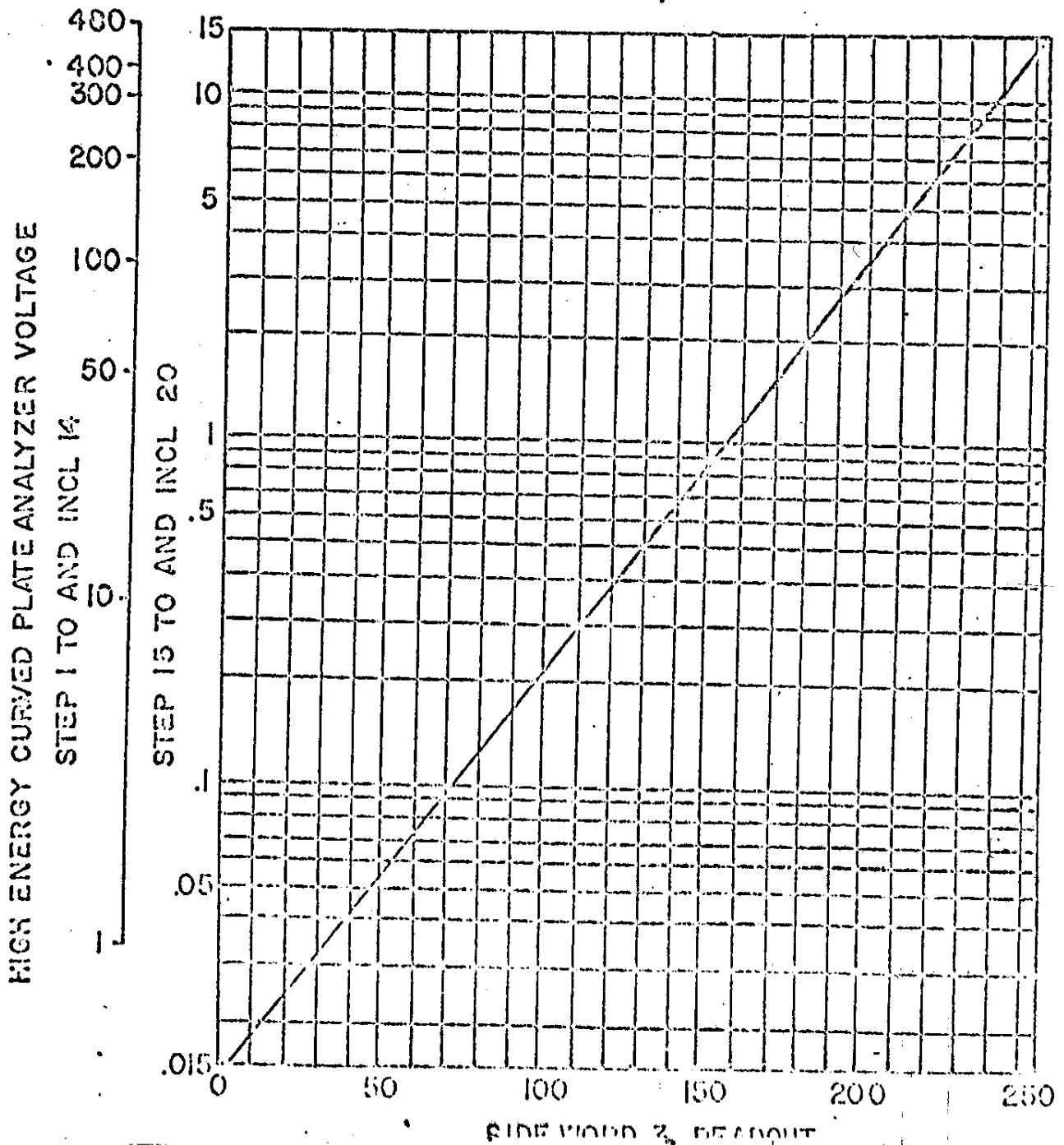
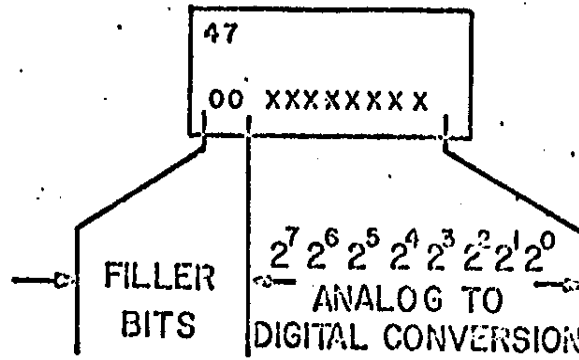
NOTES: FOR SIDE FRAME 0:

- ① FIRST CYCLE FOLLOWING EXPT TURN-ON
- ② RESET AT 10 MODE ONLY
- ③ RESET AT 30 OR 70 MODE ONLY
- ④ NORMAL MODE AND CAL MODE ONLY

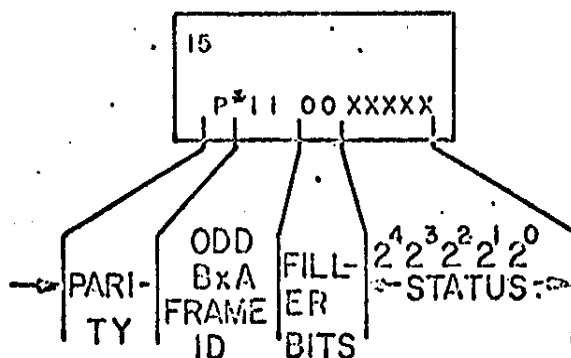
(HIGH ENERGY CURVED PLATE ANALYZER VOLTAGE)

(EVEN DATA FRAME)

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46		48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64



SIDE WORD C (STATUS SUBCOM)

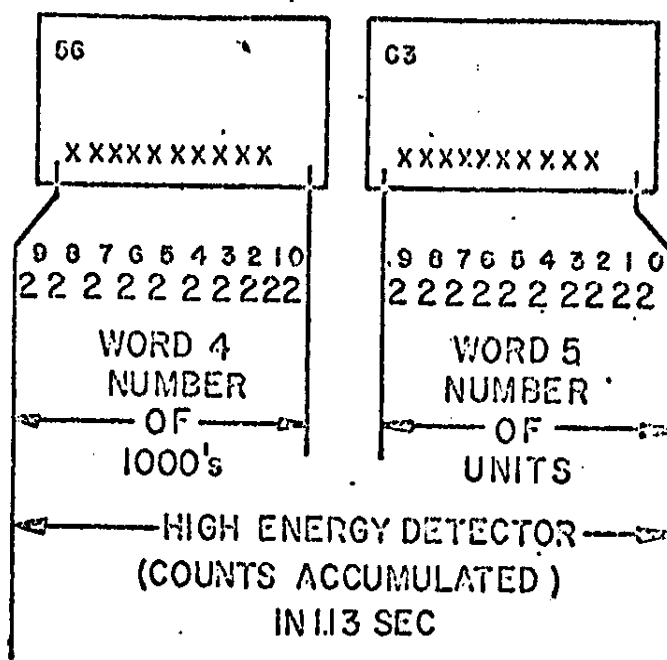


1	2	3	4	5	6	7	8
9	10	11	12	13	14		16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

*EVEN PARITY BIT

P=0; IF SUM OF BITS, PREV. 5 SIDE WORDS IS EVEN
 P=1; IF SUM OF BITS, PREV. 5 SIDE WORDS IS ODD

(HIGH ENERGY DETECTOR COUNTS)(EVEN DATA FRAME)



1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	
57	58	59	60	61	62		64

WORD CONTENT: WORD 4 WORD 5

NORMAL OPERATION:

SIDE FRAME NO	READOUT RANGE	
	LO	HI
001 TO AND INCL 120	000,000	999,999
121 AND 125	BK	
122 AND 126	>000,150	
123 AND 127	>019,375	
124 AND 000	>618,800	

WITH -3.5 KV OFF (COMMAND 14):

SIDE FRAME NO	READOUT RANGE	
	LO	HI
001 TO AND INCL 120	000,000	
121 AND 125	000,000	000,004
122 AND 126	000,150	000,158
123 AND 127	019,375	020,175
124 AND 000	618,800	648,800

WITH BECPA VOLTAGE OFF (COMMAND 11)

SIDE FRAME NO	READOUT RANGE	
	LO	HI
001 TO AND INCL 120	BK	
121 AND 125	BK	
122 AND 126	>000,150	
123 AND 127	>019,375	
124 AND 000	>618,800	

NOTE:

BK= BACKGROUND COUNTS (000,000 TO 999,997)

SIDE WORD 6 (CONT)

SIDE FRAME ALLOCATION

EVEN 0-118	9,25,41, 57,73,89, 105	7,39,71,103	120 THRU 124 AND 126,127	①	②	READOUT	
GPS	ELEC RNG	DUST COVER & SEAL	CAL RATE	MR	CIR	P	P
0		CVR & SEAL - OPEN	0	0	0	384	896
1	1	SEAL- OPEN	1	1	1	385	897
2	2	DUST CVR - OPEN	2	2	2	386	898
3	3	CVR & SEAL - CLOSED	3	3	3	387	899
4				4	4	388	900
5				5	5	389	901
6				6	6	390	902
7				7	7	391	903
8				8	8	392	904
9				9	9	393	905
10				10	10	394	906
11				11	11	395	907
				12	12	396	908
				13	13	397	909
				14	14	398	910
					15	399	911
16						400	912
17						401	913
18						402	914
19						403	915
20						404	916
21						405	917
22						406	918
23						407	919
24						408	920
25						409	921
26						410	922
27						411	923

① 3,11,15,19,23,27,31,35 43,47,51,55,59,63,67,75,79 83,87,91,95,99,107,111,115,119

② 1,5,13,17,21,29,33,37 45,49,53,61,65,69,77 81,85,93,97,101,109,113,117 125

RICE UNIVERSITY

HOUSTON, TEXAS

77001

DEPARTMENT OF SPACE SCIENCE
SPACE SCIENCE FACILITIES

April 19, 1968

ALSEP/SIDE/CCGE

STATUS SUBCOM

MEASUREMENT LOCATIONS

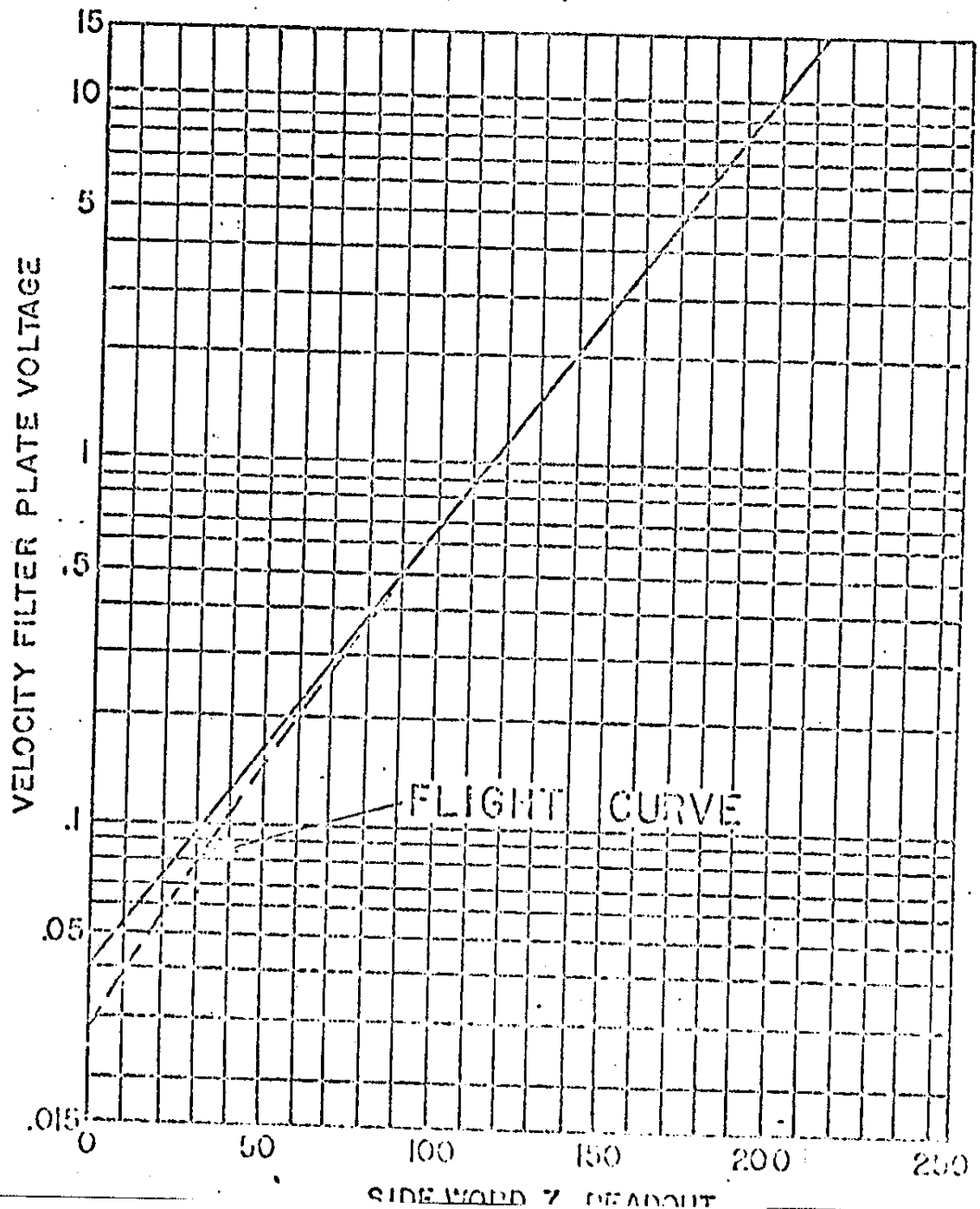
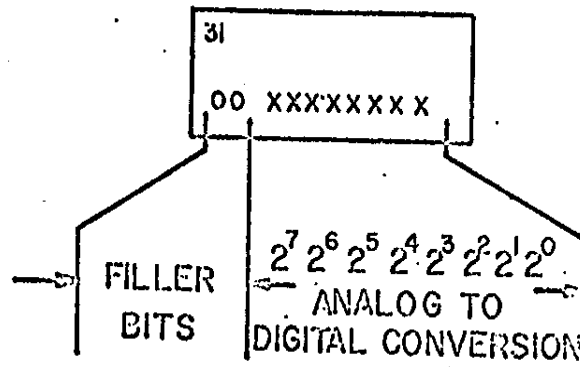
DI #	SIDE Word	Measurement	SIDE Frame
63	6	Gnd. Plane Step	0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 108, 110, 112, 114, 116, 118, 106
64	6	Command Input Register	1, 5, 13, 17, 21, 29, 33, 37, 45, 49, 53, 61, 65, 69, 77, 81, 85, 93, 97, 101, 109, 113, 117, 125
65	6	Mode Register	3, 11, 15, 19, 23, 27, 31, 35, 43, 47, 51, 55, 59, 63, 67, 75, 79, 83, 87, 91, 95, 99, 107, 111, 115, 119
66	6	Dust Cover and Seal	7, 39, 71, 103
67	6	Electrometer Range	9, 25, 41, 57, 73, 89, 105
68	6	Cal. Rate #1	120, 124
69	6	Cal. Rate #2	121
70	6	Cal. Rate #3	122, 126
71	6	Cal. Rate #4	123, 127

SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF @ 10	RESET SF @ 39	RESET SF @ 79	RESET VF @ 9 AND SF @ 79	RESET VF @ 9	NORM MODE	LO	NOM	HI
	0	0	0	0 60	0 60	0	211	214	217
	1	1	1	1 61	1 61	1	207	210	213
	2	2	2	2 62	2 62	2	203	206	209
	3	3	3	3 63	3 63	3	199	202	205
	4	4	4	4 64	4 64	4	195	198	201
	5	5	5	5 65	5 65	5	191	194	197
	6	6	6	6 66	6 66	6	185	188	191
	7	7	7	7 67	7 67	7	181	184	187
	8	8	8	8 68	8 68	8	176	179	182
	9	9	9	9 69	9 69	9	171	174	177
	10	10	10			10	165	168	171
		11	11			11	160	163	166
		12	12			12	155	158	161
		13	13			13	147	150	153
		14	14			14	139	143	147
		15	15			15	132	136	140
		16	16			16	126	130	134
		17	17			17	118	122	126
		18	18			18	112	116	120
		19	19			19	106	112	116

(VELOCITY FILTER VOLTAGE)

(ODD B&A FRAME)

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30		32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64



SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF @ 10	RESET SF @ 33	RESET SF @ 79	RESET VF @ 9 AND SF @ 79	RESET VF @ 9	NORM MODE			
			40	20	20 80	40	LO	NOM	HI
			41	21	21 81	41	170	173	176
			42	22	22 82	42	166	169	172
			43	23	23 83	43	162	165	168
			44	24	24 84	44	159	162	165
			45	25	25 85	45	155	158	161
			46	26	26 86	46	149	153	157
			47	27	27 87	47	143	147	151
			48	28	28 88	48	140	144	148
			49	29	29 89	49	136	140	144
			50			50	130	134	138
			51			51	124	128	132
			52			52	118	122	126
			53			53	113	117	121
			54			54	104	109	114
			55			55	097	102	107
			56			56	090	095	100
			57			57	083	088	093
			58			58	075	081	087
			59			59	069	076	083
			59			59	063	073	080

SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF @ 10	RESET SF @ 39	RESET SF @ 79	RESET VF @ 9 AND SF @ 79	RESET VF @ 9	NORM MODE			
		20		10		20	189	192	195
				70					
		21		11		21	187	190	193
				71					
		22		12		22	183	186	189
				72					
		23		13		23	179	182	185
				73					
		24		14		24	175	178	181
				74					
		25		15		25	170	173	176
				75					
		26		16		26	166	169	172
				76					
		27		17		27	161	164	167
				77					
		28		18		28	155	159	163
				78					
		29		19		29	150	154	158
				79					
		30				30	144	148	152
		31				31	138	142	146
		32				32	134	138	142
		33				33	126	130	134
		34				34	118	122	126
		35				35	112	116	120
		36				36	103	108	113
		37				37	097	102	107
		38				38	091	096	101
		39				39	087	092	097

SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF @ 10	RESET SF @ 59	RESET SF @ 79	RESET VF @ 9 AND SF @ 79	RESET VF @ 9	NORM MODE			
				40	$\frac{40}{100}$	80	129	133	137
				41	$\frac{41}{101}$	81	125	129	133
				42	$\frac{42}{102}$	82	121	125	129
				43	$\frac{43}{103}$	83	118	122	126
				44	$\frac{44}{104}$	84	113	118	123
				45	$\frac{45}{105}$	85	103	113	118
				46	$\frac{46}{106}$	86	101	107	113
				47	$\frac{47}{107}$	87	097	103	109
				48	$\frac{48}{108}$	88	093	099	105
				49	$\frac{49}{109}$	89	087	093	099
						90	082	088	094
						91	075	082	089
						92	071	078	085
						93	059	068	077
						94	053	062	071
						95	043	054	065
						96	034	046	053
						97	026	041	056
						98	020	035	050
						99	014	032	050

SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF @ 10	RESET SF @ 39	RESET SF @ 79	RESET VF @ 9 AND SF @ 79	RESET VF @ 9	NORM MODE	LO	NOM	HI
			60	30	30 90	60	147	152	157
			61	31	31 91	61	144	149	154
			62	32	32 92	62	141	146	151
			63	33	33 93	63	137	142	147
			64	34	34 94	64	132	137	142
			65	35	35 95	65	128	133	138
			66	36	36 96	66	122	127	132
			67	37	37 97	67	119	124	129
			68	38	38 98	68	114	119	124
			69	39	39 99	69	109	114	119
			70			70	102	108	114
			71			71	096	102	108
			72			72	091	097	103
			73			73	083	089	095
			74			74	075	082	089
			75			75	067	075	083
			76			76	060	068	076
			77			77	051	061	071
			78			78	045	056	067
			79			79	041	052	063

SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF Q10	RESET SF Q39	RESET SF Q79	RESET VF Q9 AND SF Q79	RESET VF Q9	NORM MODE	LO	NOM	HI
120					120	120	195	>195	≤255
121					121	121	195	>195	≤255
122					122	122	195	>195	≤255
123					123	123	195	>195	≤255
124					124	124	195	>195	≤255
125					125	125	195	>195	≤255
126					126	126	195	>195	≤255
127					127	127	195	>195	≤255

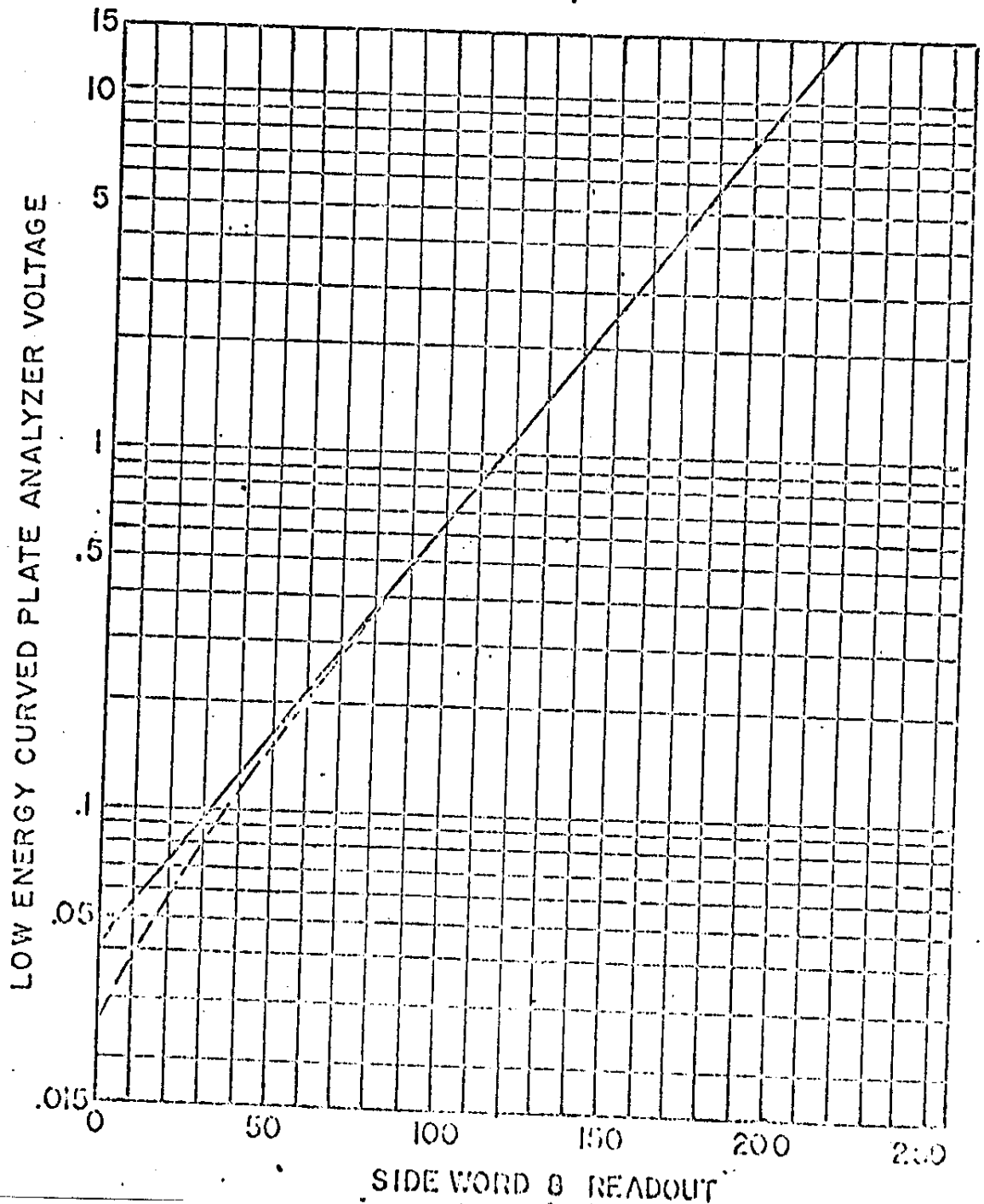
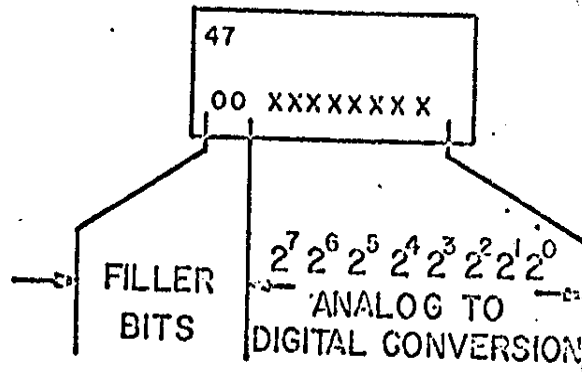
SIDE FRAME SEQUENCE							SIDE WORD 7 READOUT		
CAL MODE	RESET SF @ 10	RESET SF @ 39	RESET SF @ 79	RESET VF @ 9 AND SF @ 79	RESET VF @ 9	NORM MODE	LO	NOM	HI
				50	50 110	100	106	112	118
				51	51 111	101	102	108	114
				52	52 112	102	099	105	111
				53	53 113	103	095	101	107
				54	54 114	104	090	097	104
				55	55 115	105	086	093	100
				56	56 116	106	080	087	094
				57	57 117	107	075	082	089
				58	58 118	108	070	078	086
				59	59 119	109	065	073	081
						110	059	067	075
						111	053	062	071
						112	046	056	066
						113	037	048	059
						114	027	041	054
						115	020	034	048
						116	010	027	044
						117	000	020	040
						118	000	015	036
						119	000	011	034

SIDE FRAME NUMBER SEQUENCE										
CAL MODE (COMMAND 12)	RESET SF @10 (COMMAND 2)	RESET SF @39 (COMMAND 3)	RESET SF @79 (COMMAND 5)	RESET VF @3 AND SF @79 (COMMAND 6)	RESET VF @9 (COMMAND 4)	NORMAL MODE	SIDE WORD 8 READOUT			ENERGY eV
							LO	NOM	HI	
	0 TO 10	0 TO 19	0 TO 19	0 TO 9	0 TO 19		204	207	210	43.6
		20 TO 39	20 TO 39	10 TO 19	20 TO 39		162	166	170	15.2
			40 TO 59	20 TO 29	20-29	40 TO 59	122	127	132	5.4
			60 TO 79	30 TO 39	30-39	60 TO 79	077	086	095	1.8
				40 TO 49	40-49	80 TO 99	033	046	059	0.6
				50 TO 59	50-59	100 TO 119	000	005	030	0.2
120 TO 127					120 TO 127	120 TO 127	000	000	015	<0.05

(LOW ENERGY CURVED PLATE ANALYZER VOLTAGE)

(ODD DATA FRAME)

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46		48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64



MA Edit and TID Edit Data Format

MA (Mass Analyzer) and TID (Total Ion Detector) spectra are on these tapes in similar, but distinguishable formats. The MA and TID are sometimes called "Low Energy Detector" and "High Energy Detector", respectively.

Where reliable data is not available, the value -1 is inserted. Since this data was generated from a compressed format, time is available only at SIDE frame zero. Logical records not containing frame zero will have -1 in all of the time words. This does not indicate unreliable timing, and the time may be generated, if needed, by using the time last given and adding 1.208 seconds per frame (i.e., per data word). In "X10" mode add 12.08 seconds per frame. In normal mode there will be one logical record with time and five logical records without time in one complete SIDE cycle of frames 0-127.

Tape Description: 7-track, 800 bpi, binary (odd) parity
Words: 24-bit, binary integers, with negative values represented in 2's complement form.

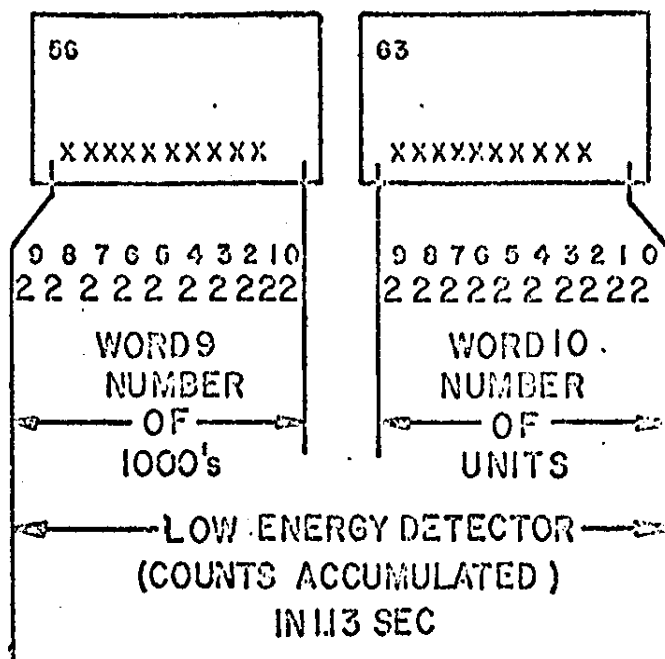
Termination: Two standard tapemarks (octal 17, even parity)
Tape length: 1850 records, all one file, terminating before the reflective end-of-reel marker is passed.

Label record: none

Physical record: 100 logical records

Logical record: 28 words, with contents as shown below

(LOW ENERGY DETECTOR COUNTS) (ODD BxA FRAME)



1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	
57	58	59	60	61	62		64

WORD CONTENT: WORD 9 WORD 10

XXX , XXX

NORMAL OPERATION:

SIDE FRAME NO	READOUT RANGE	
	LO	HI
000 TO AND INCL 119	000,000	999,999
120 AND 124	BK	
121 AND 125	>000,150	
122 AND 126	>019,375	
123 AND 127	>618,000	

WITH -3.5 KV OFF (COMMAND 14):

SIDE FRAME NO	READOUT RANGE	
	LO	HI
000 TO AND INCL 119	000,000	
120 AND 124	000,000	000,004
121 AND 125	000,150	000,153
122 AND 126	019,375	020,175
123 AND 127	618,000	646,800

WITH LEGPA VOLTAGE OFF (COMMAND 10) OR VEL FIL VOLTAGE OFF (COMMAND 9)

SIDE FRAME NO	READOUT RANGE	
	LO	HI
000 TO AND INCL 119	BK	
120 AND 124	BK	
121 AND 125	>000,150	
122 AND 126	>019,375	
123 AND 127	>618,000	

NOTE:

BK= BACKGROUND COUNTS (000,000 TO 999,999)

<u>Word Number</u>	<u>MA</u>	<u>TID</u>	<u>Comments</u>
1	Day	-1	Times apply to frame zero. Word 6 of the MA data is from frame 0, while word 6 of the TID data is from frame 1.
2	Hour	Day	
3	Minute	Hour	
4	Millisecond	Minute	
5	0 for 48.6 eV energy 1; 16.2 eV 2; 5.4 eV 3; 1.8 eV 4; 0.6 eV 5; 0.2 eV	Millisecond	
6-25	Mass Channels 0 thru 19	Energy Channels 1 thru 20	
26	TID Background	TID Background	Frame 121 or 125
27	MA Background	MA Background	Frame 120 or 124
28	Engineering data, in a cycle of up to 6 steps (below), depending on mode. Cycle starts with record containing time values.		
	Ground Plane Step ID		Consult the ALSEP
	CCIG Temperature (TEMP 1)		SIDE DATA HANDBOOK
	Ground Volts (noise check)		to convert to
	Solar Cell		engineering units
	TEMP 6		
	TEMP 3		

Words 6 - 25 contain detector counts per accumulation period (1.13 seconds).

MP

D-17208

Aug 22 - Aug 8
15:00 - 14:29

0001	0000002160000	00000000000	0016167000000	0000000000007	000000050000	002100000021	000000050000	001000000010
0049	000000100000	0014000000007	0000000070000	0016000000017	000000030000	001200000001	000000140000	001100000046
0057	000000140000	0116000000026	0000000077777	7777777777777	7777777777777	777700000001	000000140000	000600000003
0145	000000240000	000700000012	000000120000	0012000000005	000000070000	001200000023	000000110000	002200000012
0193	000000140000	0015000000005	0000005320000	0125777777777	777777770000	0233777777777	7777777777777	7777777777777
0241	000000020000	0017000000015	0000000560000	0017000000033	000000360000	002400000021	000000370000	002500000024
0289	000000230000	002000000035	0000000270000	004500000062	000000160000	002000000015	7777777777777	777700000000
0337	7777777777777	7777777777777	777777770000	000300000024	000000100000	002700000021	000000350000	002000000030
0385	000000260000	0024000000050	000000040000	000100000006	000000010000	001400000010	000000370000	003300000017
0433	000000127777	7777777777777	000001747777	7777777777777	7777777777777	777700000004	000000240000	001400000005
0481	000000120000	000600000004	000000130000	001100000026	000000110000	001700000021	000000270000	002600000002
0529	000000120000	0024000000025	000000110000	0016777777777	777777770000	0053777777777	7777777777777	7777777777777
0577	000000050000	0006000000010	000000060000	000300000011	000000130000	002600000034	000000100000	001300000046
0625	000000530000	0062000000026	000000060000	002100000031	000000270000	003000000012	000000710000	001500000066
0673	000002160000	0017000000003	001001410000	000000000017	000000070000	001000000016	000000200000	000700000012
0721	000000170000	0004000000033	000000110000	0011000000172	000000630000	005700000060	000000500000	000500000012
0769	000000550000	0077000000016	000000017777	7777777777777	7777777777777	777700000001	000000250000	006300000013
0817	000000220000	0016000000053	000000070000	0014000000101	000000350000	004200000033	000001350000	006500000072
0865	000000530000	0024000000034	000000160000	0023777777777	777777770000	0233777777777	7777777777777	7777777777777
0913	000000020000	0024000000021	000000350000	002500000011	000000110000	006200000012	000000050000	000700000012
0961	000000510000	0040000000027	0000000220000	001200000016	000000110000	012200000063	7777777777777	777700000000
1009	7777777777777	7777777777777	777777770000	000300000022	0000003470000	003000000007	000000070000	001200000006
1057	000000150000	0004000000014	000000170000	002000000011	000000060000	0003000000252	000000310000	001700000017
1105	000000307777	7777777777777	000001747777	7777777777777	7777777777777	777700000004	000000570000	001000000007
1153	000000160000	0007000000023	000000360000	000700000022	000000230000	002700000011	000000650000	002100000011
1201	000000150000	0052000000066	000227740001	1540777777777	777777770000	0053777777777	7777777777777	7777777777777
1249	000000050000	054700005433	000070240002	175600003671	000006210000	213000003354	000063540000	006400002356
1297	000003700000	137100005043	001152200002	265200004767	000070420005	010700010477	000000640003	241600000066
1345	000002160000	0017000000006	000164040000	0000000001140	000006450000	057500000515	000003700000	034500000332
1393	000003050000	024300000252	000005010000	027200001242	000003210000	044000000217	000074150000	105000001473
1441	000003230000	0073000026230	000000027777	7777777777777	7777777777777	777700000001	000004450000	060500000556
1489	000005350000	033500000731	000003350000	013500001010	000001750000	020200000270	000004530000	013400000146
1537	000001230000	013700000240	000001520000	0133777777777	777777770000	0233777777777	7777777777777	7777777777777
1585	000000020000	0116000000100	000054500006	344700007001	000171500001	072500002072	000472500005	770100074103
1633	000126300000	4657000001740	0000012170000	106700000620	000005040000	0477000000665	7777777777777	777700000000
1681	7777777777777	7777777777777	777777770000	000300001361	000004250000	042000000353	000003120000	021100000171
1729	000001600000	0206000000146	000002300000	026300001245	000003460000	016200000132	000001130000	057700000104
1777	000001127777	7777777777777	000001747777	7777777777777	7777777777777	777700000004	000001270000	010700000744
1825	000002770000	0411000000110	000001720000	013300004735	000006330000	025500000414	000002360000	016300000107
1873	000000510000	0061000000174	000002750000	0125777777777	777777770000	0051777777777	7777777777777	7777777777777
1921	000000050000	0056000000123	000002010000	013300000064	000001270000	007500000042	000000710000	012700000367
1969	000002700000	0071000000121	000000660000	024000000453	000002520000	021000000107	000001020000	015100000066
2017	000002160000	0017000000010	001220070000	000000000043	000000560000	003600000046	000000320000	0137000000166
2065	000003040000	0237000000073	000000260000	004000000027	000000370000	003600000033	000000370000	004100000132
2113	000000360000	0102000000053	000000037777	7777777777777	7777777777777	777700000001	000000310000	003600000021
2161	000000450000	0034000000042	000000270000	002300000022	000000530000	006300000047	000000540000	003500000044
2209	000000170000	0022000000035	0000000420000	0061777777777	777777770000	0233777777777	7777777777777	7777777777777
2257	000000020000	0016000000021	000000320000	0023000000040	000000540000	021100000227	000000340000	012600000056
2305	000001010000	0110000000224	0000002100000	027700000074	000001240000	015000000202	7777777777777	777700000000
2353	7777777777777	7777777777777	777777770000	000300000043	000001040000	003000000036	000000540000	002400000042
2401	000000370000	0107000000133	000000720000	023100000017	000000550000	014200000034	000000250000	001600000030
2449	000000257777	7777777777777	000001747777	7777777777777	7777777777777	777700000004	000000450000	0077000000265
2497	000003460000	0141000000066	000000470000	004300000031	000000320000	005500000046	000003400000	057300000114
2545	000001120000	0055000000032	000000060000	0336777777777	777777770000	0051777777777	7777777777777	7777777777777
2593	000000050000	0050000000032	0000000140000	002500000064	000000740000	002300000021	000000220000	003400000042
2641	000001070000	0035000000014	000000210000	013100000104	000000640000	013500000173	000000560000	004000000065
2689	000002160000	0017000000013	000402520000	000000000026	000000540000	004400000074	000001270000	003600000027
2737	000000210000	2207000000773	000020400000	014400000061	000001400000	034100001011	000000460000	006500000054
2785	000000430000	0070000000244	000000047777	7777777777777	7777777777777	777700000001	000000770000	0042000000174
2833	0000000470000	0050000000104	000000630000	010400000061	000001250000	0063000000171	000003130000	012300000216
2881	000001140000	0064000000055	000000700000	0053777777777	777777770000	0233777777777	7777777777777	7777777777777
2929	000000020000	0034000000025	000000570000	546000000537	000005370000	0537000000144	000002050000	011300000061

[illegible]

APOLLO 14 LM/ALSEP

MASS ANALYZER DATA ON TAPE

71-008C-06C

PSFP-00223

This data set has been restored. There were originally 13 7-track, 800 bpi tapes written in binary. There are two restored tapes and one additional DD tape, received after completion of the restoration. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 bpi. The original tapes were created on an XDS 930 computer and the restored tapes were created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D numbers are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR004934	DS004934	D015662	1	02/06/71 - 05/07/71 (a)
		D016946	2	05/07/71 - 07/21/71
		D016947	3	07/21/71 - 09/28/71 (b)
		D016948	4	09/28/71 - 11/30/71 (c)
		D016949	5	11/30/71 - 01/30/72 (d)
		D016950	6	01/24/72 - 03/02/72 (e)
		D018313	7	03/20/72 - 05/14/72 (f)
DR004935	DS004935	D018312	1	05/14/72 - 07/09/72
		D018813	2	07/09/72 - 09/03/72
		D018814	3	09/03/72 - 10/28/72
		D018815	4	10/28/72 - 12/22/72
		D018816	5	12/22/72 - 02/14/73
		D018817	6	02/14/73 - 04/11/73
DD108751	DC032848	-----	10	07/07/73 - 06/28/74 (g)

- (a) D015662: Read errors occurred in records 135 and 941 of file 1.
- (b) D016947: Read errors occurred in records 874, 1730, 1819 and 1847 of file 1.
- (c) D016948: Read errors occurred in records 144 and 152 of file 1.
- (d) D016949: Read errors occurred in records 838, 1353, 1809, 1815, 1828, 1832, 1837 - 1839, and 1841 - 1849 of file 1.
- (e) D016950: Read errors occurred in record 1334 of file 1.
- (f) D018313: Read errors occurred in records 3, 16, and 508 of file 1.
- (g) DD108751: There are data gaps between files 1 and 2, then 6 and 7.

refer to 69-099C-05C

Program SIDE_LOOK. Run date: 1-OCT-96

D-108751

Input tape file number: 1

Record 1 size = 25200 bytes.

Mass Analyzer

Start Day, Hour, Minute, Millisecond: 188 17 44 4833

Eof while skipping.

Approximate Stop Time: 189 3 22 52143

2 input records processed (including headers).

4 input records skipped.

0 records out.

End of File on Read.

Input tape file number: 2

Record 1 size = 25200 bytes.

Mass Analyzer

Start Day, Hour, Minute, Millisecond: 359 17 44 9251

Eof while skipping.

Record 2 size = 8064 bytes.

memsiz_old = 25200

nbytes = 8064

joff = 0

iblock = 225

newblock = 72

8064 0

Mass Analyzer

Approximate Stop Time: 0 0 0 0

2 input records processed (including headers).

80 input records skipped.

0 records out.

End of File on Read.

Input tape file number: 3

Record 1 size = 25200 bytes.

Mass Analyzer

Start Day, Hour, Minute, Millisecond: 365 10 0 57601

Eof while skipping.

Record 2 size = 18368 bytes.

memsiz_old = 25200

nbytes = 18368

joff = 0

iblock = 225

newblock = 164

18368 0

18368 0

Mass Analyzer

Approximate Stop Time: 365 23 58 9093
2 input records processed (including headers).
7 input records skipped.
0 records out.

End of File on Read.

Input tape file number: 4

Record 1 size = 25200 bytes.
Mass Analyzer

Start Day, Hour, Minute, Millisecond: 1 0 0 17076
Eof while skipping.

Record 2 size = 8736 bytes.
memsiz_old = 25200
nbytes = 8736
joff = 0
iblock = 225
newblock = 78
8736 0

Mass Analyzer

Approximate Stop Time: 18 17 41 57794
2 input records processed (including headers).
75 input records skipped.
0 records out.

End of File on Read.

Input tape file number: 5

Record 1 size = 25200 bytes.
Mass Analyzer

Start Day, Hour, Minute, Millisecond: 18 17 44 5788
Eof while skipping.

Record 2 size = 9968 bytes.
memsiz_old = 25200
nbytes = 9968
joff = 0
iblock = 225
newblock = 89
9968 0

Mass Analyzer

Approximate Stop Time: 24 17 41 46889
2 input records processed (including headers).
88 input records skipped.
0 records out.

End of File on Read.

Input tape file number: 6

Record 1 size = 25200 bytes.

Mass Analyzer

Start Day, Hour, Minute, Millisecond: 24 17 44 12995

Eof while skipping.

Record 2 size = 6720 bytes.

memsiz_old = 25200

nbytes = 6720

joff = 0

iblock = 225

newblock = 60

6720 0

Mass Analyzer

Approximate Stop Time: 30 6 3 30681

2 input records processed (including headers).

80 input records skipped.

0 records out.

End of File on Read.

Input tape file number: 7

Record 1 size = 25200 bytes.

Mass Analyzer

Start Day, Hour, Minute, Millisecond: 142 0 0 12804

Eof while skipping.

Record 2 size = 18480 bytes.

memsiz_old = 25200

nbytes = 18480

joff = 0

iblock = 225

newblock = 165

18480 0

Mass Analyzer

Approximate Stop Time: 147 2 14 9979

2 input records processed (including headers).

74 input records skipped.

0 records out.

End of File on Read.

Input tape file number: 8

Record 1 size = 25200 bytes.

Mass Analyzer

Start Day, Hour, Minute, Millisecond: 147 2 16 44538

Eof while skipping.

Record 2 size = 13888 bytes.

memsiz_old = 25200

nbytes = 13888

joff = 0

iblock = 225

newblock = 124

13888 0

Mass Analyzer

Approximate Stop Time: 168 12 14 30934
2 input records processed (including headers).
89 input records skipped.
0 records out.
End of File on Read.

Input tape file number: 9

Record 1 size = 25200 bytes.
Mass Analyzer

Start Day, Hour, Minute, Millisecond: 168 12 17 5491
Eof while skipping.

Record 2 size = 2576 bytes.
memsiz_old = 25200
nbytes = 2576
joff = 0
iblock = 225
newblock = 23
2576 0

Mass Analyzer

Approximate Stop Time: 173 23 26 42754
2 input records processed (including headers).
80 input records skipped.
0 records out.

End of File on Read.

Input tape file number: 10

Record 1 size = 25200 bytes.
Mass Analyzer

Start Day, Hour, Minute, Millisecond: 173 23 29 17312
Eof while skipping.

Record 2 size = 9520 bytes.
memsiz_old = 25200
nbytes = 9520
joff = 0
iblock = 225
newblock = 85
9520 0

Mass Analyzer

Approximate Stop Time: 179 13 27 58748
2 input records processed (including headers).
80 input records skipped.
0 records out.
End of File on Read.

REPACKED OCTAL DUMP OF D108751

D-108751

07/07/73 -

06/28/74

Tape was padded
during conversion
from 741K

Day 186

FILE 1 RECORD 1 25200 BYTES

(0)	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
(48)	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
(96)	7777777777	7777777777	77777770000	027400000021	000000540001	13417777777	7777777777	7777777777	7777777777
(144)	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
(192)	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
(240)	000000017777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
(288)	7777777777	7777777777	7777777777	7777777777	000000000000	000000000000	7777777777	7777777777	7777777777
(336)	7777777777	7777777777	777777770000	000200000003	000000000000	000000000001	000000010000	000000000000	000000000000
(384)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000001
(432)	000000007777	777777777777	000000007777	777777777777	777777777777	777700000003	000000030000	000000000000	000000000000
(480)	000000000000	000000000000	000000000000	000400000000	000000000000	000000000001	000000000000	000100000000	000000000000
(528)	000000000000	000000000000	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777	777777777777
(576)	000000040000	000000000000	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000	000100000000
(624)	000000010000	000000000001	000000000000	000200000000	000000000000	000000000000	777777777777	777777777777	777777777777
(672)	777777777777	777777777777	777777770000	000500000000	000000000000	000000000001	000000000000	000000000000	000000000000
(720)	000000010000	000000000000	000000000000	000000000000	000000000000	000100000000	000000000000	000000000000	000000000000
(768)	000000010000	000000000000	777777770000	027400000021	000000550014	362300000000	000000000000	000000000000	000000000000
(816)	000000000000	000000000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000	000000000000
(864)	000000000000	000000000000	000000000000	000000000000	000000000000	000577777777	777777777777	777777777777	777777777777
(912)	000000010000	000000000000	000000000000	000000000000	000000010000	000000000004	000000000000	000000000000	000000000000
(960)	000000000000	000100000001	000000000000	000100000000	000000000000	000000000000	777777777777	777777777777	777777777777
(1008)	777777777777	777777777777	777777770000	000200000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1056)	000000000000	000000000000	000000000000	000000000001	000000000000	000000000000	000000000000	000000000000	000100000000
(1104)	000000007777	777777777777	777777777777	777777777777	777777777777	777700000003	000000000000	000000000000	000000000000
(1152)	000000000000	000000000000	000000000000	000400000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1200)	000000010000	000000000002	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777	777777777777
(1248)	000000040000	000000000000	000000000000	000100000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1296)	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000	777777777777	777777777777	777777777777
(1344)	777777777777	777777777777	777777770000	000500000000	000000010000	000000000000	000000010000	000100000000	000000000000
(1392)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1440)	000000000000	000000000000	777777770000	027400000021	000000600006	206100000000	000000000000	000000000000	000000000000
(1488)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1536)	000000000000	000000000000	000000000000	000000000000	000000000000	000677777777	777777777777	777777777777	777777777777
(1584)	000000010000	000000000001	000000010000	000000000000	000000000000	000000000001	000000000000	000000000000	000000000000
(1632)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	777777777777	777777777777	777777777777
(1680)	777777777777	777777777777	777777770000	000200000000	000000000000	000200000000	000000000000	000100000000	000000000000
(1728)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1776)	000000007777	777777777777	777777777777	777777777777	777777777777	777700000003	000000000000	000000000000	000000000000
(1824)	000000000000	000000000000	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000	000000000000

(1872)	000000000000	000000000001	000000000000	000077777777	777777770000	000077777777	777777777777	777777777777
(1920)	000000040000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(1968)	000000030000	000000000001	000000000000	000100000001	000000000000	000000000000	777777777777	777777777777
(2016)	777777777777	777777777777	777777770000	000500000000	000000000000	000000000000	000000000000	000000000000
(2064)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(2112)	000000000000	000000000000	777777770000	027400000021	000000630000	000000000000	000000000000	000000000000
(2160)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
(2208)	000000010000	000000000000	000000000000	000000000000	000000000000	000777777777	777777777777	777777777777
(2256)	000000010000	000000000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000
(2304)	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000	777777777777	777777777777
(2352)	777777777777	777777777777	777777770000	000200000000	000000000000	000000000000	000000000000	000000000000
(2400)	000000000000	000000000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000
(2448)	000000007777	777777777777	777777777777	777777777777	777777777777	777700000003	000000000000	000000000000
(2496)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000010000	000000000000
(2544)	000000040000	000100000000	000000010000	000077777777	777777770000	000077777777	777777777777	777777777777
(2592)	000000040000	000000000003	000000000000	000100000000	000000000000	000000000000	000000020000	000000000000
(2640)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	777777777777	777777777777
(2688)	777777777777	777777777777	777777770000	000500000000	000000000000	000000000000	000000000000	000100000000
(2736)	000000010000	000000000001	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000
(2784)	000000000000	000000000001	777777770000	027400000021	000000650010	371600000000	000000000000	000000000001
(2832)	000000000000	000200000000	000000010000	000000000000	000000000000	000000000000	000000000000	000200000000
(2880)	000000000000	000000000000	000000000000	000000000000	000000000000	001077777777	777777777777	777777777777
(2928)	000000010000	000000000000	000000010000	000000000001	000000000000	000000000000	000000000000	000000000000
(2976)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	777777777777	777777777777
(3024)	777777777777	777777777777	777777770000	000200000000	000000000000	000000000000	000000010000	000000000000
(3072)	000000000000	000000000000	000000000000	000000000002	000000000000	000000000000	000000020000	000100000000
(3120)	000000017777	777777777777	777777777777	777777777777	777777777777	777700000003	000000010000	000300000002
(3168)	000000000000	000200000000</						

(3984)	000000040000	000200000000	000000000000	000000000000	000000000000	000000000000	777777777777	777777777777
(4032)	777777777777	777777777777	777777770000	000500000000	000000000000	000000000000	000000000000	000000000000
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(20976)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000002
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(21072)	0000000040000	000000000000	000000000000	000000000002	000000000000	000100000000	000000000000	000000000000
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(21264)	000000030000	000000000000	777777770000	027400000023	000000050012	263300000000	000000010000	000200000000
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(21408)	000000010000	000200000000	000000000000	000200000001	000000000000	000100000000	000000000000	000000000001
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(21504)	777777777777	777777777777	777777770000	000200000000	000000000000	000000000000	000000000000	000000000001
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(21600)	000000017777	777777777777	777777777777	777777777777	777777777777	777700000003	000000000000	000100000000
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(21744)	0000000040000	000000000000	000000000000	000000000000	000000020000	000000000000	000000000000	000000000000
(21792)	000000000000	000000000001	000000000000	000000000000	000000010000	000000000000	777777777777	777777777777
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(22080)	000000010000	000000000000	000000000000	000100000000	000000000000	000000000000	000000000000	000000000001
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(23376)	000000000000	000100000000	000000000000	000000000000	000000000000	000100000000	000000020000	000000000000	000000000000
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(23472)	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(23712)	000000000000	000000000000	000000000000	000177777777	777777777777	777777777777	777777777777	777777777777	777777777777
(23760)	000000040000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(25200)								

REPACKED OCTAL DUMP OF D108751

FILE 10	RECORD 82	9520 BYTES						
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(48)	0000000000000	0000000000000	0000000000000	0000000000000	0000000000000	0000000000000	0000000000000	0000000000000
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(240)	0000000030000	0000000000000	0000000000000	0000000000000	0000000000000	0001000000000	0000000000000	0001000000000
(288)	0000000010000	0000000000002	0000000000000	0000000000000	0000000000000	0000000000000	7777777777777	7777777777777
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(912)	0000000030000	0000000000000	0000000000000	0000000000000	0000000000000	0002000000000	0000000000000	0000000000000
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(1344)	7777777777777	7777777777777	777777770000	0001000000000	0000000000000	0000000000002	0000000000000	0000000000000
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(1488)	000000000000	000000000000	000000000000	000000000001	000000000000	000000000000	000000000000	000000000000
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(1584)	000000030000	000200000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(5808)	000000007777	777777777777	777777777777	777777777777	777777777777	777700000005	000000000000	000000000000
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(6480)	000000007777	777777777777	777777777777	777777777777	777777777777	777700000005	000000000000	000000000000
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(8592)	000000000000	000000000002	000000010000	000000000000	000000010000	023200000263	000000150000	003100057175
(8640)	000000000000	000000000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000
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(8736)	777777777777	777777777777	777777770000	000100000000	000000000000	000000000000	000000000000	000000000000
(8784)	000000000000	000000000003	000000010000	000000000001	000000010000	000000000000	000000000000	000000000000
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(8976)	000000030000	000000000000	000000000000	000000000000	000000010000	000100000003	000000000000	000000000001
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(9072)	777777777777	777777777777	777777770000	000400000000	000000000000	000000000000	000000000000	000000000000
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(9312)	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
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(9408)	777777777777	777777777777	777777770000	000100000000	000000000000	000000000000	000000000000	000000000000
(9456)	000000000000	000000000000	000000000000	000000000001	777777777777	777777777777	777777777777	777777777777
(9504)	777777777777	777777777777	77777777					

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1 //ZMBERMAE JOB (K1014,N390,25),'REBLOCK',TIME=(,59),
  // MSGCLASS=X,MSGLEVEL=(1,1),CLASS=A,NOTIFY=ZMBER
  //* =====
  //* THIS WILL REBLOCK FROM 112 TO 25200, 7TR TO 9TR
  //* =====
2 //STEP1 EXEC PGM=FATAR
3 //SYSPRINT DD SYSOUT=*
4 //TAPESUMM DD SYSOUT=*
5 //TAPEIN DD UNIT=IBM7TR,
  // VOL=(PRIVATE,SER=BB1013),
  // DISP=OLD,DCB=(TRTCH=,DEN=0,BLKSIZE=112,RECFM=F),
  // LABEL=(,NL,,IN)
6 //TAPEOUT DD UNIT=6250,VOL=(PRIVATE,SER=BB9113),
  // LABEL=(1,NL,,OUT),DISP=(NEW,KEEP)
7 //SYSIN DD *

```

JOB01003
29

*JCL used to create
D108751*

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1020- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES----	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000553									18297	2049K	0 0	112	112	112	1998	
HIGHEST EXPIRATION ====> _____										TOTALS ====>	18297	2049K	0				1998

D108751
file 2

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1021- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000565									1964	220K	0 0	112	112	112	215	
HIGHEST EXPIRATION ==>										TOTALS ==>	1964	220K	0				215

D-108751
file 3

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1022- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000603									17178	1924K	0 1	112	112	112	1876	
HIGHEST EXPIRATION =====>										TOTALS =====>	17178	1924K	1				1876

D108751
file 4

"

5

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1013- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET		
													MIN	AVG	MAX	
1	ZMBERMAE.R0000443									20114	2253K	0 14	112	112	112	2196

D108751
file 5

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1014- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000464									18285	2048K	0 0	112	112	112	1996	
HIGHEST EXPIRATION ====> _____										TOTALS ====>	18285	2048K	0				1996

D108751
file 6

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1012- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000420									17040	1908K	0	112	112	112	1860	
2	ZMBERMAE.R0000420									<i>removed wrong data type</i> 1066	123K	0	112	112	112	119	
										TOTALS	====>	18126	2030K	0			1979

HIGHEST EXPIRATION =====>

D108751
file 7

7

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1015- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000471									20374	2282K	0	112	112	112	2224	
2	ZMBERMAE.R0000471									0	0	0	0	0	0	0	
												1					
HIGHEST EXPIRATION =====>										TOTALS =====>	20374	2282K	1				2224

D 108751
file 8

III

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1001- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---			EST. FEET	
													MIN	AVG	MAX		
1	ZMBERMAE.R0000673									18248	2044K	0 0	112	112	112	1993	
HIGHEST EXPIRATION =====>										TOTALS =====>	18248	2044K	0				1993

D108751
File 9

III

FATAR

TAPE SUMMARY FOR TAPE VOLUME -BB1002- AT DENSITY 200 BPI

8/19/96

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC- FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---	EST. FEET			
													MIN	AVG	MAX		
1	ZMBERMAE.R0000687									18310	2051K	0 0	112	112	112	1998	
HIGHEST EXPIRATION ==>										TOTALS ==>	18310	2051K	0				1998

D108751
File 10

Applied:

[illegible]

0001	777777777777	777777777777	777777770000	000500000000	C00000C00000	000000000001	000000000000	000000000000
0049	000000000000	000000000000	000000000000	000000000000	C00000000000	000000000000	000000000000	000000000000
0057	000000000000	000000000000	000003770000	017500000024	C00000500002	072500000000	000000000000	000000000000
0145	000000000000	000000000000	000000000000	000000000000	C00000010000	000000000000	000000000000	000000000000
0153	000000000000	000000000000	000000000000	000000000000	C00000000000	003077777777	777777777777	777777777777
0241	000000010000	000000000000	000000000000	000000000000	C00000000000	000000000000	000000000000	000000000000
0289	000000020000	000000000000	000000000000	000000000000	C00000000000	000000000001	777777777777	777700000377
0337	777777777777	777777777777	777777770000	000200000000	C00000000000	000000000000	000000000000	000000000000
0385	000000010000	000000000000	000000000000	000000000000	C00000000000	000000000000	000000000000	000000000000
0433	000000007777	777777777777	000000007777	777777777777	777777777777	777700000003	000000000000	000000000000
0481	000000000000	000100000000	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000
0529	000000010000	000000000000	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777
0577	000000040000	000000000001	000000000000	000100000000	C00000000000	000000000001	000000010000	000100000000
0625	000000000000	000000000001	000000000000	000000000000	C00000000000	000000000001	777777777777	777700000377
0673	777777777777	777777777777	777777770000	000500000000	C00000000000	000000000003	000000000000	000000000000
0721	000000000000	000000000000	000000000000	000000000000	C00000000000	000100000000	000000000000	000000000000
0769	000000000000	000200000000	000003770000	017600000024	C00000000000	000000000000	000000000000	000000000000
0817	000000010000	000000000000	000000000000	000000000000	C00000000000	000000000000	000000000000	000000000000
0865	000000000000	000000000000	000000000000	000100000000	C00000000000	003177777777	777777777777	777777777777
0913	000000010000	000000000000	000000000000	000000000000	C00000000000	000000000001	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	C00000010000	000000000000	777777777777	777700000377
1009	777777777777	777777777777	777777770000	000200000000	C00000000000	000000000000	000000000000	000000000000
1057	000000000000	000000000000	000000010000	000000000000	C00000000000	000000000000	000000000000	000000000000
1105	000000007777	777777777777	000000007777	777777777777	777777777777	777700000003	000000000000	000000000000
1153	000000000000	000100000000	000000000000	000000000000	C00000000000	000100000000	000000000000	000100000000
1201	000000000000	000000000000	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777
1249	000000040000	000000000000	000000010000	000000000000	C00000000000	000000000000	000000000000	000000000000
1297	000000000000	000000000000	000000000000	000000000000	C00000000000</			

FILE 0001 REC 0002 CH 7500

0001	777777777777	777777777777	777777770000	000300000001	000000000000	000000000000	000000000000	000000000000
0049	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000100000000
0057	000000007777	777777777777	777777777777	777777777777	777777777777	777700000004	000000000000	000000000000
0145	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000100000000
0153	000000000000	000000000000	000000000000	000077777777	777777770000	037777777777	777777777777	777777777777
0241	000000050000	000000000000	000000000000	000000000000	000000000000	000100000001	000000000000	000000000001
0289	000000000000	000000000001	000000000000	000000000000	000000000000	000000000000	000000000000	000000000377
0337	000001760000	002500000027	001554500000	000000000000	000000010000	000100000000	000000010000	000000000001
0385	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000
0433	000000000000	000000000000	000000217777	777777777777	777777777777	777700000001	000000030000	000000000000
0481	000000000000	000000000000	000000000000	000000000001	000000000000	000000000000	000000000000	000000000000
0529	000000010000	000100000001	000000010000	000077777777	777777772000	037777777777	777777777777	777777777777
0577	000000020000	000000000000	000000020000	000000000000	000000000000	000000000000	000000000000	000000000000
0625	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	777777777777	777700000000
0673	777777777777	777777777777	777777770000	000300000000	000000000000	000000000000	000000000000	000000000000
0721	000000000000	000000000000	000000000000	000100000000	000000010000	000000000000	000000010000	000000000000
0769	000000007777	777777777777	777777777777	777777777777	777777777777	777700000004	000000000000	000000000000
0817	000000000000	000000000001	000000000000	000100000000	000000000000	000000000000	000000000000	000000000000
0865	000000010000	000200000000	000000000000	000177777777	777777770000	037777777777	777777777777	777777777777
0913	000000050000	000000000001	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	000000000000	000100000001	000000020000	000000000377
1009	000001760000	002500000032	000737030000	000000000000	000000010000	000000000001	000000000000	000000000000
1057	000000010000	000000000000	000000000000	000000000000	000000000000	000000000001	000000000000	000000000000
1105	000000000000	000000000000	000000227777	777777777777	777777777777	777700000001	000000000000	000000000000
1153	000000000000	000000000000	000000000000	000000000001	000000000000	000000000000	000000000000	000100000000
1201	000000000000	000100000000	000000020000	000077777777	777777770000	037777777777	777777777777	777777777777
1249	000000020000	000100000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000
1297	000000000000	000000000000	000000000000	0000000				

APOLLO 14 LM/ALSEP

TOTAL ION DETECTOR DATA ON TAPE

71-008C-06F

PSFP-00114

THIS DATA SET HAS BEEN RESTORED. THERE WERE ORIGINALLY 24 7-TRACK, 800 BPI TAPES WRITTEN IN BINARY. THERE ARE THREE RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THESE ORIGINAL TAPES WERE CREATED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004991	DS004991	D015663	1	02/06/71 - 05/07/71
		D016951	2	05/07/71 - 07/21/71
		D016952	3	07/21/71 - 09/29/71 (a)
		D016953	4	09/29/71 - 11/30/71
		D016954	5	11/30/71 - 01/24/72 (b)
		D016955	6	01/24/72 - 03/20/72 (c)
		D018316	7	03/20/72 - 05/14/72
DR004992	DS004992	D018315	1	05/14/72 - 07/10/72 (d)
		D018314	2	07/10/72 - 09/03/72 (e)
		D018818	3	09/03/72 - 10/29/72 (f)
		D018819	4	10/29/72 - 12/22/72 (g)
		D018820	5	12/22/72 - 02/15/73 (h)
		D018821	6	02/15/73 - 04/11/73
DR006253	DS006253	D108746	1	02/05/71 - 02/25/71
			2	09/17/72 - 09/23/72
			3	12/25/73 - 12/31/72
			4	12/25/73 - 12/31/73
			5	01/01/74 - 01/18/74
			6	01/18/74 - 01/24/74
			7	01/24/74 - 01/30/74
			8	05/22/74 - 05/27/74
			9	05/27/74 - 06/17/74
			10	06/17/74 - 06/22/74
			11	06/22/74 - 06/22/74

- (a) D016952: READ ERRORS OCCURRED IN RECORDS 284, 292, 301, OF FILE 1
 (b) D016954: READ ERRORS OCCURRED IN RECORDS 2, 122, 134, 138, 139, 141, 1057 OF FILE 1
 (c) D016955: READ ERRORS OCCURRED IN RECORDS 404-406 OF FILE 1
 (d) D018315: READ ERRORS OCCURRED IN RECORDS 1785-1786 OF FILE 1
 (e) D018314: READ ERROR OCCURRED IN RECORD 419 OF FILE 1
 (f) D018818: READ ERROR OCCURRED IN RECORD 1445 OF FILE 1
 (g) D018819: READ ERRORS OCCURRED IN RECORDS 1630-1631 OF FILE 1
 (h) D018820: READ ERRORS OCCURRED IN RECORDS 1430, 1443, OF FILE 1

refer to 69-099C-05C

D-15663
Feb 6 - May 1
0:59 - 1:02

0001	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0049	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0097	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0145	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0193	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0241	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0289	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0337	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0385	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0433	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0481	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0529	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0577	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0625	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0673	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0721	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0769	000465410000	000000000000	000001357777	777700000045	000000010000	003000150266	000000000000	000200000001
0817	000000010000	000000000001	000000010000	000200000001	000000010000	000100000001	000000010000	000010000001
0865	000000020000	000100000001	000000020000	000100000002	000000000000	000177777777	777777777777	777777777777
0913	777777770000	000100000000	000000010000	000200000002	000000000000	000100000001	000000010000	000100000001
0961	000000010000	000100000001	000000010000	000200000001	000000000000	000100000001	777777777777	777700000224
1009	777777777777	777777777777	777777777777	777700000001	000000010000	000200000001	000000020000	000100000001
1057	000000010000	000100000001	777777770000	000200000000	000000020000	000000000000	000000000000	000000000001
1105	000000007777	777777777777	777777777777	777777777777	777777777777	777777777777	000000000000	000300000002
1153	000000020000	000200000000	000000020000	000300000000	000000020000	000000000000	000000000000	000100000000
1201	000000000000	000200000000	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777
1249	777777770000	000000000004	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000
1297	000000020000	000000000002	000000000000	000200000002	000000020000	000300000000	777777777777	777700000121
1345	777777777777	777777777777	777777777777	777700000000	000000000000	000000000002	000000020000	000000000000
1393	000000030000	000100000000	000000020000	000300000000	000000000000	000000000000	000000000000	000200000004
1441	000000010000	000000000000	777777777777	777700000045	000000010000	004400063621	000000000000	000000000000
1489	000000000000	000000000000	000000000000	000400000001	000000000000	000000000002	000000000000	000200000000
1537	000000000000	000400000002	000000000000	000200000000	000000000000	000277777777	777777777777	777777777777
1585	777777770000	000000000000	000000000000	000000000000	000000000000	000000000000	000000010000	000300000000
1633	000000020000	000200000000	000000000000	000000000001	000000000000	000000000000	777777777777	777777777777
1681	777777777777	777777777777	777777777777	777700000000	000000000000	000177777777	000000000000	000100000001
1729	000000020000	000000000000	000000000000	000000000004	000000000000	000200000000	000000000000	000000000000
1777	000000017777	777777777777	777777777777	777777777777	777777777777	777777777777	000000030000	000000000000
1825	000000000000	000400000000	000000020000	000000000000	000000010000	000200000000	000000020000	000000000002
1873	000000000000	000000000000	000000040000	000277777777	777777777777	777777777777	777777777777	777777777777
1921	777777770000	000000000000	000000000000	000000000004	000000000000	000200000002	000000030000	000000000000
1969	000000020000	000000000001	000000010000	000100000000	000000000000	000300000000	777777777777	777777777777
2017	777777777777	777777777777	777777777777	777700000000	000000000000	000200000000	000000020000	000000000000
2065	000000000000	000400000000	000000010000	000300000000	000000000000	000000000000	000000020000	000400000000
2113	000000010000	000000000000	777777777777	777700000045	000000010000	004700002054	000000000000	000300000000
2161	000000020000	000200000000	000000000000	000000000000	000000030000	000000000000	000000020000	000000000002
2209	000000000000	000200000000	000000020000	000200000002	000000000000	000377777777	777777777777	777777777777
2257	777777770000	000000000003	000000000000	000100000000	000000010000	000000000000	000000000000	000000000000
2305	000000010000	000200000002	000000020000	000000000000	000000000000	000000000000	777777777777	777700000224
2353	777777777777	777777777777	777777777777	777700000000	000000000000	000000000000	000000000000	000000000000
2401	000000000000	000200000000	000000000000	000000000000	777777777777	777777777777	777777770000	000000000000
2449	000000007777	777777777777	777777777777	777777777777	777777777777	777777777777	000000040000	000000000004
2497	000000010000	000000000003	000000020000	000400000000	000000020000	000300000000	000000030000	000577777777
2545	777777777777	777777777777	777777777777	777777777777	777777777777	777777777777	000000045000	000700000064
2593	001135677777	777777777777	777777777777	777777777777	000000000000	000100000000	000000000000	000000000000
2641	000000000000	000200000000	000000000000	000000000000	000000000000	000000000003	777777777777	777700000000
2689	777777777777	777777777777	777777777777	777700000000	000000010000	000000000002	000000000000	000000000000
2737	000000020000	000000000000	000000000000	000000000000	000000040000	000000000000	000000000000	000000000001
2785	000000040000	000000000000	000001307777	777700000045	000000070000	006500067171	000000000000	000000000000
2833	000000020000	000000000001	000000000000	000300000000	000000000000	000200000000	000000000000	000000000000
2881	000000000000	000000000000	777777777777	777700000000	000000000000	000177777777	777777777777	777777777777
2929	777777770000	000100000000	000000000000	000100000000	000000000000	000000000000	000000000000	000000000000

0001	777777777777	777777777777	777777777777	777700001373	000015630000	151500001133	000014010000	171600000777
0049	000006210000	063600000432	000003220000	011700000036	000000260000	000100000003	000000040000	000000000000
0057	000000000000	000300000000	000003777777	777700000177	000000000000	000200150125	000004360000	033100000651
0145	000005150000	070100001124	000015170000	123700001064	000006020000	035700000161	000000330000	000200000000
0193	000000000000	000000000003	000000000000	000000000000	000000000000	000277777777	777777777777	777777777777
0241	777777770000	102500000741	000007560000	120000001023	000010050000	123400001471	000006750000	052700000403
0289	000001270000	001100000006	000000000000	000100000000	000000010000	000200000002	777777777777	777700000377
0337	777777777777	777777777777	777777777777	777700000721	000006470000	102200001147	000011150000	121300001630
0385	000015050000	1653000001027	000006000000	020300000013	000000000000	000000000002	000000000000	000000000000
0433	000000007777	777777777777	000000007777	777777777777	777777777777	777777777777	000010040000	123300001527
0481	000023030000	3156000003733	000047020000	521300003030	000024660000	121200000321	000000760000	001700000002
0529	000000007000	000000000000	000000000000	000177777777	777777777777	777777777777	777777777777	777777777777
0577	777777770000	1355000000640	000010720000	105700001361	000012710000	162700001470	000014450000	054100000132
0625	000001110000	0034000000013	000000000000	000000000000	000000000000	000100000000	777777777777	777700000377
0673	777777777777	777777777777	777777777777	777700000736	000006430000	076700001206	000022220000	233600001507
0721	000013700000	0566000000554	000004500000	040200000077	000000150000	000000000003	000000000000	000000000000
0769	000000000000	0002000000001	000003777777	777700000177	000000010000	000500066361	000007450000	100300001163
0817	000015020000	1306000001536	000014200000	113400001025	000005230000	022300000073	000000160000	000400000000
0865	000000010000	0000000000002	000000000000	0000000000002	000000000000	000377777777	777777777777	777777777777
0913	777777770000	0627000001126	000013500000	145600001453	000021020000	240000002326	000014270000	110300000367
0961	000001150000	001200000006	000100000000	000100000000	000000000000	000000000000	777777777777	777700000377
1009	777777777777	777777777777	777777777777	777700001035	000006630000	201400002531	000020110000	2631000003125
1057	000034110000	221000000746	000004400000	017000000071	000000050000	000100000001	000000030000	000000000000
1105	000000037777	777777777777	000000007777	777777777777	777777777777	777777777777	000004350000	061000000644
1153	000011250000	1640000001357	000013320000	114700000722	000006100000	035700000401	000001500000	001100000001
1201	000000030000	000100000000	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777
1249	777777770000	0633000000712	000010240000	076100001621	000013270000	153600001333	000005200000	034100000413
1297	000005560000	004000000014	000000002000	000000000002	000000000000	000100000000	777777777777	777700000377
1345	777777777777	777777777777	777777777777	777700000737	000010350000	114200001263	000014440000	2321000002674
1393	000035540000	3343000001501	000004403000	015500000060	000000020000	000000000000	000000010000	000000000004
1441	000000000000	000000000000	000003777777	777700000177	000000010000	001000004615	000007570000	126500001523
1489	000017440000	2141000002315	000022050000	257000003023	000015600000	067300000341	000001010000	000400000003
1537	000000010000	0002000000000	000000010000	000100000000	000000000000	000477777777	777777777777	777777777777
1585	777777770000	124500001276	000011270000	124100001305	000012060000	117200001021	000006610000	062100000336
1633	000000720000	003300000010	000000010000	000000000000	000000000000	000000000000	777777777777	777700000377
1681	777777777777	777777777777	777777777777	777700000252	000003210000	053700001335	000016170000	124000001633
1729	000020700000	117700000512	000001730000	005300000020	000000020000	000000000000	000000000000	000100000002
1777	000000007777	777777777777	000000007777	777777777777	777777777777	777777777777	000010050000	113200001204
1825	000014170000	2051000002426	000030040000	324100002127	000013370000	056100000165	000000300000	000600000001
1873	000000020000	000000000000	000000020000	000177777777	777777777777	777777777777	777777777777	777777777777
1921	777777770000	073400001025	000013300000	1526000002023	000020360000	172500002131	000013440000	140100001115
1969	000003650000	012100000004	000000020000	000000000000	000000000000	000200000000	777777777777	777700000377
2017	777777777777	777777777777	777777777777	777700000447	000004460000	054000000572	000014710000	156600001356
2065	000010740000	1370000000730	000004250000	023300000043	000000060000	000200000002	000000020000	000000000000
2113	000000000000	000100000000	000003777777	777700000177	000000010000	001200110211	000011330000	125500001346
2161	000014370000	1527000001525	000013620000	157000001456	000011640000	045300000207	000000310000	000200000001
2209	000000010000	0000000000007	000000000000	000200000001	000000000000	000577777777	777777777777	777777777777
2257	777777770000	1237000001022	000010420000	132500001707	000016000000	173200001615	000013230000	111000000460
2305	000001260000	0022000000001	000000010000	000200000001	000000000000	000300000000	777777777777	777700000377
2353	777777777777	777777777777	777777777777	777700000700	000006350000	171700001474	000022750000	210400001627
2401	000014050000	157100000661	000003070000	011300000052	000000311000	000100000002	000000020000	000000000000
2449	000000007777	777777777777	000000007777	777777777777	777777777777	777777777777	000017600000	151100002236
2497	000027110000	265000003150	000030050000	2776000002544	000012100000	062600000145	000000310000	000300000001
2545	000000000000	0002000000001	000000000000	000077777777	777777777000	017577777777	777777777777	777777777777
2593	777777770000	0742000000766	000012600000	132500001355	000021370000	174700002162	000011440000	075300000400
2641	000002120000	011100000001	000000000000	000200000000	000000000000	000000000001	777777777777	777700000377
2689	777777777777	777777777777	777777777777	777700001054	000013200000	126000001210	000014300000	2070000002245
2737	000027160000	2031000001467	000010630000	015100000027	000000050000	000300000002	000000000000	000400000000
2785	000000000000	000100000000	000003777777	777700000177	000000010000	001500026444	000012450000	1753000002145
2833	000027010000	2713000002541	000036430000	331400002517	000014530000	077000000165	000000430000	001000000002
2881	000000000000	000100000001	000000000000	000000000001	000000010000	000677777777	777777777777	777777777777
2929	777777770000	133000001365	000012750000	1761000002457	000024220000	3147000003064	000026330000	172200000633

APOLLO 12 LM/ALSEP

TOTAL ION DETECTOR DATA ON TAPE

69-099C-05F

PSFP-00163

This data set has been restored. There were originally 31 7-track, 800 BPI tapes written in Binary. There are three restored tapes. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. The original tapes were created on a 7094 computer and the restored tapes were created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D numbers are as follows:

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	----	-----
DR005027	DS005027	D017211	1	11/19/69 - 03/10/70
		D017212	2	03/10/70 - 05/31/70 (a)
		D017213	3	05/31/70 - 08/13/70
		D017281	4	08/13/70 - 11/04/70
		D017280	5	11/04/70 - 01/29/71 (b)
		D017279	6	01/29/71 - 04/19/71 (c)
		D017278	7	04/19/71 - 07/05/71 (d)
DR005028	DS005028	D017693	1	07/05/71 - 09/24/71 (e)
		D017694	2	09/24/71 - 12/18/71 (f)
		D017695	3	12/18/71 - 03/11/72 (g)
		D017883	4	03/12/72 - 05/31/72 (h)
		D017882	5	05/31/72 - 08/16/72 (i)
		D018311	6	08/16/72 - 11/16/72 (j)
		D018310	7	11/16/72 - 03/14/73 (k)
DR006255	DS006255	D108762	1	05/06/73 - 05/12/73
			2	05/12/73 - 05/27/73
			3	05/27/73 - 06/12/73
			4	06/12/73 - 06/27/73
			5	06/27/73 - 07/05/73
			6	07/05/73 - 07/09/73
			7	07/09/73 - 07/24/73
			8	08/27/73 - 09/22/73
			9	09/28/73 - 10/04/73
			10	10/03/73 - 10/18/73
			11	10/18/73 - 10/25/73
			12	11/05/73 - 11/20/73
			13	11/20/73 - 11/25/73
			14	11/25/73 - 12/01/73
			15	12/01/73 - 12/18/73
			16	12/24/73 - 12/30/73
			17	12/26/73 - 12/31/73

refer to 69-099C-05C

APOLLO 12 CONT.

- (a) D017212: Read error occurred in record 242 of file 1.
- (b) D017280: Read error occurred in record 412 of file 1.
- (c) D017279: Read error occurred in record 551 of file 1.
- (d) D017278: Read error occurred in record 158 of file 1.
- (e) D017693: Read errors occurred in records 292, 696, 1374 of file 1.
- (f) D017694: Read error occurred in record 628 of file 1.
- (g) D017695: Read errors occurred in records 411, 1740, 1848, 1849
of file 1.
- (h) D017883: Read errors occurred in records 361, 1142 of file 1.
- (i) D017882: Read errors occurred in records 4, 490, 540, 1434, 1815,
1821 of file 1.
- (j) D018311: Read error occurred in record 15 of file 1.
- (k) D018310: Read errors occurred in records 51, 414 of file 1.

APOLLO 15 LM/ALSEP

TOTAL ION DETECTOR DATA ON TAPE

71-063C-05F

PSFP-00206

This data set has been restored. There were originally 10 7-track, 800 BPI tapes written in Binary. There are two restored tapes. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. An additional 59 7-track, 200 BPI tapes were stacked onto one 9-track. The original tapes were created on a 930 computer and the restored tapes were created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D numbers are as follows:

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR005023	DS005023	D017283	1	08/03/71 - 10/28/71 (a)
		D017751	2	10/28/71 - 01/11/72 (b)
		D017750	3	01/11/72 - 03/16/72
		D017749	4	03/16/72 - 05/19/72 (c)
		D017748	5	05/19/72 - 07/15/72 (d)
DR005024	DS005024	D017747	1	07/15/72 - 09/08/72 (e)
		D017746	2	09/08/72 - 11/03/72
		D017745	3	11/03/72 - 12/28/72
		D028834	4	12/28/72 - 02/22/73 (f)
		D028835	5	02/22/73 - 04/19/73
D-108752	C-032849		1	04/18/73 - 04/24/73
			2	04/24/73 - 05/03/73
			3	05/07/73 - 05/13/73
			4	05/13/73 - 05/17/73
			5	05/17/73 - 05/22/73
			6	05/22/73 - 05/28/73
			7	05/28/73 - 06/02/73
			8	06/02/73 - 06/08/73
			9	06/08/73 - 06/13/73
			10	06/13/73 - 06/18/73
			11	06/19/73 - 06/23/73*
			12	06/18/73 - 06/24/73
			13	06/24/73 - 06/30/73
			14	06/30/73 - 07/07/73
			15	07/07/73 - 07/11/73
			16	07/11/73 - 07/17/73
			17	07/17/73 - 07/23/73
			18	07/19/73 - 07/22/73 *
			19	07/23/73 - 07/29/73
			20	07/29/73 - 08/04/73
			21	08/04/73 - 08/10/73
			22	08/10/73 - 08/16/73
			23	08/18/73 - 08/20/73*

Ref to 69-099C-OSC for further Documentation

24	08/16/73 - 08/22/73*
25	08/22/73 - 08/28/73
26	08/28/73 - 09/03/73
27	09/03/73 - 09/09/73
28	09/09/73 - 09/16/73
29	09/16/73 - 09/20/73
30	09/20/73 - 09/22/73
31	This file is currently a bad file from dout3 and must be replaced with DIN-30 when the 7-tk drive is reset to read 200 bpi tapes. Majames has input tape and scratch for duping.
32	09/28/73 - 09/30/73
33	10/03/73 - 10/09/73
34	10/10/73 - 10/18/73*
35	10/15/73 - 10/18/73*
36	10/18/73 - 10/18/73*
37	10/18/73 - 10/24/73
38	10/24/73 - 10/31/73
39	10/25/73 - 10/31/73*
40	10/31/73 - 11/06/73
41	11/06/73 - 11/17/73
42	11/17/73 - 11/23/73
43	11/23/73 - 11/28/73**
44	12/04/73 - 12/15/73
45	12/14/73 - 12/17/73
46	12/15/73 - 12/20/73**
47	12/30/73 - 12/31/73
48	01/01/74 - 01/16/74
49	01/16/73 - 01/18/73
50	01/21/74 - 01/27/74**
51	06/21/74 - 06/26/74**
52	10/28/74 - 10/30/74**
53	12/24/74 - 12/31/74
54	01/01/75 - 01/10/75**
55	09/02/75 - 09/04/75
56	08/05/75 - 08/10/75
57	08/11/75 - 08/16/75
58	08/17/75 - 09/01/75
59	11/30/75 - 12/31/75

* Time spans overlap.

** Time gaps between files.

- (a) D017283: Read errors occurred in records 3, 5, 1136, 1494 of file 1.
- (b) D017751: Read errors occurred in records 89, 216, 218, 220, 305,
1846 of file 1.
- (c) D017749: Read errors occurred in records 714, 950, 1025, 1766, 1837,
1849 of file 1.
- (d) D017748: Read errors occurred in records 5, 300 of file 1.
- (e) D017747: Read errors occurred in records 269, 346, 347, 348, 349,
635, 1849 of file 1.
- (f) D028834: Read errors occurred in records 1622, 1786, 1842, 1843,
1845 of file 1.

Apollo 15

D-17283

Aug 3 - Oct 28

0001	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0049	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0057	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0145	0000640000	073300001117	000012470000	161400002173	000032200001	657000031652	000102050000	005200000004
0153	000000000000	000000000000	000000010000	000077777777	777777777777	000077777777	777777777777	777777777777
0241	777777770000	017200000222	000003350000	051600000720	000011440000	130600001404	000020330000	375200020674
0289	000253160000	755500000052	000000030000	000000000000	000000000000	000100000001	777777777777	777700000231
0337	777777777777	777777777777	777777777777	777700000167	000002120000	026500000513	000007550000	111000001401
0385	000013720000	204600004412	000175260002	512400010034	000000620000	000000000000	000000000000	000000000002
0433	000000017777	777777777777	000000007777	777777777777	777777777777	777777777777	000002320000	026100000423
0481	000006130000	103600001304	000012710000	151300002327	000050000001	571400031116	000103150000	005600000003
0529	000000010000	000000000000	000000000000	000277777777	777777777777	020277777777	777777777777	777777777777
0577	777777770000	023300000333	000005120000	067600000763	000013540000	136600000205	000023250000	701700022445
0625	000271570000	761100000067	000000010000	000000000000	000000000000	000000000002	777777777777	777700000110
0673	777777777777	777777777777	777777777777	777700000205	000003160000	050300000654	000010420000	147000001432
0721	000015650000	246600005164	000210310003	206000011044	000000400000	000100000000	000000000000	000000000000
0769	000000000000	000100000000	000012277777	777700000327	000000020000	007000033021	000002530000	030700000524
0817	000006640000	106200001210	000015340000	163300002261	000043170001	671200025045	000106110000	006300000002
0865	000000000000	000000000001	000000010000	000100000000	000000000000	000177777777	777777777777	777777777777
0913	777777770000	020600000411	000005000000	07500001006	000011420000	145500001504	000024470000	633300016563
0961	000151410001	001600000054	000000010000	000200000001	000000000000	000100000000	777777777777	777700000231
1009	777777777777	777777777777	777777777777	777700000204	000002730000	044000000677	000007540000	124300001254
1057	000015540000	253000005356	000117550001	714600010777	000000430000	000100000000	000000000000	000000000000
1105	000000007777	777777777777	000000007777	777777777777	777777777777	777777777777	000002400000	032100000365
1153	000005710000	104300001274	000013160000	154000002223	000056370001	704600025352	000116160000	005700000000
1201	000000000000	000200000001	000000000000	000377777777	777777777777	020277777777	777777777777	777777777777
1249	777777770000	023600000345	000004720000	057100001074	000012300000	132100001677	000024170000	551300014551
1297	000257220000	635000000051	000000010000	000200000000	000000000000	000000000001	777777777777	777700000107
1345	777777777777	777777777777	777777777777	777700000210	000003220000	045600000717	000010400000	117200001354
1393	000014220000	223500005256	000140170002	553400007503	000000560000	000100000000	000000000000	000000000000
1441	000000010000	000300000000	000001177777	777700000327	000000020000	007200136416	000001540000	024200000501
1489	000007030000	116100001331	000014450000	175200002126	000060010002	117600027516	000046000000	005600000003
1537	000000010000	000000000001	000000000000	000000000001	000000000000	000277777777	777777777777	777777777777
1585	777777770000	016000000270	000004700000	074700001235	000014200000	161200002140	000030360000	642100032743
1633	000303130000	513500000052	000000020000	000100000001	000000010000	000000000000	777777777777	777700000231
1681	777777777777	777777777777	777777777777	777700000166	000004060000	052700000750	000013310000	147200001532
1729	000020050000	247700006573	000164020002	601400004417	000000560000	000000000000	000000010000	000100000001
1777	000000017777	777777777777	000000007777	777777777777	777777777777	777777777777	000001660000	034000000450
1825	000010570000	132000001535	000016250000	210200003266	000144430002	010500023602	000045200000	003300000000
1873	000000000000	000000000000	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777
1921	777777770000	020600000331	000006020000	106700001340	000014300000	155300002222	000034570000	701600020107
1969	000222250000	402400000057	000000020000	000100000000	000000010000	000000000000	777777777777	777700000106
2017	777777777777	777777777777	777777777777	777700000222	000003670000	063000001136	000014100000	157500002117
2065	000023730000	376300010406	000241000002	451000003633	000000420000	000100000000	000000010000	000300000000
2113	000000017777	777700000000	000000027777	777777777777	777777777777	777777777777	777777770000	040400000572
2161	000010560000	115100001576	000021060000	2663000004372	000073200002	016100024074	000035670000	004400000002
2209	000000000000	000100000000	000000000000	000177777777	777777777777	000277777777	777777777777	777777777777
2257	777777770000	025000000414	000006270000	103300001224	000014520000	200700002447	000042010001	000300025145
2305	000271770000	366100000041	000000010000	000100000000	000000000000	000000000003	777777777777	777700000231
2353	777777770000	032700000003	000000020000	536300000351	000005150000	077600001074	000013300000	151700001701
2401	000024230000	4376000007646	000157130001	744000003707	000000310000	000400000001	000000000000	000000000000
2449	000000007777	777777777777	000000037777	777777777777	777777777777	777777777777	000001760000	044300000646
2497	000010530000	130200001402	000016010000	2373000004123	000104760002	152500022667	000033040000	004700000000
2545	000000000000	000100000000	000000010000	000177777777	777777777777	023177777777	000003270000	000300000002
2593	001436360000	025100000432	000006150000	103500001330	000013700000	167100002740	000046000001	104100017025
2641	000226230000	342100000042	000000020000	000100000000	000000000000	000200000004	777777777777	777700000004
2689	777777777777	777777777777	777777777777	7777000000234	000004350000	072600001302	000014630000	162300002360
2737	000027620000	455400011154	000201650002	627000003470	000000650000	000100000002	000000010000	000000000000
2785	000000027777	777777777777	000002317777	777700000327	000000030000	000300114751	000002210000	047200000703
2833	000012260000	136700001376	000016260000	3055000004753	000111270002	573300026042	000030630000	004200000001
2881	000000000000	000000000002	000000010000	000577777777	777777777777	000577777777	777777777777	777777777777
2929	777777770000	021000000410	000007070000	113400001167	000013100000	166300002503	000033410001	241500020444

APOLLO 15 LM/ALSEP
MASS ANALYZER DATA ON TAPE

71-063C-05C

PSFP-00014

THIS DATA SET HAS BEEN RESTORED THERE WERE ORIGINALLY 63 7-TRACK, 800 BPI TAPES WRITTEN IN BINARY. THERE ARE FOUR RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON A 7094 COMPUTER AND THE RESTORED TAPES WERE CREATED ON AN IBM 9021 COMPUTER. DD108719 & 720 WERE CREATED FROM A GROUP OF TAPES PROVIDED BY THE PI SEVERAL YEARS AFTER THE INITIAL SHIPMENT OF THE 10 TAPES. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR004993	DS004993	D017282	1	08/03/71 - 10/28/71
		D017696	2	10/28/71 - 01/11/72 (a)
		D017697	3	01/11/72 - 03/16/72
		D017742	4	03/16/72 - 05/19/72 (b)
		D017743	5	05/19/72 - 07/20/72 (c)
DR004994	DS004994	D017888	1	07/20/72 - 09/09/72
		D017887	2	09/09/72 - 11/04/72
		D017886	3	11/04/72 - 12/29/72 (d)
		D017885	4	12/29/72 - 02/24/73
		D107884	5	02/24/73 - 06/02/73

Ref to 69-099C-05C for further Documentation

APOLLO 15 LM/ALSEP

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR006251	DS006251	108719	1	05/21/73 - 05/24/73
			2	06/02/73 - 06/08/73
			3	06/08/73 - 06/13/73
			4	06/13/73 - 06/18/73
			5	06/18/73 - 06/23/73
			6	06/19/73 - 06/23/73
			7	06/24/73 - -6/30/73
			8	06/30/73 - 07/07/73
			9	07/07/73 - 07/11/73
			10	07/11/73 - 07/17/73
			11	07/17/73 - 07/19/73
			12	07/19/73 - 07/22/73
			13	07/23/73 - 07/29/73
			14	07/29/73 - 08/04/73
			15	08/04/73 - 08/10/73
			16	08/07/73 - 08/10/73
			17	08/16/73 - 08/22/73
			18	08/18/73 - 08/20/73
			19	08/22/73 - 08/28/73
			20	09/03/73 - 09/09/73
			21	09/16/73 - 09/20/73
			22	09/25/73 - 09/28/73
			23	09/25/73 - 09/27/73
			24	10/25/73 - 10/31/73
			25	11/14/73 - 11/17/73
			26	11/28/73 - 12/04/73
			27	12/14/73 - 12/17/73
			28	12/15/73 - 12/20/73
			29	12/15/73 - 12/20/73
			30	12/20/73 - 12/24/73
			31	12/25/73 - 12/30/73
			32	12/30/73 - 12/31/73
DR006252	DS006252	D108720	1	01/12/74 - 01/14/74
			2	01/24/74 - 01/29/74
			3	01/29/73 - 02/04/73
			4	02/24/74 - 03/03/74
			5	02/26/74 - 03/03/74
			6	03/11/74 - 03/16/74
			7	05/10/74 - 05/14/74
			8	05/19/74 - 05/24/74
			9	05/24/74 - 05/30/74
			10	06/25/74 - 06/29/74
			11	07/07/74 - 07/11/74
			12	07/24/74 - 07/27/74
			13	08/22/74 - 08/25/74
			14	09/04/74 - 09/08/74
			15	09/10/74 - 09/12/74
			16	09/08/74 - 09/15/74
			17	09/16/74 - 09/18/74
			18	10/28/74 - 11/02/74
			19	12/13/74 - 12/18/74
			20	12/19/74 - 12/24/74
			21	10/30/74 - 10/31/74

APOLLO 15 LM/ALSEP

- a) D107696: READ ERROR OCCURRED IN RECORD 772 OF FILE 1
- (b) D017742: READ ERROR OCCURRED IN RECORD 1840 OF FILE 1
- (c) D017743: READ ERRORS OCCURRED IN RECORDS 734, 755, 1794 OF FILE 1
- (d) D017886: READ ERROR OCCURRED IN RECORD 1034 OF FILE 1

Apollo 15
D-17282
Aug 3 - Oct 28

0001	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0049	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0097	7777777777	7777777777	77777770000	632700000002	600000650012	13427777777	7777777777	7777777777
0145	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0193	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777	7777777777
0241	000000007777	7777777777	000000010000	000000000000	000000000000	000000000000	000000010000	000000000000
0289	000000000000	000000000000	000000000000	000000000000	000000000000	000100000001	7777777777	777700000000
0337	7777777777	7777777777	77777770000	000100000000	000000000000	000000000002	000000000000	000100000000
0385	000000000000	000100000000	000000000000	000200000002	000000020000	000300000004	000000020000	000400000001
0433	000000027777	7777777777	000002317777	7777777777	7777777777	777700000002	000000020000	000300000002
0481	000000030000	000100000001	000000050000	000600000003	000000010000	000200000003	000000070000	000300000004
0529	000000010000	000100000000	000000010000	000077777777	777777770000	000077777777	7777777777	7777777777
0577	000000030000	000000000001	000000000000	000200000000	000000000000	000000000000	000000030000	000000000000
0625	000000000000	000000000000	000000000000	000000000000	000000000000	000100000000	7777777777	777700000202
0673	7777777777	7777777777	77777770000	000400000000	000000000000	000000000001	000000000000	000100000000
0721	000000000000	000000000000	000000000000	000100000000	000000000000	000000000000	000000000000	000200000000
0769	000000007777	7777777777	000001107777	7777777777	7777777777	777700000005	000000000000	000000000000
0817	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0865	000000000000	000000000000	000000000000	000000000001	000000000000	012200000327	000000020000	007000033021
0913	000000000000	000000000000	000000000000	000000000001	000000000000	000400000000	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000001
1009	7777777777	7777777777	77777770000	000100000000	000000000000	000000000000	000000000000	000000000000
1057	000000000000	000000000000	000000000000	000000000000	000000000000	000000000001	000000000000	000000000000
1105	000000007777	7777777777	000002317777	7777777777	7777777777	777700000002	000000030000	000000000000
1153	000000010000	000000000000	000000000000	000000000000	000000000000	000100000000	000000000000	000000000001
1201	000000000000	000100000000	000000000000	000177777777	777777770000	000077777777	7777777777	7777777777
1249	000000030000	000000000001	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1297	000000000000	000000000000	000000010000	000100000000	000000010000	000000000000	7777777777	777700000202
1345	7777777777	7777777777	77777770000	000400000000	000000000000	000000000000	000000000000	000000000000
1393	000000000000	000000000000	000000000000	000000000002	000000000000	000000000000	000000010000	000100000004
1441	000000007777	7777777777	000001077777	7777777777	7777777777	777700000005	000000000000	000000000000
1489	000000000000	000000000000	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000
1537	000000000000	000000000000	000000000000	000000000003	000000000000	011700000327	000000020000	007200136416
1585	000000000000	000000000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000
1633	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000	000000010000	000000000002
1681	7777777777	7777777777	77777770000	000100000000	000000030000	000000000000	000000000000	000000000000
1729	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1777	000000007777	7777777777	000002317777	7777777777	7777777777	777700000002	000000000000	000000000000
1825	000000010000	000000000000	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000
1873	000000000000	000100000000	000000010000	000077777777	777777770000	000077777777	7777777777	7777777777
1921	000000030000	000100000001	000000010000	000000000001	000000000000	000000000000	000000000000	000000000000
1969	000000000000	000200000000	000000000000	000000000000	000000000000	000000000000	7777777777	7777777777
2017	7777777777	7777777777	77777770000	000400000000	000000000000	000000000000	000000000000	000000000000
2065	000000040000	000000000000	000000000000	000000000000	000000000000	000100000000	000000000000	000000000000
2113	000000007777	7777777777	000001067777	7777777777	7777777777	777700000005	000000010000	000000000003
2161	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2209	000000000000	000000000000	000000000000	000677777777	000000000000	012077777777	7777777777	7777777777
2257	000000007777	7777777777	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000
2305	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	7777777777	777700000002
2353	7777777777	7777777777	77777770000	000100000000	000000000000	000000000000	000000010000	000000000000
2401	000000000000	000000000000	000000000000	000100000000	000000000000	000000000001	000000000000	000000000010
2449	000000017777	7777777777	000002310000	032700000003	000000020000	536300000000	000000000000	000100000000
2497	000000000000	000000000003	000000010000	000000000000	000000010000	000400000000	000000000000	000000000001
2545	000000000000	000000000000	000000000000	000077777777	777777770000	000377777777	7777777777	7777777777
2593	000000010000	000000000000	000000000000	000000000000	000000010000	000000000000	000000000000	000000000002
2641	000000000000	000300000000	000000000000	000000000000	000000000000	000000000000	7777777777	777700000231
2689	000003270000	000300000002	001436360000	000000000000	000000000000	000000000000	000000000000	000000000000
2737	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2785	000000007777	7777777777	000000047777	7777777777	7777777777	777700000001	000000000000	000000000000
2833	000000000000	000000000000	000000010000	000000000000	000000000000	000000000000	000000000000	000000000000
2881	000000000000	000000000000	000000000000	000077777777	777777770000	023100000327	000000030000	000300114751
2929	000000000000	000000000000	000000030000	000100000000	000000010000	000100000000	000000000000	000000000000

0001	777777777777	777777777777	777777770000	000400000000	000000020000	000000000002	000000120000	000300000000
0049	000000000000	000500000000	000000000000	000400000001	000000000000	000400000000	000000050000	000000000000
0057	000000017777	777777777777	000000477777	777777777777	777777777777	777700000005	000000000000	000600000000
0145	000000000000	0001000000003	000000000000	000000000001	000000000000	000000000000	000000000000	000600000000
0193	000000100000	000000000000	000000000000	000000000007	000000077777	777700000455	000000140000	002100101054
0241	000000000000	000100000000	000000000000	001600000001	000000000000	000000000004	000000020000	000000000005
0289	000000000000	000000000001	000000000000	000100000000	000000000000	000100000000	000000010000	000000000011
0337	777777777777	777777777777	777777770000	000100000000	000000010000	000000000010	000000000000	000000000010
0385	000000030000	000000000000	000000000000	001200000000	000000000000	000000000000	000000000000	000000000000
0433	000000077777	777777777777	777777777777	777777777777	777777777777	777700000002	000000050000	000000000000
0481	000000030000	000000000002	000000020000	001500000000	000000000000	000200000000	000000000000	000600000001
0529	000000000000	000500000000	000000000000	000077777777	777777770000	000077777777	777777777777	777777777777
0577	000000030000	000000000004	000000000000	000000000000	000000000000	000000000001	000000000000	000100000004
0625	000000010000	001000000012	000000000000	000000000006	000000000000	000000000000	777777777777	777777777777
0673	777777777777	777777777777	777777770000	000400000000	000000000000	000000000000	000000000000	000300000007
0721	000000000000	000200000000	000000000000	000000000001	000000030000	000000000003	000000000000	000000000000
0769	000000067777	777777777777	000000467777	777777777777	777777777777	777700000005	000000000000	000000000000
0817	000000040000	000000000000	000000040000	000600000000	000000000000	000600000000	000000000000	000300000001
0865	000000000000	000000000000	000000000000	000000000000	000000077777	777700000455	000000140000	002400017312
0913	000000000000	000000000000	000000000000	000000000000	000000100000	000000000000	000000000000	000000000000
0961	000000000000	000000000010	000000010000	000100000000	000000020000	000000000000	000000000000	000000000012
1009	777777777777	777777777777	777777770000	000100000000	000000060000	000000000003	000000020000	000300000000
1057	000000070000	000000000000	000000000000	000400000000	000000000000	000000000000	000000050000	000500000014
1105	000000077777	777777777777	777777777777	777777777777	777777777777	777700000002	000000000000	000000000000
1153	000000000000	000400000000	000000110000	000000000000	000000040000	000700000002	000000010000	001300000000
1201	000000020000	000000000004	000000000000	000077777777	777777770000	000077777777	777777777777	777777777777
1249	000000030000	000000000005	000000130000	000000000000	000000000000	000000000006	000000050000	000000000001
1257	000000010000	000000000000	000000020000	000000000002	000000000000	000000000000	777777777777	777777777777
1345	777777777777	777777777777	777777770000	000400000000	000000060000	000600000000	000000000000	000000000000
1393	000000000000	000000000000	000000070000	000500000000	000000100000	000000000000	000000000000	000000000000
1441	000000077777	777777777777	000000467777	777777777777	777777777777	777700000005	000000030000	000000000001
1489	000000000000	000400000003	000000030000	000100000000	000000000000	000100000000	000000000000	000000000000
1537	000000000000	000600000000	000000000000	000000000000	000000050000	007000000455	000000140000	002600122710
1585	000000000000	000500000000	000000000000	000000000001	000000030000	000000000000	000000000000	000000000000
1633	000000000000	000400000011	000000000000	000000000005	000000070000	000000000005	000000000000	000000000013
1681	777777777777	777777777777	777777770000	000100000000	000000000000	000000000000	000000010000	000000000005
1729	000000000000	000300000001	000000000000	000400000000	000000000000	000000000000	000000000000	000000000000
1777	000000077777	777777777777	777777777777	777777777777	777777777777	777700000002	000000060000	000000000000
1825	000000060000	000500000000	000000000000	000000000000	000000000000	000100000000	000000000000	000000000001
1873	000000000000	000100000011	000000000000	000077777777	777777777777	777777777777	777777777777	777777777777
1921	000000030000	000700000000	000000060000	000600000001	000000000000	000000000001	000000000000	000000000006
1969	000000000000	000000000000	000000000000	000000000005	000000060000	000000000000	777777777777	777777777777
2017	777777777777	777777777777	777777770000	000400000000	000000000000	000000000000	000000000000	000000000000
2065	000000200000	000300000005	000000000000	000200000000	000000000000	000000000000	000000000000	000000000001
2113	000000077777	777777777777	777777777777	777777777777	777777777777	777700000005	000000000000	000000000004
2161	000000010000	000000000000	000000000000	000000000000	000000000000	000000000004	000000060000	000100000000
2209	000000000000	000100000005	000000000000	000000000000	000000000000	007100000455	000000140000	003100041146
2257	000000000000	000100000000	000000000000	000300000000	000000000000	000200000001	000000000000	000100000000
2305	000000070000	000000000001	000000030000	000100000000	000000000000	000000000000	000000040000	000000000020
2353	777777777777	777777777777	777777770000	000100000000	000000000000	000400000000	000000070000	000000000000
2401	000000010000	000100000000	000000000000	000000000000	000000060000	000000000000	000000000000	000500000001
2449	000000077777	777777777777	777777777777	777777777777	777777777777	777700000002	000000000000	000300000001
2497	000000000000	000500000000	000000000000	000000000005	000000000000	000000000000	000000000000	000500000001
2545	000000010000	000000000002	000000000000	000077777777	777777770000	000077777777	777777777777	777777777777
2593	000000030000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000200000003
2641	000000010000	000000000007	000000000000	000400000000	000000040000	000100000000	777777777777	777700000201
2689	777777777777	777777777777	777777770000	000400000000	000000000000	000000000002	000000030000	000000000000
2737	000000000000	001100000000	000000000000	000100000000	000000020000	000000000000	000000000000	001200000000
2785	000000027777	777777777777	000000467777	777777777777	777777777777	777700000005	000000010000	000300000000
2833	000000000000	000000000002	000000050000	000000000000	000000050000	000000000000	000000000000	000000000010
2881	000000000000	000000000000	000000000000	000000000007	000000077777	777700000455	000000140000	003300144547
2929	000000000000	000000000000	000000020000	000000000000	000000000000	000000000005	000000000000	000000000000