#459

VIKING 1 + 2

75-075C-060,06P,060,06X

75-083C-060,06P,060,[redacted]

VIKING 1 LANDER

RANGE DATA SET OVERLAYS DATA

75-075C-06X

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED NINE 9-TRACK, 800 BPI TAPES WRITTEN IN BINARY WITH A BCD HEADER. THERE ARE THREE RESTORED TAPES WRITTEN IN BINARY WITH THE FIRST 11 RECORDS WRITTEN IN ASCII. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON AN IBM 360 COMPUTER AND WERE RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS ARE AS FOLLOWS:

DR#	DS#	D#	FILES
DR004227	DS004227	D042344	1-2
		D042345	3
		D042346	4
DR004228	DS004228	D042347	1
		D042348	2
		D042349	3
DR004229	DS004229	D042350	1-2
		D042351	3
		D042352	4

REQ. AGENT	RAND NO.	ACQ. AGENT
VPL	V0027	RWV

VIKING 1 + 2

75-075C-060,06P,06Q,06X

75-083C-060,06P,06Q,[redacted]

This data set catalog consists of 90 Viking 1 EDR image Data on Tape, 16 Viking 1 High Resolution Mosaic, 8 Viking 1 Stereo High Resolution, 87 Viking 2 EDR Image Data on Tape, 24 High Resolution Mosaic and 12 Stereo High Resolution data tapes. The tapes are 9 track 800 BPI, EBCDIC and are multi-filed. Only 10 percent of the viking 1 + 2 060 data set was processed. The 'D' tapes were then sent to FRC. The tapes were created on an IBM 360 computer.

D and C#, Experimenter # and FRC # are listed on the following pages:

75-075C-06X

This data set consists of 9 Mosaic Mapping Data tapes. The tapes are 9 track, 800 BPI, EBCDIC and are multi-filed.

D#	C#	#Of Files
D-42344	C-21633	2
D-42345	C-21634	1
D-42346	C-21635	1
D-42347	C 21636	1
D-42348	C-21637	1
D-42349	C-21638	1
D-42350	C-21639	2
D-42351	C-21640	(2) 1 File
D-42352	C-21641	1

75-075C-06 O,P,Q,X
75-083C-06 O,P,Q
VL 1

VIKING LANDER

CATALOG OF EDR TAPE PRODUCTS

SUSAN K. LaVOIE

IMAGE PROCESSING LABORATORY

JET PROPULSION LABORATORY

FTS 792-2057

This catalog of Viking Lander EDR tape products was designed for the purpose of allowing any user to extract needed data from the EDR magnetic tape set. Included are data storage formats, tape formats, and tape content.

The types of products included in this tape set are EDR images (DN,FN tapes), high resolution mosaics (DNS,FNS tapes), stereographic projections (DNM,FNM tapes), and range dataset products (DNR tapes). For further information concerning mosaics and their derivatives, including additional product types, see Levinthal (reference 1).

DATA STORAGE FORMAT

All of these products are stored in digital form on a series of magnetic tapes. The tapes are recorded on 9 track tape drives. Each image is stored as a separate file. Every file begins with a variable number of label records followed by the actual image.

Each label record is 360 bytes long and is comprised of 5 logical labels of 72 bytes each. Byte 72 (the last byte of each label record consists of an EBCDIC character either 'C' or 'L'. A 'C' indicates that another label record follow, while an 'L' indicates that this is the last lable record. If the last label contains less than 360 bytes, it is padded on the right. The label records contain EBCDIC information which is formatted and displayed at the bottom of a masked print of the image. The first label record contains information relating to the size of the image. Bytes 33-36 contain a four character right-adjusted EBCDIC format integer which specifies the number of lines in the image. Bytes 37-40 similarly contain a number which specifies the number of picture elements per image line. A more detailed explanation of the Lander label format is given by Tucker (reference 2).

The image is stored following the label records. Each image line is stored as one record. The data is recorded at either 800 BPI or 1600 BPI.

EDR IMAGES

Tape Format: 9 track 800 BPI

Tape Contents: Multiple files with one image per file (in camera event order).

TAPE LIST

Primary Mission: see reference 1

Extended Mission - see upcoming publication by K.L. Jones - Viking Lander Imaging Investigation: Extended Mission

VL 3

HIGH RESOLUTION MOSAICS

Tape Format:
1) 9 track 800 BPI
2) 9 track 1600 BPI

Tape Contents:
1) 800 BPI - 1 file per tape consisting of a 2 quad mosaic (Q1+Q2, Q2+Q3, Q3+Q4)
2) 1600 BPI - 1 file per tape consisting of a 4 quad mosaic (Q1+Q2+Q3+Q4)

TAPE LIST

TAPE NUMBER	CONTENTS	DENSITY (BPI)
DNS001	L1.C1.AM.Q1+Q2	800
002	Q2+Q3	
003	Q3+Q4	
004	L1.C2.AM.Q1+Q2	
005	Q2+Q3	
006	Q3+Q4	
007	L1.C1.PM.Q1+Q2	
008	Q2+Q3	
009	Q3+Q4	
010	L1.C2.PM.Q1+Q2	
011	Q2+Q3	
012	Q3+Q4	
013	L1.C1.AM.Q1+Q2+Q3+Q4	1600
014	L1.C2.AM	
015	L1.C1.PM	
016	L1.C2.PM	
FNS001	L2.C1.AM.Q1+Q2	800
002	Q2+Q3	
003	Q3+Q4	
004	L2.C2.AM.Q1+Q2	
005	Q2+Q3	
006	Q3+Q4	
007	L2.C1.NOON.Q1+Q2	
008	Q2+Q3	
009	Q3+Q4	
010	L2.C2.NOON.Q1+Q2	
011	Q2+Q3	
012	Q3+Q4	
013	L2.C1.PM.Q1+Q2	
014	Q2+Q3	
015	Q3+Q4	
016	L2.C2.PM.Q1+Q2	
017	Q2+Q3	
018	Q3+Q4	
019	L2.C1.AM.Q1+Q2+Q3+Q4	1600
020	L2.C2.AM	
021	L2.C1.NOON	
022	L2.C2.NOON	
023	L2.C1.PM	
024	L2.C2.PM	

VL 4

STEREOGRAPHIC PROJECTIONS OF HIGH RESOLUTION MOSAICS

Tape Format: 9 track 1600 BPI

Tape Contents: 1 file per tape consisting of a 2 quad mosaic stereo projection (front or back)

TAPE LIST

TAPE NUMBER	CONTENTS
DNM001	L1.C1.AM.FRONT
002	L1.C2.AM. "
003	L1.C1.AM.BACK
004	L1.C2.AM. "
005	L1.C1.PM.FRONT
006	L1.C2.PM. "
007	L1.C1.PM.BACK
008	L1.C2.PM. "
FNM001	L2.C1.AM. "
002	L2.C1.AM.FRONT
003	L2.C2.AM. "
004	L2.C2.AM.BACK
005	L2.C1.NOON.BACK
006	L2.C1. " .FRONT
007	L2.C2. " . "
008	L2.C2. " .BACK
009	L2.C1.PM.BACK
010	L2.C1.PM.FRONT
011	L2.C2.PM. "
012	L2.C2.PM.BACK

VL 5

RANGE DATASET PRODUCTS

Tape format: 9 track 800 BPI

Tape Contents:
(1) Range datasets - multiple files with one range dataset per file:
(2) Overlays on high resolution mosaics - one file per tape consisting of a 2 quad mosaic (Q1+Q2, Q2+Q3, Q3+Q4):
(3) Overlays on stereo projections - 2 files per tape, each consisting of a 2 quad stereo mosaic:

TAPE LIST

TAPE NUMBER	FILE	CONTENTS	DATA TYPE
DNR001	1	L1.RDSC.FRONT.V77025	(1)
	2	L1.RDSV.FRONT3	
DNR002	1	L1.RDSC.EDR.FRONT	
	2	L1.RDSC.EDR.BACK	
DNR003	1	L1.RDSV.EDR.BACK	
	2	L1.RDSV.EDR.FRONT	
DNR004	1	L1.RDSC.BACK	
	2	L1.RDSV. "	
DNR005	1	L2.RDSV.FRONT.V77010A	
	2	L2.RDSC. "	
DNR006	1	L2.RDSC.EDR.FRONT2	
	2	L2.RDSV.EDR. "	
DNR007	1	L2.RDSV.EDR. "	
	2	L2.RDSC.EDR.BACK	
DNR008	1	L2.RDSC.FRONT2	
	2	L2.RDSC.BACK	
DNR009	1	L2.RDSV. "	
	2	L2.RDSV.EDR.BACK	
DNR010	1	L1.RDSC.COPY.L1148.AAS02	
	2	L1.RDSC.S3SUR.SOSUR.L1127.AAS03	
	3	L1.RDSC.S3SUR.SOSUR.L1148.AAS02	
	4	L1.RDSV.COPY.L1085.AAS02	
	5	L1.RDSV.COPY.L1085.AAS03	
DNR011	1	L1.RDSV.COPY.L1116.AAS01	
	2	L1.RDSV.COPY.L1148.AAS01	
	3	L1.RDSV.COPY.L1311.AAS02	
	4	L1.RDSV.COPY.L1311.AAS03	
	5	L1.RDSV.S3SUR.SOSUR.L1085.AAS01	
DNR012	1	L1.RDSV.S3SUR.SOSUR.L1085.AAS02	
	2	L1.RDSV.S3SUR.SOSUR.L1085.AAS03	
	3	L1.RDSV.S3SUR.SOSUR.L1127.AAS01	
	4	L1.RDSV.S3SUR.SOSUR.L1148.AAS01	
	5	L1.RDSV.S3SUR.SOSUR.L1148.AAS02	
DNR013	1	L1.RDSV.S4BB2.S1BB2.L1126.AAS01	
	2	L1.RDSV.S8BB2.S8BB3.L1311.AAS01	
	3	L1.RDSV.S8BB2.S8BB3.L1311.AAS02	
	4	L1.RDSV.S3SUR.SOSUR.L1104.AAS04	
	5	L1.RDSV.S8BB2.S8RED.L1103.AAS01	

TAPE NUMBER	FILE	CONTENTS	DATA TYPE
DNR014	1	L1.RDSC.S3SUR.SOSUR.L1105.AAS04	(1)
	2	L1.RDSC.S3SUR.SOSUR.L1163.AAS01	
	3	L1.RDSC.S14BB3.S19BB4.L1163.AAS02	
	4	L1.RDSC.S21BB3.S20BB3.L1159.AAS01	
DNR015	1	L2.RDSC.S4BB2.SOBB2.L1237.AAS01	
	2	L2.RDSC.S4BB2.SOBB2.L1260.JWB02	
	3	L2.RDSC.S45BB2.S45BB2.L1292.JWB05	
	4	L2.RDSV.COPY.L1469.AAS04	
	5	L2.RDSV.COPY.L1469.AAS06	
	6	L2.RDSV.COPY.L1469.AAS09	
	7	L2.RDSV.COPY.L1469.AAS12	
	8	L2.RDSC.S16BB2.L1282.AAS07	
	9	L2.RDSV.S4BB2.SOBB2.L1259.AAS03	
	10	L2.RDSV.S4BB2.SOBB2.L1259.AAS04	
	11	L2.RDSV.S4BB2.SOBB2.L1260.JWB01	
	12	L2.RDSV.S6BB2.S16BB3.L1269.JWB01	
DNR016	1	L2.RDSV.S7BB2.S16BB3.L1268.JWB02	
	2	L1.RDSV.S27BB4.S20BB4.L1291.AAS01	
	3	L2.RDSV.S11SUR.SOSUR.L1243.AAS01	
	4	L2.RDSV.S11SUR.SOSUR.L1247.AAS01	
	5	L2.RDSV.S4BB2.SOBB2.L1247.AAS03	
	6	L2.RDSV. S11SUR.SOSUR.L1247.AAS05	
	7	L2.RDSV.S4BB2.SOBB2.L1247.AAS06	
	8	L2.RDSV.S16BB2.S1BB2.L1256.AAS02	
	9	L2.RDSV.S4BB2.SOBB2.L1258.AAS01	
	10	L1.RDSC.COPY.L1189.AAS04	
	11	L1.RDSC.S3SUR.SOSUR.L1104.AAS01	
	12	L1.RDSV.S3SUR.SOSUR.L1085.AAS02	
	13	L1.RDSV.S3SUR.SOSUR.L1085.AAS03	
DNR017	1	L2.RDSV.S3SUR.S1RED.L1469.AAS02	
	2	L2.RDSV.S3SUR.S1RED.L1469.AAS08	
	3	L2.RDSV.S4BB2.SORED.L1236.AAS02	
	4	L1.RDSV.COPY.L1104.AAS05	
	5	L1.RDSV.COPY.L1104.AAS02	
	6	L2.RDSV.S3SUR.S RED.L1469.AAS01	
	7	L2.RDSV.S4BB2.SOBB2.L1259.AAS01	
	8	L2.RDSV.S4BB2.SOBB2.L1242.AAS01	
DNR018	1	L1.SNAP.S14BB3.S11BB4.L1163.AAS05	
	2	L1.SNAP.S27BB4.S19BB4.L1188.AAS03	
	3	L1.SNAP.S3SUR.SOSUR.L1112.AAS01	
	4	L1.SNAP.S3SUR.SOSUR.L1189.AAS02	
	5	L1.SNAP.S3SUR.SOSUR.L1189.AAS03	
	6	L1.SNAP.S3SUR.SOSUR.L1189.AAS06	
	7	L2.RDSC.S6BB2.S16BB3.L1269.JWB05	
	8	L2.RDSC.S6BB2.S16BB3.L1269.JWB05	
DNR019	1	L1.RDSV.S204BB2.S204BB2.L2086.AAS0	
	2	L1.RDSV.S217BB2.S217BB2.L2086.AAS0	
	3	L1.RDSV.L2096.AAS01	
	4	L1.RDSV.L2096.AAS02	

VL 7

TAPE NUMBER	FILE	CONTENTS	DATA TYPE
DNR020	1	L1.RDSC.FRONT.V76351	(1)
	2	L1.RDSC.FRONT.V76355	
	3	L1.RDSC.MOSL.MOSR.L1766.AAS02	
	4	L1.RDSC.MOSL.MOSR.L1766.AAS01	
	5	L2.RDSV.TESTMOS	
	6	L2.RDSV.FRONT.TEST	
DNR021	1	L1.RDSV.MOSAIC.L1294.JWB01	
	2	L1.RDSV.S8BB2.S24BB2.L1776.AAS01	
	3	L2.RDSV.L2089.AAS01	
	4	L2.RDSV.S4BB2.S0BB2.L1259.AAS02	
DNR022	1	L1.RDSV.COPY.L1022.AAS01	
	2	L1.RDSV.COPY.L1022.AAS02	
DNR023	1	L1.RDSC.S3SUR.SOSUR.L1024.AAS01	
	2	L1.RDSC.S3SUR.SOSUR.L1024.AAS03	
DNR024	1	L1.RDSC.S3SUR.SOSUR.L1156.AAS01	
	2	L1.RDSV.S3SUR.SOSUR.L1155.AAS02	
	3	L1.RDSC.S21BB3.S20BB3.L1156.AAS05	
DNR025	1	L2.RDSV.S30BB2.S30BB2.L1278.AAS01	
	2	L2.RDSC.S4BB2.S0BB2.L1278.AAS03	
	3	L2.RDSV.S30BB2.S30BB2.L1278.AAS02	
	4	L2.RDSV.S4BB2.S0BB2.L1280.AAS01	
	5	L2.RDSC.S7BB2.S16BB3.L1280.AAS01	
	6	L2.RDSV.S16BB2.S13BB2.L1282.AAS05	
	7	L1.RDSV.S27BB4.S19BB4.L1290.JWB01	
	8	L1.RDSC.COPY.L1159.AAS07	
	9	L1.RDSC.COPY.L1159.AAS07	
	10	L1.RDSC.COPY.L1163.AAS03	
	11	L1.RDSC.COPY.L1163.AAS04	
	12	L1.RDSC.COPY.L1163.AAS06	
DNR026	1	L1.RDSC.COPY.L1163.AAS06	
	2	L1.RDSC.COPY.L1159.AAS07	
	3	L1.RDSC.S3SUR.SOSUR.L1189.AAS01	
	4	L1.RDSV.S27BB4.S19BB4.L1188.AAS01	
	5	L1.RDSV.S27BB4.S19BB4.L1188.AAS02	
	6	L1.RDSV.S27BB4.S19BB4.L1188.AAS01	
	7	L2.RDSV.S34BB2.S34BB2.L1282.AAS01	
	8	L2.RDSC.S16BB2.S34BB2.L1282.AAS02	
	9	L2.RDSC.S16BB2.S13BB2.L1288.AAS07	
	10	L2.RDSV.S37RED.S37BB2.L1288.AAS01	
	11	L2.RDSC.S45BB2.S45BB2.L1292.JWB03	
	12	L2.RDSC.S45BB2.S45BB2.L1292.JWB01	
DNR027	1	L1.RDSV.FRONT	
	2	L1.RDSC.MOSAIC.HALO	
DNR028	1	L1.C1.BACK	(2)
DNR029	1	L1.C1.FRONT	
DNR030	1	L1.C2. "	
DNR031	1	L1.C2.BACK	
DNR032	1	L2.C1. "	
DNR033	1	L2.C2. "	
DNR034	1	L2.C1.FRONT	
DNR035	1	L2.C2. "	

TAPE NUMBER	FILE	CONTENTS	DATA TYPE
DNR036	1	L1.C1.FRONT.NORMAL	(3)
	2	L1.C2. " "	
DNR037	1	L1.C1.BACK "	
	2	L1.C2. " "	
DNR038	1	L1.C1.FRONT.EXAGGERATED	
	2	L1.C2. " "	
DNR039	1	L1.C1.BACK. "	
	2	L1.C2. " "	
DNR040	1	L2.C1.FRONT.NORMAL	
	2	L2.C2. " "	
DNR041	1	L2.C1.BACK "	
	2	L2.C2. " "	
DNR042	1	L2.C1.FRONT.EXAGGERATED	
	2	L2.C2. " "	
DNR043	1	L2.C1.BACK. "	
	2	L2.C2. " "	

REFERENCES

1. Levinthal, Elliott C., and Jones, Kenneth L.: The Mosaics of Mars as seen by the Viking Lander Cameras. NASA Contractor Report (in press).

2. Tucker, Robert, B.: Viking Lander Imaging Investigation PIcture Catalog of Primary Mission Experiment Data Record. NASA Reference Publication 1007, February, 1978.

75-075C-06
75-083C-06

RP 1137
Excerpt

NASA RP1137 MARCH, 1985
"CONCLUSION OF VIKING LANDER IMAGING INVESTIGATION"

Camera Event Command Parameters and Lighting Conditions

The terms in this section relate to the parameters used to command the cameras and the conditions under which the image data are acquired. Common abbreviations and acronyms are shown in parentheses. These parameters appear in the parameter lists, on the photographic products, and in the magnetic tape label records.

Frame count - Frame count is a lander-assigned sequence number which increases by 1 for each camera event. Its starting value is 1 and recycles to 0 after reaching 255. A single letter prefixes this number and increases through the alphabet - the numerical sequence each time reverts to 0 (e.g., A255 goes to B000 and B255 to C000).

Camera event - Camera event (CE) refers to a single executed camera command which is identified by a frame count. It results in the collection of vertical scan lines of camera data.

Camera event label - The camera event label is a 10-character identifier used to designate a camera event. The first character (1 or 2) indicates the lander (VL-1 or VL-2), the second character (1 or 2) indicates the camera on the lander, and the next four characters are the frame count. The three

digits following the slash (/) are the sol on which the camera event occurred. (See Fig. 7.)

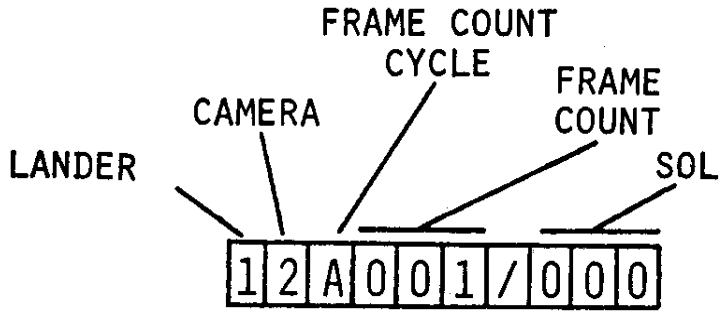

Figure 7. - Format of the VL camera event label.

Mars solar day - The Mars solar day (sol) is considered to have a length of 24 hours, 39 minutes, and 35.25 seconds. Sol 0 is the particular lander's landing day. Sol 0 for VL-1 is July 20, 1976, and sol 0 for VL-2 is September 3, 1976.

Local lander time - Local lander time (LLT) refers to the time after local midnight at the lander on Mars. Generally, it refers to the beginning of a camera event. It is designated in hours, minutes, and seconds (Earth units) in the format HH:MM:SS and often appears preceded by sol separated by a slash.

Diode - As described in the section "Lander Cameras", there are 12 photodiodes in the camera. These diodes are generally referred to by name: BB1, BB2, BB3, and BB4 for the high-resolution broadband diodes; SURV or SUR for the low-resolution broadband diode; BLU, GRN, and RED for the visual color diodes; IR1, IR2, and IR3 for the infrared diodes; and SUN for the diode used in Sun imagery. When the diodes are used in triplet mode (nominally BLU, GRN, RED or IR1, IR2, IR3), a /T is generally appended (e.g., BLU/T). Calibration images are identified by "CAL" in this field, sometimes preceded by the first diode used in the calibration and followed by the light source level.

Azimuth start/stop - The azimuth start and stop entries are the azimuth limits, in degrees, of a camera event. (See "Coordinate Systems.")

Center elevation - Camera events are commanded by specifying the center elevation (ELEV) pointing angle (EPA) of the resulting image. The direction perpendicular to the camera's azimuth axis of rotation is the 0° reference (negative is below, positive above). This value is sometimes followed by the lower and upper limits of the scan in parentheses. Note that this is the commanded elevation and must be adjusted for nonnominal modes.

Step size - The camera step size may be either 0.04^{o} or 0.12^{o} and expresses the angular separation in azimuth between successive scan lines and the angular separation in elevation between successive picture element centers.

Channel - The channel (CHAN) is the camera parameter which determines the diode used in the camera event. The value range is from 0 to 15, but 6, 7, 12, and 15 are left undefined. (See Table 2).

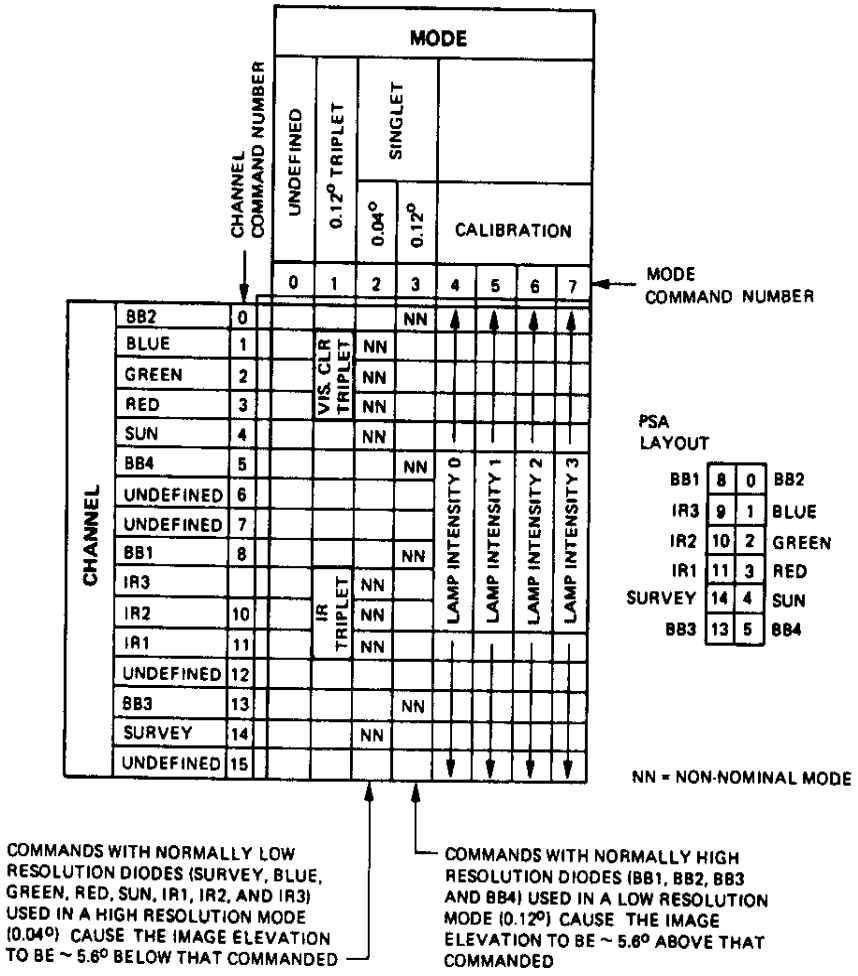

TABLE 2. - CAMERA CHANNELS AND MODES.

Mode - The mode is a camera command parameter which selects the camera scan step size and the choice between a single or triple scan (at each azimuth position). The mode also selects one of four intensity levels of the internal calibration light source. (See Table 2).

Nonnominal modes - Table 2 displays the diode channels and the camera modes. The term nonnominal mode refers to a mismatch between the step size used in a camera event and the instantaneous field of view of the diode channel selected. (See Table 1.) It is important to note that high-resolution diodes (BB1, BB2, BB3, and BB4) used with a step size of 0.12^{o} will cause the elevation of the image to be increased by approximately 5.6^{o}. A low-resolution diode used with a step size of 0.04^{o} will cause the elevation of the image to be decreased by approximately 5.6^{o}.

The term nonnonimal mode is also sometimes used to refer to triplet images other than the normal: BLU, GRN, RED, or IR3, IR2, IR1 scanning.

Offset - There are 32 available commandable offsets of equal voltage steps that can be applied to the sensed radiometric measurements prior to digitization at the camera. The offsets are identified by the numbers 0 to 31. (See Fig. 4.)

Gain - The six commandable camera gains are designated by the integers 0 to 5 and represent decreasing amounts of gain (by factors of 2) as the numbers increase from 0. (See Fig. 4.)

Data path - Two indicators separated by a slash are used to describe the data transmission path from the cameras to Earth. The first is either REC or RT indicating, respectively, that the data were recorded on the lander for later transmission or transmitted in real time as the camera scanned. The second (UH or SB) indicates whether the data went to the orbiter via the UHF link or directly to Earth via the S-band link.

Scan rate - The camera has two scan rates: 16 000 bps and 250 bps. The parameter reflects this rate with an entry of 16K or 250.

Photosensor array temperature - The photosensor array temperature (PSA TEMP) is a value in the range 0 to 63 (DN) which indicates the temperature of the camera's photosensor array. It is expressed in the EDR data as an average over the duration of a CE and may be shown either on a scale of 0 to 63 or converted to degrees Celsius by the following formula:

$$^{o}C = 2.089DN - 62$$

Solar azimuth and elevation - The azimuth and elevation of the Sun (SOLAR AZ/EL) are expressed in the "local horizon system" wherein the zenith is at 90° elevation and the horizon (perpendicular to the local gravity vector) is at 0° elevation. Azimuth is measured in the clockwise direction (viewed from above) with 0° directed toward the north.

Antisolar azimuth and elevation - The azimuth and elevation of the antisolar vector (ANTISOLAR AZ/EL) is given in the CACCS which acquired the image referenced. The direction is that of a vector from the Sun through the camera to the surface.

Event time - The day of year and time of the beginning of a camera event are listed on most photographic product labels. Although labeled as GMT, the value indicated is that of UTC. The elements - day, hour, minute, and second - are in the format DDD/HH:MM:SS. On some photographic products, the colons are replaced by periods. The year is not included in the label.

Dust - The capability exists on the camera to direct a discharge of CO_2 across the outer surface of the protective outer window of the camera prior to executing a camera event. This dusting (D) was done several times in the early days of the Primary Mission.

Rescan - There are three different conditions which can result in rescan (R) as follows:

(1) Rescan command bit: A rescan command bit can be set for a camera event; this results in the camera rescanning at the stop azimuth for a time (RESCAN.DT) determined by a command stored in the data base of the lander's on-board computer. Such CE's are identified by the appearance of the word RESCAN (or R) in their parameter entries.

(2) RTI camera events: If the event duration listed in the lander's real-time imaging tables is longer than the time required to scan the commanded azimuth range, the extra time is consumed in rescanning of the last azimuth position.

(3) Recorded camera events: For the recorded CE's, rescanning was used in connection with the assignment of an extra time allocation in recorded imagery to allow for the tape recorder run up and reversal. This generally resulted in less than 12 rescan lines. Most photographic products list the first camera scan line which represents a rescan line and the total number of such rescan lines. The total is calculated by subtracting the line number of the first rescan line from the last rescan line and adding one. This step uses the designated line numbers returned with the data. Transmission errors may have reduced the actual amount of data received in some cases.

Data Receipt Parameters

The parameters given in this section relate to the receipt, storage, and film conversion of the imaging data. The parameter data in these categories are separately indicated for each member of a triplet camera event. These parameters appear in the parameter lists, on the photographic products, and in the magnetic tape label records.

Data record - The final imaging data may come from either the system data record, the intermediate system data record, or a composite (COMP) of the two. An entry is made under data record to reflect this source.

Data link - Some photographic products list (under data link) the processing stage, or path, of an image during the development of the EDR data base. This is specified as "RAWEDR" for the final EDR versions of the images.

Scan lines - The total number of vertical scan lines stored in the data system is listed under the heading SCAN LINES or LINES TOTAL. It is determined by dividing the commanded azimuth range by the step size and then adding the total number of rescan lines.

Missing lines and gaps - Camera scan lines not received due to transmission errors appear as black lines in positive photographic products (Pixel value = 0). The total number of missing lines and the number of image gaps they cause are listed on some photographic products.

Average data number value - The average data number value (AVE DN VALUE) is the arithmetic mean of the digital value of all received pixels for an image.

Standard deviation - The standard deviation entry is the standard deviation (STAND DEV) of the distribution of digital values of all received pixels for an image.

EDR tape and file number - The identification number of the VICAR format magnetic tape containing the EDR data for each image is specified on most photographic products. The data file position is included with it. In some cases EDR tape and file number (EDR TAPE/FILE) identification is referred to as the VICAR tape and file number.

Segment - Many images have been divided into segments (SEG) to facilitate film conversion. (See section "127-mm (5-in.) Photographic Products.") In certain contexts the entire image may be called a segment, such as for small images not requiring division for film conversion.

Segment azimuth, elevation, and step size - The segment azimuth, elevation, and step size (SEGMENT AZ/EL/STEP SIZE) entry indicates the azimuth and elevation of the upper left corner of a segment of an image (or the entire image if unsegmented). The azimuth is expressed in degrees in the CACCS. Elevation is measured relative to the camera's horizontal (perpendicular to the azimuth axis). Negative values indicate below the horizontal; positive, above. This elevation value incorporates the $\pm 5.6^{\circ}$ shift for nonnominal commands. The stepsize is either 0.04° or 0.12°.

Image Processing Laboratory picture identifier - The Image Processing Laboratory picture (photograph) identifier (IPL PIC ID) is a 15 character date-related descriptor which uniquely identifies a photographic product processed at the JPL Image Processing Laboratory. It contains four subfields which are separated by slashes: year, month, day of month, and time of day. Where an image has been subdivided to facilitate film conversion each segment has its own IPL PIC ID.

Photographic Product Fiducial Annotation

There are three types of fiducial scales which identify the pixel positions on the EDR photographic products. (See Fig. 8.)

The innermost set (closest to the image) is called the IPL line number in the vertical direction and the IPL sample number in the horizontal direction. The scale exists on all four sides of the image. The pixel in the upper left corner (of segment one) has the coordinate 1,1. The IPL line number increases (1 to 512) in the downward direction and the IPL sample number increases from left to right. The fiducial separations denote increments of two.

The second (middle) fiducial scale is identified as the camera scan sample number in the vertical direction and the camera scan line number in the horizontal direction. The camera scan sample number has an origin of 0 at the bottom and increases upward to 511 at the top of the image. The camera scan line increases from left to right. The fiducial separation denotes increments of two. This scale only appears at the left side and at the top of the image.

The outermost fiducial scale denotes azimuth in the horizontal direction and elevation in the vertical direction. The elevation is expressed in degrees, where 0° is perpendicular to the camera azimuth axis. The elevation scale on nonnominal mode images is properly adjusted for the vertical displacement associated with such images. Two azimuth identifiers are given for the horizontal scale; the first references the CACCS, the second references the LACCS. (See section "Coordinate Systems.") The two values are separated by a slash (/) and increase from left to right. The fiducial separation is 0.2° on images of 0.04° step size and 0.5° on images of 0.12° step size. This scale appears only at the left side of the image and at the top of the image.

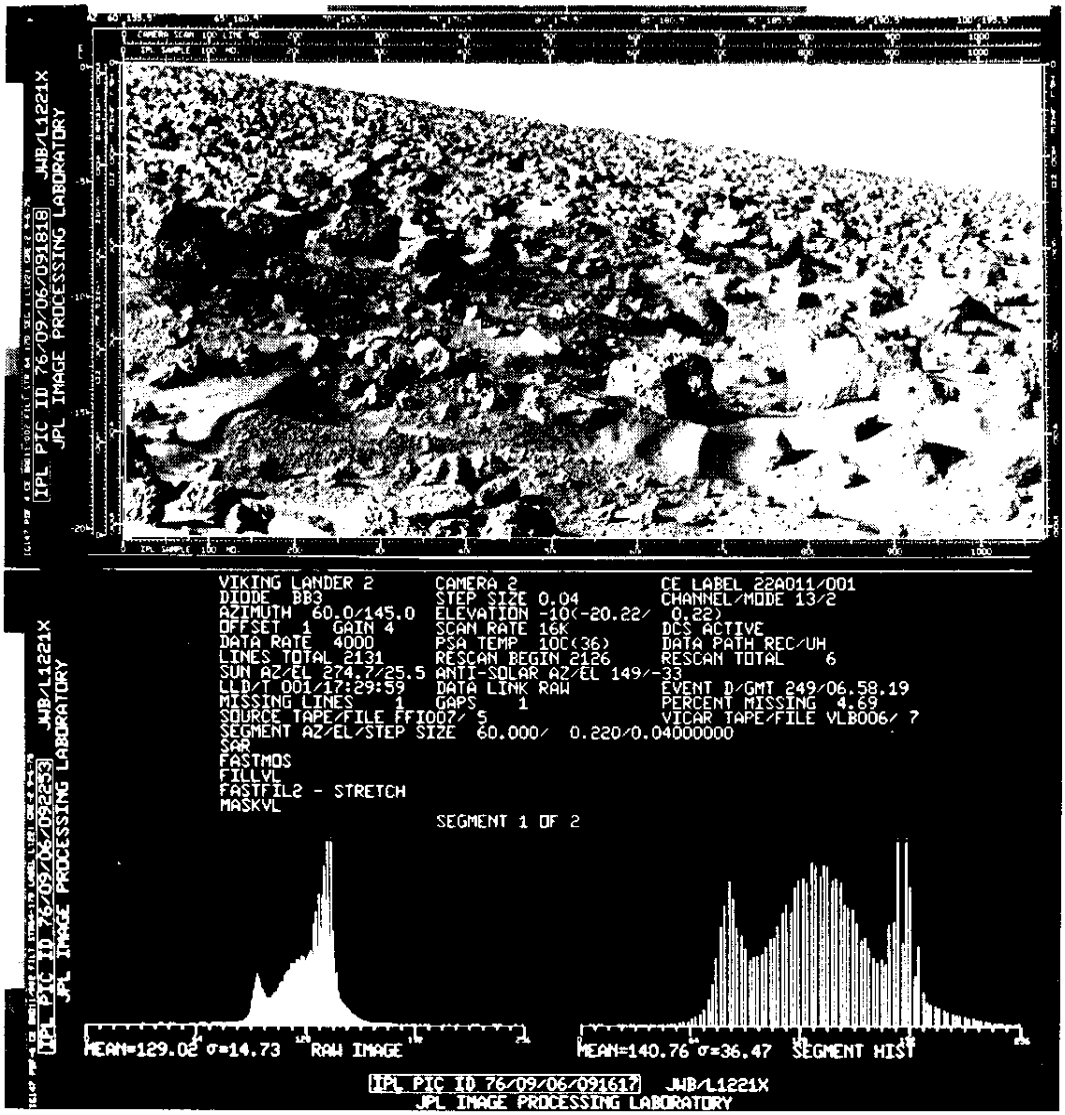

Figure 8. - EDR photographic product format.

The horizontal scales, IPL sample number and camera scan line number, increase across the photographic product segment boundaries of segmented images. This can be seen in Figure 8 which is the first of two picture segments and begins at IPL sample number 752.

EXPERIMENT DATA RECORD PROCESSING AND PHOTOGRAPHIC PRODUCTS

The experiment data record contains all imaging data received from lander 1 and lander 2. The data base described in the section "Data Base Development" forms the input to the EDR processing.

The media for the distribution of the EDR's are as follows:

127-mm (5-in.) strip contact prints
Magnetic tape
102- by 152-mm (4- by 6-in.) microfiche cards

127-mm (5-in.) PHOTOGRAPHIC PRODUCTS

The EDR images for VL-1 and VL-2 have been transferred from digital data to 127-mm (5-in.) film. Strip contact prints, positive transparencies, and a duplicate negative are made from the original negative. Because of size limitations imposed by the film conversion equipment, many of the images had to be segmented when converted to film.

The photographic products have a maximum of 901 data points in the horizontal direction. Where images are more than 901 pixels wide, they are segmented such that there is a minimum of 150 pixels of overlap, and each segment contains a full 901-pixel width. All images are 512 pixels high. Annotation, fiducial marks, and other identifications add to the size of the images.

A segment of size 901 pixels by 512 pixels results in an image area of 99 mm by 56 mm. Such a photographic product has an overall size of 108 mm by 80 mm. The pixel size is 0.11 mm.

The image data are operated upon to provide a contrast-enhanced image which will maximize the use of the grey scale of the photographic products. However, no digital filtering, geometric correction, or radiometric normalization has been applied.

The photographic products were prepared as a series of roll products. Camera events are, without exception, in order by frame count on these rolls, exactly as presented in the EDR image section of this catalog. The National Space Science Data Center currently has negative roll products which correspond to the list in Tables 3A and 4A. Some users may prefer to order a complete roll instead of individual photographic products. Requests should be directed to the same address as that given on page 26 and in the Viking Lander Imaging Camera Order Form at the back of this volume.

TABLE 3A. - VL-1 EDR PHOTOPRODUCT ROLLS.

VL-1 roll number	First camera event	Last camera event
1	12A001/000	11A086/012
2	11A087/013	12A177/028
3	12A178/029	12A252/031
4	11A253/032	12B087/040
5	11B088/040	11B198/102
6	11B199/115	11C027/182
7	11C028/182	12C155/232
8	11C156/232	11D004/271
9	11D005/271	12D147/306
10	12D148/306	11E075(IR3)/349
11	11E075(IR2)/349	12E190(GRN)/379
12	12E190(RED)/379	11F032/396
13	12F033/396	12F102/408
14	12F103/408	12F183/435
15	12F184/437	11G075/488

TABLE 3A. - VL-1 EDR PHOTOPRODUCT ROLLS (Cont.).

VL-1 roll number	First camera event	Last camera event
16	11G076/488	12H006/551
17	11J007/552	11H212/619
18	11H213/619	12I089/721
19	12I090/721	11I207/841
20	12I208/849	12J017/921
21	12J018/935	12J079/1387
22	12J080/1395	11J130/1765
23	11J131/1772	11J161/1994
24	11J162/2001	11J182/2149
25	12J183/2156	12J194/2238

TABLE 4A. - VL-2 EDR PHOTOPRODUCT ROLLS.

VL-2 roll number	First camera event	Last camera event
1	22A001/000	22A087/012
2	22A088/013	21A173/022
3	21A174/023	22A255/030
4	22B000/031	22B077/309
5	22B078/040	22B179/048
6	22B180/049	21C004/054
7	22C005/055	21C070/061
8	21C071/073	21D018/188
9	22D019/188	22D213/245
10	22D214/245	22E085/329
11	22E086/329	21E142/365
12	22E143/365	22F007/408
13	22F008/409	22F140/449
14	22F141/449	22G052/508
15	21G053/508	21G212/560
16	21G213/560	22H066/626
17	21H067/626	21H146/696
18	22H147/701	21H225/780
19	22H226/780	22I095/960
20	22I096/967	22I150/1212

MAGNETIC TAPE STORAGE

Tables 3B and 4B list the data contents of digital tape records for the landers. The range of camera event identifiers is listed for each tape. For those camera events that are triplets, the images are stored on tape in blue, green, red, or IR3, IR2, IR1 order. This is the order in which the successive scan lines are acquired. Although the triplet images were acquired in an interleaved manner, they are stored on the tapes as three separate images. The calibration tapes, DN0088 for VL-1 and FN0083 for VL-2, have a slightly different format and are discussed in the section "Calibration." Note that copies of these tapes (which reside in the various NASA Regional Planetary Image Facilities) will be numbered, for example, DNX001, where X indicates the copy number.

TABLE 3B. - VL-1 EDR TAPE SUMMARY.

Tape number	First camera event	Last camera event	Number of files on tape
DN0024	11B199/115	11B230/166	32
DN0025	12B231/167	12C003/175	31
DN0026	12C004/175	12C028/182	47
DN0027	12C029/182	11C058/192	50
DN0028	11C059/192	11C078/204	44
DN0029	12C079/204	11C098/208	42
DN0030	12C099/209	12C122/211	32
DN0031	11C123/218	12C146/222	32
DN0032	11C147/224	12C176/240	46
DN0033	11C177/240	12C207/259	37
DN0034	11C208/260	11C231/269	32
DN0035	11C232/269	11D004/271	49
DN0036	11D005/271	11D030/280	38
DN0037	11D031/280	11D035/282	05
DN0038	12D036/282	11D058/288	27
DN0039	11D059/288	12D087/295	45
DN0040	12D088/295	12D125/302	40
DN0041	11D126/302	12D152/306	35
DN0042	11D153/307	11D193/321	41
DN0043	12D194/321	12D216/324	41
DN0044	12D217/324	11D249/328	59
DN0045	11D250/328	11E029/342	56
DN0046	12E020/342	12E048/343	33
DN0047	12E049/343	12E076/350	48
DN0048	11E077/350	11E110/360	34
DN0049	12E111/362	12E129/367	35
DN0050	12E130/367	11E131/367	04
DN0051	11E132/367	12E163/372	54
DN0052	12E164/372	12E189/379	46
DN0053	12E190/379	11E219/386	44
DN0054	12E220/386	11E243/390	46
DN0055	11E244/390	12F009/391	60
DN0056	12F010/391	12F040/396	45
DN0057	11F041/396	11F050/399	18
DN0058	11F051/399	12F072/403	36
DN0059	12F073/403	12F106/408	44
DN0060	11F107/408	12F144/426	50
DN0061	11F145/427	11F174/433	56
DN0062	12F175/433	12F203/441	45
DN0063	11F204/441	11F246/470	53
DN0064	11F247/470	11G009/470	31
DN0065	11G010/470	11G034/474	59
DN0066	11G035/474	11G076/488	54
DN0067	11G077/488	11G116/506	48
DN0068	11G117/506	12G150/511	54
DN0069	12G151/511	11G187/526	55
DN0070	11G188/526	11G226/542	53
DN0071	11G227/542	11G252/550	44
DN0072	12G253/550	11H025/558	58

TABLE 3B. - VL-1 EDR TAPE SUMMARY (Cont.).

Tape Number	First camera event	Last camera event	Number of files on tape
DN0073	11H026/558	11H068/579	51
DN0074	11H069/579	11H114/595	48
DN0075	11H115/595	11H160/611	46
DN0076	11H161/611	11H183/611	59
DN0077	11H184/611	11H212/619	39
DN0078	11H213/619	11I003/651	51
DN0079	11I004/652	11I040/656	45
DN0080	11I041/660	12I073/693	47
DN0081	11I074/697	11I106/730	47
DN0082	11I107/734	12I137/764	45
DN0083	12I138/764	12I165/801	38
DN0084	12I166/801	12I193/836	36
DN0085	11I194/838	11I230/897	43
DN0086	11I231/901	11J013/921	49
DN0087	11J014/921	12J017/921	18
DN0088	Radiometric calibration data for VL-1		
DN0089	11J018/935	11J045/1136	32
DN0090	11J046/1143	11J062/1261	33
DN0091	12J063/1268	12J079/1387	37
DN0092	11J080/1395	11J096/1513	23
DN0093	11J097/1520	11J130/1765	48
DN0094	11J131/1772	11J150/1913	26
DN0095	11J151/1920	11J161/1994	25
DN0096	11J162/2001	11J172/2075	19
DN0097	12J173/2082	11J182/2149	16
DN0098	12J183/2156	12J194/2238	18

TABLE 4B. - VL-2 EDR TAPE SUMMARY.

Tape Number	First camera event	Last camera event	Number of files on tape
FN0031	21C071/073	22C110/132	44
FN0032	22C111/132	21C136/145	38
FN0033	21C137/145	22C172/158	42
FN0034	21C173/159	22C197/161	37
FN0035	21C198/161	22C234/173	43
FN0036	22C235/173	22D011/184	43
FN0037	21D102/184	21D039/193	40
FN0038	22D040/193	22D072/200	41
FN0039	22D073/200	22D095/207	35
FN0040	21D096/207	21D122/215	57
FN0041	21D123/215	21D156/219	46
FN0042	21D157/219	21D195/233	45
FN0043	21D196/234	21D232/257	45
FN0044	21D233/257	21E014/281	46
FN0045	22E015/281	22E038/293	28
FN0046	22E039/293	21E072/317	46

TABLE 4B. - VL-2 EDR TAPE SUMMARY (Cont.).

Tape Number	First camera event	Last camera event	Number of files on tape
FN0047	22E073/317	21E106/341	48
FN0048	21E107/341	21E140/354	46
FN0049	22E141/354	22E169/377	51
FN0050	22E170/377	22E204/388	57
FN0051	21E205/388	22E233/405	47
FN0052	22E234/405	22F012/410	55
FN0053	22F013/410	22F019/413	13
FN0054	22F020/413	22F034/414	31
FN0055	22F035/415	21F062/420	28
FN0056	21F063/420	22F091/431	59
FN0057	21F092/431	22F134/447	49
FN0058	22F135/448	22F161/455	41
FN0059	22F162/455	21F195/476	48
FN0060	21F196/478	21F238/482	51
FN0061	21F239/482	21G008/488	52
FN0062	22G009/489	22G048/503	42
FN0063	21G049/503	21G078/520	32
FN0064	21G079/520	21G104/525	28
FN0065	22G105/525	21G132/543	40
FN0066	21G133/543	22G144/552	14
FN0067	22G145/553	22G176/557	42
FN0068	21G177/557	21G200/559	54
FN0069	22G201/559	21G233/584	51
FN0070	22G234/587	21H007/593	48
FN0071	22H008/593	21H041/598	48
FN0072	22H042/600	22H079/629	42
FN0073	21H080/629	21H104/639	31
FN0074	22H105/640	21H138/683	38
FN0075	21H139/683	22H169/720	37
FN0076	21H170/720	21H193/743	28
FN0077	22H194/743	21H224/779	39
FN0078	22H225/780	22H254/856	32
FN0079	22H255/856	22I025/872	41
FN0080	22I026/872	22I059/898	42
FN0081	22I060/910	22I080/959	45
FN0082	21I091/960	22I095/960	7
FN0083	Radiometric calibration data for VL-2		
FN0084	22I096/967	22I104/1029	27
FN0085	22I105/1030	22I109/1050	11
FN0086	22I110/1050	22I120/----	11
FN0087	22I121/1145	22I132/1180	20
FN0088	22I133/1186	22I150/1212	22

Label Records

The magnetic-tape label records are a series of records at the beginning of each image file on magnetic tape which contain parameter information for the associated image. The length, in characters, of the physical label

records is equal to the number of pixels in a horizontal image line or 360, whichever is greater. Each physical label record can be thought of as five logical records of 72 characters with the remaining character positions blank when the image size is greater than 360. Each logical record represents one line of text data as shown in Figure 9. The number of lines of label information is variable.

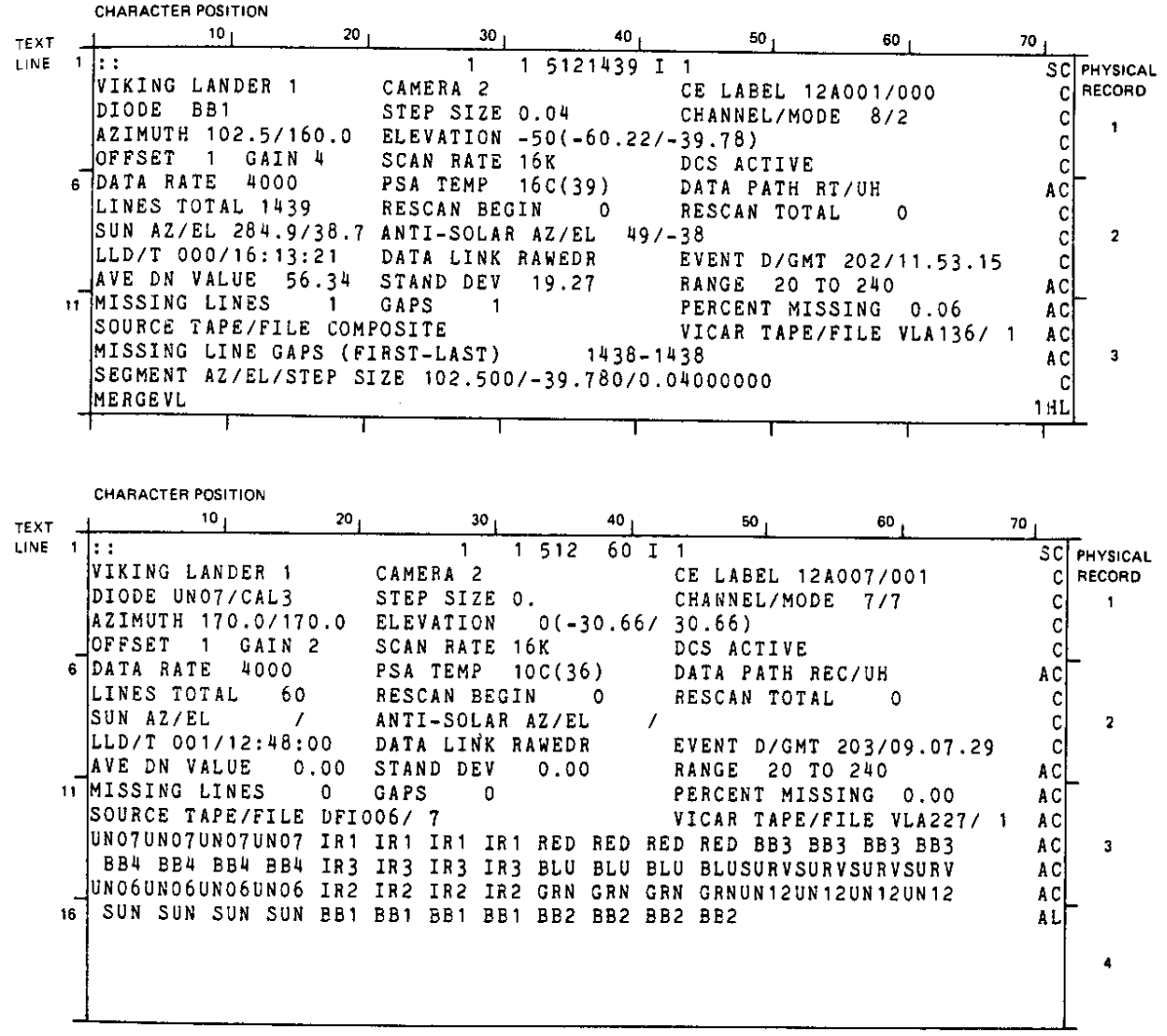

Figure 9. - VICAR label format.

If an image is the result of a merging operation, this is indicated by the entry "MERGEVL" on a separate text line. If any image has vertical scan lines missing, the gaps are noted in the following manner: The notation "MISSING LINE GAPS (FIRST-LAST)" appears followed by up to three number pairs indicating the extent of the gaps. (See top part of Fig. 9.) If more than three gaps exist, the additional number pairs are indicated on subsequent text lines (6 pairs per text line). Calibration images list the diode used in each calibration scan as seen in the bottom part of Figure 9. Where the number of label lines is not a multiple of five, the extra logical record positions are left blank. Note that the last character position (72) in each line contains a C (Continuation) for all lines except the final line which contains an L. Some lines contain the characters S, A, or H in position 71. These lines do

not appear in the picture format seen on the 127-mm (5-in.) photographic products and microfiche.

The first line shown in the top part of Figure 9 is flagged with an S in character position 71. It is called the VICAR system label and contains the vertical size (in pixels) of the image (512) in character positions 33 to 36, and the horizontal size of the image in positions 37 to 40. The I 1 appearing in positions 42 and 44, respectively, indicates that the data are single byte (8 bits) integer data. All characters are represented in the extended binary coded decimal interchange mode (EBCDIC).

Pixel Data Records

The length of the image records is equal to the number of pixels in a horizontal image line. The image data have been changed from a 6-bit format to an 8-bit format by shifting the bits of each pixel two binary positions to the left and zero-filling the two rightmost bit positions. No operations have been applied to the tape data such as contrast enhancement, geometric correction, or radiometric correction.

LABELING

Most elements of the labels on EDR products are described in the section "Imaging Experiment Coordinate Systems, Terminology, and Labeling." One additional field exists, the source tape and file. It indicates where the corresponding SDR or ISDR data are stored. This data record is not distributed. The field contains the word COMPOSITE when two data sources were merged to produce an EDR image. (See the section "Data Base Development.")

PHOTOGRAPHIC PRODUCT PROCUREMENT

The EDR photographic products are available from the National Space Science Data Center, Code 601.4, Goddard Space Flight Center, Greenbelt, Maryland 20771. An order form is included at the back of this volume.

The primary identifier for the requisition of these photographic products is the Image Processing Laboratory picture identification. This identification and the project name (VIKING) must be supplied when placing orders. The section "Selection of Camera Event Parameter Lists" describes the listings in the EDR which cross-references the camera event labels to IPL PIC ID's. Additional descriptive material may be helpful in indicating the item requested, such as the camera event label and the specification "Viking Lander EDR."

TEAM DATA RECORD

In addition to the VL-1 experiment data record that appears in the last main section of this report as the complete and primary record of the data, a team data record of 127-mm (5-in.) photographic products also exists. (See Ref. 6.) The TDR consists of those camera events from the EDR thought to be of most general interest. It excludes such things as specialized photometric

series, calibration and scan verification events, and the Sun imagery. The processing parameters for the camera events in the TDR have been individually chosen to create photographic products of the highest scientific quality. For a given camera event, the TDR is, in general, segmented differently from the EDR. Therefore, there is not a one-to-one correspondence in the scene coverage for the respective photographic products.

SELECTION OF CAMERA EVENT PARAMETER LISTS

The computer-generated CE parameter lists described in this section provide a detailed description of the conditions under which the camera event data were acquired, the completeness of the receipt of the data on Earth, and their storage location on photographic products and magnetic tape.

The data fields are primarily those described in the section "Imaging Experiment Coordinate Systems, Terminology, and Labeling." There is a comprehensive parameter list for each lander and a selection of other lists which present only a limited amount of information but divide the camera events into a variety of classes and sequences. All camera events appear in camera-event order except those described in (7) and (8) in subset lists and IPL picture identifiers.

CAMERA EVENT REPORTS

The camera event reports are comprehensive presentations of the parameters for the camera events. The reports are presented with multiple-line item entries for each camera event, blocked in a manner to maximize readability. The primary line for each CE describes the time the camera event was executed, the camera command information, and the lighting conditions. This is followed by either one line (for singlets) or three lines (for triplets) of information about the image data stored for the CE. This line (or lines) is identified by the diode and indicates the number of data lines in the image, the completeness of its pixel statistics, and information about its storage on magnetic tape and photographic products. The diode indicator is followed by an asterisk if the image has been used in the generation of the TDR.

SUBSET LISTS

There are 9 parameter subset lists which separate the camera events by diode and other special classifications. (A number of subsets were not commanded to both landers during this final phase of the mission, so inconsistencies in format exist. For the same reason, some subsets listed in previous catalogs have been deleted entirely.) The subsets are as follows:

(1) The "camera events not received" subset lists those camera events which were lost because of a variety of engineering and logistical reasons (e.g., no tracking station available). These camera events have been removed from all other subset listings.

(2) The "high-resolution camera events in event order" subset contains all broadband diode (BB1, BB2, BB3, BB4) CE's taken at the normal 0.04^{o} step size.

(3) The "survey camera events" subset contains all CE's which were acquired by using the survey diode at 0.12° step size.

(4) The "Sun imagery camera events" subset identifies all images acquired by using the Sun diode. Note that this subset contains both nominal (0.12° step size) and nonnominal (0.04° step size) images. Most Sun imagery is done by using nonnominal commands.

(5) The "calibration and scan verification camera events" subset contains all calibration mode camera events and all scan verification camera events (BB1 at 0.12° step size) as described in the section "Photosensing and Data Acquisition." The list is divided into camera 1 and camera 2. The entire mission is included in this report.

(6) The "visual color triplet and infrared triplet camera events" subset shows all CE's acquired by using the three visual color diodes (RED, GRN, BLU) in triplet scan mode.

(7) The "high-resolution camera events sorted by 10° boxes of Sun AZ/EL" subset is not included in Reference 1. This list enables the user to rapidly locate images acquired under the same lighting geometries and is useful both for studying changes in the surface and for locating stereoscopic pairs. The entire mission is included in this report.

(8) The "color, IR, and survey camera events sorted by 10° boxes of Sun AZ/EL" subset is the same as (7) except that the list includes color triplets, IR triplets, and survey camera events.

(9) The "elevation coverage chart" lists camera events in elevation interval order. The graphic overlay presented in previous volumes has been deleted.

IPL PICTURE IDENTIFIERS (EDR ORDER NUMBERS)

The lists of IPL picture (photograph) identifiers show the identification numbers for the experiment data record picture segments. These numbers are those to be used when requesting EDR photographic products from the National Space Science Data Center.

The photographic products for each diode image of triplet camera events are separately identified. Several IPL PIC ID's are listed for those images which have been segmented to facilitate film conversion.

*B MODCOMP SOURCE EDITOR DATE 5/22/8 1 :51:37 PAGE 1

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75-075C-060

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75-083C-06Ø

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7	FN3 07	D-37771				BOX #4529	EDR	VIKING-2
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75-083C-060

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75-083C-06P

*B MODCOMP SOURCE EDITOR DATE 5/28/8 1 :49:5 PAGE 1

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(680)	0C0C0C0C	0C0C0C0C	0C0C0C0C	0C0C0C0C	0C101000	1CCC0C10	0C0C0C0C	0C0C0C0C	0C0C0C0C	0C0C0C0C
(720)	0C0C0C0C	0C1C0C0C	0C3C0C10	0C0C0C0C	0C0C0C0C	0C0C100C	100C0C0C	0C0C0C0C	0C100C0C	0C0C100C
(760)	0C0C0C0C	0C0C1014	14181C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C
(800)	1C1C1C20	20202020	1C202020	20202020	20202020	2C2C2020	20202020	20202020	20202020	20202020
(840)	20202020	20202020	20202020	20242424	24202020	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C1C1C
(880)	1C1C1C1C	1C1C1C1C	1C1C1C1C	1C1C181C	1818181C	1C181818	18181C1C	181C1C1C	1C1C1C1C	1C1C1C1C
(920)	1C1C1C1C	1C1C1C1C	20202428	2C2C302C	2C2C2C2C	2C2C2C2C	2C2C2C2C	2C2C2C2C	2C282C2C	2C2C2C2C
(960)	2C282C28	2C282C2C	2C282C2C	2C282828	282C282C	28282C28	2C2C2828	2C282828	2C2C2C2C	2C282C2C
(1000)	282C2C28	2C282C2C	30302C24	1C181414	14141414	14141414	14141414	14141814	1818181C	20242C34
(1040)	44546870	78747474	74747474	70707070	70707070	7C7C6C6C	6C6C6C68	68686864	60544C44	38302824
(1080)	2C2C2C2C	201C1C1C	1C1C1C1C	1C1C1C1C	1C181C18	18181818	18181818	18181818	18181818	18002828
(1120)	28282828	28283034	30302C28	28282C30	2C2C282C	282C2C28	2C2C2C28	2C2C2C28	2828282C	2C282C28
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(1200)	34343434	34303434	34343434	3C383838	3C383C38	38383838	38343834	30343838	38343434	38383430
(1240)	3C343C3C	403C3838	38383838	383C403C	3C3C3C38	34343834	34383C3C	3C3C4440	3C3C403C	3C343030
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(1320)	20202424	20202020	20202428	2C242410	18141414	18181C1C	1C1C2020	242C2828	24242424	2C343C2C
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(1400)	2C2C3034	302C302C	2C30302C	2C2C3034	34303030	3C2C3034	34302C2C	2C2C2C2C	2828282C	343434

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(80)	E3C1D340	F1F4F3F9	40404040	40D9C5E2	C3C1D540	C2C5C7C9	D5404040	40F04040	40404DD9	C5E2C3C1
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(240)	C140D3C9	D5D240D9	C1E6C5C4	D9404040	4040405C5	E5C5D5E3	40C461C7	D4E340F2	F0F261F1	F14BF5F3
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(480)	2C2C282C	2C2C302C	2C282828	2C282824	24242828	28282824	24282424	24282828	2C2C2C2C	2C303034
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(720)	0C0C0C0C	0C1C0C0C	0C3C0C10	0C0C0C0C	0C0C0C0C	0C0C100C	100C0C0C	0C0C0C0C	0C100C0C	0C0C100C
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(    80)   38383838  3C383C3C  38302C30  30343838  3C40403C  3C383838  3834383C  3C3C4044  40403C44  608CB0C0
(   120)   C4C0B8B8  B4B4B4B0  B0B0B0B0  B0B4B4B4  B8B8BCBC  CCC0C4C8  CCD0D8D8  D8D8D8D8  D8D8D8D8  D8DCDCDC
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(    40)   38343434  3C4C5848  2C1C181C  28303030  28242428  2C2C3030  3434383C  3C3C3C3C  3C3C4044  443C3C3C
(    80)   3C383438  34343434  30303030  30343438  3C40403C  38383838  38383838  3C3C3838  38383C3C  3C486890
(   120)   ACBCBCBC  B8B8B4B0  B0ACACAC  ACB0B0B0  B4B4B8B8  BCCCC0C4  C8CCD0D0  D0D0D0D0  D0D0D0D0  D0D4D4D4
(   160)   D4D4D4D4  D4D4D4D4  D4D4D4D4  D4D4D4D4  D4D4D4D4  D4D4D4D4  D4D4D4D4  D4D440

FILE      17  RECORD      515  LENGTH      191BYTES
(     0)   00006C58  185CD004  F498F490  9C1C3030  30343434  343C3C38  34343434  30343434  3030383C  3C383834
(    40)   30303434  3440504C  38242024  2C34403C  24181C28  2C302C30  30303438  38343434  3C404448  4844403C
(    80)   3C383838  34343430  30303030  30303438  3C40403C  3838383C  3C383838  38383838  34343434  34343C50
(   120)   7098B0B8  BCB8B4B4  B0B0ACAC  ACACACB0  B0B4B4B8  BCCCC0C0  C4C8CCCC  CCCCCCCC  CCCCCCCC  CCCCCCD0
(   160)   D0D0D0D0  D0D0D0D0  D0D0D0D0  D0D0D0D0  D0D0D0D0  D0D0D0D0  D0D0D0D0  D0D040

        FILE    INPUT     DATA RECORDS     MAX.          READ ERROR SUMMARY          INPUT RETRIES
                RECS.        INPUT         SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
          17      515       518             360         0       0       0       0       2       4

 EOJ        DUMP STOPPED AFTER FILE   17        # OF PERMANENT READ ERRORS  0

START TIME 04/09/80  07:54:16        STOP TIME 04/09/80  07:57:05

$$
$EOJ   7:59:44
```

DR/DS004227
Vik 1 Lan
75-075C-06X

ASCII LIST OF OUT-1

```
FILE 1      RECORD 1      360 BYTES

77                  3990    145039901450RR 4                          C **RANGE DATA SET**
            CSYSTEMATIC ISO-ELEV.CONTOUR MAP IN BACK OF LANDER 1                  C12-28-76 MOSAIC MAPPING
                        CS.LIEBES  A.SCHWARTZ J.BERRY                                        C
```

ASCII LIST OF OUT-1

```
FILE 1      RECORD 2      360 BYTES

                          1   116404250 L 1                          CVIKING LANDER 1      CAMERA 1              CE LABEL 11A173/0
28          CDIODE  BB4           STEP SIZE 0.04        CHANNEL/MODE  5/2          CAZIMUTH  10.0/ 60.0  ELEVATION   0(-10.22/ 10.22
)                       COFFSET  1  GAIN 4    SCAN RATE 16K         DCS ACTIVE                  C
```

ASCII LIST OF OUT-1

```
FILE 1      RECORD 3      360 BYTES

DATA RATE  4000      PSA TEMP  10C(36)     DATA PATH RT/UH             CLINES TOTAL 1251     RESCAN BEGIN    0     RESCAN TOTAL    0
            CSUN AZ/EL 278.8/56.2 ANTI-SOLAR AZ/EL 216/-59                        CLLD/T ***/**.**.**   ERD/T 231/ 6.17.31    EVENT
 D/GMT 231/04.57.55    CAVE DN VALUE 109.22  STAND DEV  42.19      RANGE  20 TO 240            AC
```

ASCII LIST OF OUT-1

```
FILE 1      RECORD 4      360 BYTES

MISSING LINES   46   GAPS    3              PERCENT MISSING  3.67      CSOURCE TAPE/FILE DFI042/ 2                VICAR TAPE/FILE V
LA078/ 2   CMISSING LINE GAPS (FIRST-LAST)       113- 115    433- 441   1217-1250 ACSEGMENT AZ/EL/STEP SIZE 360.000/  5.000/0.040000
00                      CFILLVL - RADCAM                                                    1HC
```

ASCII LIST OF OUT-1

```
FILE 1      RECORD 5      360 BYTES

RADCAM ABSOLUTE MODE  MEAN WAVELENGTH=737.2 NM.                      ECRADIANCE          MIN=   0.000 MAX=2700.000 MICROWATT/CM**2
```

```
/STEH     ECOLINEAR - STRETCH      2,     241, LIMITS      0,     255                1HCGEOCAM LACCS AZIMUTH/ELEVATION OF PIXEL(1,1) =27
9.500/  5.000 DEG    1HCSCALE =0.0400000 DEG/PIXEL - RANGE DEPENDENT DISTORTIONS CORRECTED   1HC
```

ASCII LIST OF OUT-1

```
FILE 1     RECORD 6     360 BYTES

FASTMOS - NOWMOS                                                    1HC MOSAIC ID = L1.AFTERNON.BACK.CAM1.V76333
        1 C                                                                          C
                      C                                                                      C
```

ASCII LIST OF OUT-1

```
FILE 1     RECORD 7     360 BYTES

                        1   116404200 L 1                          CVIKING LANDER 1      CAMERA 2              CE LABEL 12A119/0
20         CDIODE  BB3          STEP SIZE 0.04        CHANNEL/MODE 13/2          CAZIMUTH   5.0/137.5  ELEVATION -10(-20.22/  0.22
)                     COFFSET  1  GAIN 4    SCAN RATE 16K         DCS ACTIVE                  C
```

ASCII LIST OF OUT-1

```
FILE 1     RECORD 8     360 BYTES

DATA RATE  4000      PSA TEMP   8C(35)     DATA PATH RT/UH            CLINES TOTAL 3314     RESCAN BEGIN    0     RESCAN TOTAL    0
           CSUN AZ/EL 280.8/50.4 ANTI-SOLAR AZ/EL  43/-53                          CLLD/T ***/**.**.**   ERD/T 223/ 1.32.48    EVENT
 D/GMT 223/00.06.30    CAVE DN VALUE 120.61  STAND DEV  32.98      RANGE  20 TO 240            AC
```

ASCII LIST OF OUT-1

```
FILE 1     RECORD 9     360 BYTES

MISSING LINES   10   GAPS    3            PERCENT MISSING  0.30       CSOURCE TAPE/FILE DF1034/ 2                VICAR TAPE/FILE V
LA055/ 4   CMISSING LINE GAPS (FIRST-LAST)       955- 956   2467-2468   3308-3313 ACSEGMENT AZ/EL/STEP SIZE 179.000/  5.000/0.040000
00                    CFILLVL - RADCAM                                                        1HC
```

ASCII LIST OF OUT-1

75-075C-06X
D-42345

DUMP OF TAPE GOUT-2

INPUT TAPE GOUT-2 ON MT2
DATA INPUT H9 SR 1 1 2

FILE 1 RECORD 1 LENGTH 360BYTES

(0)	F7F74040	40404040	40404040	40404040	40404040	F1F8F5F0	40404040	F4F5F0F0	F1F8F5F0	F4F5F0F0
(40)	40C940F1	40404040	40404040	40404040	40404040	40404040	40404040	404040C3	E5C9D2C9	D5C740D3
(80)	C1D5C4C5	D940F140	40404040	40C3C1D4	C5D9C140	F1404040	40404040	40404040	404040C3	C540D3C1
(120)	C2C5D340	F1F1C1F1	F5F461F0	F2F74040	40404040	404040C3	C4C9D6C4	C54040C2	C2F44040	40404040
(160)	40404040	40E2E3C5	D740E2C9	E9C540F0	4BF0F440	40404040	404040C3	C8C1D5D5	C5D361D4	D6C4C540
(200)	40F561F2	40404040	40404040	404040C3	C1E9C9D4	E4E3C840	40F3F04B	F061F1F0	F04BF040	40C5D3C5
(240)	E5C1E3C9	D6D54040	40F04D60	F1F04BF2	F26140F1	F04BF2F2	5D404040	40404040	40404040	40404040
(280)	40404040	404040C3	D6C6C6E2	C5E34040	F14040C7	C1C9D540	F4404040	40E2C3C1	D540D9C1	E3C540F1
(320)	F6D24040	40404040	404040C4	C3E240C1	C3E3C9E5	C5404040	40404040	40404040	40404040	404040C3

FILE 1 RECORD 2 LENGTH 360BYTES

(0)	C4C1E3C1	40D9C1E3	C5404040	4040F040	40404040	40D7E2C1	40E3C5D4	D74060F1	F3C34DF2	F45D4040
(40)	404040C4	C1E3C140	D7C1E3C8	40D9C5C3	61E4C840	40404040	40404040	4040C1C3	D3C9D5C5	E240E3D6
(80)	E3C1D340	F1F7F5F1	40404040	40D9C5E2	C3C1D540	C2C5C7C9	D540F1F7	F5F14040	404040D9	C5E2C3C1
(120)	D540E3D6	E3C1D340	404040F1	40404040	40404040	404040C3	E2E4D540	C1E961C5	D34040F7	F34BF461
(160)	F2F44BF6	40C1D5E3	C960E2D6	D3C1D940	C1E961C5	D34040F1	F36160F2	F2404040	40404040	40404040
(200)	40404040	40404040	40404040	404040C3	D3D3C461	E340F0F2	F761F0F7	7AF2F07A	F0F04040	40C4C1E3
(240)	C140D3C9	D5D240D9	C1E6C5C4	D9404040	404040C5	E5C5D5E3	40C461C7	D4E340F2	F2F961F2	F04BF4F8
(280)	4BF4F540	404040C3	C1E5C540	C4D540E5	C1D3E4C5	40F1F0F0	4BF5F140	40E2E3C1	D5C440C4	C5E54040
(320)	F3F34BF9	F8404040	404040D9	C1D5C7C5	4040F2F0	40E3D640	F2F4F040	40404040	40404040	4040C1C3

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	1856	1856	4500	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 1 # OF PERMANENT READ ERRORS 0

START TIME 09/02/81 13:19:36 STOP TIME 09/02/81 13:21:43

FORM 1411J

$$
$ASS IN MT3
$EXEC TPDUMP BS

```
$NOP
$NOP
$NOP ********************  EBCDIC LIST OF GINX2  ************************
$EXE TPLIST BS

INPUT PARAMETERS ARE:  ED SR=1=3

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   360
77                  512     360 512 360 I 1                          SCVIKING LANDER 1      CAMERA
 2               CE LABEL 12J018/172          CDIODE  BB4          STEP SIZE 0.04          CHANNEL/MOD
E  5/2            CAZIMUTH 200.0/215.0  ELEVATION -10(-20.22/  0.22)                        COFFSET  1
  GAIN 2     SCAN RATE 16K           DCS ACTIVE                    C

 TAPE NO.   1              FILE NO.   1
 RECORD   2                LENGTH   360
DATA RATE 12324       PSA TEMP  12C(37)      DATA PATH REC/UH              ACLINES TOTAL  382      RESCAN
 BEGIN  376      RESCAN TOTAL    7              CSUN AZ/EL 140.1/68.3 ANTI-SOLAR AZ/EL 258/-65
                  CLLD/T 172/17:24:59    DATA LINK RAWEDR       EVENT D/GMT 013/06.33.56     CAVE DN VA
LUE 107.30  STAND DEV  29.06        RANGE  20 TO 240                AC

 TAPE NO.   1              FILE NO.   1
 RECORD   3                LENGTH   360
MISSING LINES     0   GAPS     0               PERCENT MISSING  0.00       ACSOURCE TAPE/FILE DMI051/ 9
                 VICAR TAPE/FILE DN089 /1     CSEGMENT AZ/EL/STEP SIZE 200.000/  0.220/0.04000000
                  CSTRETCH - TEXTAD - TEXTAD                                          HCVL2109/1
                                                        1UL

***** JOB DONE.
$AVF IN 31
$NOP ********************  FILE 32  ************************
$EXE TPLIST BS

INPUT PARAMETERS ARE:  ED SR=1=3

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   360
77                  512     360 512 360 I 1                          SCVIKING LANDER 1      CAMERA
 2               CE LABEL 11J045/172          CDIODE  BB4          STEP SIZE 0.04          CHANNEL/MOD
E  5/2            CAZIMUTH 200.0/215.0  ELEVATION -10(-20.22/  0.22)                        COFFSET  1
  GAIN 2     SCAN RATE 16K           DCS ACTIVE                    C

 TAPE NO.   1              FILE NO.   1
 RECORD   2                LENGTH   360
DATA RATE 12324       PSA TEMP  12C(37)      DATA PATH REC/UH              ACLINES TOTAL  382      RESCAN
 BEGIN  376      RESCAN TOTAL    7              CSUN AZ/EL 140.1/68.3 ANTI-SOLAR AZ/EL 258/-65
                  CLLD/T 172/17:24:59    DATA LINK RAWEDR       EVENT D/GMT 013/06.33.56     CAVE DN VA
LUE 107.30  STAND DEV  29.06        RANGE  20 TO 240                AC

 TAPE NO.   1              FILE NO.   1
 RECORD   3                LENGTH   360
MISSING LINES     0   GAPS     0               PERCENT MISSING  0.00       ACSOURCE TAPE/FILE DMI051/ 9
                 VICAR TAPE/FILE DN089 /32    CSEGMENT AZ/EL/STEP SIZE 200.000/  0.220/0.04000000
                  CSTRETCH - TEXTAD - TEXTAD                                         HCVL2109/24
                                                        1UL

***** JOB DONE.
$WEO LPS


$$
```

D-42288
VIKING 1

GMT 13-13
32 Files

```
$$
$ASS IN MT4
$EXE TPNRCF BS
```

D-37765
Viking 2
GMT 247 - 250

DUMP OF TAPE D37765

INPUT TAPE D37765 ON MT2
DATA INPUT H9 NF 26 FL 1 3 3 SR 28 1 3 SR 28 LAST 3

FILE 1 RECORD 1 LENGTH 1689BYTES

(0)	00014040	40404040	40404040	40404040	4C4C4040	404040F1	404040F1	40F5F1F2	F1F6F8F9	
(40)	40C940F1	40404040	40404040	40404040	40404040	40404040	40E2C3	E5C9D2C9	D5C740D3	
(80)	C1D5C4C5	D940F240	40404040	40C3C1D4	C5D9C140	F24C4040	40404040	40404040	C540D3C1	
(120)	C2C5D340	F2F2C1F0	F0F161F0	F0F04040	40404040	4C4C40C3	C4C9D6C4	C54040C2	C2F14040	40404040
(160)	40404040	40E2E3C5	D740E2C9	E9C540F0	4BF0F440	4C4C4040	404040C3	C8C1D5D5	C5D361D4	D6C4C540
(200)	40F861F2	40404040	40404040	404040C3	C1E9C9D4	E4E3C840	40F9F24B	F561F1F6	F04BF040	40C5D3C5
(240)	E5C1E3C9	D6D54060	F5F04D60	F6F04BF2	F26160F3	F94BF7F8	5D404040	40404040	40404040	40404040
(280)	40404040	40404043	D6C6C6E2	C5E34040	F140407	C1C9D540	F4404040	40E2C3C1	D540D9C1	E3C540F1
(320)	F6D24040	40404040	40404044	C3E240C1	C3E3C9E5	C5404040	40404040	40404040	40404040	40404043
(360)	58585858	54545458	585C5C58	585C5858	5858585C	5C5C5C58	585C5C5C	5C5C5858	585C5854	54585858
(400)	58585854	58585C5C	5C5C5C5C	5C5C5C58	58545454	545C5458	58545454	5C545454	505C5054	545C4C50
(440)	504C4848	48484848	44444040	40404040	40404040	3C4C4040	3C3C3C3C	3C383838	38383834	34303030
(480)	30303030	2C2C2C2C	2C2C2C2C	2C2C2C2C	2C2C2828	2C282828	2C282828	28282828	282C2C2C	3C3C3030
(520)	34343838	3C3C3C40	40444448	484C4C50	50545858	5C5C5C60	64686860	6C6C6C60	48342C28	28242424
(560)	24242424	20202C1C	1C1C1C1C	1C1C181C	18181818	18181414	14141414	14141010	100C0C0C	0C0C0C0C
(600)	0C0C0C0C	0C0C0C0C	0C0C0C0C	0C0C0000	00645854	54586068	6458585C	54545054	58585058	5C504C48
(640)	50585C58	4C504C40	544C5450	4C545450	607C7864	6C6C7070	6868686C	64685C60	68685C60	5C6C5C5C
(680)	5C585864	64645C60	64686464	68686868	68706C6C	64646060	6C70646C	6068706C	6C6C6C68	7C646864
(720)	64686468	605C6060	60605C64	64646464	64646460	64646060	60605C60	6464646C	70686054	5C545454
(760)	5454585C	58585C64	68646460	60646860	5C585458	54586C64	646C6868	64686468	6C646464	60605C4C
(800)	54483C3C	3844404C	54586060	5C544C48	403C3C38	3C44444C	50545450	4C505858	585C5850	4C4C4C4C
(840)	5050484C	4044484C	444C545C	60646464	64646464	6460584C	44484C4C	4C545C60	64605C58	5C646468
(880)	68686458	54585C5C	5C5C5858	5C60605C	54505454	58585858	58585048	4444484C	4C4C4C48	44444040
(920)	44485460	64646C5C	60606C5C	58544C40	3C383030	343C4454	5C584C40	34303848	60707878	705C5450
(960)	54545448	34282C1C	1C1C2024	2C343C3C	382C2024	2C344044	443C3430	2C2C3440	4448484C	48485050
(1000)	505C4C50	58607484	7C645C60	60585454	5C646460	606C5854	545C5C54	50504C40	2C2C2424	201C1C18
(1040)	18181414	14141410	10141824	34444838	282C1C1C	18181818	18181818	18181818	18181818	1C1C2020
(1080)	20201C1C	1C1C181C	1C1C1C1C	20202830	38404450	6C747470	6860503C	3C4C6878	7C746054	48403C3C
(1120)	44506880	9C8C8480	807C7C64	606C6C80	90989488	7C747C88	94949494	98988880	7C8C8894	9CACA4A4
(1160)	A4988468	54484038	2C1C181C	202C3C44	485C5050	4C444454	60708084	78706864	68707478	6C605854
(1200)	585C5C58	54504C3C	30304458	6464584C	4C586460	5C5C5858	54505454	504C4844	4C5C5050	4C48545C
(1240)	5C606868	68686864	645C5454	584C4C40	44485058	58585858	60646860	5C585858	54585C60	60606060
(1280)	60646860	645C5860	60504040	58686C68	60585858	58585850	44343844	50586064	64646460	58585858
(1320)	5C5C5C5C	544C5054	58545458	5C5C5C58	58585C5C	6C6C6060	5C585C60	60606060	58504C4C	4848784C
(1360)	50585C5C	58545454	4C484854	5C585850	484C4040	4C4C4444	4C484848	50585854	54505054	54504C48
(1400)	484C4C48	3C303038	485C6064	605C5854	54585440	4444484C	54586068	645C5450	54544C44	44484C50
(1440)	50504C48	48485C58	60606054	5C585858	585C5C58	545C5050	50545454	54545858	58585458	5C585458
(1480)	5C544438	38383C48	50505048	444C5050	50585C58	5C4C4C4C	4844444C	50444040	403C485C	5C58504C
(1520)	4C4C4C50	4C484854	60645C58	544C3C30	34445058	6C6C504C	44404048	54545048	4040C3C	444C4C48
(1560)	44444848	484C504C	484C5050	54586064	685C544C	4C444448	50545854	544C4C48	48382C24	2C3C505C
(1600)	686C5C5C	505C4C44	38384044	40403C34	3440504C	44444844	44484C48	44444848	48484040	48484440
(1640)	30241C1C	20242C38	38383C3C	3C383428	18141010	1C1C1010	10101014	1C1C1814	14101010	10101414
(1680)	18181818	18141414	00							

FILE 1 RECORD 2 LENGTH 1689BYTES

(0)	C4C1E3C1	40D9C1E3	C540F4F5	F2F3F240	4040404C	4CD7E2C1	40E3C5D4	D74040F1	F4C34DF3	F85D4040
(40)	4040403C4	C1E3C140	D7C1E3C8	40D9E361	E4C84040	4C4C4040	40404040	4040C1C3	D3C9D5C5	E240E3D6
(80)	E3C1D340	F1F6F8F9	40404040	40D9C5E2	C3C1D540	C2C5C7C9	D5404040	40F04040	404040D9	C5E2C3C1
(120)	D540E3D6	E3C1D340	404040F0	4C404040	40404040	4C4C40C3	E2E4D54C	C1E961C5	D34CF1F1	F84BF661
(160)	F5F04BF7	40C1D5E3	C960E2D6	D3C1D940	C1E961C5	D34CF3F5	F36160F5	F0404040	40404040	40404040
(200)	40404040	40404040	40404040	404040C3	D3D3C461	E34CF0F0	F061F0F9	7AF4F87A	F5F84040	40C4C1E3
(240)	C140D3C9	D5D240D9	C1E6C5C4	D9404040	40404045	E5C5D5E3	40C461C7	D4E340F2	F4F761F2	F24BF3F7
(280)	4BF4F340	40404043	C1E5C540	C4D540E5	C1D3E4C5	4C4CF8F0	4BF1F140	40E2E3C1	D5C440C4	C5E54040
(320)	F2F74BF5	F8404040	40404009	C1D5C7C5	4040F2F0	4CE3D640	F2F4F040	40404040	40404040	4C40C1C3
(360)	58585858	54545458	585C5C58	585C5858	5858585C	5C5C5C58	585C5C5C	5C5C5858	585C5854	54585858
(400)	58585854	58585C5C	5C5C5C5C	5C5C5C58	58545454	545C5458	58545454	5C545454	505C5054	545C4C50
(440)	504C4848	48484848	44444040	40404040	40404040	3C4C4040	3C3C3C3C	3C383838	38383834	34303030
(480)	30303030	2C2C2C2C	2C2C2C2C	2C2C2C2C	2C2C2828	2C282828	2C282828	28282828	282C2C2C	3C3C3030

```
(  240)  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
(  280)  302C2C2C  2C2C302C  2C2C2C2C  2C2C2828  24242420  2C242424  28282C2C  30303034  34303430  30303030
(  320)  30302C2C  2C2C2828  2C242424  20202424  24282830  343C404C  545C6468  6C707070  6C6C6C6C  70747C8C
(  360)  9CACB8C8  D0D8E0E0  E0DCD8D0  CCC8C4B8  AC9C908C  7C64584C  40383430  302C2C2C  28282828  28282424
(  400)  24242020  201C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C
(  440)  1C1C1C1C  1C1C1C1C  201C2020  20202020  20202000

FILE      28  RECORD      514  LENGTH      460BYTES
(    0)  9094989C  ACA8A09C  98908C88  8C8C8884  84888C90  9C94908C  8C908070  80888C8C  8C848884  78787878
(   40)  60405064  5C686C8C  88683850  50407C60  3C241C28  5878949C  98AC8084  8C745470  68646464  6C706C6C
(   80)  6C707478  84909498  A4A8A8A0  9498B0C8  D0D0CCC8  C8C4AC98  90949494  909498A4  ACACACB0  B8C4CCD4
(  120)  D8D4CCC8  C4C4C4BC  B0ACA8AC  B4B4ACA4  94887C70  64504030  282C3844  50585C60  60605C58  5854585C
(  160)  60686C74  78808890  9CA4B0BC  C4D0DCE0  E4E8E8E8  E8E8ECEC  F0F8F8F8  F8F8F8F8  F8F8F8F8  F8F8ECDC
(  200)  D4CCC8C4  BCB8B4B0  ACA8A4A0  A09C9C9C  9C9C9C9C  ACACA0A0  A0A09C9C  98989490  908C8480  8078746C
(  240)  645C5C64  686C6C74  78787470  6C645854  50505050  54545858  58585450  4844403C  34303030  30303030
(  280)  302C2C2C  2C2C2C2C  2C2C2C2C  2C2C2828  28242424  24242428  282C2C30  30343434  34303034  30303030
(  320)  302C2C2C  28282824  24242420  24242828  2C30343C  4C48505C  646C7478  7C808080  7C787470  70707480
(  360)  8CA0ACB8  C4CCD4D8  D8D4CCC8  C0BCB8B0  A498887C  6C6C544C  40383430  2C2C2C2C  28282828  28242424
(  400)  24202020  20202020  20202020  201C201C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C
(  440)  1C1C1C1C  1C1C1C1C  1C1C1C20  20202020  20202000

FILE      28  RECORD      515  LENGTH      460BYTES
(    0)  90949498  A0A4A0A0  9C98948C  84888484  88888C8C  9088887C  84848070  7C808480  847C7C78  78787868
(   40)  481C4060  48688078  8458284C  643C7888  88604C5C  6440505C  60909474  705C3054  60605C5C  60646C6C
(   80)  68707478  8490949C  A0A4A49C  909CB4C4  CCD0CCC4  C4C4B098  90949490  8C9098A0  A8A8ACB0  B8C8D0D4
(  120)  D8D8D0CC  C8C8CCC4  B4B0ACB0  BCB4B0A8  9C908074  68544434  303C4858  606C7074  74747470  6C686C70
(  160)  74788088  8C9498A0  ACB4BCC4  CCD4D8DC  DCE0E0E0  ECECE4E4  E8ECF4F8  F8F8F8F8  F8F8F8F8  F8F8F4E8
(  200)  DCD0C8C4  BCB8B8B4  B0ACA8A8  A4A4A4A4  A0A4A0A4  ACA4A4A4  A4A4A0A0  9C9C9894  908C8884  8C7C7870
(  240)  68605C60  6C6C7074  78787874  6C645C5C  5C5C5C5C  5C606464  6460605C  544C4440  38343030  30302C30
(  280)  2C2C2C2C  2C2C2C2C  2C2C2C2C  2C2C2828  28242424  2428282C  2C303434  34343434  34343030  30303030
(  320)  2C2C2C28  28282424  24202424  282C3034  383C4448  5C585C6C  747C8890  94949494  8C847C78  74747478
(  360)  808C9CA8  B4BCC4C8  C8C4C0B8  B4B0ACA4  9C908478  685C5448  40383030  2C2C2C28  28282824  24242424
(  400)  24202020  20202020  20202020  20202020  20201C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C  1C1C1C1C
(  440)  1C1C1C1C  1C1C1C1C  1C1C1C20  1C202020  20202000
```

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
28	515	518	460	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 28 # OF PERMANENT READ ERRORS 0

START TIME 03/28/80 09:12:14 STOP TIME 03/28/80 09:29:54

D-42292
VIKING 2

```
$NOP
$NOP ******************  EBCDIC LIST OF GIN6  *********************
$EXE TPLIST BS

INPUT PARAMETERS ARE:  ED SR=1=3

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   647
77                    512      647 512 647 I 1                          SCVIKING LANDER 2       CAMERA
 2                CE LABEL 22I105/1030        CDIODE  BLU/T          STEP SIZE 0.12          CHANNEL/MOD
E  1/1             CAZIMUTH 265.0/342.5  ELEVATION -10(-40.66/ 20.66)                        COFFSET  1
  GAIN 4    SCAN RATE 16K          DCS ACTIVE                    C        0   1   2   3   4   5   6   7
   8   9   A   B   C   D   E   F                                  |||                                  ER
R CALL SET-VMJC ERR CALL OPEN-VMJC ERR CALL READ-VMJC ERR CALL CLOSE-VMJC ERR CALL WRITE-VMJC INPUT
   NL=      512 NS=      647 OUTPUT  SL=        1 SS=

 TAPE NO.   1              FILE NO.   1
 RECORD   2                LENGTH   647
DATA RATE 63454       PSA TEMP -25C(18)      DATA PATH REC/UH            ACLINES TOTAL  647      RESCAN
 BEGIN     0       RESCAN TOTAL    0            CSUN AZ/EL 157.7/ 27.8ANTI-SOLAR AZ/EL  29.5/ -23.4
                   CLLD/T 1030/12:13:45  DATA LINK RAWEDR       EVENT D/GMT 210/08.37.38    CAVE DN VA
LUE  76.54  STAND DEV  56.38       RANGE  20 TO 240            ACASIS                          1
      y5                      FN085   ASIS        1
                                                                                  VOLU    TAPE    FI
LE    LLT       UNRECOGNIZABLE PARAMETER        A

 TAPE NO.   1              FILE NO.   1
 RECORD   3                LENGTH   647
MISSING LINES    63   GAPS    2              PERCENT MISSING  9.73      ACSOURCE TAPE/FILE FMI140/ 3
                  VICAR TAPE/FILE FN085 /1    CMISSING LINE GAPS (FIRST-LAST)        83- 143    645-
646               ACSEGMENT AZ/EL/STEP SIZE 265.000/ 20.660/0.12000000                    CVL2090/4
                                                                1ULASIS                          1
      y5                      FN085   ASIS        1
                                                                                  VOLU    TAPE    FI
LE    LLT       UNRECOGNIZABLE PARAMETER        A

***** JOB DONE.
$AVF IN 10
$NOP *****************  FILE 11  *****************
$EXE TPLIST BS

INPUT PARAMETERS ARE:  ED SR=1=3

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   2293
77                    512     2293 5122293 I 1                          SCVIKING LANDER 2       CAMERA
 2                CE LABEL 22I109/1050        CDIODE  RED/T          STEP SIZE 0.12          CHANNEL/MOD
E  3/1             CAZIMUTH  65.0/340.0  ELEVATION -20(-50.66/ 10.66)                        COFFSET  1
  GAIN 4    SCAN RATE 16K          DCS ACTIVE                    C        0   1   2   3   4   5   6   7
   8   9   A   B   C   D   E   F                                  |||                                  ER
R CALL SET-VMJC ERR CALL OPEN-VMJC ERR CALL READ-VMJC ERR CALL CLOSE-VMJC ERR CALL WRITE-VMJC INPUT
   NL=      512 NS=     2293 OUTPUT  SL=        1 SS=        1 NL=      512 NS=     2293 LABELS SAME AS I
NPUT PLUS                                                                                  c
9999          00  AUXINF   }     }0 &    &{0  0}                  A       & }03 J }0  { K|||  J  |||  J & } 1
 }U} o } ! }U     } J      } K }8J    { K|||  J 3    }U! }U                }4 }}k. }4g }  0}        }h
+ }U3   }Uo0  + }U3   }Uo0                        { K|||       { K|||  J  }} q } |||
                          |||  |||          .  /  /     Q                      }   & 0}
    0H       0}       n      0k &0H        a   h        -      &       0                g -0        0
       n      0u &              &    q } ||  s      {     i        0   |||9        .   00  eu   &
 5       5         L    }Y&      } &      }H&      }}&      }}&      }}&    o          0 %    &}Y&&    &} &&
  &} &&    &}}&&    &}}&&    &}Q&&    \J\&\L   &L   5&0     }}&    o          0       } ]  -& }    }Y&      }D
&      }}&      }}&      }}&  <  }U&  &  }4  &-    &}}&&  o          0       }Y        4m"J  0 8o J o J j
 J     kj J     kj J     kj J     >  }Y&  *  }H&  -  77                    512     2293 5122293 I 1
                    SCVIKING LANDER 2       CAMERA 2                CE LABEL 22I109/1050          CDIODE
  RED/T          STEP SIZE 0.12         CHANNEL/MODE  3/1          CAZIMUTH  65.0/340.0  ELEVATION -
20(-50.66/ 10.66)                        COFFSET  1  GAIN 4    SCAN RATE 16K          DCS ACTIVE
```

GMT
210-230
Files 11

```
          CDATA RATE  8000      PSA TEMP -19C(21)      DATA PATH RT/UH              CLINES TOTAL 22
93    RESCAN BEGIN     0      RESCAN TOTAL     0           CSUN AZ/EL 170.0/ 34.2ANTI-SOLAR AZ/EL  40
.2/ -31.4

 TAPE NO.   1             FILE NO.   1
 RECORD   2               LENGTH   2293
DATA RATE  8000       PSA TEMP -19C(21)      DATA PATH RT/UH              ACLINES TOTAL 2293      RESCAN
 BEGIN     0      RESCAN TOTAL     0           CSUN AZ/EL 170.0/ 34.2ANTI-SOLAR AZ/EL  40.2/ -31.4
                 CLLD/T 1050/13:00:27  DATA LINK RAWEDR       EVENT D/GMT 230/22.36.05     CAVE DN VA
LUE 103.06  STAND DEV  54.75       RANGE  20 TO 240           ACASIS                         11
       *                      FN085   ASIS       3

                                                                                 VOLU     TAPE     FI
LE    LLT       UNRECOGNIZABLE PARAMETER        A        DATA    RAWEDR  A        A                /99
   SEGM    SEGM     ONONSTANDARD LABEL                          +                +          >
      ]                                A r   r                      |||      |||3       }       }}  \} q }
 k } |||   N\  M%  N\& M   N\& M   N\& M   J  0}Q          0 & M   M ] 0 & M   M          8K &0J   J  0}
    ||  \   }\       1  \   \  \\ |||   >   >   >u  >y  L   0  \} |||   M   L  \} |||   J  0}\          0}
U         M        L   My  L   M   0 & M   M ] 0 & M  \}-|||   M        L   My  L   M   0 & M   M ] 0 &
M  \}-|||   M        L   Md  M ] 0 & M  \}-|||   M        L  ' M  \}d|||   0 & M   M        L   M   L   M   M
 ] 0 & M  \}-|||   J  0}Y         J< 0}                L   M  0M &0J%  J% 0}0          LH  M      LI  M  0M
&0J   J  0}0         M ] 0 & M  0M &0J@  J@ 0}4         M        M   Mh \}h|||=  0   M%  M          M8  Mh
\} |||=  0   M%  J  0}          0L &0J   J  0}8         M   0  \} |||= CLS&0J   J  0}8        0L &0JH  JD 0
}        \   }\       1  \   \  \\ |||   >  \}@|||  0L7&0JM  J} 0}8          J  0}          J  0}        0L
 &0K   K  0}8         0L &0K   K  0}8          M   0  \}m|||= 0L &0K   K  0}8        0Lc&0K   K  0}8
  M   0  \}q|||= 0L &0K&  K< 0}8          M   0  \} |||= 0Li&0K*  K  0}8          0 & Mm  0<& Mq  0   0<& M
   Mm] 0 & Mm 0 {&0K   K  0}          \   }\       1  \   \  \\ |||   > ] 0&  M   }          g     K  0}
       N\& Mm  0 & M   K  0}       [  M & Mq  0   0 & M   Mm] 0 & Mm 0  &0K   K  0}       +|||  \   }\
     1  \   \  \\ ||   > ] 0&  M   }y        g      M   }u       Mug      K  0}\          } |||1  M%: M
  M   Mm* 0& j      9K &0KH  KD 0J         KM 0}         K4 0J            } |||1    } q               0
       -0   0

 TAPE NO.   1             FILE NO.   1
 RECORD   3               LENGTH   2293
MISSING LINES  329   GAPS    4            PERCENT MISSING 14.34      ACSOURCE TAPE/FILE FFI147/ 1
                 VICAR TAPE/FILE FN085 /11   CMISSING LINE GAPS (FIRST-LAST)       145- 145    662-
662   1945-1945 AC1967-2292                                                          ACSEGMENT A
Z/EL/STEP SIZE  65.000/ 10.660/0.12000000                CASIS                        11
       *                      FN085   ASIS       3

                                                                                 VOLU     TAPE     FI
LE    LLT       UNRECOGNIZABLE PARAMETER        A        DATA    RAWEDR  A        A                /99
   SEGM    SEGM     ONONSTANDARD LABEL                          +                +          >
      ]                                A r   r                      |||      |||3       }       }}  \} q }
 k } |||   N\  M%  N\& M   N\& M   N\& M   J  0}Q          0 & M   M ] 0 & M   M          8K &0J   J  0}
    ||  \   }\       1  \   \  \\ |||   >   >   >u  >y  L   0  \} |||   M   L  \} |||   J  0}\          0}
U         M        L   My  L   M   0 & M   M ] 0 & M  \}-|||   M        L   My  L   M   0 & M   M ] 0 &
M  \}-|||   M        L   Md  M ] 0 & M  \}-|||   M        L  ' M  \}d|||   0 & M   M        L   M   L   M   M
 ] 0 & M  \}-|||   J  0}Y         J< 0}                L   M  0M &0J%  J% 0}0          LH  M      LI  M  0M
&0J   J  0}0         M ] 0 & M  0M &0J@  J@ 0}4         M        M   Mh \}h|||=  0   M%  M          M8  Mh
\} |||=  0   M%  J  0}          0L &0J   J  0}8         M   0  \} |||= 0LS&0J   J  0}8        0L &0JH  JD 0
}        \   }\       1  \   \  \\ |||   >  \}@|||  0L7&0JM  J} 0}8          J  0}          J  0}        0L
 &0K   K  0}8         0L &0K   K  0}8          M   0  \}m|||= 0L &0K   K  0}8        0Lc&0K   K  0}8
  M   0  \}q|||= 0L &0K&  K< 0}8          M   0  \} |||= 0Li&0K*  K  0}8          0 & Mm  0<& Mq  0   0<& M
   Mm] 0 & Mm 0 {&0K   K  0}          \   }\       1  \   \  \\ |||   > ] 0&  M   }          g     K  0}
       N\& Mm  0 & M   K  0}       [  M & Mq  0   0 & M   Mm] 0 & Mm 0  &0K   K  0}       +|||  \   }\
     1  \   \  \\ ||   > ] 0&  M   }y        g      M   }u       Mug      K  0}\          } |||1  M%: M
  M   Mm* 0& j      9K &0KH  KD 0J         KM 0}         K4 0J            } |||1    } q               0
       -0   0

***** JOB DONE.
$WEO LPS


$$
$NOP
$NOP
```